EDITED BY
RACHEL CONNELLY & EBRU KONGAR

GENDER
AND
TIME USE

IN A
GLOBAL
CONTEXT

THE ECONOMICS OF EMPLOYMENT
AND UNPAID LABOR

Gender and Time Use in a Global Context

Rachel Connelly • Ebru Kongar
Editors

Gender and Time Use in a Global Context

The Economics of Employment and Unpaid Labor

palgrave
macmillan

Editors
Rachel Connelly
Bowdoin College Dept of Economics
Brunswick, Maine, USA

Ebru Kongar
Dickinson College
Carlisle, Pennsylvania, USA

To our families and to caregivers everywhere

ACKNOWLEDGEMENTS

Contents

LIST OF FIGURES

Paid and Unpaid Work Time by Labor Force Status of Prime Age Women and Men in Canada: The Great Recession and Gender Inequality in Work Time

Gender, Socioeconomic Status, Time Use of Married and Cohabiting Opposite-Sex Parents, and the Great Recession in the USA

Is It Just Too Hard? Gender Time Symmetry in Market
and Nonmarket Work and Subjective Time Pressure in Australia,
Finland, and Korea

LIST OF TABLES

Gender, Socioeconomic Status, Time Use
of Married and Cohabiting Opposite-Sex Parents,
and the Great Recession in the USA

Time and Income Poverty in the City of Buenos Aires

The Dual Problem of Unemployment and Time Poverty
in South Africa: Understanding Their Linkages

Women and the Urban Economy in India: Insights from the Data
on Migration

Environmental Chores, Household Time Use, and Gender
in Rural Tanzania

Gender Divisions in the Real Time of the Elderly
in South Africa

Is It Just Too Hard? Gender Time Symmetry in Market and Nonmarket
Work and Subjective Time Pressure in Australia, Finland, and Korea

Feminist Approaches to Time Use

Rachel Connelly and Ebru Kongar

1 INTRODUCTION

The feminist study of time use is an interdisciplinary field with contributions from sociology, psychology, women's, gender, and sexuality studies, economics, and other social sciences. While all but one of the contributions in this volume are by economists, they nonetheless represent a range of approaches to economics as well as feminism. What all of the studies in this book have in common, however, is the belief that gender is an important analytical category in scholarship about the ultimate economic question, the scarcity of time and the choices we make in how we use our time.

Feminist inquiry into time use and which activities are or should be considered as work dates back to the 1930s, when Margaret Reid (1934) introduced the third-person principle. According to this principle, an activity is considered work, if a third person can be paid to

R. Connelly (✉)
Economics Department, Bowdoin College, Brunswick, ME, USA
e-mail: connelly@bowdoin.edu

E. Kongar
Economics Department, Dickinson College, Carlisle, PA, USA
e-mail: kongare@dickinson.edu

perform that activity. Work can be paid or unpaid, and many of the studies in this volume focus on unpaid work. As unpaid work is performed disproportionately by women, its inclusion in microeconomic and macroeconomic analyses has been one of the main contributions of feminist scholarship to economic inquiry. In particular, feminist scholars have argued against the conceptualization of unpaid household work as *unproductive* and consequently the conceptualization of *the housewife* as a *dependent* of the (*male*) income-earner in the household in microeconomic analyses. With the entry of more women into the economics profession in the 1970s (Strassmann 1999), analyses of labor supply decisions as a trade-off between utility foregone from leisure in return for wages have been problematized, as within this framework, unpaid labor, which neither yielded utility nor income, had no place. Feminist scholars pointed out that attempts to "add women and stir" (Benería et al. 2015) or "shoehorn" unpaid work into this framework (Power 2004) led to problematic arguments such as that women love doing unpaid work. As Nelson (1995) stated, "while economists and census takers have waffled back and forth on whether unpaid housekeeping should be classified as leisure or work (Folbre 1991), the women scrubbing the sink rarely entertained any doubt" (Nelson 1995, p. 142). Similar arguments were made about whether child caregiving should be considered work or leisure (Connelly 1992, 1996). In macroeconomic analyses, feminist scholars have challenged the theorized *unproductive housewife*, who, by definition, made no productive contributions to the larger economy either – a viewpoint which has historically predominated systems of national accounts and macroeconomic thought (Folbre 1991).

While feminist scholarship has transformed economic thought since the 1970s, the undervaluation of unpaid work and invisibility of gender as a category of analysis in economic analyses and policy debates continue.[1] For instance, in mainstream macroeconomic debates, work–life reconciliation policies are either ignored or treated as if they should take a backseat to the traditionally male issues of what Boushey (2015, p. 2) refers to as "the three M's: military, macroeconomics, and manufacturing."

While a rose is a rose is a rose, the insights of feminist thinkers have taught us that, time is not time is not time. The importance of including time spent in unpaid *care* activities in any analysis of time is a central focus of feminist scholarship. This time tends to be highly

valued by both the caregiver and the receiver – in fact, a matter of survival for the receiver in some forms – and yet is undervalued by the marketplace which relies on (primarily) women's "good graces" to ensure that things that need to get done are done. In addition, the feminist approach reminds us that individuals interact with the market as members of families with strong and deep senses of obligation and gendered expectations which are slow to change even in situations where the economy is changing rapidly. The authors of the studies in this volume contribute to the feminist understanding of gender as a socially constructed concept, which takes on different meanings in different institutional contexts and over time. Interacting with other social categories, gender shapes our experiences, disadvantaging some groups while privileging others, particularly, in the sharing of burdens and benefits of resources, including and especially time. Overlapping advantages or disadvantages due to gender, race, ethnicity, sexuality, disability status, age, rural/urban residence all influence how we use our time, as they intertwine in our complex and changing economies/societies.

With time use such a large and important topic, no single volume can cover everything. Instead we have sought to provide a breath of both topics and geographical contexts in order to expose the reader to the type of issues that can and should be considered in a feminist approach to the economics of time use. By bringing together these contributions, the book aims to fill gaps in our knowledge of gender differences in time use, as well as expand our understanding in the factors that affect these differences. Most of the chapters include new cutting-edge research. In addition, each chapter includes fuller literature reviews than are usually included in journal articles. These literature reviews put the original scholarship of our authors in context and serve as an introduction to the landscape of feminist explorations of time use.

We have divided the volume into two parts. Part I includes eight studies that introduce and analyze the two-way relationships between gender inequalities and norms on the one hand and macroeconomic phenomena and policies on the other. Four of these chapters focus on the Great Recession and the subsequent policy responses along with their gendered outcomes. Part II encompasses topics that focus on individual and family decision making (broadly conceived) on time use (also broadly conceived). Of the nine micro-oriented chapters, eight of them are empirical

studies of time use around the globe focusing on age groups from children to elders. Studies in this section include topics that range from an expanded view of time as multidimensional as opposed to simply adding up minutes over a day, a week, or a year, to time trades among family members and the subjective well-being of experienced time. In the rest of this chapter, we introduce these studies, placing them in the respective literatures to which they contribute. Our discussion is intended to both introduce the chapters of this volume, but also provide a stand-alone structure for all of us as we consider the workings of an economic system as embedded within a specific societal context.

2   Macroeconomic Topics in Time Use and Gender

The macroeconomic chapters included in this volume review and expand on the existing literature of gender and macroeconomics in five key areas. The first is engendering macroeconomics, by this we mean integration of gender as a category into analysis of macroeconomic phenomena and policies. The results of this line of inquiry are inclusion of household production of goods and services in system of national accounts, and models that incorporate household production as well as its gendered distribution into macroeconomic models. These feminist models reject the representative agent formulation since representative agents are genderless, ageless, raceless, etc. The second topic explored by the authors is the two-way relationships between women's and men's burden of unpaid work and macroeconomic developments and policies. The third and related area of macroeconomic inquiry explored in this volume is the analysis of the effect of the Great Recession on unpaid housework and care work. The fourth topic is poverty, which is conceptualized as both not having enough income and also not having enough time, and also as capability deprivation. The final topic is the heterogeneity between the macroeconomic experience of rural versus urban area as it interacts with gender and class inequalities and affects migration patterns. We explore each of these five topics in more detail below.

2.1   Engendering Macroeconomics

İlkkaracan (this volume) reviews the gender and macroeconomics literature, with emphasis on its four main contributions: making unpaid care work visible in national accounts; identifying gendered outcomes on

unpaid work burden of macroeconomic developments (e.g. economic crises) and policies (e.g. structural adjustment programs and austerity measures); incorporating unpaid care work and gender into macroeconomic models; and envisioning a feminist approach to sustainable economic development.

While most of the gender and macroeconomics literature has developed since the 1990s, that women can be affected differently by economic development processes was first pointed out by the seminal work of Ester Boserup (1970). Boserup (1970) also offered gender division of labor as a factor in determining the gendered outcomes of development processes. Feminist scholarship since Boserup (1970) has emphasized the importance of incorporating unpaid work and gender division of labor into the analysis of development processes and policies, and also the importance of bringing a critical lens to development processes and policies. For instance, as early as 1981, feminist scholars have argued that development outcomes should be evaluated from the perspective of poor women in the Global South (Benería and Sen 1981). Since the 1980s, feminist scholarship has critically examined the gendered outcomes of neoliberal policies (structural adjustment programs) in the Global South, and also how gender norms and inequalities shaped growth and development outcomes. Extensive feminist scholarship that has developed since Boserup (1970), now falls under the broad umbrella of the Gender and Development (GAD) approach, and examines the two-way relationships between gender (norms and inequalities) and development (processes and policies) (Benería et al. 2015).

The capabilities approach developed since the 1980s by Amartya Sen (1985) and Martha Nussbaum (2000), provides an alternative to neoliberal development policies and is more consistent with feminist approaches that view the goal of economic policy and inquiry as improvements in well-being of women, children, and men. Capabilities approach defines well-being as the ability to reach one's full potential, and development as a process of expanding people's capabilities, and was operationalized by the United Nations Development Programme in 1990 through the creation of the Human Development Index (HDI). The 1990 Human Development Report begins with the following statement:

> People are the real wealth of a nation. The basic objective of development is to create an enabling environment for people to enjoy long, healthy and creative lives. This may appear to be a simple truth. But it is often forgotten

in the immediate concern with the accumulation of commodities and financial wealth. Technical considerations of the means to achieve human development...have at times obscured the fact that the primary objective of development is to benefit people. (UNDP 1990, p. 9)

Defining human development as a process of enlarging people's choices, the report presents the first HDI, a measure of average achievement in "three foundations for human development are to live a long, healthy and creative life, to be knowledgeable, and to have access to resources needed for a decent standard of living" (UNDP n.d.a.). Countries are ranked based on their index values, and classified as having achieved "very high," "high," "medium," or "low" level of human development. The 2015 statistics show that a majority of the countries studied in this book have achieved "very high" human development (UNDP 2015, Table 1, pp. 208–210). Particularly, Argentina, Australia, Canada, Finland, Greece, Hungary, Iceland, Italy, Portugal, Spain, South Korea, the US, and the UK are all classified under "Very High Human Development." China and Turkey are in the next category of "High Human Development," followed by India and South Africa in the "Medium Human Development" category, and Tanzania in the "Low Human Development" category (UNDP 2015, Table 1, pp. 208–210). However, when within-country inequalities in life expectancy, education, and income are taken into account, the ranking of some of these countries changes considerably. For instance, two highly unequal economies, the US and South Africa, move down the ranks by 20 and 15 countries, respectively, while some countries do not experience a change in their ranking (e.g. Turkey), and others such as Tanzania and Hungary move up the rankings (by 4 and 10 countries, respectively) (UNDP 2015, Table 3, pp. 216–219). Similarly, when gender differences in these indicators are taken into account, some of the countries studied in this book that have been classified as having achieved very high human development, for example, the US, Ireland, and the UK end up in the second tier in terms of gender development, and others such as Turkey fall further down to the fourth tier (UNDP 2015, Table 4, pp. 220–213). Gender inequalities in political representation and labor force participation vary considerably across countries, including among the countries in each group (UNDP 2015, Table 5, pp. 224–227), but women's participation in paid work is lower than men's across all country groupings, while women shoulder more of the unpaid work burden, and women have less discretionary time than men across all country groupings (UNDP 2015, p. 119).

As pointed out by Benería (this volume) and others (Esquivel 2016; Floro and Willoughby 2016), achieving gender equality requires the transformation of power relations by gender, race, class, ethnicity, as well as, within and among nations. In other words, "empowerment without power" (Esquivel 2016, p. 14) is not possible. Development frameworks, which provide alternatives to neoliberal policies, such as the capabilities approach, have been criticized for having had limited success in challenging the structures that produce and reproduce inequalities (Elson and Balakrishnan 2012). Specifically, the human development approach by UNDP discussed above, and policies that have emphasized "inclusive growth" (e.g. by the EU), or "sustainable development" (e.g. by the World Bank), which have been helpful in terms of thinking about reformulating development policy, in implementation have morphed into approaches that do not challenge the structures that produce and reproduce inequalities (Elson and Balakrishnan 2012).

The Great Recession has brought renewed critical attention to unregulated financial markets and the neoliberal policies that promote them. Within this context, another universal normative framework that provides an alternative to neoliberal policies has emerged: the human rights approach, which evaluates macroeconomic policies through the lens of human rights, and reminds us that governments that have ratified a human rights convention can be held accountable (Balakrishnan and Elson 2011; Balakrishnan et al. 2016). This approach emphasizes economic and social rights, which, among others include the right to an adequate standard of living, and satisfaction of basic needs of food, clothing, and shelter (Balakrishnan et al. 2016). The human rights framework and other approaches that have provided alternatives to neoliberal policies are not mutually exclusive or contradictory. For instance, macroeconomic policy can be evaluated by investigating the "role of human rights obligations in safeguarding and expanding capabilities" (Balakrishnan et al. 2011, p. 153). However, the human development framework has been argued to have more potential to bring about transformative change (Benería et al. 2015).

Globally, a post-2015 development agenda for *all* countries was adopted by the United Nations General Assembly in September 2015 (United Nations (UN) 2015, emphasis added). The agenda encompasses 17 Sustainable Development Goals (SDGs) and 169 targets including ending poverty in all its forms everywhere (Goal 1); ensuring healthy lives and promoting well-being of all at all ages (Goal 3); ensuring inclusive and quality education for all and promoting lifelong learning (Goal 4);

and achieving gender equality and empowering all women and girls (Goal 5); promoting inclusive and sustainable economic growth, employment and decent work for all (Goal 8); reducing inequality within and among countries (Goal 10) (United Nations (UN) 2015). The proposed targets for meeting Goal 5 include recognizing and valuing unpaid care and domestic work (United Nations (UN) 2015). Feminist scholarship has long argued that development problems are not limited to economies in the Global South, and studies included in this book provide further evidence of development problems in economies of the Global North through a gender lens. Nor is development a unidimensional or a linear process. For instance, the US has yet to mandate paid parental leave, while other countries ranked lower than the US, including in terms of level of human development, have long had provisions for paid parental leave.

2.2   Two-Way Relationships Between Gender Inequalities and Economic Crises and the Subsequent Policy Responses

The 2007–2008 recession lasted 18 months in the US – eight months longer than the average recession in the post-World War II era, and the 4 percent decline in US output was unprecedented in any recession during this period (NBER 2010). From the financial markets in the Global North, the crisis spread to the rest of the world in a global economy (Elson 2010; Fukuda-Parr et al. 2013). The gendered effects of the recession and the subsequent policy measures varied greatly in different economies around the globe. In the US, Canada, and Europe, immediate job losses came disproportionately for men who predominate in manufacturing and construction employment, leading to the characterization of the recession as "he-cession" (Karamessini and Rubery, this volume; Kongar and Price, this volume; MacPhail, this volume). While men's unemployment rate increased more also in the Central and South Central Europe and East Asia, as well as in Latin America and the Caribbean, in North Africa, women's unemployment increased more, and in Southeast and South Asia and Sub-Saharan Africa, women and men experienced similar trends in unemployment rates (Ghosh 2013).

In the aftermath of the recession, women lost more public sector jobs due to state budget cuts in the US and austerity measures in Canada and in the eight EU countries Karamessini and Rubery examine (Karamessini and Rubery, this volume; Kongar and Price, this volume; MacPhail, this volume). In the US, Canada, and the UK, men recovered jobs faster than

women, initially suggesting a "he-covery," but women have recovered all the jobs they have lost and more in the US by the end of 2014 (Hartmann et al. 2014) and in Italy, Hungary, and Iceland, women's employment grew more than men after 2011 (Karamessini and Rubery, this volume). While in the pre-crisis period, women's employment in EU countries, on average, increased in absolute terms, during the crisis the narrowing of the gender employment gap was primarily through downward harmonization, that is, primarily due to more job losses for men, but also, in part, due to an "added worker" effect in these economies (Karamessini and Rubery, this volume). Narrowing of the gender employment gap due to disproportionate job losses for men and to some extent also due to women being pushed into the workforce is not a desirable mechanism for gender convergence from a feminist perspective, which sets the goal of economic activity and inquiry as social provisioning of needs and expansion of capabilities. Moreover, in all of the EU economies examined by Karamessini and Rubery, the share of involuntary part-time work increased for both women and men, and evidence from the US shows an increase in non-standard work schedules for women with less than a college education during the recession, and also among African-American mothers, white mothers, and Hispanic fathers (Kongar and Price, this volume). In the Global South, there is evidence of an increase in precarious forms of employment and in unpaid family labor (Antonopoulos 2013). In Ireland, the UK, and Spain, defamilialization of care and other policies that promote gender equality seems to have been halted and even reversed in the austerity period (Karamessini and Rubery, this volume). Of all institutional changes in the eight EU countries examined by Karamessini and Rubery (this volume), one constant is the continued influence of neoliberal policies in the economic and political landscape (Benería this volume).

Austerity measures and fiscal reconciliation in EU economies after the Great Recession are in stark contrast to gender-sensitive responses to economic crises that have been advocated by feminist scholars. Investment in care sectors rather than physical infrastructure, for instance, leads to more poverty reduction, faster recovery from the recession, and more job opportunities for women (Antonopoulos 2013; Ilkkaracan, this volume). Evidence from the responses to the 1991–1992 recession in Sweden, and to the 2001–2002 recession in Argentina shows that gender-sensitive countercyclical policy responses protect women from more adverse outcomes of the recession and the policy responses in its aftermath (Ghosh 2013). For instance, in Sweden, work–life family reconciliation policies were

maintained in the aftermath of the recession, along with the welfare programs that both created public employment for women and protected them from the adverse effects of the recession in terms of unpaid work burden were maintained and even expanded due to emphasis on employment programs. In Argentina, similarly, social inclusion and protection policies were maintained and expanded, including after the 2007–2008 recession. However, even in Argentina, the counter-cyclical measures after the most recent recession, such as expenditures on large public works projects have benefited men more than women, possibility due to faster growth in male-dominated sectors (Ghosh 2013), as gender was not explicitly included in policy agendas.

2.3   Unpaid Housework and Care Work in Hard Times

A full account of the gendered outcomes of the recession requires examinations of its impact on the reproductive sphere, as well as for health and well-being of women and men and children. Economic crises are hypothesized to increase women's unpaid care work burden under most scenarios (Elson 2010). Using data from the 2010 Canadian time use module in the Statistics Canada General Social Survey, MacPhail (this volume) finds support for the hypothesis of an increase in women's relative unpaid work burden.

Increasing economic hardship in households has long-term well-being effects, including for children, through its impact on food security, educational opportunities, and income and time poverty. Known as "economic scarring," the long-term impact of the recession includes the time parents spend caring for their children, and the time families spend together. Morrill and Pabilonia (2015) find that in the US, couples with household children under the age 19 spend less time together when the state unemployment rate is between 8 and 10 percent, and that this is likely due to an increase in mothers' non-standard paid work hours between these unemployment rates. Kongar and Price (this volume) show that the burden of household adjustment during the crisis is a phenomenon that describes the experiences of low-SES households, as well as African-American and Hispanic households, compared to their respective counterparts. Their results show that gender norms play a significant role in shaping outcomes of the recession, which is consistent with Elson's (2010) framework for analysis of the recession through a gender lens. For instance, Kongar and Price (this volume) find that fathers provide more primary child caregiving

when the unemployment rate rises above 6 percent, however, this is more likely to be the case in households where mothers' paid work hours increase. Further they find an increase in non-standard work hours of white mothers, African-American mothers, African-American fathers, and Hispanic fathers. Taken together with the findings for child caregiving time, what emerges is a picture of increased hardship during the recession, especially in households most affected by the recession in terms of labor market outcomes.

2.4   Poverty: Income Poverty, Time Poverty, and Poverty as Capability Deprivation

While each country around the globe sets its own poverty line below which a person is considered to be poor, a global measure of income poverty was also introduced by the World Bank in the 1990 World Development Report. Defining poverty as "the inability to attain a minimal standard of living" (p. 26), the World Development Report set as the poverty line "$1 a day" and estimated that 1,115 million people in the developing countries lived in poverty in 1985.[2] While women have received particular attention in poverty discussions since the 1995 Beijing Platform for Action due to some evidence of "feminization of poverty" – that women are poorer than men, and the share of women among the poor has been increasing since the late-1970s – the data to assess whether there is a global trend of feminization of income poverty are not available (Benería et al. 2015; Fukuda-Parr 1999; Razavi 1999). However, a growing body of evidence indicates that women are poorer than men in other aspects, namely in terms of capabilities and also in terms of time. The concept of *time* poverty, that is, the notion that to be able to stay above the poverty threshold, households need a minimum amount of disposable *time* in addition to a minimum amount of disposable *income*, was introduced for the first time by Vickery (1977). Time use surveys, conducted since the 1960s in some industrialized economies, and in most countries by the end of the 1990s, allow researchers to calculate the percent of women and men who are time poor (Berik et al. 2015). Feminist scholarship on time poverty has adjusted its measurement to the individual, rather than the household level, allowing for assessment of gender differences in time poverty due to gender disparities in paid and unpaid work burden.[3] Maria Sagrario Floro and Abhilasha Srivastava (this volume) review the time poverty literature since Vickery (1977), which has contributed to our understanding of the gender dimensions of time

poverty in the Global North (Hochschild and Machung 1989; Kalenkoski et al. 2011), and in the Global South (Antonopoulos and Memis 2010; Bardasi and Wodon 2010; Gammage 2010). Gender analyses of time poverty in developing country contexts show that women are more likely to be time poor in Guinea (Bardasi and Wodon 2010), in Guatemala (Gammage 2010), and in South Africa (Antonopoulos and Memis 2010), especially in rural areas and in poor households (Arora 2015 for rural Mozambique). Similarly, multi-tasking or "work intensity" has been identified as a form of time poverty that characterizes primarily women's time use (Benería et al. 2015).

Other studies have focused on the impact on well-being of paid and unpaid work activities. For instance, exploring this question for Canada, MacDonald et al. (2005) find that, all kinds of unpaid work, but especially eldercare and housework, increase time stress for women, while unpaid work activities are rarely associated with time stress for men, possibly because men participate in more enjoyable forms of caregiving (p. 90). (Also see Craig et al, this volume; Kalenkoski, this volume).

Time poverty, when defined as a form of capability deprivation, brings into question to what extent does our time use reflect choice or the lack thereof. Floro and Srivastava (this volume) take on this question in the South African context, using data from the 2000 South African Time Use Survey. They examine the unemployed and the underemployed, a group who wants more paid work, but cannot find enough or any of it that fully utilizes their skills and abilities. At the same time, they work long hours, albeit primarily in unpaid work activities, and have very little time for rest and leisure. Floro and Srivastava find that the majority of those who face this double-bind are women, as gender interacts with constraints at the household level (lack of wealth), and institutional constraints such as inadequate access to public infrastructures and basic services such as safe water, health centers, and public transportation. They argue that to break the cycle of time and income poverty requires both creation of decent employment opportunities for women as well as men, and also the provisioning of affordable care services to relieve women of care responsibilities. As Floro and Srivastava argue, these policies would be the opposite of the supply-side policies pursued since 1994 that have led to jobless growth.

To account for care work, Folbre (2006) argues that a "common denominator" between money and time is needed for full accounting of care of dependents, given that, on average, "men tend to devote more money, and women more direct care time" (p. 195). A similar dilemma

emerges in measuring the extent of the "dual burden" of time poverty and income poverty. Specifically, there is need for a measure that encompasses both income poverty and time poverty. The Levy Institute Measure of Time and Income Poverty (LIMTIP) responds to this need. Antonopoulos et al. (this volume) apply LIMTIP to the analysis of 2005 Buenos Aires Time-Use Survey data. They identify 11 percent for households, 16 percent of individuals, and 28 percent of children under the age of 18 as income poor in 2005 – considerably higher than the official estimates of 6 percent of households and 9 percent of individuals, and 16 percent of children. Time poverty estimates identify the "hidden poor" who are above the official poverty line, but who do not have the time necessary for unpaid (care and domestic) work, and cannot afford to purchase market substitutes without falling below the poverty line. The hidden poor become visible when their poverty line is adjusted to reflect the monetized value of their time deficit. Time deficits are found among the unemployed, as well as among low-wage workers, and interact with gender inequalities in the unpaid work burden. Like Floro and Srivastava (this volume), Antonopoulos et al. call for a combination of gender-sensitive labor market and care policies. While job creation reduces income poverty among the unemployed and the underemployed, low-wage employment, only pushes women and men into time poverty and without lifting them out of income poverty. As emphasized by Karamessini and Rubery (this volume), absent public provision of affordable good quality care services, women's effective integration into employment results in "either some form of exploitation of the labor of other women or in a care deficit" (p. 68). The need for public provision of care services is an overarching theme across the studies of Turkey, South Africa, Tanzania, Buenos Aires, EU countries, and the US.

2.5   Rural-Urban Divide Interacts with Gender and Class Inequalities Affecting Migration Patterns

Smriti Rao (this volume) brings a gender lens to rural-urban and urban-urban migration in India. She and others have argued that India is an example of a macroeconomic context that has not generated employment opportunities in urban areas for less well-educated workers. Instead export-oriented manufacturing "employment" developed more in terms of subcontracting to home-based workers (Ghosh 2002). Rao finds that migrating for economic reasons remains limited to a small group of well-

educated and well-off married women, or women without a male bread-winner. Comparing these results to trends observed in China, South Korea, Thailand, Bangladesh, and Mexico, where growth of large, labor-intensive manufacturing sector in urban areas has pulled less well-educated women into the labor force (Ghosh 2002), Rao concludes that, economic migrant women are, for the most part, truly absent in India, that is, their absence is not simply a problem with the data collection. But taking a broader view of migration, substantial numbers of women in India are migrating to urban areas as a result of marriage or as "followers" of their migrating husbands. The prevalence of marriage migration indicates that in the absence of employment opportunities, marriage to an urban dweller remains a way to secure a livelihood for large numbers of less-privileged and less well-educated rural women. Whether access to employment opportunities empowers women requires a careful analysis, as while it may be a source of empowerment and poverty reduction (Kabeer and Mahmud 2004; Kabeer 2011), it may also be a symptom of extreme poverty and "the distress sale of labour," (Kabeer 2000, p. 322).

3   MICROECONOMIC TOPICS OF TIME USE AND GENDER

Most empirical studies of individual's time use treat time as unitary and linear. By unitary, we mean that every minute of time is devoted to one use and one use only. Unitary time could be added up; this is what we mean by linear time. If time is unitary, we can add up time spent each minute and it will add up to 24 hours a day. We say women work 9 hours on home production and 4 hours on paid work, have 3 hours of leisure time, and they sleep 8 hours a day. Men work 3 hours on home production, 8.5 on paid work, have 4.5 hours of leisure, and sleep 8 hours a day. The activities thus aggregated are not always done all together. The leisure may come some in the morning and some in the evening, but we add it together and consider only the total. While most time use studies and survey instruments think about time as linear and unitary, there are many problems with this approach which must be explored through a gendered lens. The extensions beyond the unitary and linear characterization of time are: what we are doing with our time matters; we often do two or more activities at the same time; when we do what we do matters; family members trade time among themselves; and how we feel while we are doing something matters as well as what is produced with that time. Each of these extensions is explored by one or more of the authors in this volume.

3.1   *The Purpose to Which We Devout Our Time Matters*

The chapters in the micro section are mostly empirical studies of time use in a variety of global contexts. They begin, however, with a conceptual piece by Julie Nelson urging us to reconsider what we mean by care work. If care work and gender differences in the time spent providing care are measured, then various forms of care work and measures of the differences in women's and men's care work should be constructed (Folbre 2006). Folbre (2006) urged us to broadly define care work (mostly unpaid and mostly performed by women) to include both direct care work and indirect care work. Nelson pushes us at both ends of Folbre's admonition. Nelson argues firstly that not all work that on the surface appears to be direct care work is done with caring as the motivation. However, all work is potentially caring and we need to hold production units (firms) to the same standards of caring as we hold individuals. As we can find examples of non-caring behaviors in the household (even behavior that is abusive and harmful), we can also find examples of caring behavior in the larger economy, including in the social care economy (Starr 2011) and solidarity economy (Benería, this volume; İlkkaracan, this volume), but also in the for-profit sector.

3.2   *At Any Moment of Time We Can Be Doing More than One Thing*

As discussed above, one form of time poverty is "work intensity," which is doing more than one task at a time. Sometimes doing two things at the same time makes both activities better, like a good conversation accompanied by a nice meal, but much of the time the two activities are in tension with one another, making the time spent in this joint endeavor less effective in some way – less enjoyable or less productive or more stressful – think about trying to cook dinner and soothe the baby at the same time. Either way, doing two things at the same time is not the same as doing x minutes of activity A and T-x minutes of activity B. The implications of this insight is that total time in all activities can add up to more than 24 hours a day, but that we have to consider time doing two (or three) things at once as different from solo activity time.

Deborah DeGraff and Rebecca Centanni explore this aspect of time use in their chapter, "Double Shift, Double Balance: Women's Employment and the Intensity of Home Production Time." In this chapter, DeGraff and Centanni explore differences in the way employed and not employed

women do housework. The American Time Use Survey (ATUS) assumes unitary time use: only the primary activity is recorded with the respondent expected to choose which activity is the primary activity. But the ATUS does ask who is present in the room while the activity is taking place. Doing housework with children present in the room can be thought of as two activities, doing housework and watching children. Are employed women more likely to do housework in the presence of children in order to seek out more time in the day with their children or are they less likely to do housework in the presence of children as they have much more limited time in which to accomplish a set of household tasks and they need to get through them as quickly as possible? Notice that under both scenarios doing two things at the same way is not equal to adding up some minutes of housework and the rest of the time as child caregiver, but it is unclear whether the joint time is more than the sum of its parts or less than the sum of its parts. DeGraff and Centanni find significant differences in the "presence of children" behavior of employed and not employed mothers, with employed mothers doing less of their housework in the presence of children.

3.3   *When We Do What We Do Matters*

Another issue in (Micro) Time Use 2.0 is that time of day and sequencing matters. The linear model simply adds up time spent throughout the day with equal weights. However, having five minutes of leisure each hour is different from having an hour of leisure all together. Sometimes having time disaggregated into small pieces is a good thing, but mostly bigger chunks of time are better, until the chunks get too big. We can have not enough time – we can have too much time.

   Dorrit Posel and Erofili Grapsa carefully consider these issues in the context of elderly South African and the presence of a social pension. Using the 2010 South Africa Time Use Survey they use a creative optimal matching and cluster analysis approach to identify five types of South African women and separately five types of South African men who are 60 years of age or older. The clustering into five groups uses the full pattern of the time use on the survey day. They find that one group spends a substantial amount of time in the middle of day on housework, while another spends a substantial amount of time on employment. The third and fourth group spend most of their time in leisure activities, but differ in whether the modal activity is mass media consumption versus social

activities. Finally, the last group spends most of his or her time on personal care which includes sleeping, eating, and health activities. The proportion of men and women in these groups is quite different and the patterns of time are also different between men and women. Receiving a social pension makes one more likely to be in the groups dominated by leisure activities.

Posel and Graspa also report fascinating results on the question of whether the South African elderly have too much time, not enough time, or the right amount of time to complete what they want to accomplish in a day. Not surprisingly many of the elderly report having too much time, but most were satisfied with their time allotment and this was true for each of the clusters. Only some of those in the employed cluster reported having not enough time.

3.4   *We Live with Others and Trade Time*

One aspect of time that is lost when we concentrate on the individual 24 hour constraint is that time is tradeable, meaning any individual can ultimately have more or less than 24 hours available on any given day. If I do your laundry which would have taken you an hour, I have just given you an hour. Trading time happens every day within families. The chapters by Esther Rothblum; Margaret Maurer-Fazio and Rachel Connelly; Deborah DeGraff, Deborah Levison, and Esther Dungumaro; and Ebru Kongar and Emel Memiş each focus on how family members trade-off time among themselves.

Rothblum's focus is on the division of labor within a same-sex couple. Tradeoffs among household labor, as well as, tradeoffs within the couple between specializations in market work versus housework are considered in this thorough literature review. While the topic is interesting for its own sake, increasing our understanding of time use among a growing segment of the coupled population in developed countries, researchers also study same-sex couples in an attempt to separate gender effects from sexuality effects. The theory that women do more of the housework in order to "do gender,"[4] that is, to signal to their male partners and to society at large that they are role-conforming women, would predict that the division of labor within a couple would be more shared in same-sex couples already not-conforming to heterosexual norms of behavior. Other theories of human behavior have also been employed to predict differences in the division of labor between same-sex couples versus different-sex couples. Rothblum's review includes works from economics, sociology, and

psychology. There is agreement among the empirical studies produced by researchers from each of these disciplines that same-sex couples do divide housework and child caregiving tasks more equally than different-sex couples. Controlling for the gender of couple members, income differentials are found to have less predictive power in the division of labor within the household. These findings are important caveats to the standard neoclassical genderless model of economic decision making.

Maurer-Fazio and Connelly also consider time tradeoffs, but in the context of larger extended family households of rural China. Their study focuses on the effect of household composition and ethnicity on the time use of adults in rural China. They divide adults into four age groups: young adults, prime-age adults, mature adults, and older adults because individuals in these age groups often play very different roles within the household, with the youngest ones sometimes still in school, the prime-age ones tending to their own young children and establishing their economic presence, the mature adults maintaining their rural home and farm and also caring for young grandchildren, and the older adults winding down their involvement with income-generating work and perhaps needing some daily care. The analysis also separates men from women as time use is expected to be gendered and separates the rural population into Muslim minority groups, non-Muslim minority groups, and Han Chinese. The authors find that controlling for age and ethnicity, the group most affected by the presence of others in the household is the mature adults who seem to serve as the safety value, performing extra work when prime-age adults are not around or when elders and young children are present in the household, reducing their work effort when younger adults are available.

Because rural to urban migration is quite common in the areas of China from which the data for this study is drawn, Maurer-Fazio and Connelly also consider the relationship between the time use of rural household members and the absence of migrating household members. Again, mature adults are most affected in their time use pattern, adding time in both the unpaid and the income-generating categories. Young adult women are affected by the absence of young adult men, adding unpaid work time, while prime-age women are affected by the absence of young adult women, adding income-generating work time, but reducing somewhat their unpaid work time.

Our gaze shifts from rural China to rural Tanzania with the analysis by DeGraff, Levison, and Dungumaro of a unique data set focused on time spent collecting wood and carrying water. These essential tasks of everyday

life in the poorest areas of the world require a tremendous amount of time and physical effort which can be reduced by the presence of a village well and the availability of alternative cooking fuels. Boys and girls aged 10 to 17 are analyzed separately, though both spend large amounts of time gathering wood and carrying water. Interestingly, differences between the boys and girls depend on who is the informant. When the youth is the informant, boys spend more time than girls; when their mother is the informant, girls spend more time than boys. Almost every mother sampled participates in both of these time-consuming tasks in addition to many other household and agricultural tasks.

Tradeoff between children and mothers is evident in the study, but so is the tradeoff between carrying water and purifying the water. In the village which has a public water tap, mothers spend more time purifying water than in the village where the water needs to be carried longer distances. Thus, the simple infrastructure of a village well can both save the time of carrying and increase the health of village residents as they use some of their saved time to make the water safer to drink. The lesson here is that time used on one task affects the amount of time used in other tasks, but time use also affects well-being more generally.

Overall, rural residence across the world increases the demand for time devoted to unpaid work and is an important determinant of women's nonparticipation in the paid labor force in many countries such as Turkey (Kongar and Memis, this volume) and India (Rao, this volume). In addition, the extra demands on time that come from reduced levels of infrastructure have the effect of making time poverty is more severe in rural areas compared to urban areas. Certainly in Tanzania adult women have no time left for leisure given the high demands on their time from all that they do. In rural China, Maurer-Fazio and Connelly (this volume) argued that prime-age women and men did not respond much to the absence of household members away because of migration in part because they were already working all the possible hours of a day.

Work–life reconciliation policies, particularly public spending on child care and paid parental leave policies, shape gender division of paid and unpaid work within the household. Previous studies have shown that the impact of parenthood on the gender employment gap is smaller in EU countries with welfare regimes more conducive to women's labor force participation (Anxo et al. 2007). Using data from the 2006 Turkish

Time-Use Survey, Kongar and Memiş (this volume) find a similar result for Turkey. Specifically, they find that the male breadwinner norm predominates among married and cohabiting couples, and parenthood exacerbates these gender disparities. They attribute these findings to the gendered welfare regime, specifically to the gender–asymmetric parental leave policy that creates a clear disincentive to hire women and to the limited public provision of affordable quality child care services in Turkey.

3.5   *Since We Are Putting in the Time, We Are Impacted Immediately by Our Time Use*

Differences in how we use our time depends on our own preferences for the commodities we produce with our time inputs and other ingredients (market purchased goods, public goods, intermediate home-produced goods, etc.) and the demands of others in our households (a crying child, an elder in need of assistance, a husband demanding an ironed shirt, etc.). These demands are affected by many things including gendered expectations (see Rothblum, this volume). In addition, we must consider how we feel while engaging in any particular time use. If we like the creative activity of cooking, we are more likely to engage in this activity given the same level of preference for good food and demands of family members than if we dislike the messy and stressful activity of cooking. This aspect of embodied time use is sometimes referred to as "process utility." Process utility is only a part of the total utility one gains from the time use, the rest of the utility comes from the consumption of the commodity produced. Process utility is certainly not a new idea, but we have only recently have sustained and comprehensive data collection efforts devoted to collecting information aimed at measuring process utility.

Measuring process utility is complicated by the fact that individuals differ in general levels of reported well-being. In other words, some people are either by nature or by self-report generally happy and upbeat and others are less so. Because of these differences in levels, one needs to be careful considering the individual response to an individual time use activity as a measure of the process utility of that time use activity and group averages are also subject to systematic differences in levels that are not necessarily informative. While a dollar is a dollar and a minute is a minute, a reported happy moment for one person is quite different from a

reported happy moment for another person. In a sense, this insight goes back to Samuelson's impossibility theorem which argues that we cannot assess utility across individuals.

New data collection efforts provide some insight into the well-being aspects of time. Charlene Kalenkoski's chapter makes an important contribution to this area of time use research by using the Panel Study of Income Dynamics (PSID), which includes a global well-being measure and several well-being measures of individual activities. Most other data sources provide one or the other. For example, the ATUS 2010 contain subjective well-being modules which collect emotional responses to three time use activities in the respondent's yesterday's activities, while the General Social Survey (GSS) contains several global well-being measures each year. Kalenkoski's chapter shows the value of having both measures, as she controls for one's global well-being level in her analysis of activity-level feelings among older married adults in the US.

Specifically, she finds that after controlling for global well-being, older men report that caregiving activities for their wives have lower levels of tiredness and pain than other activities. Caregiving activities of older women do not elicit differences in any measured emotions in caregiving for their husbands compared to other activities. Kalenkoski notes though that even with the PSID data, we cannot distinguish fully between the process utility and the utility that comes from having completed a task that needed completing, in other words, between process utility and total utility.

The chapter by Lyn Craig, Judith Brown, Lyndall Strazdins, and Jiweon Jun also considers the effect of time use on well-being, but focuses particularly on the reduction of well-being caused by stress. The analysis focuses on time spent on market work versus unpaid work. Households where men and women each divide their time fairly evenly between market work and unpaid work are labeled equal sharing households as opposed to gender specialized households, where women do most of the unpaid work and men do most of the paid work. The authors of this chapter compare stress levels reported by men and women in equal sharing households versus specialized households. This comparison is made across three countries with very different work/policy regimes: Australia, Finland, and Korea. The authors find large differences

in the proportion of households in each of these countries who can be described as equal sharing households and hypothesize that being part of an equal sharing household is more stressful when fewer households live that way. The data support this hypothesis and also one that predicts that high employment hours make sharing paid and unpaid work time more stressful. Finland is shown to have the largest percent of equal sharing households and has the lowest average employment hours for men of the three countries.

4   Conclusion

While policy makers tend to ignore the demands of unpaid work time, in our day-to-day life we are all well aware of the importance of time, including that we do not have enough of it, or that we have too much of it due to forced idleness in labor markets that do not generate enough good job opportunities.

Despite the cliché, time really is the ultimate scarce resource and how we use our time defines who we are and what we produce. In addition, who we are and what we produce are affected by our gender, race, ethnicity, and other characteristics, and the opportunities and constraints in the communities in which we live. Both micro and macro inquiries will be improved to the extent that we consider fully the implications of gendered time use in its multi-dimensions.

Since the 1980s, an extensive feminist economic literature has emphasized the importance of shifting the focus of economic inquiry away from economic growth at the macro level, and income at the micro level, to expansion of capabilities and improvements in well-being (See for instance, Power 2004; Folbre 1995; Nelson 1993). In such a framework, regardless of where the activity takes place (markets or household), and regardless of whether it is paid or unpaid, the activity and its impact are folded into an essential component of economic inquiry. Through a gendered lens, identifying gender differences in these types of work and their burdens and benefits is key to improving well-being of women, children, and men. Studies in this volume offer a number of directions institutional and macroeconomic policies can go to enable *all* women, children, and men have the ability to both be and do.

NOTES

1. See Benería et al. (2015), for a comprehensive review of the debates over the "Accounting Project" pp. 192–198.
2. The "$1 a day" line corresponds to the upper poverty line of $370 per person a year poverty line introduced by the World Bank (1990). The lower poverty line was introduced as $275 per person a year. Both figures are in constant prices adjusted for purchasing power parity. Since then, the upper poverty line was adjusted in 2008 to $1.25 a day, and again in 2015 to $1.90 a day.
3. In addition to time poverty, feminist scholars have conceptualized a deprivation in terms of "work intensity" which refers to "the length of an average (paid and unpaid) working day" and the incidence of 'likely to be stressful' overlapping work activities (Benería et al. 2015, p. 216). For a review of the feminist scholarship on time poverty and work intensity, see Benería et al. (2015).
4. The term comes from Bittman et al. (2003) but has become widely used.

REFERENCES

Antonopoulos, Rania (2013). *Gender Perspectives and Gender Impacts of the Global Economic Crisis*. London and New York: Routledge.

Antonopoulos, Rania, and Emel Memis (2010). Time and poverty from a developing country perspective. Retrieved from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1616671.

Anxo, Dominique, Lennart Flood, Letizia Mencarini, Ariane Pailhé, Anne Solaz, and Maria L. Tanturri (2007). Time allocation between work and family over the life-cycle: A comparative gender analysis of Italy, France, Sweden and the United States. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1049381. Accessed 10 January 2016.

Arora, Diksha (2015). Gender differences in time-poverty in rural Mozambique. *Review of Social Economy*, 73(2), 196–221.

Balakrishnan, Radhika, Diane Elson, and James Heintz (2011). Financial regulation, capabilities and human rights in the US financial crisis: The case of housing. *Journal of Human Development and Capabilities*, 12(1), 153–168.

Balakrishnan, Radhika, James Heintz, and Diane Elson (2016). *Rethinking Economic Policy for Social Justice: The Radical Potential of Human Rights*. New York: Routledge.

Bardasi, Elena and Quentin Wodon (2010). Working long hours and having no choice: Time poverty in Guinea. *Feminist Economics*, 16(3), 45–78.

Benería, Lourdes, and Gita Sen (1981). Accumulation, reproduction, and women's role in economic development: Boserup revisited. *Signs*, 7(2), 279–298.

Benería, Lourdes, Günseli Berik, and Maria Floro (2015). *Gender, Development and Globalization: Economics As If All People Mattered*. Second Edition. London and New York: Routledge.

Bittman, Michael, Paula England, Linda Sayer, Nancy Folbre, and Thomas Matherson (2003). When does gender trump money? Bargaining and time in household work. *American Journal of Sociology*, 109(1), 186–214.

Boushey, Heather (2015). *Finding Time*. Cambridge, MA: Harvard University Press.

Boserup, Ester (1970). *Woman's Role in Economic Development*. London: Allen and Unwin.

Connelly, Rachel (1992). The effect of child care costs on married women's labor force participation. *Review of Economics and Statistics*, 74(1), 83–90.

Connelly, Rachel (1996). Comments on the fertility/employment interaction. *Population and Development Review*, 22 (Supplement), 290–294.

Elson, Diane (2010). Gender and the global economic crisis in developing countries: A framework for analysis. *Gender and Development*, 18(2), 201–212.

Elson, Diane, and Radhika Balakrishnan (2012). *The Post-2015 Development Framework and the Realization of Women's Rights and Social Justice*. New Jersey: Center for Women's Global Leadership. http://www.cwgl.rutgers.edu/docman/economic-and-social-rights-publications/520-post-2015-november-2012/file.

Esquivel, Valeria (2016). Power and the sustainable development goals: A feminist analysis. *Gender & Development*, 24(1), 9–23.

Floro, Maria Sagrario, and John Willoughby (2016). Feminist economics and the analysis of the global economy: The challenge that awaits us. *The Fletcher Forum of World Affairs*, 40(2), 15–27.

Folbre, Nancy (1991). The unproductive house-wife: Her evolution in nineteenth-century economic thought. *Signs: Journal of Women in Culture and Society*, 16(3), 463–484.

Folbre, Nancy (1995). Holding hands at midnight: The paradox of caring labor. *Feminist Economics*, 1(1), 73–92.

Folbre, Nancy (2006). Measuring care: Gender, empowerment, and the care economy. *Journal of Population Economics*, 7(2), 183–199.

Fukuda-Parr, Sakiko (1999). What does feminisation of poverty mean? It isn't just lack of income. *Feminist Economics*, 5(2), 99–103.

Fukuda-Parr, Sakiko, James Heintz, and Stephanie Seguino (2013). Critical perspectives on financial and economic crises: Heterodox macroeconomics meets feminist economics. *Feminist Economics*, 19(3), 4–31.

Gammage, Sarah (2010). Time pressed and time poor: Unpaid household work in Guatemala. *Feminist Economics*, 16(3), 79–112.

Ghosh, Jayati (2002). Globalization, export-oriented employment for women and social policy: A case study of India. *Social Scientist*, 30(11/12), 17–60.

Ghosh, Jayati (2013). Financial crises and their gendered employment impact: Emerging trends and past experiences. In Rania Antonopoulos (Ed.), *Gender Perspectives and Gender Impacts of the Global Economic Crisis* (pp. 17–48). London and New York: Routledge.

Hartmann, Heidi, Elyse Shaw, and Rachel O'Connor (2014).*Women and Men in the Recovery: Where the Jobs are Women Recover Jobs Lost in Recession in Year Five*. IWPR Report #C426. Washington D.C: IWPR. https://iwpr.org/wpcontent/uploads/wpallimport/files/iwpr-export/publications/C426.pdf

Hochschild, Arlie R., and Anne Machung (1989). *The Second Shift: Working Parents and the Revolution at Home*. New York: Viking.

Kabeer, Naila (2000). *The Power to Choose: Bangladeshi Women and Labour Market Decisions in London and Dhaka*. London: Verso Publications.

Kabeer, Naila (2011). Between affiliation and autonomy, navigating pathways of women's empowerment and gender justice in Bangladesh. *Development and Change*, 42(2), 499–528.

Kabeer, Naila, and Simeen Mahmud (2004). Globalization, gender and poverty: Bangladeshi women workers in export and local markets. *Journal of International Development*, 16(1), 93–109.

Kalenkoski, Charlene, Karen Hamrick, and Margaret Andrews (2011). Time poverty thresholds and rates for the US population. *Social Indicators Research*, 104(1), 129–155.

MacDonald, Martha, Shelley Phipps, and Lynn Lethbridge (2005). Taking its toll: The influence of paid and unpaid work on women's well-being. *Feminist Economics*, 11(1), 63–94.

Morrill, Melinda Sandler, and Sabrina Wulff Pabilonia (2015). What effects do macroeconomic conditions have on the time couples with children spend together?. *Review of Economics of the Household*, 3, 791–814.

Nelson, Julie A. (1993). The study of choice or the study of provisioning? Gender and the definition of economics. In Marianne A. Ferber and Julie A. Nelson (Eds.), *Beyond Economic Man: Feminist Theory and Economics*. Chicago: Chicago University Press.

Nelson, Julie A. (1995). Feminism and economics. *The Journal of Economic Perspectives*, 9(2), 131–148.

Nussbaum, Martha (2000). *Women and Human Development: The Capabilities Approach*. Cambridge and New York: Cambridge University Press.

National Bureau of Economic Research (NBER) (2010). *Business Cycle Dating Committee Report*. Cambridge, MA: NBER. http://nber.org/cycles/sept2010.html.

Power, Marilyn (2004). Social provisioning as a starting point for feminist economics. *Feminist Economics*, 10(3), 3–8.

Razavi, Shahra (1999). Gendered poverty and well-being: Introduction. *Development and Change*, 30(3), 409–433.

Reid, Margaret G (1934). *Economics of Household Production*. New York: John Wiley and Sons, Inc.

Sen, Amartya (1985). Well-being, agency and freedom: The Dewey lectures 1984. *Journal of Philosophy*, 82(4), 169–221.

Starr, Martha A. (2011). Recession and the social economy. In Martha A. Starr (Ed.), *Consequences of Economic Downturn: Beyond the Usual Economics* (pp. 189–214). New York: Palgrave MacMillan.

Strassmann, Diana (1999). Feminist economics. In Janice Petereson and Margaret Lewis (Eds.), *The Elgar Companion to Feminist Economics* (pp. 360–373). Chelthenham: Edward Elgar.

UNDP (1990). *Human Development Report*. New York: UNDP.

UNDP (n.d.a). What is human development? http://hdr.undp.org/en/content/what-human-development.

United Nations (UN) (2015). Indicators and a monitoring framework for the sustainable development goals: Launching a data revolution for the SDGs. A Report to the Secretary-General of the United Nations by the Leadership Council of the Sustainable Development Solutions Network. Indicator-Report1. https://www.un.org/content/documents/2013150612-FINAL-SDSN-Indicator-Report1.pdf.

United Nations Development Programme (UNDP) (2015). 2015 *Human Development Report*. New York: UNDP.

Vickery, Clair (1977). The time-poor: A new look at poverty. *The Journal of Human Resources*, 12(1), 27–48.

World Bank (1990). *World Development Report 1990: Poverty*. New York: Oxford University Press.

Rachel Connelly is the Bion R. Cram Professor of Economics at Bowdoin College, a Research Fellow at the Institute for the Study of Labor (IZA), and an Associate Editor of Feminist Economics. Her research focuses the economics of mothers' employment and child care. Her recent work examines the time use of mothers and fathers in the US and the relationship between family structure, age, migration, and women's time use in China.

Ebru Kongar is Associate Professor of Economics at Dickinson College. Her research focuses on the gendered time-use and labor market outcomes of macroeconomic developments, such as deindustrialization, offshoring, and the Great Recession in the US economy. She is a research associate at Levy Economics Institute of Bard College and an Associate Editor of *Feminist Economics*.

Gender, Time Use, and the Macroeconomy

Unpaid Work in Macroeconomics: A Stocktaking Exercise

İpek İlkkaracan

1 INTRODUCTION

Identification of unpaid work and caring labor as a category of economic activity in mutual interaction with market production is probably the most important contribution of feminist economics to the discipline of economics. This expanded definition of what the economy consists of, going beyond the market to also cover the non-market, has had profound implications for not only how gender inequalities are analyzed and explained but also for how economic phenomena such as national income, labor markets, poverty, income distribution, economic crises are analyzed and what policy implications are drawn.

Most of the economics research on unpaid work has been undertaken in a microeconomic framework, focusing on the household division of labor and its implications for labor market outcomes in the form of gendered preferences and patterns of labor force participation, occupational and industrial segregation, vertical segregation and the wage gap. Unpaid work has also been one of the important themes in the Women in Development (WID) and Gender in Development

İ. İlkkaracan (✉)
Faculty of Management, Istanbul Technical University, Istanbul, Turkey
e-mail: ilkkaracan@itu.edu.tr

(GID) literature ever since Boserup's seminal work in 1970 entitled *Women's Role in Economic Development.* WID/GID literature problematizes the issue of unpaid work also in terms of rural women's unpaid workloads including subsistence production and how this conditions gendered patterns of access to market opportunities. Another field where the issue of unpaid work is integrated into economic analysis is classical political economy originating from Engels' dual characterization of production activities unpaid and paid which he deemed were essential for reproduction of society. This characterization has been taken up later in Marxist-feminist debates of the 1970s/1980s, such as Hartmann's capitalism and patriarchy as parallel systems approach or Humphries' approach to household division of labor as working class family resistance to capitalism (Hartmann 1981; Humphries 1977).

Unpaid work as an analytical theme in macroeconomics is relatively recent, paralleling the late emergence of the gender and macroeconomics literature from the mid-1990s onward. An important focus of the WID/GID literature in the 1980s pertained to critical gendered analyses of structural adjustment and stabilization programs and this has paved the way for a rising interest in engendering macroeconomic analysis.[1] In a seminal piece, Çağatay et al. (1995) argue that feminist economics offers crucial insights relevant to macroeconomics by:

- by making unpaid domestic labor visible and treating labor as a produced input, feminist analysis reshapes our understanding of the conditions necessary for the functioning of the paid productive economy that is traditional domain of macro analysis;
- bring(ing) gender in as a analytical category in addition to class, race, etc. that influences the distribution of work, income, wealth, productivity of work, and behavior of agents;
- point(ing) out the gender biases of micro and meso-level institutions such as HHs, governments, firms markets from which macro outcomes emerge. (p.1829)

The gender and macroeconomics literature can be grouped under two broad categories: One group of studies focus on the gender disaggregated effects of macroeconomic trends, policies, growth regimes with respect to the distribution of costs and benefits among different groups of men and women. These include increasing unpaid

workloads of women under structural adjustment and stabilization programs or austerity; or export-led growth regimes facilitating the feminization of labor. The second group looks at how gender inequalities (such as gender employment or wage gap or allocation of unpaid work) shape macroeconomic outcomes such as growth, consumption or savings patterns; and how improving gender equality can serve to achieve particular macroeconomic targets such as increased female labor force participation instigating higher growth.

This chapter aims to take stock of what has been done so far in terms of integrating unpaid work into macroeconomic analysis. An important part of this literature revolves around unleashing linkages between macroeconomic phenomena such as growth, trade liberalization, foreign direct investment fiscal and monetary policy and gendered *market* patterns such as female labor force participation or the wage inequality. As extensive research shows the gendered allocation of unpaid work in the non-market economy is an ever-present systematic source of these gender inequalities in the market. As such economic phenomena such as gender employment or wage gaps, inevitably link to the issue of unpaid labor. Nevertheless the focus of this chapter will be particularly on how the issue of unpaid work has been *directly* addressed and used as an analytical category in macroeconomic analysis.

As the following discussion will show, research on unpaid work and macroeconomics entails, extensive applied empirical work, an important part of which entails policy assessments, and more recently policy simulations. It also involves conceptual and theoretical work, which has recently extended into macro modeling initiatives. The discussion of this literature is structured under three headings. Section 2 considers a reconceptualization of macroeconomic phenomena such as national income accounting and gross domestic product (GDP; and more recently poverty) to encompass unpaid work. Section 3 presents an assessment of the gendered impact of macroeconomic policies such as structural adjustment, stabilization and austerity programs) on gendered allocation of unpaid work. Finally, Section 4 provides an assessment of the impact of gendered allocation of unpaid work on macroeconomic outcomes in three frameworks: 1) the integration of unpaid work into macroeconomic modeling; 2) policy simulations on redistribution of unpaid work and expected macroeconomic outcomes and 3) long-run sustainable growth and unpaid work.

2   NATIONAL INCOME ACCOUNTING AND UNPAID WORK: HOUSEHOLD SATELLITE GROSS DOMESTIC PRODUCT ACCOUNTS

GDP as a measure of national income, an indicator of economic growth and a proxy for average wellbeing in a national economy is probably the most important macroeconomic variable that serves as a crucial reference point in economic analysis and policy design. The System of National Accounts that forms the basis of the computation of the official GDP is defined and measured only with respect to production activities that takes place on a paid basis in the market sphere. As feminist researchers and activists started to argue from the 1970s onward, consumption of goods and services produced by unpaid labor in the household contribute as much to wellbeing as do consumption of market produced commodities. Moreover unpaid work contributes not only to current household well-being (e.g. cooking, cleaning) but also to future wellbeing (e.g. parental work in raising children), and to community wellbeing (e.g. elderly/sick/disabled care, volunteer work). Hence, they concluded, not including unpaid labor in a measure of wellbeing disables an accurate assessment of economic performance. These advocacy efforts culminated in a recommendation by the United Nations in 1993 to introduce unpaid household production into systems of national accounts.[2] The U.N. Beijing Conference on Women in 1995 followed with a recommendation to improve data collection on unpaid work, and also development of methods for valuing such work for presentation in satellite household GDP accounts:

> (Develop) methods, in the appropriate forums, for assessing the value, in quantitative terms, of unremunerated work that is outside national accounts, such as caring for dependents and preparing food, for possible reflection in satellite or other official accounts that may be produced separately from but are consistent with core national accounts, with a view to recognizing the economic contribution of women and making visible the unequal distribution of remunerated and unremunerated work between women and men. (p.87, paragraph 206.f; United Nations 1996)

These consecutive UN recommendations constitute the origin of flourishing work on time-use studies, methodologies for valuation of unpaid

production and household satellite accounts (HSAs). The calculation of HSAs requires a complete database on how people spend their time. Hence, time use studies present an important statistical tool in accounting for and valuation of unpaid work.[3] Beyond providing the necessary data for a valuation exercise, national time-use surveys have also made it possible to compute work hours as aggregate macroeconomic variables by a breakdown of paid and unpaid work hours, total work hours and the distribution of work hours by demographic characteristics such as gender, education level, marital status, age, etc. For instance, a study on Turkey reports that women supply 21% of the total annual market hours, 86% of the total non-market household and caring work hours, and more than half (55%) of the total work hours altogether; yet they earn only about one third of the total income (İlkkaracan and Gündüz 2015).

HSAs have been estimated for a wide range of countries around the world as well as for economic or regional groups of countries. For example, an OECD working paper estimates that unpaid household production – largely dominated by cooking, cleaning and caring – constitutes, depending on the method of estimation, one third to half of all valuable economic activity in OECD countries (Miranda 2011). The value of unpaid work as share of GDP ranges from a minimum of 17% of GDP (S. Korea) to a maximum of 53% of GDP (Portugal) (Miranda 2011). An assessment for 24 European Union countries shows that unpaid household production is on average 29.6% of EU GDP, again with large variation among the individual countries from a minimum of 10% of GDP (Latvia) to a maximum of 40% of GDP (Denmark) (Giannelli et al. 2012).

The HSA studies represent a more accurate measure of wellbeing by correcting the bias against unpaid work (and hence the gender bias) entailed in GDP accounts. Beyond recognizing the economic contribution of unpaid household work, they also make visible the unequal distribution of paid and unpaid work between women and men. Hence, an exercise at estimating the value of unpaid work at an aggregate level and its distribution by gender also ensures a better understanding of efficiency and equity outcomes of economic and social policies. Beneria et al. (2016) in a recent assessment of what they call the "Accounting Project" conclude that it has contributed to a reduction of the statistical biases that led to an underestimation of women's contributions to the economy. While they warn that such valuation exercises of women's unpaid work has also been

misused for promoting conservative agendas such as women's place being in the home, they argue

> ...these instances do not detract from its significant impact. The Project has led us to question the ways in which we measure wellbeing and to understand who contributes to life sustenance in our communities and in society as a whole.... The Project underscores women's fundamental contribution to life's sustenance and reproduction as well as an important dimension of gender inequality: namely, the unequal division of household labor. (p.221)

Numerous research studies as well as international processes have pointed out the importance of household production not only in contributing to material wellbeing but also providing a more realistic view of total production and consumption patterns. More recently, the Stiglitz-Sen-Fitoussi Commission (2009) on "The Measurement of Economic Performance and Social Progress" called for a broadening of income measures to include non-market activities, when measuring economic wellbeing. More specifically, the Commission makes the following assessment:

> There have been changes in how households and society function. For example, many of the services people received from other family members in the past are now purchased on the market. This shift translates into a rise in income as measured in the national accounts and may give a false impression of a change in living standards, while it merely reflects a shift from non-market to market provision of services. Many services that households produce for themselves are not recognized in official income and production measures, yet they constitute an important aspect of economic activity. While their exclusion from official measures reflects uncertainty about data more than it does conceptual dissent, more and more systematic work in this area should be undertaken. This should start with information on how people spend their time that is comparable both over the years and across countries. Comprehensive and periodic accounts of household activity as satellites to the core national accounts should complement the picture.

Another good example of how ignoring the unpaid economy in conceptualization of economic aggregates may lead to inaccurate analysis is provided in a series of recent studies on time and income poverty. In order to assess poverty levels, these studies use a redefined poverty line that is based not only based on income poverty (the necessary amount of income to purchase goods and services) but also time poverty (the necessary amount of time to

produce goods and services – particularly care services) (Zacharias et al. 2012, 2014; Antonopoulos et al. this volume). Adopting such a revised poverty line, policy simulations for a variety of countries (Argentina, Mexico, Chile and Turkey) show that under a hypothetical scenario whereby all able-bodied people in poor households are provided a full-time job under the prevailing labor market conditions (i.e. wage rates and paid work hours), a substantial number escape income poverty but now face time poverty, and hence continue to remain under the revised poverty line. This finding carries an important implication for analysis of poverty: that the problem is beyond individual or household micro factors and determined at a macroeconomic level through determination of aggregate employment and wage levels and lack fiscal provisioning of social services.

3   IMPACT OF MACROECONOMIC PHENOMENA ON UNPAID WORK

Assessment of the impact of macroeconomic phenomena, particularly economic crises and macro policies on gender inequalities, has been the most common framework used to make linkages between macroeconomics and unpaid labor. This line of literature has its origins in feminist critiques of structural adjustment programs (SAPs) and stabilization policies in developing economies of the South starting in the 1980s. Similar critiques have been evoked recently, this time in the framework of the advanced economies of the North, with respect to the austerity policies adopted in response to the European crisis.

Studies making the causal link from orthodox macroeconomic policies of structural adjustment, stabilization and austerity to unpaid work point to the significant gender bias in the macro models underlying the IMF, World Bank and nowadays the EU Troika approach. These models fail to acknowledge the impact on unpaid work and the implications thereof for wellbeing. Indeed a substantial number of empirical studies find that a significant cost of economic restructuring is women's increased unpaid workload, which results in a deterioration of the living standards of women and children (Floro 1995; UNDP 1999; Beneria et al. 2016; MacPhail this volume).

These feminist critiques trace the causal link between SAP, stabilization or austerity and women's increased unpaid workload works through a number of channels. Foremost is the pressure on fiscal budget cuts. Orthodox stabilization policies call for public budget balance and emphasize cuts in fiscal spending rather than revenue raising measures. The cuts

in fiscal spending, along with privatization as an important pillar of structural adjustment, reduce accessibility of social care services (education, health, childcare, elderly/disabled/sick care services), shifting burdens back to domestic unpaid work.

The second channel works through wage restraint, a primary tool of SAPs to improve international competitiveness and a tool of stabilization policy to restore external balance and control inflation via dampening of domestic aggregate demand. Lower wage incomes mean lower ability of households to afford market substitutes for domestically produced goods and services (Bakker 1994).

Finally, a causal link works through the effects on paid employment. On the one hand, the deflationist nature of SAP and stabilization policies dampens employment generation. This negative employment outcome is further supported through cuts in public employment, where, in many countries, women are disproportionately represented due to public jobs providing a better work-life balance and more gender equal conditions in hiring, wages and promotions. Labor market flexibilization as part of SAPs leads to deterioration of labor market conditions, such as fixed contracts, part-time work, less social security coverage, lower wages, longer work hours, all of which tilt the balance between benefits of paid work vs. costs of market substitutes of unpaid work, in favor of the latter. To the extent that employment opportunities are reduced and labor market conditions deteriorate, women are more likely to be pushed back to their secondary earner roles, whereby they combine part-time or intermittent market activity with unpaid work; or trapped in permanent full-time homemaking positions, institutionalizing unpaid work as a female domain.

On the other hand, a number of studies argue that these policies promote the generation of new employment opportunities for women in export sectors. Trade liberalization has been an important facilitator of the recent phenomenon of feminization of labor in many countries of the South. Floro and Dymski (2000) also point out that financial liberalization can potentially increase women's employment through increased lending to firms and households to support production activity and purchase new assets. However, Floro and Dymski also point to the link between financial liberalization, instability of short-run capital flows and economic crises leading to the conclusion that the crises make women more vulnerable.

To the extent that women's access to paid employment and labor income increases under trade and financial liberalization, this can potentially reduce women's unpaid work through substitution by market goods

and services and/or through more balanced sharing with men in the household. Yet even under the assumption of a net positive change in women's employment, whether this will result in a decrease in the unpaid workload depends on the balance between wage rates versus prices and availability of market substitutes and between male versus female wages. Empirical evidence seems to weigh more heavily on the negative side.

First of all, assessment of the gender employment gap between 1990 and 2013, a period of increased globalization under trade and financial liberalization, shows that in most countries and regions of the world, the gap has remained persistent and even widened, with the exception of a minority of advanced capitalist economies (UNDP 2015). Second to the extent that trade and financial liberalization increased women's share in paid employment, this was not accompanied by a reduction in discrimination against women in employment such as the gender wage gap or occupational and industrial gender segregation (UNDP 1999; UNDP 2015). On the contrary, international competitive pressures enforced low wages and precarious work conditions particularly for the low-skilled and in labor-intensive female export sectors, providing limited room for improvement in women's relative bargaining power vis-à-vis men.

Assessments also conclude that international competition did not reduce women's share of the unpaid work of caring for families. On the contrary, intensified international competition has tended to squeeze the resources available for provision of care, including paid and unpaid services through the following channels (UNDP 1999): 1) less time as both men and women allocate more time to paid labor under increasingly competitive labor markets and deteriorating work conditions; 2) less public provisioning of care services as public expenditures are cut; 3) less quality of private care services under competitive pressures. Grown et al. (2000) conclude that economic globalization under the orthodox macroeconomic policy environment have transformed the public policy environment at the national level so as to diminish the capacity of the state to address social ills, including gender inequality. UNDP (1999) warns that in the long-run, the erosion of caring norms are likely to impose higher costs "reflected in inefficient and unsuccessful education efforts, high crime rates, and a social atmosphere of anxiety and resentment." (UNDP p.83). And UNDP (2015) points to an emerging care gap as one of the fundamental challenges to economic and social policy agenda of the twenty-first century (p.119).

A related line of research explores the linkages from economic crises to unpaid work. The causal chains are similar to a large extent. When economic crises trigger an orthodox macroeconomic policy response such as stabilization and austerity, the impact of unpaid work develops through the same channels as outlined above. Interestingly, even when the policy response is an unorthodox Keynesian one that involves stimulatory spending, the fiscal stimulus tends to biased toward male sectors such as physical infrastructure or construction, rather than sectors such as social care which would have the potential of redistributing unpaid work while generating new jobs (İlkkaracan et al. 2015; for further discussion see in Section 5).

The impact of economic crises on unpaid work may also be the result of market outcomes, namely rising unemployment and falling incomes. Higher male unemployment or lower male incomes could theoretically erode the male breadwinner bias, and facilitate a redistribution of unpaid work within the household. Nevertheless, empirical data suggests otherwise. Berik and Kongar (2013), using US time-use data show that, despite the "man-cession" nature of the economic recession in the USA in 2008, whereby the male sectors of manufacturing and construction were hit harder than the typically female service sectors, there was no redistribution. The gap between unpaid work hours of married men and women with small children widened further under the extended recession, while the gap between paid work hours declined, pointing to lack of a substitution of female unpaid work time by male unpaid work time. Fukuda-Parr et al. (2013) suggest that a source of this lack of substitution is that economic crises threaten the norms of masculinity, whereby men are "beleaguered in their ability to assert themselves in the role of breadwinner" (p.17).

Studies from other parts of the world also provide supporting evidence that economic crises produce a net increase in women's unpaid work and also total work hours. A series of papers on the 1997 East Asian financial crisis, for instance, show that women bear higher burden not only as wage workers but also as lengthened work hours, negative health and education effects, although the results are not uniform across countries (Singh and Zammit 2000, Floro and Dymski 2000 and Lim 2000). Grown et al. (2000) argue that macro policies should endeavor to spread the risks and costs more evenly across rich/poor and women/men and hence the need for a financial regulation/architecture whereby the reproductive economy is included in assessments of social costs of the crisis.

4   Impact of Unpaid Work and Its Gendered Allocation on Macroeconomic Outcomes

Marxian classical political economy provides early examples of conceptualization of unpaid work as a form of economic activity in interaction with the monetized economy and with impact on economic outcomes at an aggregate level. Writing in the nineteenth century, Engels presents a dual characterization of production activities as unpaid and paid production, which he deemed were essential for reproduction of society. The issue of unpaid domestic labor was picked up a century later in Marxist-feminist debates of the 1970s and 1980s from a variety of perspectives. The dominant Marxist-feminist approach argued that domestic labor constituted yet another form of exploitation of labor of women by men, similar to exploitation of wage labor by capital. It is argued that women's unpaid domestic labor is indeed subject to a double exploitation, because it benefits not only men but also serves as source of surplus value to capital by enabling reproduction of wage labor at a lower cost. (Dalla Costa 1974; Vogel 1995) An opposing Marxist feminist approach, on the other hand, argues that the division of labor is a form of resistance by the working class family against the pressures of capital to proletarianize all labor (Humphries 1977). The parallel systems approach by Hartmann (1981) accepts that the unequal allocation of unpaid labor is a form of exploitation of women, yet rejects the hierarchy of exploitations implicit in the first approach. Instead it suggests that capitalism and patriarchy act as mutually interactive parallel systems. Depending on historical conjectures, capitalism can erode or accommodate patriarchy, through dismantling or strengthening the gendered division of labor that is a distinguishing characteristic patriarchy.[4]

Over time these Marxist-feminist theoretical debates give way to predominantly applied work at a micro level analyzing gender inequalities in the labor market or gendered production patterns in developing economies. Other heterodox traditions in macroeconomics, on the other hand, such as Keynesian, post-Keynesian, structuralist or institutionalist schools, focus exclusively on market production and hence hold an embedded gender bias. Elson (1994) criticizes both orthodox and heterodox traditions in macroeconomics alike, for taking the reproductive economy for granted and assuming that it will accommodate any changes induced by macroeconomic variables even at times when its relation to the productive economy is disrupted. She suggests this assumption is equivalent to assuming an unlimited supply of unpaid female labor and that as a result most macroeconomic

models remain gender blind. Walters (1995), in a similar vein, critiques the assumption of exogenous labor present in most macro models and suggests instead that in constructing growth models labor should be conceptualized as a produced means of production endogenous to the system.

The two edited volumes of *World Development* by Çağatay et al. (1995) and Grown et al. (2000) on "Gender and Macroeconomics" present a concerted effort to bring together the first-ever attempts at macro modeling which formalize these conceptual critiques. Grown et al. (2000) in their introduction state:

> A gender perspective argues that it is important to conceptualize the system of reproducing and maintaining the labor force in a given society and treat labor as a produced input. (Hence) there is a fundamental interdependence between the economy of monetized production and the non-monetized economy of reproduction. (p.1148)

I turn next to these attempts at macro modeling which allow for such an interdependence.

4.1   Unpaid Work in Macro Modeling

The few examples of macro models which attempt to integrate unpaid work and gender into macro modeling are placed in heterodox traditions such as post-Keynesian, structuralist or institutionalist. Çağatay et al. (1995) note that while it is possible to integrate gender in both orthodox neoclassical and heterodox macroeconomic models, the latter are more conducive since they allow for a theoretical foundation of power relations within which distributional dynamics is a determinant of macroeconomic outcomes and they also entail a pivotal role for institutions.

There are only few macro models that integrate gender and of these even fewer have a direct focus on unpaid work rather than indirectly through gender inequalities in the labor market. Akram-Lodhi and Hamner (2008), Braunstein (2000) and Braunstein, van Staveren and Tavani (2011) present the only three models that focus specifically on exploring the impact of unpaid work on macroeconomic outcomes. Akram-Lodhi and Hamner (2008) use what they identify as a post-Keynesian model, to add a household production sector to a commodity production sector.

Braunstein (2000) combines a model of family structure (patriarchal vs. autonomous) with a structuralist macro model, to explore how

gender allocation of unpaid reproductive labor acts as a determinant of women's labor supply and the profitability of investment, with implications for foreign direct investment. Her model shows that family structure affects reservation wages, with the autonomous family structure resulting in lower reservation wages, higher female labor supply and higher profitability. Hence, an economy with high capital mobility and an autonomous family structure is expected to make gains in growth of output.

Braunstein et al. (2011) (henceforth Braunstein, van Staveren, and Tavani) models unpaid care work as a gendered input into the market production process via its impact on the current and future labor force. Unpaid caring labor is an input into the paid economy through its role in production of human capacities in the household sector as the model suggests it is these capacities that make individuals more economically effective that determine labor productivity. The model's description of the daily replenishment of human capacities goes beyond skills and education to include capacities such as emotional maturity, self-confidence, ability to work well with others and patience. Yet the model focuses on the short-run aspects of the care-productivity relation rather than the long-run relation between care (sending a child to pre-school) and future labor productivity because from a short-run perspective "productivity once at work, depends on the extent to which one is being supported and replenished at home, the day-to-day aspects of reproduction" (p.10). Parallel to the idea of "animal spirits" in Keynesian models that govern the relationship between the expected profit rate and physical investment, the Braunstein, van Staveren, and Tavani model introduces the idea of "caring spirits" that govern the relationship between expectation of future opportunities and investment in human capacities.[5] The model also distinguishes two types of economies: altruistic and selfish, yet in either case social norms that identify unpaid work as a female domain are present, such that even in the altruistic case, male labor supply is more responsive to the pull of higher wages than female labor supply.

The model leads to a few interesting outcomes: the higher the caring spirits of an economy, the higher the increases in output through wage increase in a wage-led growth regime, because wages, in addition to increasing consumption now also increase the investment in human capacities, such that output increase through demand more than compensates for output decrease through the fall in the profit share. A more equal sharing of unpaid work makes the altruistic economy case more likely. In an altruistic economy, more gender equality in the labor market (i.e.

higher female wages, lower gender wage gap) generates efficiency gains that are not reaped in a selfish economy.[6] The authors acknowledge some missing aspects of the model: namely that, the model evaluates care only in terms of its contribution to output rather than evaluating its contribution to overall wellbeing and that caring labor for elderly and disabled is not taken into consideration.

The other macro models, which acknowledge any place for unpaid work, focus more on gendered patterns in the labor market, such as gender wage inequality or female employment, and explore their effect on macroeconomic outcomes with some feedback effects from unpaid work or household production. For example, Ertürk and Çağatay (1995) use a classical Marxian framework which is in line with the growth models of Goodwin, Kalecki or Kaldor. Among the included macro variables are the degree of feminization of the labor force (with a positive link to investment) and the intensity of female unpaid labor (with a positive link to savings). Using the interaction of these two effects, they assess the likelihood of a structurally adjusting economy to recover through feminization of labor. They show that for a feminization-led recovery to occur, the first effect has to be stronger than the second, and that this is more likely in high and high-middle income countries.

Fontana and Wood (2000) construct a CGE model to simulate the effects of changes in trade policies, foreign capital flows and trade-related shocks on female and male employment and wages in Bangladesh. They distinguish between male and female labor, and also add reproductive work and leisure activities (self-care) as sectors which behave qualitatively like market sectors with inputs and outputs responding to demand and supply, but quantitatively different in that the reproductive sector is female labor intensive and less responsive to price changes. They fit the model to simplified data from Bangladesh, and simulate the effects of changes in trade policies and foreign capital flows. An interesting aspect of this modeling exercise is that it allows the exploration not only of the trade-offs between paid vs. unpaid labor, but also the trade-offs between paid labor and leisure (self-care) time. For instance, while a larger foreign capital inflow increases women's employment, wage income and leisure simultaneously (allowing market substitutes for unpaid work), the expansion of manufacturing exports raises women's wage income but reduces their leisure.

4.2   *Policy Simulations on Impact of Redistribution of Unpaid Work on Macroeconomic Outcomes*

Another group of studies explore the implications of policy-induced changes in the allocation of care work between the household (on an unpaid basis) and publically provided services on macroeconomic phenomena such as growth, employment, gender distribution of employment and poverty.

A macrosimulation of the Eurozone countries and the UK, finds that "a gendered investment plan" designed to expand public child-care services would lead to 2.4% GDP growth and create 4.8 million new jobs in five years, and that more than half of these jobs (2.7 million) would be held by women (Hansen and Andersen 2014). Another estimation on Austria shows that with an initial government financing of 200 million euros per year over five years, targeting creation of 35,000 new places for small children (under 3 years old) and better operating hours for 70,000 existing kindergarten places, 14,000 new jobs in child care would be created, as well as another 2,300 in other sectors due to enhanced demand. Furthermore, it is estimated that 14,000 to 28,000 parents who do not participate in the labor market due to their care responsibilities would find employment. The study also shows that taxes from the new employment opportunities and the savings in unemployment benefits would create public revenue that would exceed the costs of the initiative beginning in the fifth year of the initial investment and continuing thereafter (AK Europa 2013).

A policy simulation on South Africa shows that a 13.3 billion rand (equivalent to 3.5% of public expenditures and 1.1% of GDP in 2007 prices) investment in home-based health care and early childhood care services generates 772,000 new direct and indirect jobs, with 60% going to women (Antonopoulos and Kim 2008). Furthermore, the national growth rate increases by 1.8%, and growth is pro-poor in that income of ultra-poor households increases by 9.2%, poor households by 5.6% and non-poor households by 1.3%. An investment of similar magnitude in physical infrastructure (i.e. the construction sector), on the other hand, generates about half the total number of jobs generated by social care (approximately 400,000 jobs), with only 18% going to women and the distribution of jobs is less pro-poor than in social care, hence with less impact on poverty reduction (Antonopoulos and Kim 2008). A parallel policy simulation on the USA finds that a hypothetical 50 billion dollar investment in home-based health care for the elderly and the chronically ill, and early childhood development services is likely to generate approximately 1.2

million jobs (over 90% going to women), versus 556,000 jobs created by an equivalent investment in physical infrastructure (88% going to men) (Antonopoulos et al. 2010). The simulation also shows that almost half of the social care jobs would go to households below the fourth decile of the income distribution, while half of the jobs created in physical infrastructure would go to middle-income households. Finally, a similar study on Turkey finds that if public expenditures on childcare and preschool education services were to increase by 1.18% of GDP whereby Turkey would achieve OECD average preschool enrollment rates, 719,000 new jobs would be created with 73% going to women. An expenditure of similar magnitude on physical infrastructure and construction, on the other hand, would yield only 290,000 jobs, with only 6% going to women. Beyond expenditures on social care infrastructure generating 2.5 times more jobs than physical infrastructure, and promoting gender equality on the demand side, the study also finds that social care expenditures perform much superior in terms of poverty reduction and short-run fiscal sustainability (İlkkaracan et al. 2015).

4.3   Long-run Sustainable Growth and Unpaid Work

Yet another line of literature highlights the linkages from imbalanced distribution of unpaid work to the crisis of care and the implications for long-run sustainable growth. Himmelweit (2007) defines the "crisis of care" as a transformation whereby society is becoming one that is less able and less willing to provide caring labor, an indispensable component of human wellbeing. İlkkaracan (2013) ascribes the decreasing ability and willingness of society to care for children, the elderly, the disabled, the sick, as well as healthy adults including oneself, to a number of mechanisms which are an organic outgrowth of the current economic system. In the context of globalized market competition, under the threat of increasing global unemployment and faced with decreasing real wages for the less-skilled, the labor market demands on paid labor hours and commitment to the job combine to impose strict limits on availability of caring time and energy. Moreover, environmental degradation creates increasingly tough material conditions for livelihoods in rural subsistence communities where care work entails a substantial amount of unpaid productive work dependent on natural resources such as land and water as inputs. To the extent that caring labor continues to be provided, it takes place under conditions of deepening gender inequalities intertwined with

deepening inequalities among women, children and families by class, racial, ethnic and national origin. International migration of caring labor is one of the perverse outcome of the care crisis that reproduces these inequalities on multiple, intertwined levels. An economic system that is able to reproduce itself at the expense of deepening multiple inequalities is one that is not sustainable. Hence the crisis of care poses a systemic challenge to capitalism as an unsustainable economic system.

At a more empirical level the UNDP 2015 lists three emerging challenges in the near future linked to a care crisis. The care gap in the face of demographic transitions whereby in many countries elderly are becoming a policy challenge; the reports estimates that there is a world-wide shortage of 13.6 million care workers for people over 65+ (p.120). Health shocks such as HIV/AIDS are identified as another emerging care gap, which is the care of permanently ill people. Finally, the report underlines that climate change is another contributor to the emerging crisis of care as ecological conditions particularly in rural setting of the South deteriorate (such as water and biomass fuel shortages), increasing the care burden on women and threatening livelihoods of hundreds of millions of people.

İlkkaracan (2013) suggests a purple economy vision to address the problem of unpaid caring labor and the threat that it poses to long-run sustainable growth. The color purple comes from its symbolic meaning as the color adopted by the feminist movement in many countries around the world. The purple economy vision parallels the green economy vision, which was developed in response to the environmental crisis. The vision has been extended also to entail solutions to the economic crisis and the problem of rising unemployment through green jobs. A purple economy provides an alternative future vision for a new economic order complementing the green economy and addressing the multiple systemic challenges. It refers to an economic order which is organized around sustainability of caring labor through a redistributive internalization of the costs of care into the workings of the system, just as the green economy is organized around environmental sustainability through the internalization of environmental costs into production and consumption patterns. One of the four pillars of the purple economy is an enabling macroeconomic environment whereby the impact on distribution and redistribution of the unpaid care burden would become one of the policy criteria while decent employment generation is another.

5   Conclusion

Almost half a century of feminist advocacy has brought substantial visibility to the critical contribution to individual and household wellbeing of unpaid work. Yet the visibility of unpaid work in macroeconomic analysis is much more recent. Integration of unpaid work into national accounts and estimations of household satellite accounts was a pioneering attempt at shifting the issue of unpaid labor from the micro level of the household to the macro level of aggregate production and consumption. This effort has help to illustrate the critical contribution of unpaid work to national wellbeing in addition to individual and household wellbeing.

Beyond simply an accounting exercise, as the above review of literature shows, the consideration of imbalanced gendered distribution of unpaid work is necessary for the formation of good macro policy. Many of the studies reviewed here have shown that if policies do not take account of the extensive amount of unpaid work women perform, and assume women have unlimited time on their hands, they may adversely affect not only the wellbeing of women, but also of children and larger communities, by increasing their workloads. At the same time, it is important for policy makers to understand that the production of goods and services through unpaid caring labor and its imbalanced distribution also determines macroeconomic outcomes, such as growth, savings, investment, employment, productivity and long-term sustainability. The simulations reviewed above show that public investment in caring for children yields substantially more growth and new jobs to the very people one would want to receive the new jobs compared to investment in physical infrastructure. Policy makers need to pay attention to these existing research studies to better inform themselves on the close interactions between unpaid domestic work and economic and social outcomes. Such an accounting of the care economy promises to make a substantial contribution to improving the design and implementation of policies for inclusive growth.

Notes

1. The collection of papers in Bakker (1994) and Çağatay et al. (1995) and Grown et al. (2000) are seminal pieces.
2. The first satellite account studies started in the 1970's by the National Institute for Statistics and Economic Studies in France to measure characteristics of sectors such as education, health, tourism, environment, or to change the structure of accounts by expanding the production boundary such as

measuring household production and other social areas (Landefeld and McCulla 2000). Satellite Accounts were first conceptualized, however, by the System of National Accounts (SNA) in 1993, with the support of accumulated background of research on non-market areas and also as a result of the criticisms of women's and environmental movements (Latigo and Neijwa 2005).

3. Time use surveys collect information on two questions: what types of activities do the individuals in the 15+ adult population engage in; what they do with their time and how much time is spent doing each of these activities. Typically time use surveys require that each surveyed (adult) individual fill a 24-hour diary to show all their activities. Based on these diaries, different activities are categorized and the average and total allocation of time is calculated.

4. İlkkaracan (2012) uses the parallel systems approach to explain low aggregate levels of female employment as a result of capitalist growth accommodating patriarchy as conditioned by a historical conjecture of a relatively unsuccessful attempt at export-led growth process as a later comer to global markets and demographic dynamics.

5. Braunstein, van Staveren, and Tavani (2011) defines "caring spirits" as "the tendency whether determined by social norms or individual motivation to provide care for one's self and others in ways that add to current aggregate demand and future economic productivity" (p.12).

6. Braunstein, van Staveren, and Tavani (2011) explain that these efficiency gains are partly the result of efficiency wage type of dynamics in the paid care sector by increasing labor productivity and quality of care services. For example, the health sector provides more efficient services such that the productivity loss because of sick workers in the labor market is lower (p.27).

References

Akram-Lodhi, Haroon and Lucia Hanmer. (2008). Ghosts in the Machine: A Post Keynesian Analysis of Gender Relations, Households and Macroeconomics. In F. Bettio and Alina Verashchagina (eds). *Frontiers in the Economics of Gender*. New York: Routledge.

AK Europa. (2013). *Social Investment, Growth, Employment and Financial Sustainability: Economic and Fiscal Effects of Improving Childcare in Austria*. AK Position Paper. Brussels and Vienna: AK Europa.

Antonopoulos, Rania, and Kijong Kim (2008). Impact of employment guarantee programmes on gender equality and pro-poor economic development. Policy Brief: Case Study on South Africa. Levy Economics Institute of Bard College. http://www.levyinstitute.org/pubs/UNDP-Levy/South_Africa/Policy_Brief_EPWP_South_Africa.pdf. Accessed 29 October 2016.

Antonopoulos, Rania, Kijong Kim, Thomas Masterson, and Ajit Zacharias (2010). Why President Obama should care about "care": An effective and equitable investment strategy for job creation. Levy Economics Institute of Bard College Public Policy Brief No. 108. http://www.levyinstitute.org/pubs/ppb_108.pdf. Accessed 29 October 2016.

Bakker, Isabella (ed.) (1994). *The Strategic Silence: Gender and Economic Policy*. London: ZED Books.

Beneria, Lourdes, Günseli Berik, and Maria S. Floro (2016). *Gender, Development and Globalization: Economics as If All People Mattered*. New York: Taylor and Francis.

Berik, Günseli, and Ebru Kongar (2013). Time allocation of married mothers and fathers in hard times: The 2007–09 US recession. *Feminist Economics*, 19(3), 152–180.

Braunstein, Elissa (2000). Engendering foreign direct investment: Family structure, labor markets and international capital mobility. *World Development*, 28(7), 1157–1172.

Braunstein, Elissa, Irene Van Staveren, and Daniele Tavani (2011). Embedding care and unpaid work in macroeconomic modeling: A structuralist approach. *Feminist Economics*, 17(4), 5–31.

Çağatay, Nilüfer, Diane Elson, and Caren Grown (1995). Introduction. *World Development*, 23(11), 1827–1836.

Dalla Costa, Maria (1974). *The Power of Women and the Subversion of the Community*. Bristol, England: Falling Wall Press.

Elson, Diane (1994). Micro, meso, macro: Gender and economic analysis in the context of policy reform. In Isabella Bakker (Ed.), *The Strategic Silence: Gender and Economic Policy*. London: ZED Books with the North-South Institute.

Ertürk, Korkut, and Nilüfer Çağatay (1995). Macroeconomic consequences of cyclical and secular changes in feminization: An experiment at gendered macromodeling. *World Development*, 23(11), 1969–1977.

Floro, Maria S. (1995). Economic restructuring, gender and the allocation of time. *World Development*, 23 (11), 1913–1929.

Floro, Maria S. and Gary Dymski (2000). Financial Crisis, Gender and Power: An Analytical Framework. *World Development*, 28(7), 1269–1283.

Fontana, Marzia, and Adrian Wood (2000). Modeling the effects of trade on women, at work and at home. *World Development*, 28(7), 1173–1190.

Fukuda-Parr, Sakiko, James Heintz, and Stephanie Seguino (2013). Critical and feminist perspectives on financial and economic crises: Heterodox macroeconomics meets feminist economics. *Feminist Economics*, 19(3), 4–31.

Giannelli, Gianna C., Lucia Mangiavacchi, and Luca Piccoli (2012). GDP and the value of family caretaking: How much does Europe care? *Applied Economics*, 44, 2111–2131.

Grown, Caren, Elson Elson, and Nilüfer Çağatay (2000). Introduction. *World Development*, 28(7), 1145–1156.

Hansen, Signe, and Lars Andersen (2014). *A Gendered Investment Plan. Economic Policy Brief No 2.* Brussels: Foundation for European Progressive Studies and Economic Council of the Labour Movement.

Hartmann, Heidi (1981). The unhappy marriage of Marxism and feminism: Towards a more progressive union. In Lydia Sargent (Ed.), *Women and Revolution: A Discussion of the Unhappy Marriage of Marxism and Feminism* (pp. 1–41). Cambridge, MA: South End Press.

Himmelweit, Susan (2007). The prospects for caring: Economic theory and policy analysis. *Cambridge Journal of Economics*, 31(4), 581–599.

Humphries, Jane (1977). Class struggle and the persistence of the working-class family. *Cambridge Journal of Economics*, 1(3), 241–258.

İlkkaracan, İpek (2012). Why so few women in the labor market in Turkey: A multi-dimensional analysis. *Feminist Economics*, 18(1), 1–36.

İlkkaracan, İpek (2013). The purple economy: A call for a new economic order beyond the green economy. In LIFE e.V. /GenaNet (Ed.), *Green Economy and Green Growth: Who Cares? Approaching the Linkages between Care, Livelihood and the Green/sustainable Economy* (pp. 32–38). Berlin: Life e.V./German Federal Ministry for the Environment.

İlkkaracan, İpek, and Umut Gündüz (2015). Estimating the value of the care economy: A household satellite account for Turkey. Working Paper. Istanbul Technical University.

İlkkaracan, İpek, Kijong Kim, and Tolga Kaya (2015). The impact of investments in social care services on employment, gender equality and poverty: The case of Turkey. Working Paper. Istanbul Technical University Women's Studies Center. Levy Economics Institute of Bard College. http://www.levyinstitute.org/pubs/rpr_8_15.pdf. Accessed 29 October 2016.

Landefeld, J. Steven, and Stephanie H. McCulla (2000). Accounting for nonmarket household production within a national accounts framework. *Review of Income and Wealth*, 46(3), 289–307.

Latigo, Alfred and Mohammed Neijwa (2005). A new round of time-use studies for Africa: measuring unpaid work for pro-poor development policies. Paper presented at the conference on 'Unpaid work and the economy: Gender, poverty and the Millennium Development Goals', Bureau for Development Policy, UNDP and The Levy Economics Institute of Bard College, New York, 1–3 October 2005.

Lim, Jae-Young (2000). The effects of the east Asian crisis on the employment of women and men: The Philippine case. *World Development*, 28(7), 1285–1306.

Miranda, Veerle (2011). Cooking, caring and volunteering: Unpaid work around the world. OECD Social, Employment and Migration Working

Papers, No. 116. https://www.oecd.org/berlin/47258230.pdf. Accessed 29 October 2016.

Singh, Ajit and Ann Zammit (2000). International capital flows: Identifying the gender dimension. *World Development*, 28(7), 1249–1268.

Stiglitz, Joseph, Amartya Sen, and Jean-Paul Fitoussi (2009). *Report by the Commission on the Measurement of Economic Performance and Social Progress*, www.stiglitz-sen-fitoussi.fr.

United Nations (1996). *Report of the Fourth World Conference on Women.* http://www.un.org/womenwatch/daw/beijing/pdf/Beijing%20full%20report%20E.pdf. Accessed 29 October 2016.

United Nations Development Programme (UNDP) (1999). *Human Development Report 1999*, New York: Oxford University Press.

United Nations Development Programme (UNDP) (2015). *Human Development Report 2015*, Work for Human Development, New York: UNDP.

Vogel, Lise (1995). *Woman Questions: Essays for a Materialist Feminism.* New York: Routledge.

Walters, Bernard (1995). Engendering macroeconomics: A reconsideration of growth theory. *World Development*, 23(11), 1869–1880.

Zacharias, Ajit, Rania Antonopoulos, and Thomas Masterson (2012). Why time deficits matter? Implications for the measurement of poverty. Working Paper. Levy Economics Institute of Bard College. http://www.levyinstitute.org/pubs/rpr_08_12.pdf. Accessed 29 October 2016.

Zacharias, Ajit, Thomas Masterson, and Emel Memiş (2014). Time deficits and poverty: the Levy Institute measure of time and consumption poverty for Turkey. Levy Economics Institute of Bard College Research Project Report. http://www.levyinstitute.org/pubs/rpr_5_14.pdf. Accessed 30 October 2016.

İpek İlkkaracan is Professor of Economics at Istanbul Technical University, Faculty of Management; Associate Director of the ITU Women's Studies Center and a Research Associate at the Levy Economics Institute of Bard College. Her research areas include macroeconomics of unemployment and wages, labor market inequalities, work-life balance policies, time use, the care economy and sustainable growth.

The Challenge of Austerity for Gender Equality in Europe: A Consideration of Eight Countries at the Center of the Crisis

Maria Karamessini and Jill Rubery

1   Introduction

We are in the middle of a global economic crisis which is considered as the worst since the Great Depression of the 1930s. The experience of the crisis in different parts of the globe and countries varies greatly as regards the initial shock, secondary effects, policy responses, and economic and social effects. As regards the political management of the crisis, after significant state intervention and public spending to rescue banks and avoid economic collapse during the initial years, austerity became the

M. Karamessini (✉)
Greek Public Employment Agency (OAED),
Labour Economics and Economics of the Welfare State, Panteion University,
Athina, Greece
e-mail: mkarames@ath.forthnet.gr

J. Rubery
Manchester Business School, University of Manchester,
Manchester, England
e-mail: Jill.Ruhery@manchester.ac.uk

new principle for public policy, especially in Europe, after the financial crisis was converted into a sovereign debt crisis which menaced the breakup of the Eurozone. This twist in the form of the crisis and the character of public policy constitutes a turning point concerning the gendered effects of the crisis which seems to be transforming from a he-cession to a sh(e)-austerity.

The article deals with the comparative experience of women and men in European countries most affected by either the financial or the austerity crises and the challenges posed by the crisis for gender equality. It draws, for its theoretical framework and empirical evidence, on a collective volume recently published by the authors (Karamessini and Rubery 2013) to analyze in particular the implications of the changes observed in labor markets, public policy, political developments, and individual/household responses to the crisis and austerity for both gender inequalities and for gender regimes – defined here to include the gender division of labor, the gender culture, and the gender dimension to the welfare state.

The focus is on a sample of eight European countries – Iceland, the UK, Hungary, Greece, Ireland, Spain, Portugal, and Italy – selected among the European countries that have been most affected by the financial crisis, austerity, and fiscal consolidation. Each entered the crisis at a different time and has experienced different types of problems but all have faced significant adjustment problems (Karamessini 2013a).

The starting point for the analysis is that gender differences in vulnerability to recession and austerity derive from differences in women's position, relative to that of men's, in the job structure, the family economy, and the welfare system and from prevailing social norms on gender roles (Rubery 1988). Women's relative position and prevailing social norms vary by gender regime. The gendered effects of the economic crisis are also nation-specific and depend on its nature, transmission mechanisms, sectoral pattern, and type of policy response to it, and finally, on the gender ideologies developed in its course that influence institutional change (Rubery 2013a).

The argument is made that the closing of gender gaps in the labor market achieved by the deterioration of men's position during the first phase of the crisis may be reversed since the full implementation of austerity is likely to harm women's employment position relatively more. In fact austerity measures risk the reversal of past progress toward gender equality by undermining important employment and social welfare protections and putting gender equality policy onto the back burner. This means that progressive

strategy cannot rely solely on a benevolent state. Greater solidarity needs to be forged between women and men but based around the precondition that gender equality is central to a progressive route out of the crisis.

The chapter is organized in three parts. The first describes the developments of gender regimes before the crisis in the selected countries; the second examines the comparative labor market experiences of women and men during the crisis and austerity in these countries; while the third analyzes the changes in the employment and welfare systems and gender relations during the crisis and discusses their possible implications for the development of gender regimes in Europe.

2   European Gender Regimes Pre Crisis: Converging Divergences

Over the period from the early 1990s until the outbreak of the current global financial crisis the gender regimes of the European countries studied here converged toward a greater and long-lasting integration of women into paid work which had developed in parallel with a decisive shift away from the male-breadwinner family model toward a dual earner/adult worker family model (Lewis et al. 2008; Daly 2011). The dual earner family model had become the most common model in all eight countries but the male breadwinner model remained widespread in Greece, Spain, and Ireland (Karamessini 2013a). Thus, in spite of the wide variety in regimes at the beginning of the period, accounted for by historical legacies and crystallized in different gender contracts (O'Reilly and Nazio 2013), common upward trends emerged, for example, in female employment rates, female aspirations for continuous employment over the lifecycle and gender equality in employment, state support for working parents, and in the shares of dual-earner and lone-parent households. Yet, within these upward trends, strong differences were still observed between countries on each of these dimensions, pointing to a pattern of converging divergences.

Convergence was evident in employment integration for although in all eight countries female employment rates rose significantly over the 1994–2007 period, increase were particularly high in countries with low initial female employment rates such as Ireland and Spain. Only Hungary suffered a fall associated with the ending of the communist regime but female employment rates were rising again toward the end of the period (Table 1). The boost in female employment rates reflected the

Table 1 Female employment rates in selected European countries

	%				
	1994	*2008*	*2012*	*Δ1994–2008*	*Δ2008–2012*
	15–64 y.	*15–64 y.*	*15–64 y.*	*in p.p.*	*in p.p.*
Greece	37.1	48.7	41.9	11.6	−6.8
Hungary	47.8	50.6	52.1	2.8	1.5
Iceland	74.6	79.6	77.8	5.0	−1.8
Ireland	39.8	60.2	55.1	20.4	−5.1
Italy	35.7	47.2	47.1	11.5	−0.1
Portugal	54.1	62.5	58.7	8.4	−3.8
Spain	30.7	54.9	50.6	24.2	−4.3
The UK	61.2	65.8	65.1	4.6	−0.7
EU-27 average		58.9	58.6		−0.3
y = years, p.p. = percentage points.					

Note: Figures for Hungary and Iceland for 1994 come from OECD. Stat
Source: Eurostat online, data extracted on 6.9.2013

continuing rise in women's educational attainment and changes in gender norms and values but was also facilitated by changes in labor market institutions and the welfare state. Part-time employment has been promoted by public policy as a suitable work option for women nearly everywhere; it spread quickly also in countries in which it had been marginal up to the early 1990s such as Italy and Spain. Furthermore, the EU in its employment and social policy urged all EU Member States to improve their parental leave and childcare systems in order to achieve higher maternal employment rates. It thus provided an impetus for substantial improvements in the care regimes of those EU countries that lagged behind the EU average re support to working parents. In our group of countries, this applies to all those of Southern Europe (Karamessini 2013b; Gonzalez Gago and Segalez Kirzner 2013; Verashchagina and Capparucci 2013; Ferreira 2013) as well as to the UK and Ireland (Rubery and Rafferty 2013; Barry and Conroy 2013).

Despite the trend toward convergence in female employment rates (Table 1), the overall dispersion of female employment rates in 2007 still remained high due in large part to national differences in employment rates among the less well educated and at the younger and older ends of the age range. Low employment rates for young women in Greece, Italy, and Hungary reflected difficulties in initial integration into employment.

Table 2 Indicators of cross-country gender differences within employment in selected European countries, 2007

Countries	Public sector employment[a]		Part-time employment[b]		Temporary employment[b]	
	% of all employed men	% of all employed women	% Male dependent employees	% Female dependent employees	% Male dependent employees	% Female dependent employees
Greece	14	28	5.0	13.7	9.3	13.1
Hungary	13	33	1.6	4.2	7.7	6.8
Iceland	14	45	7.8	24.8	11.2	13.6
Ireland	15	38	7.5	34.9	6.7	9.5
Italy	24	18	5.3	31.2	11.2	15.9
Portugal	17	28	2.0	8.7	21.8	23.0
Spain	15	26	3.4	20.8	30.6	33.1
UK	16	43	9.1	37.2	5.3	6.4

[a] Extracts from Karamessini and Rubery (2013) Table 16.6, p. 322 European Labour force survey special tabulations
[b] op.cit. (Table 16.5, p. 321 OECDstat)

These same countries also had very low female employment rates for older workers due to the low activity of these older cohorts in prime age (European Commission 2007), to various early retirement options and to a low legal age of retirement for women in Italy and Greece. At the other end of the spectrum, the female employment rate in Iceland was 80% in 2007, reflecting a long-standing retirement age at 67 for both women and men and integration across a long working life (Thorsdottir 2013). (Table 2)

Gender differences in the employment effects of the crisis depend on the different position of men and women in the job structure, including not only occupational and sectoral segregation of employment by sex but also the relatively greater concentration of women in precarious jobs. According to an EU-wide report by Bettio and Verashchagina (2009), a slight rise was witnessed in the level of occupational segregation in EU-27 between 1992 and 2007 but sectoral segregation increased more strongly. A common feature of all gender regimes before the crisis in the countries examined here was the high concentration of women in the public sector, especially of the higher educated, making these women particularly vulnerable to austerity policies. Women can be more vulnerable to recession than men due to their higher concentration in part-time and temporary work but there were great differences in the level of such concentration

between countries prior to the crisis. Women's greater vulnerability to recession may be also related to their over-representation in some forms of self-employment (unpaid work in family businesses and farms, dependent work classified as self-employment) and in informal work, which were more widespread in the Southern and Eastern European countries of our group before the crisis (Karamessini 2013b; Ferreira 2013; Frey 2013).

3   GENDERED LABOR MARKET EFFECTS UNDER RECESSION AND AUSTERITY: MAIN TRENDS

Assessment of the gendered labor market effects of the crisis is complicated by both the change in the nature of the crisis, from financial crisis and recession to fiscal consolidation and austerity and by the continuing evolving nature of policy responses and outcomes. Any assessment of its overall effects is thus provisional. The impact of the changing contours of the crisis is already evident in so far as although the immediate effects on men were stronger the prospects for women under austerity are bleaker. Thus, although gender gaps have closed, this has occurred in a context where women as well as men have already faced employment loss (Karamessini and Rubery 2013, p. 324); thus, in these eight countries ending the long run upward trend in women's employment. Segregation by sector is the main cause of these gender effects but segregation has switched from being a source of protection against job loss to a cause of exposure to austerity. There is also no evidence of women withdrawing from the labor market in response to the downturn; in fact participation rates particularly among lower educated women tended to increase indicating the presence of an added worker effect. Women are thus not acting as a buffer either in protecting men against job loss or acting as a labor reserve in voluntarily withdrawing from the labor market. Indeed the group that acted most as a buffer was young people of both genders together with male migrants (Bettio and Verashchagina 2013).

3.1   Recession Effects – 'He-cession'

The 'Great Recession' brought about dramatic changes in employment within the selected eight countries, particularly in Greece, Spain, and Ireland where over the period 2008–2012 male employment rates dropped by 14–15 percentage points and female rates by 4–7. Although

women's employment loss is less, these effects reversed the long-term upward trend in female employment rates and pushed up female unemployment rates: among our eight case studies only in Italy and Hungary had the female employment rate by 2012 returned to or exceeded respectively its 2008 level.

Sectoral segregation accounts for much of the pattern of job loss. Men bore the brunt of the initial recession downturn in the male-dominated construction and manufacturing sectors in all countries together with finance in the UK, Iceland, and Ireland. Subsequently the recession spread to the more mixed private services causing women to become more vulnerable to job loss. Although men's unemployment rate rise was higher than women's in all countries except Iceland but if the increases are measured in percentage points they are roughly equal for men and women in Greece and the UK and quite similar in Spain and Portugal (81% and 72% of the male increase, respectively). However, in three countries – Italy, Hungary, and Ireland – the increase for women even on this measure was only around three fifths that experienced by men. Inequalities between younger and older women have also increased in our eight countries. In Ireland, in particular, employment rates for women aged 45–59 have remained roughly stable in the crisis while those for young women have plummeted, resulting in many emigrating to find better job prospects. Moreover those new hires in the public sector – again mainly young women – are being employed after 2010 on terms and conditions up to 30% below the pre-2010 conditions (Barry and Conroy 2013).

In contrast to women acting as a reserve army and voluntarily reducing participation in the labor market in response to the crisis, it has been men whose inactivity rates have increased in all countries while those for women fell except in Ireland. This suggests that an 'added-worker effect' is more likely than any 'discouraged worker effect' in at least seven of the countries, although this trend is for all women while analyses of added versus discouraged worker effects have normally been focused on the behavior of married women. Further evidence of women consolidating their position in the labor market and the family economy is found in the increase in female bread-winner couples between 2007 and 2009 in the seven countries for which we have data (Bettio and Verashchagina 2013) and a parallel reduction in dual-earner couples in the same countries over the same period. As male partners lose their

jobs women are either staying on or even (re)entering the labor force. The implication is also that the crisis has interrupted trends toward a universal adult worker family model where both partners contribute to household budgets. It is probable that it is difficult to make ends meet for many sole breadwinners, whether male or female, but the strain is likely to be greater on women whose earnings opportunities are lower and who are likely to still be responsible for care.

All in all, labor market developments during recession in our group of eight countries confirm that the impact of the crisis on gender inequalities in the labor market has been a downward leveling of gender gaps in employment, unemployment, and economic activity, as demonstrated by Bettio and Verashchagina's (2013) comparative study of EU countries. While these general trends justify the characterization of the initial phase of the Great Recession in Europe as a 'he-cession' for all eight countries, the subsequent experience was different. Three countries experienced GDP growth between 2010 and 2011 but while in the UK this was a 'he-recovery' with male employment increasing while women's employment declined after late 2009 (Rubery and Rafferty 2013), in Italy and Hungary, and Iceland after 2011, there was more of a 'she-recovery' as female employment grew more than male employment.

3.2   Austerity Effects – From 'He-cession' to 'Sh(e) Austerity?'

The key change in employment trends during the austerity phase of the crisis in the eight countries studied here concerns public sector employment. From providing protection from job loss in the early phase public sector employment has become both a key factor in deteriorating demand for labor and in the freezing or deterioration in pay and employment conditions. Due to the higher concentration of female than male employment in the public sector, these developments can be expected to have a greater impact on women than on men although the gender composition of employment in the subsectors in which the cuts take place and the categories of personnel that are laid off also play a role.

Indeed, the pattern of job loss during the crisis and the employment impact of austerity policies by gender across the eight case studies have roughly followed the timing, severity, and form of austerity policies. The turn to austerity has not occurred in all countries at the same time and has been affected by variations in the size and form of fiscal consolidation

Table 3 Change in employment by total and in the public sector* in selected European countries, 2008–2010, 2010–2012

	%			
	Total	(Total female)	All public sector	(All public sector female)
	All NACE		NACE O+P+Q	
2008q2–2010q2				
Ireland	–12.0	(–6.5)	5.1	(3.9)
Greece	–3.4	(–0.8)	1.9	(5.2)
Spain	–9.6	(–5.1)	6.3	(7.3)
Italy	–2.4	(–1.0)	–1.6	(–0.7)
Hungary	–2.3	(0.3)	4.1	(4.8)
Portugal	–4.7	(–3.0)	3.8	(8.1)
UK	–2.4	(–1.5)	4.8	(5.2)
Iceland	–8.0	(–2.6)	1.3	(–2.3)
2010q2–2012q2				
Ireland	–1.5	(–0.5)	–0.2	(–0.5)
Greece	–14.1	(–13.5)	–9.8	(–14.8)
Spain	–5.8	(–2.8)	–0.1	(2.7)
Italy	0.1	(2.5)	0.0	(0.5)
Hungary	2.4	(2.2)	1.8	(0.5)
Portugal	–5.9	(–4.6)	2.7	(2.2)
UK	1.3	(0.9)	–1.8	(–1.0)
Iceland	1.7	(2.6)	–6.3	(–6.4)

* It refers to public administration, defense, compulsory social security, education, health, and social care.
Source: Extract from Karamessini and Rubery (2013), Table 16.8, p. 326. European Labor Force Survey (Eurostat on line) own elaboration

(Karamessini 2013a). Iceland, Ireland, and Hungary adopted austerity policies from the very start of the crisis while in Greece, the UK, and Spain the policies began in earnest in mid-2010 to be followed even later by Portugal and Italy.

To track the impact of austerity Table 3 takes public administration, education, health, and social care as a proxy for public sector employment and shows that in the first phase of the crisis (2008–2010) continued growth in these areas provided protection for overall female employment due to women's high representation. The only exceptions were Iceland and Italy where women's employment fell. During the

next phase this protection effect effectively disappeared as a consequence of stagnant or declining overall employment in six countries with growth evident in only Portugal and Hungary. In the UK, Iceland, and Greece employment fell by 1.8%, 6.4%, and 9.8%, respectively with the large fall in Greece the combined result of huge reductions in temporary jobs, hiring restrictions, and mass take up of early retirement in anticipation of pension reforms (Karamessini 2013b). Employment is set to decline further as redundancies of permanent public sector employees have just started. Although the effect of these reversals to growth between 2010–2012 was to reduce protection for women the pattern of change varied with falls in female employment fell in four countries (though only above the rate for men in Ireland and Greece while in Iceland the fall was roughly equal and in the UK higher for male employment). In the remaining countries female employment rose but only marginally in Italy and Hungary whereas men appeared to be the main beneficiaries of the public works scheme which was launched in Hungary after 2009. Overall employment in these sectors grew by 1.8% compared to only 0.5% growth for women (Frey 2013). Portugal and Spain recorded above 2% increases in employment for women while men's employment grew even faster in Portugal but declined in Spain. However, in both countries where public sector recruitment is now frozen and further job cuts are expected (Gonzalez Gago and Segales Kirzner 2013; Ferreira 2013).

The estimation of the full gendered effects of the crisis on public sector employment is not yet possible as fiscal consolidation plans in the Eurozone's periphery countries and the UK are on-going and even tightening. It is even too early to assess whether the austerity will be a 'he' or 'she' in terms of job loss. It is, however, seriously compromising job opportunities for women, including the higher educated.

3.3   Labor Market Flexibility and Deregulation

The crisis has not only changed aggregate trends in economic activity patterns but also employment conditions. In the first place non-standard forms of employment have been used by employers as flexibility buffers involving the flexibilization/feminization of employment and working conditions for men. Temporary employment has mainly enabled firms to make rapid reductions in employment to cope with the downturn in demand and to make new hires without offering employment security.

Table 4 Changes in part-time and temporary employment in selected European countries, 2008–2011

	End-initial year change (%)			
	Part-time		Temporary	
	Men	Women	Men	Women
Greece	16.6	–4.7	–8.7	–13.1
Hungary	65.5	45.4	6.5	18.8
Iceland	16.7	0.6	20.4	18.4
Ireland	28.0	1.5	8.6	–3.1
Italy	5.4	3.1	3.1	–4.7
Portugal	37.0	–5.9	–5.8	–6.3
Spain	25.8	–0.8	–24.4	–18.6
The UK	12.0	3.8	17.7	6.5

Source: Extract from Karamessini and Rubery (2013), Table 16.9, p. 328. OECDstat

Women's greater concentration in temporary jobs pre crisis resulted in women facing greater loss of temporary jobs in seven of the eight countries, the exception being Spain (Table 4). They have also benefited less than men from new hires on such contracts – except in Hungary.

The main change in part-time work has been first in the share of involuntary part-time work that has increased for both men and women in all our countries (Bettio et al. 2013, figure 1.8) and second the much faster increase in male part-time jobs, while for women the extent of part-time working has remained relatively stable. This development in male part-time work is probably related to the conversion of full-time jobs into part-time to reduce redundancies but men still have a long way to go to catch up with women's part-time employment rate. Hungary has experienced exceptional rises in part-time for both men and women but these are increases from a very low starting point and reflect both work sharing policies and the large-scale public works jobs scheme (Frey 2013).

The second impact on employment conditions comes from labor market deregulation measures. Pressure for deregulation has stemmed from a policy agenda which has assumed that deregulation will assist not only labor market flexibility and responsiveness but also the austerity aims of internal devaluation in indebted Eurozone countries and reduced public deficit. While the rhetoric focuses on removing privileges for labor market

insiders, who are normally expected to be men in practice many of the policies increase deregulation in secondary labor market segments where women are most affected. Thus, the labor market reform programs have not only focused on reducing wage premiums and other apparently favorable conditions in the public sector but also on reducing legal rights and protections but also limiting the extent of the coverage of collective bargaining arrangements in the private sector. These developments not only have immediate short-term effects on particular groups of men and women including the unemployed, the low paid, lone parents, and public sector employees but also may lead to fundamental changes in social models and gender regimes, as discussed in the next section.

4   Austerity and the Development of Gender Regimes in Europe

In the pre crisis period, as we have described, we witnessed a process of converging divergence in European gender regimes as countries with limited female employment and underdeveloped welfare support for care improved their performance, even if significant variation remained around a generally rising European average level of gender equality. In contrast the austerity period seems likely to lead to renewed widening of differences among countries around a falling average standard of gender equality (Karamessini and Rubery 2013). This overall decline is certain if gender equality is measured by reference to women's economic position compared to the trajectory for women pre crisis rather than in relation to gender gaps which narrow because men's position is deteriorating faster.

The likelihood of renewed divergences arises from the austerity measures being more severe in European countries that were already toward the bottom end of European rankings by either employment performance or welfare state support or both – for example, in Greece, Spain, Italy, Ireland, and Hungary. Among the countries we focused on – that are most of those at the center of the crisis and austerity – only Iceland had a well-established gender regime based on both high levels of integration and strong welfare support (Thorsdottir 2013). The UK, Portugal, and in the immediate pre crisis years also Ireland had relatively high employment rates for women, though integration in the UK and Ireland is lower if a full-time equivalent employment rate measure is used. All three countries had moved toward developing more welfare support for working parents

but these were emerging developments which rendered them potentially vulnerable in the crisis.

While the time period is too short to assess the longer term outcomes of austerity on gender equality, we can identify current trends within each of the three spheres that directly impact on gender equality – namely the labor market, welfare systems, and gender relations – and offer some predictions of potential scenarios. One feature to emerge is the strong scope for contradictions in the different trends and it is through these contradictions that pressure could come to bear upon policymakers to review and possibly change the direction of current policies. Thus, the purpose here is not only to map out for policymakers a new internally consistent approach to gender regimes, compatible with the austerity vision but to identify the pressure points and inconsistencies which may yet help to turn the political tide.

4.1   Labor Market Developments

There are several interacting trends with respect to labor market developments which may lead to considerable changes both to the absolute and relative positions of women and men in the labor market. Austerity policies, especially when combined with increased deregulation of the labor market, may serve to exacerbate already existing trends or even constitute a turning point in a country's employment model. Labor market change is unlikely to have even effects either by gender or within genders, so instead of discussing overall trends we consider the likelihood of divergent trends by gender and education level, as a proxy also for social class.

If we look first at prospects of lower educated men and women, there has been a long-term tendency toward a hollowing out of the labor market in middle level jobs in some European countries (Fernandez-Macias et al. 2012; Hurley et al. 2013), which has negative impacts on prospects for less advantaged men. In the past most men, at least by prime age, might hope to escape from low-paid or precarious work, while women faced this prospect often through their life course. Recession and austerity has increased this hollowing out in more countries (Hurley et al. 2013) and in the future one might expect more men to find themselves trapped alongside women in low-paid and precarious work. Evidence to support this notion comes from the loss of wage income among men (Bettio et al. 2013), the similarities in men and women's involvement in temporary

employment and the high rates of increase in part-time work among men (part-time work as a share of men's employment rose from 7.7% to 9.5% 2007–2012 for EU27 while for women the increase was lower from 31.2% to 32.6% (European Labor Force Survey Eurostat online database)

However, despite these signs of convergence there is still the likelihood of gender-specific forms of precarious and low-paid work; it is not that plausible for example that care sector jobs, one of the main areas for job growth, will be filled equally by men and women. It is more plausible that these will remain female jobs, either in the formal but low-paid sector, or even informal economy jobs filled by migrant female labor (Simonazzi 2009). It is also likely in countries where most low-paid work is part-time that women will continue to dominate these lower paid job areas as the existence of these jobs which do not provide living wages presupposes another breadwinner in the household.

Prospects for those at the bottom of the labor market are critically dependent upon policies to regulate employment conditions, particularly with respect to the level of minimum wages, the extension of collective agreements to non-signatory employers and of course the enforcement of regulation. In most cases so far, while there have been widespread real wage cuts in minimum wage rates (ETUI 2013), only a few countries – such as Greece and under the instructions of the troika – have introduced nominal wage cuts as well. Austerity measures are also challenging the practices of extending collective agreements – for example, in Spain and Portugal (ETUI 2013) – which is likely to have a major impact on those in the most precarious labor market segments. These changes could signal a turning point, converting these employment systems from inclusive high collective bargaining coverage to exclusive collective bargaining systems where coverage is confined to areas of strong trade union regulation, with potentially negative effects for women.

For higher educated women the most significant labor market developments under austerity has been the pressure on pay, employment conditions and jobs in public services where a majority of higher educated women in our country sample tend to be employed (Karamessini and Rubery 2013, Table 16.6, p. 322). These public sector adjustments have variously involved redundancies, low ratios for rehiring after quits, further outsourcing, wage freezes or wage cuts, barriers to promotion, reduced pensions and/or specific levies for pensions, removal of collective bargaining processes, increases in hours of work, and increased work intensity (Rubery 2013b). This multi-pronged downgrading of the material

conditions in public sector employment has been accompanied in many cases by an intensification of the rhetoric against the work ethic and indeed value of public service workers (Cardona 2009). Given the high importance of public services as a source of employment for higher educated women, the impact of these combined developments can be expected to have strong gender effects, leading to widening of gender pay gaps for the higher educated, even when these are already often higher than for the lower educated (Arulampalam et al. 2007). For some countries these developments are not new; in Hungary as in other Eastern European countries there is a long-term tradition of low value attached to highly skilled work in public services associated often with labor shortages (Rubery 2013b) but it is also clear that these problems would be likely to be greater if public services were not staffed by women. In short, instead of being relied on as a promoter of gender equality, the state may increasingly rely on women's relatively disadvantaged position to resolve its fiscal problems by downgrading employment conditions.

What are the implications of these divergent developments for the overall prospects for gender equality in Europe in the future? First of all the tendency toward greater convergence between lower educated women and men may detract attention from gender equality as an important social goal, even though this greater equality has only been brought about by a leveling down of employment conditions for men. At the same time education may no longer provide the basis for women to enter into quality employment, particularly for those in countries which have downgraded the size or the quality of public sector employment. Women may in response increasingly seek careers in the private sector but the barriers to entry are unlikely to diminish under the twin effects of austerity which is undoubtedly increasing competition for jobs in the private sector and deregulation which may increase expected working hours and reduce the likelihood of work life balance policies which the public sector has provided in many countries.

A further issue is the future commitment to raising female employment rates which became a mantra of both European and in many cases national employment policies in the decade prior to the crisis. At the European level this commitment has not quite disappeared but has become increasingly invisible (Villa and Smith 2013), hidden behind a joint employment rate target for men and women, and at a national level attention has been primarily focused on job loss for men with the continuing employment gap for women being given limited attention. Furthermore, the focus has

changed from generating a large labor supply to providing more jobs to resolve the unemployment problem, in particular that for youth. Nevertheless, some key elements of the policy of raising the employment rate for women still remain, that is where not working would lead to a charge on the state. Thus in the UK there has been increased pressure on lone parents to work with ever younger children (Rubery and Rafferty 2013), and in many countries women are being required to work longer if they wish to be eligible for a pension. Thus, inactivity among women is increasingly only tolerated when the responsibility for supporting the inactivity lies with the family, that is, with the husband in most cases for mothers or with parents for young people.

4.2   Social Policy Developments

Social policy is critical for gender equality; social provision of care services is the only form of support compatible with women's effective integration into employment, which does not result in either some form of exploitation of the labor of other women or in a care deficit (including low fertility rates). There are no examples of effective integration of women, at an aggregate level, based on men's voluntary participation in care work; any changes in the domestic division of labor between men and women have at most been marginal and significant participation by men may be heavily penalized in the labor market without policies to support these gender role changes. The alternatives to social provision are first to rely on other family members such as grandmothers but this policy cannot last more than a generation as grandmothers would then be also in employment; this in fact happened in Portugal, prompting a late development of welfare support (Tavora 2012; Ferreira 2013). Where family support is insufficient, women may in fact rely on cheap female domestic labor where wage inequalities are high or externally sourced female labor in the form of legal or illegal migrant female care labor (in Southern European countries – Simonazzi 2009). On this basis the inclusion of childcare targets as an element of European employment policy from 2000 onward represented a major step forward and led to quite widespread development of childcare provision in most of our case study countries. Elder care support was also being developed in some of the countries – for example, in Spain after a new 2007 law – where the tradition had been to rely on the family.

Against this background of progressive, even if slow, defamilialization of care, the austerity period appears to be halting and even reversing progressive developments. Announced programs for childcare development have been halted or closed down (e.g., in Italy, the UK) and in Spain the elder care developments have been put on hold. Even the more traditional support for families in the form of child benefits to support the costs of child raising have been cut back in many countries suggesting a reversal in willingness to fund the general costs of social reproduction. These policies have direct and immediate impact on families but particularly mothers who often have responsibility for household budgets. As such they may act to reinforce women's work commitments even as childcare support is being cutback. Much of the current cutbacks are predicated on the expectation that women will take up the slack by providing unpaid care work. However, women have not only invested more in their education but are also likely to be aware of the reduced capacity of male partners to provide lifelong support due to both higher divorce rates and declines in family wage secure jobs. In this context it is unlikely that there will be an orderly retreat by women into domestic work.

Nevertheless, the longer term effects on both fertility and the quality of child support may be severe. It is notable that when cases are made for investment in infrastructure to boost growth in the context of prolonged recession most of the focus is on physical infrastructure projects and not on human development projects which are assumed to be less productive (Perrons and Plomien 2013). In this context the recent announcement of a social investment package from the EU which promotes in particular investment in children (EC 2013) is welcome even though there is little evidence of funding or commitment outside of DG employment within the EU.

Other changes taking place in European social models are also likely to have negative impacts on gender equality. First there are the widespread pension reforms which are adding to the years of full-time work needed for a full pension, with the burden falling particularly on women as they have the most interrupted careers. Some countries provide some compensation for years spent in care work but women's pensions are likely to further lag behind men's as a result of the extended time period for full pensions. In some countries there is also a trend toward more targeted benefits involving more household means testing which has negative impacts on women. This is a relatively new departure, for example, in Portugal but is an intensification of a common practice in the UK. However, even in the

latter case recent policies are reversing major gains won by women some decades ago and that was for benefits for children to be paid to the main care giver. The new benefit regime will provide all benefits to only one member of the family on the spurious and clearly anti-feminist proposition that the state should not interfere in internal family issues.

4.3   Gender Relations and Ideology

A key issue in considering the future development of gender regimes is the future of both public policy and individual attitudes and responses to gender equality and gender roles. These two dimensions are not necessarily developing in the same direction. Thus, at both the EU and national level, the crisis and austerity has been taken by policymakers as an opportunity to back pedal on commitments to gender equality. This applies not only to the promotion of women's employment within employment policy but also to resources to implement gender equality policies and principles. In Ireland gender mainstreaming arrangements have been discontinued, in the UK budgets for implementing gender equality cut back and gender impact assessments of legislation ended, and in Spain the Equality Ministry was dissolved (Karamessini and Rubery 2013, table 16.11, p. 335).

At the same time at the individual and the household level there appears in many cases to have been a reinforced commitment among women to wage work; under recession and austerity the so-called added worker effect has been dominating over discouraged worker effects (Bettio et al. 2013). These responses by women may serve to keep issues such as childcare on the policy agenda even though policymakers would prefer to return to a situation where the state took no role in childcare provision. These same policymakers would, however, wish women to spend ever longer years in employment in order to earn rights to a pension; these long careers are unlikely to be possible for all if many are prevented from staying in or re-entering employment due to a shortage of childcare. If careers are interrupted for too long a period, women will only be able to return to poor quality jobs and it may be more difficult to sustain these into relative old age. Thus, there are many inconsistencies in the approach associated with the presence of both a traditional view of the family and women's role therein and a set of policies for welfare reform based on the notion of longer working lives for both men and women.

These multiple ideologies or perspectives on women's role are probably always present but the recession has provided fertile grounds for

conservative gender ideologies to flourish, most notably in the USA with the rise of the Tea Party and more restrictive abortion legislation at state level but also in Spain where abortion rights are due to be curtailed. These movements are not necessarily supported by citizens and particularly by women themselves, as witnessed by the importance of the female vote in the re-election of Obama. In Hungary there has been an explicit move away from gender equality in favor of a more nationalistic family policy by the government (Frey 2013) but the support for this approach among citizens is unclear. Nevertheless, there remains the ever present danger of a conservative ideological backlash, especially in countries where notions of gender equality have not taken strong root.

5 Conclusions

This review has considered the immediate and longer term implications of recession and austerity for a group of eight countries that have been among those most affected by the financial crisis or the austerity policies or both. The implications for the future of both gender equality and social models may thus be expected to be stronger in this sample than across the whole of the EU. However, changes induced in these countries could also set in train changes elsewhere, particularly with respect to employment and social models. Nevertheless, the changes to date may be expected to be less evident in countries less affected by the crisis such as Sweden, Germany, and even France.

The immediate gender effects of both recession and austerity are primarily explained by prevailing patterns of gender segregation interacting with the scale of demand changes. It is gender segregation that primarily accounts for men's higher rate of job loss in the financial crisis and women's prospects of greater job loss under austerity. These predictable short-term effects on employment opportunities by gender do not thereby provide an appropriate measure for longer term prospects; in particular short-term reductions in gender gaps as men face demand downturns are not indicative of any underlying trends in the treatment of gender in the labor market. Nevertheless, some of the patterns of change uncovered in the labor market, in social policy, and in gender relations do indicate longer term consequences but with varied impacts on men and women and by social class. These longer term impacts may apply primarily to this group of countries but to the extent that they imply changes to common trends across Europe, their significance may be more widespread.

The first longer term implication is that the intensity and length of the recession and austerity period is clearly emboldening employers and governments to reduce employment protection and pay for both men and women. This is likely to have longer term consequences in creating more flexible and less regulated labor markets, potentially leading to greater convergence at the bottom of the labor market in the prospects for men and women, even though more women are still likely to be concentrated in this segment. This downward convergence is to some extent already evident in lower pay for men (Bettio et al. 2013) and in higher representation of men among part-time workers. Further trends in that direction are likely to intensify problems of the working poor in Europe, such that being in work will be insufficient for individuals or families to escape poverty (Fraser et al. 2011).

The second longer term implication is that there could be a long-term downgrading of the status and pay of public sector employment with particularly negative implications for job quality for highly educated women (Rubery 2013b). Such a trend would intensify rather than reduce the problems of undervaluation of care and service work undertaken by women by reducing the quantity or quality of employment in the public sector, one area where women have had access to stable protected and more gender equal employment, as public sectors have in many countries been at the forefront of implementation and promotion of gender equality policies. This trend could also mean that the pattern for higher educated or higher class women relative to their male counterparts could go in the opposite direction than for the lower educated, that is, toward greater divergence.

This second trend also links to the third and that is the retreat from high quality social services to support and replace women's domestic labor. The slowing down or even reversal of the policy of defamilialization of care also indicates a potential change in the value attached to these non-market concerns and activities, and initiating a further stage in the Polanyian shift to the dominance of the market at the expense of the community. This push toward ever more market values might, as Polanyi (2001) has argued, eventually provoke resistance or a double movement back to greater power to the community over the market. Here, however, we need to recognize Nancy Fraser's (2012) warning that this double movement could imply a push back toward 'traditional values'. It is thus vital in any resistance to the marketization of the European social model that the need is also recognized for these traditional values also to be transformed into a more inclusive and gender equal set of values.

The justification, if needed, for continuing with a progressive gender equality policy can also be found in the behavior of European citizens and households during the recession and austerity. There is no evidence of women retreating from the labor market, or even that they are regarded by employers as less desirable employees; indeed in many countries younger women are faring better in the labor market than younger men, as measured by access to employment, although women may be more likely to accept jobs below the level associated with their education or experience (Elias and Purcell 2013). Furthermore, women's earnings are ever more important for family budgets making it unrealistic to expect any return to a traditional male breadwinner family model.

Women's employment is thus a vital part of any sustainable and equitable model for recovery at both a macro and a micro household level. Contrary to the early years of the European Employment Strategy, there can be no reliance on the state promoting women's employment as an important element of both macro and micro economic sustainability and security. However, there are greater grounds for seeing converging interests of men and women, particularly among lower skilled groups, as both sexes face the problems of downgraded employment conditions and difficulties of making ends meet in single earner households. While developing an alternative macro strategy will still require recapturing the state from the interests of financial capital it is essential that men and women both agree on a common vision of a more equitable, more gender equal and, more sustainable strategy for exiting the crisis (Perrons and Plomien 2013).

References

Arulampalam, Wiji, Alison Booth, and Mark Bryan (2007). Is there a glass ceiling over Europe? Exploring the gender pay gap across the wage distribution. *Industrial and Labor Relations Review*, 60(2), 163–186.

Barry, Ursula, and Pauline Conroy (2013). Ireland in crisis: Women, austerity and inequality. In Maria Karamessini and Jill Rubery (Eds.), *Women and Austerity: The Economic Crisis and the Future for Gender Equality*. London: Routledge.

Bettio, Francesca, and Alina Verashchagina (2009). Gender segregation in the labor market: Root causes, implications and policy responses in the EU. Report by the European Commission's Expert Group on Gender and Employment Issues, European Communities, Luxembourg: Publications Office of the

European Union. ec.europa.eu/justice/gender-equality/document/index_en.htm. Accessed 13 January 2013.

Bettio, Francesca, and Alina Verashchagina (2013). Women and men in the great European recession. In Maria Karamessini and Jill Rubery (Eds.), *Women and Austerity: The Economic Crisis and the Future for Gender Equality*. London: Routledge.

Bettio, Francesca, Marcella Corsi, Carlo D'Ippoliti, Antigone Lyberaki, Manuela Samek Lodovici, and Alina Verashchagina (2013). The impact of the economic crisis on the situation of women and men and on gender equality policies. External report commissioned by and presented to the EU Directorate-General for Justice, Unit D1 Equality between Women and Men. http://ec.europa.eu/justice/gender-equality/document/index_en.htm. Accessed 3 April 2013.

Cardona, Francisco (2009). Attractiveness of the public service: A matter of good public governance. SIGMA OECD and EU Report. http://www.oecd.org/site/sigma/publicationsdocuments/44110902.pdf. Accessed 30 October 2016.

Daly, Mary (2011). What adult worker model? A critical look at recent social policy reform in Europe from a gender and family perspective. *Social Politics*, 18(1), 1–23.

Elias, Peter, and Kate Purcell (2013). Classifying graduate occupations for the knowledge society. Futuretrack Working Paper 5. http://www2.warwick.ac.uk/fac/soc/ier/futuretrack/findings/elias_purcell_soche_final.pdf. Accessed 30 October 2016.

Enrique, Fernandez-Macias, Hurley John, and Storrie Donald (Eds.) (2012). *Transformation of the Employment Structure in the EU and USA 1995–2007*. New York: Palgrave Macmillan.

ETUI (2013). Benchmarking Europe. http://www.etui.org/Publications2/Books/Benchmarking-Working-Europe-2013. Accessed 30 October 2016.

European Commission (2007). Active ageing and labor market trends for older workers. In European Commission, *Employment in Europe 2007* (pp. 53–122). Luxembourg: Office for Official Publications of the European Communities.

European Commission (2013). Towards social investment for growth and cohesion – Including implementing the European social fund 2014–2020. Communication from the Council Commission 83. http://ec.europa.eu/social/main.jsp?langId=en&catId=1044&newsId=1807&furtherNews=yes. Accessed 30 October 2016.

Ferreira, Virginia (2013). Employment and austerity: Changing welfare and gender regimes in Portugal. In Maria Karamessini and Jill Rubery (Eds.), *Women and Austerity: The Economic Crisis and the Future for Gender Equality* (pp. 207–227). London: Routledge.

Fraser, Nancy (2012). Can society be commodities all the way down? Polanyian reflections on capitalist crisis. Fondation Maison des sciences de l'homme

Working Paper 18. https://halshs.archives-ouvertes.fr/halshs-00725060/document. Accessed 30 October 2016.

Fraser, Neil, Rodolfo Gutiérrez, and Ramon Peña-Casas (2011). *Working Poverty in Europe: A Comparative Approach.* Basingstoke: Palgrave MacMillan.

Frey, Maria (2013). The labor market impact of the crisis in Hungary through the lens of gender equality. In Maria Karamessini and Jill Rubery (Eds.), *Women and Austerity: The Economic Crisis and the Future for Gender Equality* (pp. 144–164). London: Routledge.

Gonzalez Gago, Elviara, and Marcelo Segalez Kirzner (2013). Women, gender equality and the economic crisis in Spain. In Maria Karamessini and Jill Rubery (Eds.), *Women and Austerity: the Economic Crisis and the Future for Gender Equality* (pp. 228–247). London: Routledge.

Hurley, John, Enrique Fernández-Macías, and Donald Storrie (2013). Employment polarisation and job quality in the crisis: European Jobs Monitor 2013 EuroFound Dublin http://www.eurofound.europa.eu/pubdocs/2013/04/en/1/EF1304EN.pdf. Accessed 30 October 2016.

Karamessini, Maria (2013a). Introduction – women's vulnerability to recession and austerity: A different crisis, a different context. In Maria Karamessini and Jill Rubery (Eds.), *Women and Austerity: The Economic Crisis and the Future for Gender Equality* (pp. 3–16). London: Routledge.

Karamessini, Maria (2013b). Structural crisis and adjustment in Greece: Social regression and the challenge to gender equality. In Maria Karamessini and Jill Rubery (Eds.), *Women and Austerity: The Economic Crisis and the Future for Gender Equality* (pp. 165–185). London: Routledge.

Karamessini, Maria, and Jill Rubery (2013). Economic crisis and austerity: Challenges to gender equality. In Maria Karamessini and Jill Rubery (Eds.), *Women and Austerity: The Economic Crisis and the Future for Gender Equality* (pp. 314–351). London: Routledge.

Lewis, Jane, Mary Campbell, and Carmen Huerta (2008). Patterns of paid and unpaid work in Western Europe: Gender, commodification, preferences and the implications for policy. *Journal of European Social Policy*, 18(1), 21–37.

O'Reilly, Jacqueline, and Tiziana Nazio (2013). Challenging the balkanization of gender contracts. In Maria Karamessini and Jill Rubery (Eds.), *Women and Austerity: The Economic Crisis and the Future for Gender Equality* (pp. 37–53). London: Routledge.

Perrons, Diane, and Ania Plomien (2013). Gender, inequality and the crisis: Towards more equitable development. In Maria Karamessini and Jill Rubery (Eds.), *Women and Austerity: The Economic Crisis and the Future for Gender Equality* (pp. 296–313). London: Routledge.

Polanyi, Karl (2001). *The Great Transformation: The Political and Economic Origins of Our Time.* Boston: Beacon Press. (First published in 1944).

Rubery, Jill (ed.) (1988). *Women and Recession*. London and New York: Routledge and Kegan Paul. (Reprinted in 2010).

Rubery, Jill (2013a). From 'women and recession' to 'women and austerity': A framework for analysis. In Maria Karamessini and Jill Rubery (Eds.), *Women and Austerity: The Economic Crisis and the Future for Gender Equality* (pp. 17–36). London: Routledge.

Rubery, Jill (2013b). Public sector adjustment and the threat to gender equality. In D. Vaughan-Whitehead (ed.), *Public Sector Shock* (pp. 43–83). Geneva and Northampton, MA: ILO and Edward Elgar.

Rubery, Jill, and Anthony Rafferty (2013). Gender, recession and austerity in the UK. In Maria Karamessini and Jill Rubery (Eds.), *Women and Austerity: The Economic Crisis and the Future for Gender Equality* (pp. 123–143). London: Routledge.

Simonazzi, Annamaria (2009). Care regimes and national employment models. *Cambridge Journal of Economics*, 33(2), 211–232.

Tavora, Isabel (2012). The southern European social model: Familialism and the high rates of female employment in Portugal. *Journal of European Social Policy*, 22(1), 63–76.

Thorsdottir, Thora (2013). Iceland in crisis: Gender equality and social equity. In Maria Karamessini and Jill Rubery (Eds.), *Women and Austerity: The Economic Crisis and the Future for Gender Equality* (pp. 103–122). London: Routledge.

Verashchagina, Alina, and Marina Capparucci (2013). Living through the crisis in Italy: The labor market experiences of men and women. In Maria Karamessini and Jill Rubery (Eds.), *Women and Austerity: The Economic Crisis and the Future for Gender Equality* (pp. 248–269). London: Routledge.

Villa, Paolo, and Mark Smith (2013). Policy in the time of crisis: Employment policy and gender equality in Europe. In Maria Karamessini and Jill Rubery (Eds.), *Women and Austerity: The Economic Crisis and the Future for Gender Equality* (pp. 273–294). London: Routledge.

Maria Karamessini is Professor of Labour Economics and Economics of the Welfare State at Panteion University of Social and Political Sciences, Athens. She has published extensively on labour market issues, employment and social policy, gender inequalities in paid work, youth labour market integration and, recently, on labour market reforms and austerity policies in Greece.

Jill Rubery is a professor of Comparative Employment Systems and founder and co-director of the European Work and Employment Research Centre at Manchester. Her research focuses on the inter-disciplinary comparative analysis of employment systems, including the organization of internal labor markets, wage structures and payment systems, employment regulation and minimum wage systems, working time arrangements and welfare systems.

Women, Recession, and Austerity: A Comment on "The Challenge of Gender Austerity for Equality: A Consideration of Eight European Countries in the Crisis"

Lourdes Benería

One would hope that the negative effects of the 2007–08 economic crisis would be past history in 2016, when I am writing this text. Instead, in many countries we find a growing concern for its lasting impact and continuous deterioration of labor market conditions, raising inequality, sluggish growth, and even threads of a global crisis. On the other hand, the signs of increasing poverty become painfully manifest in many of our cities, particularly in view of parallel manifestations of luxurious consumption and wealth. Although Maria Karamessini and Jill Rubery's initial paper was published in 2015, it is still highly relevant—if not more so than a few years ago—to assess labor market changes, in general, and their implications from a gender perspective (Karamessini and Rubery, this volume). Following an institutional framework, the chapter presents empirical evidence from eight European countries within a theoretical framework focusing on how evolving labor market conditions during

L. Benería (✉)
Department of City and Regional Planning and Feminist, Gender, and Sexuality Studies, Cornell University, New York, NY, USA
e-mail: lbeneria@cornell.edu

and after the crisis and the implementation of austerity policies can impact the multiple factors affecting women and gender relations. The theoretical framework is the one built by Rubery (2013), which identifies gender as a "relevant variable in assessing the outcomes of change" and as a "factor that may shape the specific path of adjustment" (p. 17). This chapter is rich in its analysis of the tendencies and complexities involved in that process of change although I would argue that it is richer on the institutional economics side than on its connections with the feminist literature focusing on gender inequality and labor markets. To the extent that the authors engage with the feminist literature on gender inequality and labor markets, they do so within the context of the recession. Yet, the connections of their work with the feminist literature are many. The chapter emphasizes the notion of gender relations as a social construction within a specific historical and institutional context. And it provides many useful insights for empirical work on the relevant factors involved, including the extent of women's labor force participation, patterns of sex-typing and segregation, feminization, wage formation, the family economy, and welfare. Empirically, the authors document the increase in women's employment rate in these European economies from 1994 to 2008, and the subsequent decline in all but one of the eight economies featured during and after the recession between 2008 and 2012.

The chapter focuses on the eight European countries most affected by the recession and/or austerity in its aftermath and discusses the influence and differences between the gender regimes involved. Their analysis pays attention to their historical development and the more recent trends affecting gender relations and gender-related policy. Gender ideologies and corresponding gender norms are the contexts that shape the processes affecting women's place in the labor market and in the economy as a whole, including the care economy. Among the more recent developments affecting gender regimes in recent years, Karamessini and Rubery include the almost universal trend toward women's increased participation in higher education, high levels of labor force participation, the increasing frequency of households with dual earners, the decline in fertility and marriage rates, and changes in family models. Their basic question then is how all these factors affect and have been affected by the recession itself and policy responses to the recession, long-term institutional change in gender relations, employment, and welfare systems. Conceptually, what I miss in their list of basic analytical tools and empirical variables is more specific references to gender norms and their evolution as a way of

understanding changes in gender inequality/equality, even though this is clearly implicit in the chapter's analysis.

The emphasis on gender regimes is important given the diversity among European countries regarding the institutional basis of gender inequality at different levels of the productive and reproductive economy. Despite differences among them, in recent decades there have been similar tendencies across European countries, such as the increasing numbers of women in higher education and rising labor force participation rates, with the corresponding increases in dual earner households, but also, in the acceptance of children born outside marriage. Country differences in these factors have had an influence on the responses to the economic crisis along with the crisis' prevalent transmission mechanisms.

In this respect, it is indeed important to differentiate, as Karamessini and Rubery's study does, between the effects of the economic crisis after the bursting of the bubble—from 2007–08 on—and those generated by the austerity policies that followed in many countries to deal with debt problems. It is well known that the initial crash generated rapid increases in male unemployment, particularly in construction and manufacturing with predominantly male jobs; countries such as Ireland, Greece, and Spain provided typical examples of exploding construction bubbles. At that initial stage, women's employment was less affected due to their concentration in the service and public sectors where female employment tended to concentrate. But as austerity policies were introduced and concentrated on the reduction of debt through budget cuts, they particularly hit these sectors. As a result, women's jobs were severely curtailed and female unemployment increased rapidly. To illustrate with the case of Spain, the pre-crisis unemployment rate was much higher for women than for men (7% and 10%, respectively in 2007); the male rate began to rise quickly in 2008, while the female rate grew more slowly. Hence the gender gap in unemployment narrowed and became negligible by 2009–10, although it has been growing again since then and, by the last quarter of 2014, women's unemployment rate was 22.5% and that of men 19.5% (Benería 2015). At the same time, women's labor force participation increased while that of men decreased, reducing the gender gap by about 15 percentage points between 2005 and 2012, even though the gender gap in employment rates was still important in 2014 (65% for men and 54.8% for women). In addition, for many women, austerity measures have intensified their reproductive and care work as a result of cuts in public funding for the care of dependents, of school meals, and of

programs to help balancing market and family work. Women have also been hurt in other ways, such as with the consequences of numerous evictions that have left them with increased responsibility for family survival, particularly in cases of separation and divorce. Since poverty has increased substantially as a result of the crisis, it has generated more survival work, particularly for women. This process has had similarities with that of other countries (Antonopoulos 2014) and also many parallels with those originated by structural adjustment policies in developing countries during the 1980s and 1990s.

Karamessini and Rubery were right in arguing that the crisis is likely to lead to far reaching social and economic changes. We have already witnessed many of them, and the potential for longer-term institutional change in gender relations, employment, and welfare regimes continues to be present. As they argue, the crisis and austerity has been taken by the EU and national policymakers as an "opportunity to back pedal on commitments to gender equality." Their chapter provides a very detailed and rich framework of analysis, drawing on the notion of gender relations as socially constructed and on the debates about institutional change and varieties of capitalism. It takes account of what Rubery (2013) described as the "multiple and contradictory ideologies underpinning gender relations" even within the same country, pointing out that ideologies are subject to change (p. 26). In terms of institutional change, Rubery (2013) is likely to be right in stating that "gender relations have probably experienced more sustained change than other institutional domains" resulting in mismatches between gender relations at different levels and the ways institutions and labor markets have embedded them (p. 27). This, of course, begs for empirical work providing examples that illustrate the claim. Regarding incremental institutional change, among the many theoretical insights in the paper, I find most useful Rubery's analysis (2013) of responses to the crisis along the different processes that it can generate. In particular, she makes a distinction between *displacement* of "traditional arrangements," *conversion*—when "a policy or institution may take on different meanings and functions"—and *drift*—when "compliance with an institution may lapse as conditions change" (pp. 27–28).

The difference between these three types of institutional change is not necessarily clear-cut and may lead to various interpretations and overlaps. An obvious form of *displacement* has been the widespread growth of precarious forms of employment resulting from the deterioration of labor market conditions. To be sure, the process had clearly emerged

before the crisis as a result of globalization and neoliberal policies, but the displacement of older, more stable forms of employment has been accentuated with the crisis and with the subsequent labor reforms adopted in different countries. Analyses of how this deterioration has had a negative impact on a diversity of population groups have been abundant, for example, in the case of the prevalence of unemployment and precarious work among the young, or with the expulsion of middle level management from its previously solid forms of employment. Unemployment and precariousness has generated a physical displacement represented by the increase of youth migration, mostly from Southern to Northern countries.

Regarding gender dimensions, Rubery (2013) gives an example of *displacement* when she argues that an emerging gender egalitarian ideology may be displaced by a revival of a more conservative one. She mentions the cases of Germany and Austria where the two ideologies "seem to be operating side by side" (p. 28). This balance can change as a result of the crisis and with changes in government. She illustrates this change with the case of Austria where the election of a conservative government led to policy reversals to encourage women's employment despite traditional policies that had encouraged women to stay at home. Again, a similar example is provided by the election of a conservative government in Spain in 2011; many of the gender-related policies that had been adopted by the previous government were soon reversed. This was not only the result of specific austerity measures but also of the gender ideology that was implicit or explicit in many of the actions and policies adopted. Since the end of the 1990s and particularly during the preceding Socialist government (2004–11), a variety of policies and reforms focusing on gender equality had been adopted. They ranged from measures to facilitate the balancing of labor market and domestic work to efforts confronting violence against women. They also included the setting up of a Ministry of Equality, the implementation of the Law of Dependency that subsidized those who cared for dependents at home, the legalization of gay marriages, and the liberalization of abortion. With the conservative government, the Law of Dependency has been practically frozen, with many cuts in the subsidies required, while the Ministry of Equality was abolished. On the other hand, the privatization of health and educational services has had a variety of gender-related effects, such as the shift to poorly paid care workers, the majority of them women. The same can be said for privatized day care centers and specialized school services. In terms of gender ideology, however, there are no evident signs that society has accepted the

conservative turn; there have been vociferous protests against budget cuts and other government actions. Hence, there has been *displacement* resulting from government actions while gender ideology among the general population does not appear to have changed. In this sense, the direction of longer-term institutional change will depend on the parties in power.

As an example of a process of *conversion,* Rubery (2013) refers to the changes taking place in public sector employment, particularly regarding reductions in public spending and the quality of jobs, including the results of privatization of public services. These changes have often implied the shift from a relatively privileged type of employment to less favorable labor conditions, a shift often affecting women. A very different example refers to the multiple processes of labor market flexibilization that have been so prevalent during the neoliberal era. They have been promoted at the workplace and pressed through the deep structural adjustment mechanisms used since the end of the 1970s. At a more ideological level, Rubery (2013) mentions the contribution of the Organisation for Economic Co-operation and Development (OECD) *Jobs Study* (1994) as having provided an initial argument for flexibilization and the lowering of labor standards. In fact, a process of flexibilization illustrates how a step forward in increasing women's employment can be used to justify the deterioration of labor market conditions. In any case, while theoretically it is not difficult to conceptualize these processes of *conversion*, at the empirical level it is more complicated to sort out the multiple factors shaping them. For example, it is not easy to separate the effects of the crisis regarding labor market flexibilization from the parallel impact of globalization and of deliberate policy action. The same can be said for other factors such as the elimination of jobs by new technologies, all of them with likely different impacts on women and men. The continuous economic crisis has already generated profound institutional changes resulting from processes of *conversion* that affect gender relations, not only in labor markets but in educational institutions, family arrangements, welfare systems, and mechanisms of survival that might differ by country and region.

Finally, Rubery (2013) sees an institutional *drift* when changes lead to non-compliance with a social norm. This, of course, can be interpreted and visualized in different ways given the variety of social (and economic) norms. As an example, she mentions the possibility that, if the costs of higher education increase, the newly established growth and predominance of women in higher education in recent decades might be reversed, hence also reversing this important factor affecting gender equality.

However, the increase in the costs of higher education also affects men, and there is no reason to assume that the result might be a decrease in the proportion of women in higher education or a change in gender relations. In fact, as Rubery points out, there seems to be no evidence that this type of drift has been happening, and we need empirical information to verify the process. On the other hand, the crisis might be at the root of other types of *drift*, such as changes in sex typing of jobs. The gravity of the crisis and high levels of unemployment might induce both women and men to look for whatever jobs they can find, leading women to look for male jobs (police), while men might be more willing to accept lower paid female jobs (low-level manufacturing). If this were the case, the gender segregation in the workplace would decrease, adding to the tendencies observed in earlier decades (Anker 1998). Needless to say, political factors related to government changes are likely to have an effect on the extent to which gender equality is being pursued—or not taken seriously—through policy and anti-discriminatory measures.

Current debates on alternatives to the hegemonic capitalist productive system can provide other interesting examples of institutional *drift*, even if some of them might not be directly related to the crisis. This is the case with the growth of the social and solidarity economy (SSE) on the one hand, and the emergence of the collaborative economy on the other. Although very different in their origins and objectives, both tend toward more collective, egalitarian, and peer-to-peer forms of production, with implications for gender relations and gender in/equality. Yet, there are differences between the two. The SSE has its roots in progressive social thinking about production and distribution and is typically represented by cooperative forms of production—agrarian, artisan, and industrial. On the other hand, the collaborative economy is intimately linked to modern technologies that allow open access and the formation of "creative commons," but is more mixed in its forms of collective/private production and the type of controls exercised. Both have implications for gender relations. Empirical studies show that while the proportion of women in the SSE tends to be high (Esquivel 2015), this seems to be less the case in the collaborative economy where, although there are many women involved, men predominate in the most visible and relevant positions. Although we need more empirical evidence, both represent institutional drifts with potential for more egalitarian gender relations.

To conclude, Karamessini and Rubery's work builds on a very comprehensive theoretical analysis—developed by Rubery (2013) and using an

institutional approach—of the relationship between gender, the economic crisis, and austerity. Their empirical work provides useful information showing how the crisis has continued to lead to institutional change and impact gender relations. The institutional approach has often focused on how the rules of the game may change in favor of those who have more power. In this sense, I would have liked to see more emphasis on the connections between the crisis and austerity on the one hand and changing power relations on the other, including gender relations and gender norms, but also including power relations in general, manifested through the labor market. The early stages of the 2007–08 crisis, after the explosion of the financial bubble, generated much discussion and hopes for the transformation of the financial and productive system away from capitalist institutions dominated by the rationality of "economic man." Almost a decade later, neoliberal policies are perhaps even more hegemonic in the economic and political landscape that shapes our institutions and human behavior. Labor markets continue to deteriorate for many people, and raising inequalities increases the tensions that call loudly for solutions. In this sense, there is much in the chapter that could lead one to address more explicitly the question of evolving power relations and of alternatives. In particular, it would be interesting to explore the issue of alternative institutions developing at the margins, such as employment in the SSE and in the "collaborative economy" emerging around the new technologies. This, however, does not diminish the chapter's many accomplishments.

REFERENCES

Anker, Richard (1998). *Gender and Jobs: Sex Segregation of Occupations in the World*. Geneva: ILO.

Antonopoulos, Rania (Ed.) (2014). *Gender Perspectives and Gender Impacts of the Global Economic Crisis.* New York: Routledge Frontiers of Political Economy.

Benería, Lourdes (2015). Neoliberalism and the global economic crisis: A view from feminist economics. In Christine Verschuur, Isabelle Guérin, and Hélène Guétat (Eds.), *Under Development, Gender* (pp. 257–285). New York: Palgrave Macmillan.

Esquivel, Valeria (2015). La economía feminista desde América Latina: Una vía para enriquecer los debates de la economía social y solidaria?. In Christine Verschuur, Isabelle Guérin, and Isabelle Hillenkamp (Eds.), *Une économie solidaire peut-elle etre feministe?* (pp. 31–49). Paris: L'Harmattan.

Karamessini, Maria and Jill Rubery (2017). The challenge of austerity for equality: A consideration of eight European countries in the crisis. This volume, Chapter 3. Reprinted from Anne Eydoux, Antoine Math, and Hélène Périvier (Eds.), *European Labour Markets in Times of Crisis: A Gender Perspective* (pp. 15–39). Paris: OFCE, 2015.

OECD (1994). *The Jobs Study.* Paris: OECD.

Rubery, Jill (2013). From "women and recession" to "women and austerity": A framework for analysis. In Maria Karamessini and Jill Rubery (Eds.), *Women and Austerity: The Economic Crisis and the Future for Gender Equality* (pp. 17–36). London: Routledge.

Lourdes Benería is a Professor Emerita, Cornell University and is currently associated with the Inter-University Institute for the Study of Women and Gender, Barcelona, Spain. As economist, her work has concentrated on development issues—especially in Latin America—and on labor markets, women's work and globalization.

Paid and Unpaid Work Time by Labor Force Status of Prime Age Women and Men in Canada: The Great Recession and Gender Inequality in Work Time

Fiona MacPhail

1   INTRODUCTION

The 2007–2009 financial crisis in the US gave rise to a severe recession, widely referred to as the Great Recession, which quickly spread to other countries including Canada. Like other recessions, the Great Recession has been analyzed conventionally in terms of the decline in marketed goods and services and rise in unemployment in the labor market.

Increasingly, however, the impacts of economic downturns on home production or the non-market sphere are being taken into account.

F. MacPhail (✉)
Department of Economics, University of Northern British Columbia,
British Columbia, Canada
e-mail: Fiona.MacPhail@unbc.ca

85

During a recession, households may seek to maintain well-being by increasing home production to replace goods and services previously purchased through the market. With reference to the most recent recession, for example, household expenditures in Europe declined indicating that unpaid domestic work increased in order to provide market substitutes; however, it remains unclear who provides this necessary unpaid domestic work (European Commission 2013). For the US, Aguiar et al. (2013) demonstrate that during the Great Recession there was an increase in non-market work hours by about 30 percent of the foregone market work hours and the elasticity of non-market work hours and market work hours was greater than for leisure.

Feminist economists have demonstrated how business cycles and macroeconomic policies have gendered effects and emphasize the importance of considering the interactions of the market and non-market spheres, particularly of paid and unpaid domestic and care work (Elson 1993; Fukuda-Parr et al. 2013). Recent work on gender and recessions establish that women and men may experience the loss of paid work at different points in the business cycle, and that the impacts depend upon the pre-existing gendered system and macroeconomic policies (Karamessini and Rubery 2014). For example, job loss among women may be more likely to occur in the recovery and subsequent periods, as the recession spreads to the service sector and/or austerity policies reduce public sector jobs and public services which enable women to manage paid and care work (Villa and Smith 2014).

Incorporating a broader view of work, several recent studies investigate the impact of the Great Recession on unpaid work of women and men using time use data which point to not only the gendered impacts on unpaid work time but also that these impacts are context specific. With regard to the Great Recession in the US, Berik and Kongar (2013) find that among parents, married mothers decreased their amount of unpaid work (and increased their amount of paid work), resulting in a decline in the gender gap in unpaid work. In contrast, in Turkey, Kaya Bahçe and Memiş (2013) find that the recession is associated with an increase in women's unpaid work time by four times the increase in unpaid work of men.

Understanding how women and men allocate their time over the business cycle contributes to the development of more accurate macroeconomic models (see Aguiar et al. 2013 for an extended discussion). Further, the existence of gender differentiated impacts of a recession may accentuate gender differences in economic well-being in terms of lost employment and

earnings, as well as, unpaid work burdens. In such cases, the importance of gender responsive macroeconomic policies to promote gender equality in work is affirmed.

This chapter investigates the paid and unpaid work time by labor force status of prime age (25–54 years) women and men workers in Canada in order to assess the gendered impact of the Great Recession on work time. In the following section, five hypotheses regarding gender and the Great Recession are highlighted based upon a selected review of the literature which pertains primarily to industrialized countries. With regard to paid work, the hypotheses are that the Great Recession is a he-cession, is associated with a he-recovery, and involves an added worker effect. With regard to unpaid work, the hypotheses are that the Great Recession increased unpaid work of women and men, and that the increase in unpaid work is greater on average for women, than for men.

In Section 3, the empirical method, including concepts, indicators, data, and approach, is described. Paid work refers to waged work and self-employment and is measured here by the unemployment and employment rates, using Statistics Canada *Labour Force Survey* (*LFS*) data; it is complemented by the amount of paid work (minutes per day) from the Canadian time use module in the Statistics Canada *General Social Survey* (*GSS*) 2010. Unpaid work refers to household work and child caregiving, measured in terms of minutes per day, averaged over the seven day week. Since time use data are not available for Canada on an annual basis, the approach taken is to compare the unpaid work time of individuals by labor force status and then to infer how a change from employed to unemployed status would affect unpaid work time. Based upon this inference, the gendered impact of the Great Recession on unpaid work time is analyzed.

The Great Recession in Canada occurred between October 2008 and May 2009, with the end of the recovery being dated as January 2011, as outlined in Section 4. The analysis of the data in Section 5 provides support for each of the five hypotheses named above. A short concluding section draws out the implications for future research and policy.

This chapter on gender, recession, and work time in Canada adds to the growing worldwide literature on how business cycles are gendered and the comparative work which demonstrates the role of country-specific policies and institutions in affecting gendered impacts of recessions. Analyses of the Great Recession in Canada, as elsewhere, have focused upon paid work and the greater job losses among men compared to women. By taking an explicit gender lens and concept of work that includes unpaid domestic

and care work, this chapter complements the existing literature on the impacts of recessions on work in three main ways. Firstly, the chapter demonstrates that not only are the impacts on paid work gendered, so too are the impacts on paid work in the recovery period and that this may due to the nature of fiscal policy. Secondly, it highlights the importance of considering variation in the impacts among different groups of women (and men). Thirdly, it contributes an analysis of the impact of the Great Recession on unpaid work time, which does not appear to have been undertaken for Canada. The gendered view of the impacts of a recession on work and well-being serve to promote understanding of the economy and assist in gender-aware public policy.

2   RECESSIONS, GENDER, AND WORK TIME: FIVE KEY HYPOTHESES

To guide the empirical investigation of the gendered impact on work of the Great Recession in Canada, five hypotheses which have been discussed in the international literature are outlined.

2.1   He-cession and Industrial Sex Segregation

With respect to paid work, the main hypothesis is that the decline in economic activity results in a decline in paid employment both in terms of people being laid off, as measured by a decline in the employment rate or rise in unemployment rate (the extensive margin), and decline in paid work hours for people who remain employed (the intensive margin) which affects women and men differently because of sex segregation in the labor market. As Rubery (2014) notes, whether women's employment is relatively protected or vulnerable during a recession will vary across countries, and may change over time within a country, as a result of the degree of sex segregation and the sectors affected by the recession.

In some industrialized countries, the he-cession is hypothesized because the recession reduced affected economic activity and employment in the manufacturing and construction sectors where men are disproportionately employed. In contrast, in developing countries, the recession is anticipated to negatively affect both women and men since women hold a larger share of the labor intensive manufacturing sector and men are dominant in the construction sector. Across Europe, during the recession

of 2008 and 2009, women's employment was initially protected due to their under-representation in manufacturing and construction and the gender gap in the employment rate declined (Bettio and Veraschchagina 2014; European Commission 2013). This argument is supported by the findings that "differences in peak-to-trough employment losses between men and women correlate positively with the level of sectoral segregation across countries" (European Commission 2013: 15). The empirical observation that employment losses were disproportionately experienced by men led to the term he-recession (or man-cession) being used in popular media and international reports (see e.g., *New York Times* 2009, Wall 2009).

2.2 He-recovery and Male-oriented Stimulus Policy (and Female-oriented Austerity)

Recent literature on gender and recessions extends the analysis of the economic downturn by considering how expansionary fiscal policies have had gendered impacts on paid work. During the Great Recession, many countries introduced fiscal stimulus policies, which favored physical infrastructure over social infrastructure and social services. Given the sex segregation in the labor market, these policies positively affected employment, but to a greater extent for men than for women.

In contrast, as the recession spread to the service sector and/or austerity policies reduced public sector jobs and public services, women may experience greater job losses than men (Villa and Smith 2014). This caution is also advanced in the European Commission (2013) report, which indicates that austerity policies or "fiscal consolidation" in the post-recession period tend to involve spending cuts to publicly provided services, and the reduction in benefits and eligibility for benefits related to care services, employment insurance, and social assistance. Such policies negatively impact women through a reduction in public sector jobs and cuts in publicly services on which women depend and which enable women to balance paid and unpaid work. Thus, changes in social expenditures in the post-recession period are important to monitor.

2.3 Recession and Added Women Workers and Discouraged Men Workers

Changes in standard labor market indicators over the business cycle are also affected by added and discouraged workers. Discouraged workers leave the

labor force once laid-off or after a period of unemployment because they believe that they will be unable to find employment due to high unemployment rates during the recession. Added workers join the labor force and look for work in order to compensate for the loss of employment and income of another household member who has become unemployed.

Evidence from the most recent recession suggests that in Europe, added workers tend to be partnered women (European Commission 2013: 15). The same report indicates that the discouraged worker effect is greater for men than women when measured by the number of discouraged workers as a proportion of the inactive (European Commission 2013: 15). For the US, Berik and Kongar (2013) find that, during the Great Recession, married mothers had the largest increase in labor force participation.

2.4   *Great Recession and Increased Unpaid Work*

While economic analyses of recession impacts focus upon changes in paid work, to have a more complete understanding of the impacts on well-being, the changes in unpaid work also need to be assessed. During a recession, households may seek to produce goods and services at home rather than purchasing them in the market due to the decline in household income from lost employment. This shift is expected to lead to a decline in consumption expenditures and increase in unpaid domestic work time.

With regard to the former, the European Commission (2013) reports that for 19 out of 22 European countries, there was a decline in the expenditures on catering, social protection, goods and services for routine maintenance, outpatient services, and maintenance and repair of dwellings (European Commission 2013: 108). Based upon this finding, in the report, it is inferred that while unpaid work is likely to have increased, it is not possible to examine the gendered dimensions of this increased amount of unpaid work.

The key hypothesis is that, during the Great Recession, people increased the amount of unpaid domestic work time in response to the reduced paid work time. This hypothesis is supported by evidence for the US. The main finding of Aguiar et al. (2013) for the US is that for people, aged 18–65 years, about 30 percent of the decline in paid work hours are allocated to unpaid work (excluding child caregiving) and an additional 5 percent for child caregiving. Their empirical technique permits them to estimate the rise in unpaid work during the recession net of the secular decline in paid work and unpaid work and rise in leisure. For Aguiar et al.

(2013), unpaid domestic work (nonmarket work or home production in their terminology) includes core activities such as cooking, cleaning, and laundry, as well as household maintenance and repair, shopping, and care of older adults. They also report larger increases in unpaid domestic work for married people compared to singles; for example, among married people, on average, the increase in unpaid domestic work including child caregiving accounts for 42 percent of the loss in paid work hours, compared to 16 percent for single people.

Gender differences are not the focus of the Aguiar et al. (2013) paper and they report that they cannot reject the hypothesis that, in general, the responsiveness of women and men's unpaid work time to the decline in paid work is similar. Nonetheless, and of particular importance here, Aguiar et al. (2013) do find a statistically significant gender difference for specific categories of time use, namely, core home production and sleeping increases more for women than men and TV watching and education increases more for men than women. The Aguiar et al. (2013) study illustrates therefore the importance of considering specific population groups, such as married people compared to singles, and that gender differences in responsiveness of unpaid work time to changes in work time may occur for specific unpaid work categories.

2.5 Great Recession Increases Unpaid Work to a Greater Extent for Women than Men

The hypothesis that a recession will have gendered impacts on the unpaid work burden rests on the underlying argument that gender norms exist regarding who should do unpaid work and these norms influence actual time allocation patterns. Actual time allocation patterns generally show that women provide more unpaid work time than men. Miranda (2011) reports that, on average across 26 OECD countries plus China, India, and South Africa, among people aged 15–64 years, women provide 4.7 hours per day of unpaid work, generating a gender gap in unpaid work time of 2.5 hours per day, during the period 1998–2009.[1]

For OECD countries, on average, women are more likely to participate in all of the unpaid work tasks than men, with the exception of household construction/repair (and women and men have the same participation rates in the volunteering task). The top three most time-consuming tasks, for women, are cooking/food preparation/clean-up, household cleaning, and child caregiving; for men, the most time-consuming tasks are

cooking/food preparation/clean up, shopping, and gardening and pet care (see Miranda (2011): Fig. 13) for the amounts of time including those who provide zero minutes).

Examining child caregiving in more detail, women provide substantially more child caregiving than men. Based upon estimates of primary child caregiving, across 22 countries, Miranda (2011: 19) reports that, on average, child caregiving accounts for 42 minutes per day for fathers and 100 minutes for mothers. The amount of time allocated to child caregiving increases substantially when the secondary child caregiving time is included, reflecting the multitasking undertaken particularly by women (for the US and Australia, see Sayer et al. 2009). The amount of child caregiving time for both women and men is higher for younger children, but a gender gap remains (Milan et al. 2011: Table 6).

Given that norms change only slowly over time, it is expected that an economic shock such as a recession with its adverse labor market conditions will not immediately result in a dramatic change in the norms and thus, people respond to the shock and loss of paid employment by making adjustments in unpaid work reflecting the underlying gender division of labor. This argument gives rise to two hypotheses. First, the impact of a change in one's own labor force status, from employment to unemployment, affects one's own unpaid work time—hereafter, the own unpaid work time effect. Second, among couples, time use decisions are also interdependent, although still gendered and thus, a person's unpaid work time may change in response to a change in the labor force status of his/her spouse—hereafter known as the spousal unpaid work time effect. Specifically, if one's spouse becomes unemployed, how does this affect one's own unpaid work time?

The own unpaid work time effect, the change in unpaid work time as a result of a change in (one's own) labor force status from employment to unemployment (extensive margin) is expected to be larger for women than for men. That is, women's unpaid work time is hypothesized to be more responsive to a change in their own employment status than men's unpaid work time. With additional time available due to the loss of employment, women are more likely than men to use the time to undertake household chores and care work given that such work is consistent with gender norms and existing gender time use patterns.

This hypothesis is supported by findings from the time use literature on work burdens of people with different labor force statuses. Unpaid work time is higher for people not in the labor force compared to employed

persons and the difference in unpaid work time between people not-in-the labor force and those employed is greater for women than for men. With respect to childcare, for example, in a study of 22 mostly OECD countries, Miranda (2011: Table 1) finds some evidence that non-working fathers provide more child caregiving time than working fathers, indicating that men do adjust slightly their unpaid time given their labor force status; however, women are more responsive in adjusting their unpaid work time to their labor force status. Specifically, on average across the 22 countries, employed fathers provide 40 minutes per day of primary child caregiving and non-working fathers provide 51 minutes; in comparison, on average, employed mothers provide 74 minutes of child caregiving compared to 144 minutes provided by non-working mothers (for the population aged 15 to 64 years, focusing upon primary care) (Miranda 2011: Table 1).

Based upon an analysis of time use patterns over time and separating long-term trends for business cycle impacts, Berik and Kongar (2013) for the US find strong gendered impacts on unpaid work. For married mothers and fathers during the extended recession period, December 2007–December 2010, mothers substituted paid work for unpaid work and thus, there was little change in the total workload of mothers. In contrast, data for married fathers showed a decline in amount of paid work, which was greater than the increase in unpaid work with the result, the total workload of fathers declined. Khitarishvili and Kim (2015), also for the US, find that changes in unpaid work time during the recession depend upon socioeconomic status. For example, poor men increased their unpaid work time, while non-poor men did not; and only non-poor women reduced their unpaid work time (Khitarishvili and Kim 2015: Table 3).

The impact of a change in employment status on unpaid work and the gender differences in the impact are likely to vary across countries, in part as a result of the variation in the provision of publicly provided care services as well as gender norms. The gender gap in unpaid work time varies from about one hour in Nordic countries of Denmark, Sweden, and Norway, to over four hours in Turkey, Mexico, and India. Thus, it is expected that becoming unemployed in a country which has a high degree of public services would increase unpaid work burden by a smaller amount than in countries with lower public provision.

The spousal unpaid work time effect, the change in unpaid work time due to a change in the labor force status of one's spouse, is expected to be gendered given that the general pattern from the time use literature indicates that men are not very responsive to their partner's labor force

status. For the US and Australia, for example, Sayer et al. (2009) find that the amount of unpaid work done by men is virtually the same in both breadwinner and dual earner households, which indicates that men's unpaid work time is not responsive to their spouse's paid time.[2] This finding is relevant to understanding the impact of the female added worker effect on men's unpaid work time.

The spousal unpaid work time effect is explored by Kaya Bahçe and Memiş (2013) in Turkey. Kaya Bahçe and Memiş (2013) find that women's unpaid work time (and paid work time) responds strongly to their husband's unemployment risk and is greater than the men's unpaid work time response to their wife's unemployment risk. Specifically, a one percentage point increase in the unemployment risk of men increases women's unpaid work time by 22 minutes per day. In contrast, a 1 percent increase in the unemployment risk of women increases men's unpaid work by 2.7 minutes per day. Using these estimates and given the increase in the unemployment rate of men, they find that the Great Recession is associated with an increase in women's unpaid work time by four times that of men's.

These five hypotheses regarding the gendered impacts of the Great Recession on paid and unpaid work time are examined in the Canadian context, after describing the approach and dates for the Great Recession in the following two sections.

3   EMPIRICAL APPROACH

The basic empirical approach is to examine the amounts of paid and unpaid work time in 2010 by labor force status and sex. Based upon these estimates, it is inferred how, on average, women and men respond to a change in their labor force status, and specifically, how the average amount of unpaid work changes if the average woman or man moves from employed to unemployed status. In terms of the discussion above, the estimates are used to represent the change in unpaid work resulting from a change in labor force status, from employed to unemployed, that is, the own unpaid work time effect. The main limitation of this approach is that it assumes that an individual's propensity to be unemployed is not correlated with different time use patterns. To capture the spousal effect, the change in unpaid work time arising from one's spouse becoming unemployed, involves the use of time use data on matched couples and an empirical approach such as that of Kaya Bahçe and Memiş (2013), which is beyond the scope of this chapter.

The main data source is the Statistics Canada *GSS* 2010 public use microdata file, which has a time use module. The data on unpaid and paid work time from the GSS are complemented by data on paid work from the *LFS* and CANSIM data tables created by Statistics Canada from the *LFS*.

Statistics Canada has collected time use data roughly every five years since 1986, with surveys in 1986, 1992, 1998, 2005, and 2010.[3] Time use data are collected in these years as part of the *GSS* of social conditions. Given that the time use data are not annual, we focus here only on the 2010 data. The 2010 time use data were collected during the beginning of the recovery period, given that the conservative start date of the recovery period was June 2009.

The time use estimates are intended to be representative of an average day in the year of the survey. The survey was conducted in each of the ten provinces, although excluded the territories, and the total sample size in 2010 is 15,390 individuals. Samples were taken in each month of the year to take account of seasonality of time use and on each day of the week to take account of differences in time use on week days and weekends. The data were collected by telephone interview.[4]

Paid work follows from the definition of employment, which is work undertaken for pay and includes wage work and self-employment. From the *GSS* 2010, paid work and related activities includes: the time spent at all jobs including any unpaid time and overtime, as well as, the time spent producing crafts for sale; related activities to paid work refers to time spent looking for work and commuting time.[5]

Unpaid domestic work refers to the amount of time spent on producing goods and services to be used by household members and not intended for sale.[6] Unpaid work includes: preparing food/cooking/washing-up; housekeeping such as indoor cleaning, laundry, and outdoor cleaning; maintenance and repair such exterior repairs, home improvements, and vehicle maintenance; other household work such as gardening, financial administration, pet care, and house plant care; shopping for goods and services which covers groceries as well as research pertaining to purchases, accessing government services and travel related to shopping; child caregiving, which includes physical care activities of feeding, bathing, reading, as well as playing and teaching. In 2010, the time use survey started to collect the amount of time allocated to secondary child caregiving, as well as primary caregiving; secondary caregiving refers to child caregiving undertaken while simultaneously doing other unpaid work, such as supervising a child

(secondary caregiving) while cooking. In the tables presented below only the time spent on primary child caregiving is reported. While time spent on voluntary and civic organizations is also available, it is not included in the tables because the participation rates are low, although for those who participate, the amount of time is relatively large.[7]

Total work time is the sum of the amount of time allocated to paid work and the amount allocated to unpaid work.

Given the interest in how the recession had gendered impacts on paid and unpaid work, of key interest are the labor force status variables in the microdata file. Variables are used to identify people who are employed, which is sub-divided into those employed-full-time and those employed-part-time; unemployed; and not in the labor force following standard definitions.[8]

Paid and unpaid work times from the *GSS* 2010 are presented in terms of minutes per day, averaged over the week. The sample used is for people aged 25–54 years, the group of people considered prime age in terms of the labor market, giving a sample size of 7,345 observations. Individual population weights are used in generating all work time amounts.

4   DATING THE GREAT RECESSION IN CANADA

The Great Recession in Canada lasted eight months, between October 2008 and May 2009, based on indicators of changes in output. The recovery period was pronounced over by early 2011 (Cross and Bergevin 2012; Bank of Canada 2011).[9] Similar dates are provided by Statistics Canada, using real output and employment (Bloskie and Gellatly 2012: Chart 1). The contraction in economic activity between successive quarters was between minus 1.2 and 2.4 percent (Cross and Bergevin 2012: Table 14), which was substantially more than the contraction in the previous recession of the early 1990s, which may explain why the Bank of Canada (2011) indicates that economic contraction "showed real signs of becoming a 'Great Recession'".[10] Although this recession was shorter in duration than the previous one in the 1990s, the contraction of the economy was greater.[11] Thus, the Great Recession in Canada at eight months was considerably shorter than that in the US which lasted 18 months, between December 2007 and June 2009.[12]

While the Canadian Great Recession did not officially begin until October 2008, the effects of the economic contraction were experienced in the labor market prior to this observed start date of and have persisted

well beyond the official end date of the recovery period. The seasonally adjusted monthly unemployment rates by sex for the recent recession and recovery period are shown in Fig. 1. Unemployment rates for women and men increased substantially after October 2008, the unemployment rate for men had been increasing for almost a year prior to that date. In October 2008, women's and men's unemployment rates were 5.6 and 6.6 percent, respectively. At the end of the recovery period in January 2011, unemployment for women and men still had not returned to pre-recession conditions, as the unemployment rates were 7.1 and 8.3 percent, respectively. In fact, even two years after the official end of the recovery
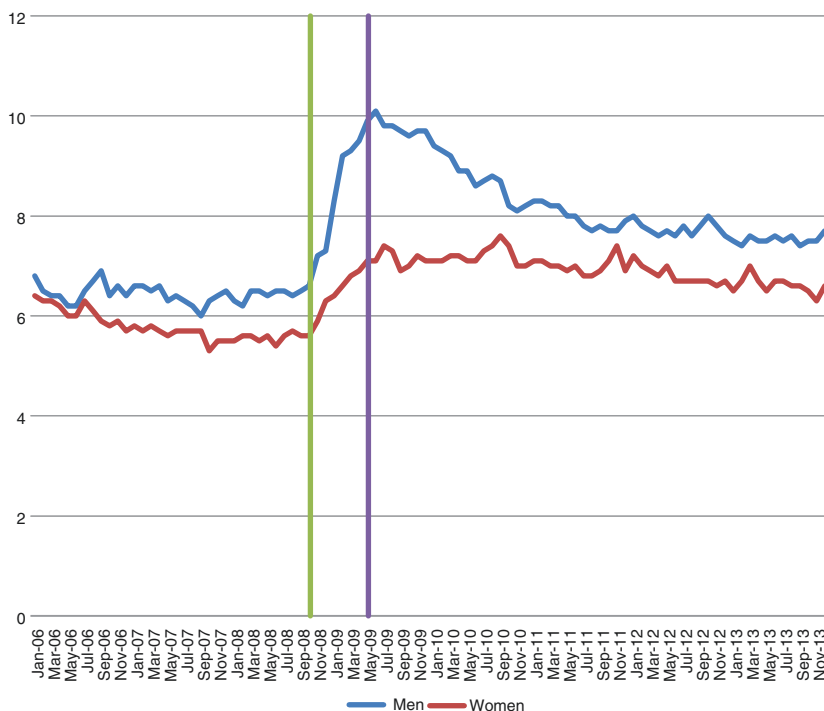
Fig. 1 Unemployment rates, monthly (seasonally adjusted), women and men, Canada, January 2006 to December 2013

Source: Compiled from CANSIM Table 282-0087

period, unemployment rates for both women and men were still 1 percentage point above their pre-recession rates.

Therefore, for the purposes of this chapter, the conservative dates of the recession are October 2008 to May 2009 and the recovery dates are June 2009 to January 2011. However, the impacts of the recession in the labor market are examined starting prior to October 2008 and the recovery period analyzed here is extended for two years after its official end.

5   GENDERED IMPACTS OF THE GREAT RECESSION ON PAID AND UNPAID WORK IN CANADA

The gendered impacts of the Great Recession on work time occur within the context of a longer run trend to more equal gender roles and work time. Between 1992 and 2010 (two years for which the time use data employ comparable definitions), paid and unpaid work times for women and men have become more similar. For the population aged 15 years and older, among women, the average amount of time spent on paid work and related activities increased from 162 to 180 minutes per day; and the average amount of time spent on unpaid work declined from 246 to 233 minutes per day. The opposite trend is observed for men, as the average amount of paid work declined from 270 to 255 minutes per day over this period; and the average amount of unpaid work increased from 132 to 149 minutes per day. As result, the gender gap in total work time remained fairly stable between six and nine minutes per day, despite the changing composition of work time for women and men. See Appendix Table A1 for details.

Notwithstanding converging roles, in 2010, women continued to undertake the majority of unpaid work.[13] Focusing upon the group of prime age individuals (aged 25–54 years), in 2010, women continue to provide the majority of unpaid work time at 63 percent, and unpaid work accounts for a larger share of women's total work burden than men's, 32 and 53 percent, respectively (as shown in Table 1). Looking at specific categories of time use, women provide a greater amount of time and are more likely to participate in each category of unpaid work with the exception of "Maintenance and Repair".

How did the Great Recession affect the paid and unpaid work time of women and men?

Table 1 Paid and unpaid work time (minutes/day), prime age (25–54 years) women and men, Canada, 2010

	Average minutes per day		Participation rate (%)	
	Women	Men	Women	Men
Paid work and related	245	343	51	63
Unpaid work	271	162	95	85
Cooking/washing up	59	29	79	57
Housekeeping	60	23	53	24
Maintenance and repair	5	15	4	9
Other household	23	22	34	26
Shopping	54	40	49	38
Childcare	69	32	39	28
Total work	516	505	98	96

Notes: Includes people with zero minutes
Source: Compiled from *GSS* 2010

5.1   *He-cession and Industrial Sex Segregation*

Paid work declined during the Great Recession. As shown in Fig. 1, while the unemployment rate rose during the Great Recession for both women and men, the increase was greater for men. Between October 2008 and May 2009, the unemployment rate for women increased 1.5 percentage points, from 5.6 to 7.1 percent; and the unemployment rate for men increased 3.3 percentage points, from 6.6 to 9.9 percent. The larger increase in the unemployment rate for men, compared to women, gave rise to the he-cession label being used in Canada, as in other countries (see for example, Hennessy and Yalnizyan 2009).

Between October 2008 and May 2009, paid work, as measured by the employment rate, declined by 1.1 percentage points for women, from 59.1 to 58.0 percent, and by 3 percentage points for men, from 68.0 to 65.0 percent (see Fig. 2). As a result, the gender gap in employment rates fell from 8.9 to 7.0 percentage points. While the gender gap in employment rates has been falling over the past thirty years, the decline during the recession period was greater.[14] The decline in the gender gap in employment rates is consistent with the hypothesis that the recession disproportionately affected men's paid work, as also noted above in terms of gender differences in the changes in the unemployment rate.

Fig. 2 Employment rates, monthly (seasonally adjusted), women and men, January 2006 to December 2013

Source: Compiled from CANSIM Table 282-0087

The hypothesis that sex-segregation in the labor market accounts for the larger negative impact on paid work for men is supported in the Canadian data. The recession impacted employment most severely in the manufacturing and construction sectors and men comprise a larger share of employment in these two sectors. For example, between 2008 and 2009, the industrial sectors with the largest declines in employed workers were manufacturing (182,100 workers), construction (46,200), wholesale and retail trade (33,400), forestry/mining (26,700), and transport/warehousing (25,100). In 2008, men comprised 72 percent of the employment in the manufacturing sector and 97 percent of employment in the construction sector.[15] However, women did also experience employment losses in some sectors of the manufacturing sector during the recession.

In Canada, the hypothesis that sex-segregation in the labor market explains the greater employment losses of men compared to women was discussed early in the recession. The federal government Canada Office of the Parliamentary Budget Officer (2009: 11) concluded that "in this recession, as in past recessions, the male unemployment rate has risen more quickly than the female unemployment rate. This is related to the

nature of recessions, whose adverse impacts are typically concentrated in specific sectors. . . . These particular sectors (manufacturing; construction; transportation and warehousing; forestry, fishing, mining, oil and gas sectors) typically employ more male workers. . . . "

5.2   He-recovery and Male-oriented Stimulus Policy

During the recovery period, the increase in paid work was more substantial and occurred more quickly for men, compared to women, suggestive of a he-recovery. While paid work is expected to rise in the recovery period, the evidence indicates that paid work increased only for men. Measuring paid work by the employment rate, as shown in Fig. 2 above, among men, the employment rate increased from 64.8 percent in June 2009 to 65.7 percent in January 2011. However, among women, the employment rate stayed around 58 percent throughout the recovery period and thereafter.

In the recovery period, paid work increased much more quickly for men than for women, suggesting that there was a he-recovery, which is likely related to the nature of the expansionary fiscal stimulus package of the federal government. In Canada, the stimulus package had a comparatively large share of expenditure allocated to physical infrastructure and low share of transfers to low-income households, compared to the stimulus packages in the US and the UK (UNWomen 2014: Figure 4–3). The value of Canada's fiscal stimulus package at 1.5 percent of GDP in 2009 was relatively high compared to the UK and France, although lower than in the US (Cohen 2013: Figure 4). However, the stimulus package was concentrated in the area of building infrastructure and tax cuts (Cohen 2013: Table 8, Lahey and de Villota 2013) and tax cuts were already part of the conservative government's policy agenda.

5.3   Great Recession and Added Women Workers

While the recession is generally associated with a decline in paid work for women and men (as discussed above), for some women, paid work increased, suggesting an added worker effect for women.

As illustrated in Fig. 3, women with a non-employed spouse increased their participation rate from 31.2 percent in 2007 to 35.0 percent in 2009; women with a non-employed spouse and children less than three years of age increased their participation rate from 51.7 percent in 2007 to 60.0 percent
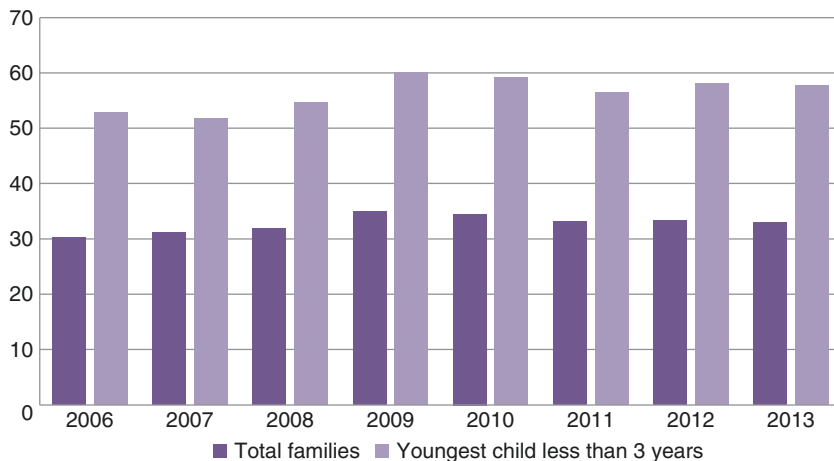
Fig. 3   Labor force participation rates for partnered (married or in common-law) women with a partner who is unemployed or not in the labor force, Canada, 2006–2013

Source: Compiled from CANSIM Table 282-0211

in 2009. Thus, for some groups of women paid work increased during the Great Recession, likely to compensate for the loss of earnings of their spouses.

In summary, the Great Recession resulted in a decline in paid work for women and men, for the population 15 years and older as a whole. While the analysis above supports the he-recession argument, it also suggests that men and women responded differently during the recession with some women increasing paid work. Further, taking all women together, women's paid work was reduced by the recession and has not recovered, suggestive of a recovery which did not include women.

5.4   Great Recession Contributed to Increased Unpaid Work for Both Women and Men

The amount of unpaid work provided by women and men clearly varies by labor force status: employed people allocate less time to unpaid work than unemployed people and those not in the labor force. As shown in Table 2, for the prime age population 25–54 years, employed women allocate 203 minutes per day to unpaid work, whereas unemployed women allocate 273

Table 2 Paid and unpaid work time (minutes/day) by labor force status, women and men, Canada, 2010

	25–54 years			25–54 years, partnered (married or common-law)		
	Total paid	Total unpaid	Total work	Total paid	Total unpaid	Total work
Women						
Employed—All	358	203	562	355	217	572
Full-time	368	200	568	364	213	576
Part-time	259	235	494	268	254	522
Unemployed	68	273	340	32	396	428
Not in labor force	9	438	446	10	456	466
Men						
Employed—All	415	150	565	421	163	583
Full-time	418	150	568	422	163	584
Part-time	257	152	409	319	170	488
Unemployed	128	179	308	126	204	330
Not in labor force	16	218	235	19	288	307
Gender gap in work time = Women – Men						
Employed—All	–57	53	–3	–66	54	–12
Full-time	–50	50	0	–59	50	–8
Part-time	2	83	85	–51	85	34
Unemployed	–61	93	33	–94	192	98
Not in labor force	–7	219	212	–9	168	158

Note: Unpaid work time includes time allocated to: preparing food/cooking/washing-up; housekeeping such as indoor cleaning, laundry, outdoor cleaning; maintenance and repair such exterior repairs, home improvements and vehicle maintenance; other household work such as gardening, financial administration, pet care, pet and house plant care; shopping for goods and services which covers groceries as well as research pertaining to purchases, accessing government services and travel related to shopping. It does not include time spent on child caregiving
Source: Compiled from *GSS* 2010

minutes and women who are not in the labor force allocate 438 minutes. Similarly, employed men allocate smaller amounts of time to unpaid work than unemployed men and men who are not the labor force: the amounts of unpaid work are 150, 179, and 219 minutes per day, respectively. These findings are consistent with the hypothesis that a change in labor force status

from employed to unemployed induces people to substitute unpaid work for the foregone paid work, increasing the amount of unpaid work time.

5.5   Great Recession Increases Unpaid Work to a Greater Extent for Women than Men: Own Unpaid Work Time Effect

Of most interest in the analysis of gender, work, and recessions is how the change in unpaid work time responds to a change in labor force status from being employed to unemployed differs between women and men. Building upon the unpaid work time estimates noted above, the gender differences in the own unpaid work time effect are striking.

Using the data for those aged 25–54 years currently coupled (married or common-law), the difference in unpaid work time for the unemployed and employed for women is 179 minutes/day (396–217 minutes); and for men, the difference in unpaid work time is 41 minutes/day (204–163 minutes). This suggests that for people who become unemployed, women will allocate a greater amount of their foregone paid work time to unpaid work time in absolute terms compared with men. Specifically, among prime aged, coupled people, the increase in unpaid work in response to a change in labor force status from employed to unemployed is more than four times greater for women than for men. The finding that the difference in unpaid work time of the unemployed and employed is greater for women than for men also holds for all people in the age group 25–54 years, regardless of marital status, although the gender difference is smaller (as shown in Table 2).

In relative terms, women allocate 50 percent of their foregone paid work time to unpaid work (179/355*100%), whereas men, allocate only 10 percent of their foregone paid work time to unpaid work. Thus, in both absolute and relative terms, we can infer that women are more responsive to a change in their labor force status than men: the own unpaid work time effect is greater for women.

The gender gap in unpaid and total work time also varies by labor force status. The gender gap in unpaid work time and total work time is smallest for people who are employed full-time: among coupled people aged 25–54 years, the gender gap in unpaid work (amount of unpaid work for women minus the amount of unpaid work for men) is 54 minutes for employed full-time workers, compared to 192 minutes for unemployed workers. These gender gaps refer to a comparison of the average amounts of unpaid and paid work time across the sample and are not a comparison

Table 3 Unpaid primary child caregiving time (minutes per day) by labor force status, women and men (15 years and older), 2010

	Women	*Men*
Employed—All	84	69
Full-time	83	70
Part-time	100	21
Unemployed	110	87
Not in labor force	246	105

Notes: For the population with one or more children in the household
Source: Compiled from the GSS 2010

of women and men's work time within the same household, averaged across all households. Thus, if both women and men become unemployed, the gender gap in unpaid work time is expected to rise.

Turning to a specific unpaid work category, women allocate more time to primary child caregiving than men, across each of the labor force status categories. For example, employed women and men allocate, respectively 84 and 69 minutes per day; and unemployed women and men allocate, respectively 110 and 87 minutes per day. Thus, we can infer that women adjust their child caregiving time to a change in the labor force status to a greater extent than men (Table 3).

6   Conclusion

The evidence presented indicates that the Great Recession of 2008–2009 had gendered impacts on paid and unpaid work of prime age workers in Canada. In terms of paid work, gender differences in the changes in the unemployment and employment support the he-cession argument and the greater absolute job losses among men in specific industrial sectors indicate that sex segregation contributed to the he-cession. Examining gender differences in the employment rate after the May 2009 end of the Great Recession provides evidence of a he-recovery, which may be attributed to the fiscal stimulus package facilitating the increase in men's employment to a greater extent than for women. While the employment rate for all women fell during the Great Recession, married women with a non-employed spouse were drawn into the labor market, perhaps as a response to the loss of their spouse's earnings, indicative of an added worker effect.

Expanding the concept of work to include unpaid work, it is argued that the Great Recession had strong gendered impacts on unpaid work time, as unemployed workers reallocated paid work time to unpaid work time and substituted home produced goods and services for market ones. Since annual unpaid work time data are not available, this argument rests on the difference in unpaid work time of employed and unemployed women workers, compared to the difference for employed and unemployed men workers, using time use data for 2010. Following this approach, it is inferred that becoming unemployed leads women, on average, to increase their unpaid work time by four times the amount of men. The gender gap in work time is greater among the unemployed than the employed and thus, the recession is likely to have increased the gender inequality in total work time.

The finding that unpaid work time varies with one's own labor force status needs to be complemented by an analysis of how a person's unpaid work time also varies with his/her partner's labor force status, in order to better assess the gendered impact of recessions on unpaid work time.[16] Given the recognition of the interconnectedness between market and non-market activities and implications for reallocation of time between paid and unpaid work, having time use survey data on a more frequent basis than every five years would assist in distinguishing between the secular trends and business cycle changes in unpaid work time (as for Berik and Kongar 2013). Further investigation into the gendered impacts of fiscal policies, both stimulative and austerity, along the lines of Cohen (2013), is required to better understand and implement gender aware policies and a strategy to promote gender equality. Finally, although the emphasis of the paid work analysis has been on comparing job losses and gains for women and men, the ways in which the recession contributed to the worsening of working conditions for both employed women and men also needs to be investigated.

In conclusion, the findings point to the importance of undertaking gendered analyses of work over different phases of the business cycle in Canada and other countries, ones that involve a more encompassing concept of work, the potential unequal impacts of macroeconomic policies on women and men, and the potential variation in the impacts of the business cycle on different groups of women (and men). Despite the limitations noted above, the findings underscore the importance of gender responsive expansionary policies and strategies to promote gender equality in paid and unpaid work in Canada.

APPENDIX
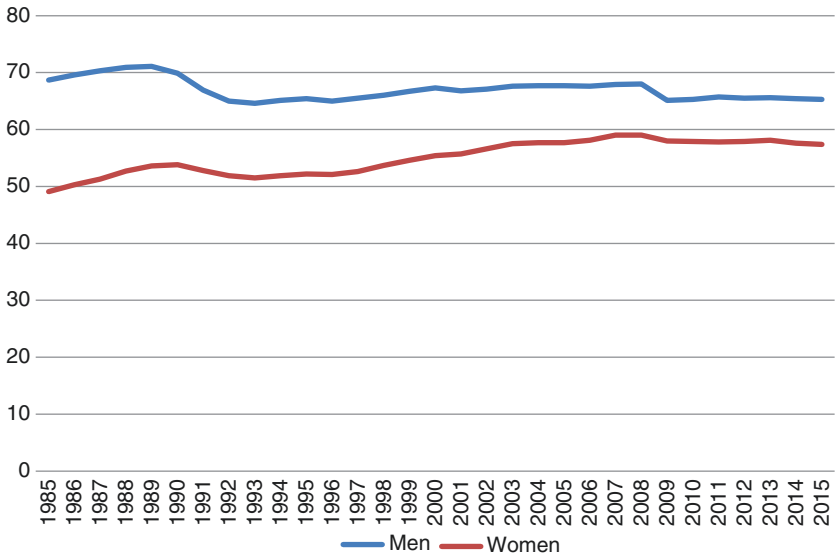
Fig. A1   Employment rates, women and men, 1985–2015

Source: Compiled from CANSIM Table 282-0002
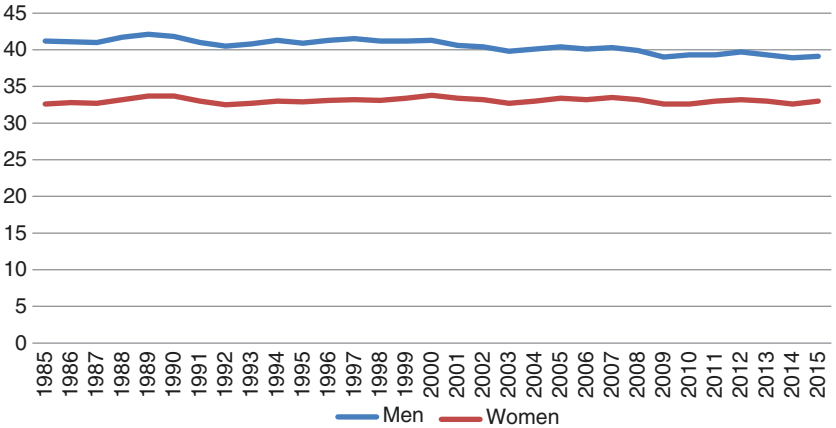
Fig. A2   Average weekly hours worked (all jobs), women and men, 1985–2015

Source: Compiled from CANSIM Table 282-0018

Table A1 Average amount of time (minutes per day) and participation rate (%), population 15 years and older, 1992 and 2010

| | Average time (minutes per day) | | | | Participation rate (%) | | | |
| | Men | | Women | | Men | | Women | |
	1992	2010	1992	2010	1992	2010	1992	2010
Paid work and related activities	270	255	162	180	51	49	35	39
Unpaid work	132	149	246	233	78	81	93	91
Cooking and washing up	24	27	72	55	49	54	81	75
Housekeeping	12	20	66	56	16	22	58	49
Maintenance and repair	18	16	6	5	12	10	3	3
Other household work	30	26	18	24	27	27	29	33
Shopping for goods and services	36	41	54	54	34	38	43	46
Child care	12	18	36	39	16	16	26	22
Total work time	402	404	408	413				

Source: 1992 compiled from CANSIM Table 113-0002; 2010 compiled from Statistics Canada (2011)

Notes

1. Estimates are based upon time use surveys from these countries. The data refer to different years over the period 1998 to 2009 and thus, may reflect differences in the business cycle and different data collection methodologies. The amounts of time are reported per day and averaged over the 7-day week.
2. The argument that men's unpaid work time does not increase much as women's paid work increases is also supported by analysis of cross-country female employment rates and amounts of unpaid work time. Miranda (2011: Fig. 6) shows that the correlation between women's employment rate and unpaid work time is greater than women's employment rate and men's unpaid work time.
3. A pilot survey was undertaken in 2014 and a 2015 survey is planned for release in the fall 2017.
4. General information about the time use surveys is available at http://www23.statcan.gc.ca/imdb/p2SV.pl?Function=getSurvey&Id=217657.
5. From the *GSS* 2010, paid work is calculated here as the sum of WORKPAID, DURO900, and OTHRPAID.
6. Unpaid work is distinguished from leisure using the third-party criterion which means that if a third-party can be hired to perform the task then it is considered unpaid work.
7. From the *GSS* 2010, unpaid work is calculated here as the sum of the variables COOKDOMS, HSKPDOMS, MAINDOMS, OTHRDOMS, SHOPDOMS, CHLDDOMS, and VLNTORGN.
8. In using the *GSS* 2010 public use microdata file, being employed is defined as MAR_Q100=1 and LFSGSS=1 or 2; employed full-time is MAR_Q100=1 and LFSGSS=1; employed part-time is MAR_Q100=1 and LFSGSS=2; unemployed is MAR_Q100=3 and LFSGSS=5; and not in the labor force is MAR_Q100=5, 6, 7, 9 or 10 and LFSGSS=5.
9. While there are no official dates for business cycles in Canada, the Conference Board of Canada, recently published a report outlining a method using a combination of "duration, amplitude and scope" of the downtown for measuring business cycles and providing dates for this recent and previous recessions (Cross and Bergevin 2012). The Bank of Canada (2011: 1) reports that by early 2011, "employment and economic activity have surpassed their pre-recession levels".
10. Cross and Bergevin (2012: Table 1.4) report that the percentage change in real GDP and real GDP per capita were negative in each of these three quarters; the start of the recovery is marked by a positive percentage change in quarterly GDP and zero change for quarterly GDP per capita, for the third quarter of 2009, July through September 2009.

11. The recession in the early 1990s lasted for 26 months and was associated with declines in real GDP per capita between quarters of between minus 0.1 percent near the trough and minus 1.4 percent (Cross and Bergevin 2012: Table 13).
12. National Bureau of Economic Research. US Business Cycle Expansions and Contractions. http://www.nber.org/cycles.html.
13. The amount of unpaid work for the population 15 years and over reflect the average across different types of households, such as married (and common-law) households of different types (such as dual earners/dual caregivers, male breadwinner), as well as non-partnered individuals. The averages are also aggregated over households with and without children.
14. Over the past 30 years, there has been progress toward gender equality in paid work, measured by a declining gender gap in annual employment rates and average weekly hours of paid work. The gender employment rate gap narrowed from 20 percentage points in 1985 to 8 percentage points in 2015 (an average decline of 0.4 percentage points per year) (see Appendix, Fig. A1). Since the mid-1990s, the gender gap in average weekly hours declined slowly, primarily as a result of a decline in men's average weekly work hours (see Appendix, Fig. A2).
15. Calculated from the number employed by industrial sector, by sex, and year, based on CANSIM Table 282-0008.
16. The approach of Kaya Bahçe and Memiş (2013) may be fruitful in this endeavor.

REFERENCES

Aguiar, Mark, Hurst, Erik & Karabarbounis, Loukas (2013). Time use during the great recession. *American Economic Review*, 103(5), 1664–1696.
Bank of Canada (2011). The "great" recession in Canada: Perception vs. reality. Remarks by Jean Boivin, Deputy Governor of the Bank of Canada, March 28, 2011.
Berik, Günseli & Kongar, Ebru (2013). Time allocation of married mothers and fathers in hard times: The 2007–09 US recession. *Feminist Economics*, 19(3), 208–237.
Bettio, Francesca & Veraschchagina, Alina (2014). Women and men in the "great European recession". In Maria Karamessini and Jill Rubery (Eds.), *Women and Austerity: The Economic Crisis and the Future for Gender Equality* (pp. 57–81). London and New York: Routledge.
Bloskie, Cyndi & Gellatly, Guy (2012). Recent developments in the Canadian economy: Fall 2012. *Economic Insights*, Catalogue no. 11-626-X-No. 019. Ottawa, Statistics Canada.

Canada Office of the Parliamentary Budget Officer (2009). *Canadian Labour Market Developments: Recession Impacts, Recent Trends and Future Outlook.* Ottawa.

Cohen, Marjorie Griffin (2013). Neo-liberal crisis/social reproduction/gender implications. *University of New Brunswick Law Journal*, 64: 234–252.

Cross, Philip & Bergevin, Philippe (2012). Turning points: Business cycles in Canada since 1926. C.D. Howe Institute. Commentary No. 366. Toronto.

Elson, Diane 1993. Gender-aware analysis and development economics. *Journal of International Development* 5(2): 237–247.

European Commission (2013). *The impact of the economic crisis on the situation of women and men and on gender equality policies. Synthesis report.* Luxembourg: Office of the European Union.

Fukuda-Parr, Sakiko, James Heintz and Stephanie Seguino 2013. Introduction. Critical Perspectives on Financial and Economic Crises: Heterodox Macroeconomics Meets Feminist Economics. *Feminist Economics* 19(3): 4–31.

Hennessy, Trish and Yalnizyan, Armine (2009). Canada's "he-cession". *Beyond the Numbers*, 10(4), 1–3.

Karamessini, Maria & Rubery, Jill, Eds. (2014). *Women and Austerity: The Economic Crisis and the Future for Gender Equality.* London and New York: Routledge.

Kaya Bahçe, Seçil A. & Memiş, Emel (2013). Estimating the impact of the 2008–09 economic crisis on work time in Turkey. *Feminist Economics*, 19(3), 181–207.

Khitarishvili, Tamar & Kim, Kihong (2015). The great recession and unpaid work time in the United States: Does poverty matter? *Electronic International Journal of Time Use Research*, 13(1), 19–48.

Lahey, Kathleen A. & de Villota, Paloma (2013). Economic crisis, gender equality, and policy responses in Spain and Canada. *Feminist Economics*, 19(3), 82–107.

Milan, Anne, Keown, Leslie-Anne, & Urquijo, Covadonga Robles (2011). Families, living arrangements and unpaid work. *Women in Canada: A Gender-based Statistical Report*, Catalogue no. 89-503-X, Statistics Canada, Ottawa.

Miranda, Veerle (2011). Cooking, caring and volunteering: unpaid work around the world. *OECD Social, Employment and Migration Working Papers* No. 116. Paris: OECD Publishing.

New York Times 2009. He-cession. *The New York Times*. https://schott.blogs. nytimes.com/2009/05/04/he-cession/

Rubery, Jill (2014). From "women and recession" to "women and austerity": A framework for analysis. In Maria Karamessini and Jill Rubery (Eds.), *Women and Austerity: The Economic Crisis and the Future for Gender Equality* (pp. 17–36). London and New York: Routledge.

Sayer, Liana C., England, Paula, Bittman, Michael, & Bianchi, Suzanne M. (2009). How long is the second (plus first) shift? Gender differences in

paid, unpaid, and total work time in Australia and the United States. *Journal of Comparative Family Studies*, 40(4), 523–545.

Statistics Canada (2011). *General Social Survey-2010 Overview of the Time Use of Canadians*. Catalogue no. 89-647-X. Ottawa.

UNWomen (2014). *The Global Economic Crisis and Gender Equality*. New York.

Villa, Paola and Mark Smith (2014). Policy in the time of crisis: Employment policy and gender equality in Europe. In Maria Karamessini and Jill Rubery (Eds.), *Women and Austerity: The Economic Crisis and the Future for Gender Equality* (pp. 273–294). London and New York: Routledge.

Wall, Howard J. (2009). The "man-cession" of 2008–09. *The Regional Economist*. Federal Reserve Bank of St. Louis.

Fiona MacPhail is Professor in Department of Economics at the University of Northern British Columbia. Her research focuses on labor and gender issues with emphasis on public policy. She currently serves as book review editor for the journal Feminist Economics.

Gender, Socioeconomic Status, Time Use of Married and Cohabiting Opposite-Sex Parents, and the Great Recession in the USA

Ebru Kongar and Mark Price

1   INTRODUCTION

It has been almost eight years since the official end of the Great Recession in June 2009, and there is now extensive research that examines its outcomes for the spheres of finance and production in the US economy. However, only a few studies to date have examined its outcomes for the sphere of reproduction, and even fewer studies have paid attention to the roles played by gender, race, and class in these analyses. In this chapter, we examine the relationships between state macroeconomic conditions and the time opposite-sex couples spend with their children over the 2003–2014 period. In doing so, we aim to contribute to the US literature that explores the gendered outcomes of the recession in the reproductive sphere, and the broader gender and macroeconomics

E. Kongar (✉)
Department of Economics, Dickinson College, Carlisle, PA, USA
e-mail: kongare@dickinson.edu

M. Price
Keystone Research Center, Harrisburg, PA, USA
e-mail: mark.price.economist@gmail.com

literature that examines the two-way relationships between gender inequalities and economic crises.

It is now well-established that, in the productive sphere of the US economy, the recession had differentiated outcomes by gender, race, ethnicity, and educational attainment. While women who maintain families lost more jobs than married men and women, men, on average, lost more jobs than women, and African-Americans, Hispanics, and workers without a college education lost more jobs than their respective counterparts (Albelda 2014; Grown and Tas 2014). The recovery has also been experienced differently by gender, race, ethnicity, and educational attainment. For instance, while the recession officially ended in June 2009, job losses continued until the end of 2009 for men, and until May 2010 for women (Hartmann et al. 2014). Job recovery was initially slower for women, in part due to loss of government jobs during this period, but by June 2014, women have regained all the jobs they have lost in the recession and more, and men have regained about almost all (90 percent) of the jobs they have lost during the recession (Hartmann et al. 2014, p. 1). Evidence also shows that involuntary part-time work and other forms of underemployment increased during the recession and in its immediate aftermath, a trend observed also in the European economies most affected by the recession and austerity (Grown and Tas 2014; Karamessini and Rubery this volume).

As Bianchi (2011) points out, "time tends to be a 'zero-sum game,' with time devoted to any one activity increasing only if another activity suffers an equal loss" (p. 13). The decline in paid work hours due to job loss or underemployment during the Great Recession allows for time to be spent in other activities, albeit in a recessionary context with less household income. How does this extra time get allocated? What is the impact on gender division of paid and unpaid labor of time reallocation during the recession? Empirical investigation of these questions in the US context became possible for the first time in 2010, when American Time Use Survey (ATUS) data collected since 2003 became available over the course of a business cycle. Using data from the 2003–2010 ATUS, Aguiar et al. (2013) explored how the "surplus time" in US labor markets during the recession was reallocated across unpaid work, leisure and personal care activities, and other categories of time use, and found that both women and men allocated more than half of their foregone paid work hours to leisure activities, and about one-third to unpaid housework and care work activities. Through a gender lens, and for married or cohabiting opposite-sex US parents, Berik and Kongar (2013) examined the impact of the recession on gender

differences in time use over the same time period of 2003–2010, and found evidence of an increase in mothers' paid work burden during the recession, while fathers increased their time in child caregiving activities. Morrill and Pabilonia (2015) examined the time opposite-sex married or co-habiting couples, who have children, spend together over the 2003–2010 period, and found that couples spend more time together when the state unemployment rate is low, compared to when it is high, but couples' time together increases at very high unemployment rates.

In this study, using data from the 2003–2014 ATUS, we explore the relationship between macroeconomic conditions and the time opposite-sex parents spend in child caregiving activities over the 2003–2014 period. To capture differences by race and ethnicity, we examine our models separately for mothers and fathers who are non-Hispanic black or African-American, non-Hispanic white, or Hispanic. For brevity, we refer to non-Hispanic black or African-American mothers and fathers as "African-American," non-Hispanic white mothers and fathers as "white". Together with Hispanic mothers and fathers, these constitute mutually exclusive categories of mothers and fathers.[1] We also estimate our models separately by socio-economic status, which we proxy by whether the father in the household has a college education. Throughout the study, we refer to households in which the father does not have a college education as "low socioeconomic status (SES)" households, and to their counterparts as "high-SES households".

Our main findings show that the time parents, especially mothers, spend on primary child caregiving activities is resistant to change as macroeconomic conditions worsen. However, we find considerable variation in the time spent alone with children in low-SES households, African-American households, and Hispanic households, when macro-economic conditions change. Similarly, family time in these households is affected more by changing state macroeconomic conditions. When the unemployment rates are high, we find evidence of an added worker effect for white mothers, and also evidence of substitution of fathers' care for mothers' care in secondary child caregiving activities (e.g. cooking while household children are watching TV). We observe a similar substitution in low-SES households in primary child caregiving activities. For African-American mothers, African-American fathers, and Hispanic fathers, we find an increase in non-standard paid work hours, which suggests increased hardship in these households when macroeconomic conditions worsen. Taken together with our findings for child caregiving activities, these findings suggest that, burden of household adjustment, at least as

measured in the time parents spent providing care to, and time with, their children, falls on households most affected by the recession in the productive sphere. Like the broader gender and macroeconomics literature, our findings stress the importance of examining microeconomic work-life balance questions within the broader macroeconomic context, and the importance of paying attention to the roles played by race, ethnicity, and class in these analyses.

In the rest of the chapter, we first present an overview of the gender and macroeconomics literature that links gender inequalities in unpaid work and macroeconomic conditions, as well as an overview of the relevant microeconomic literature on gender differences in time use. We then present our data and empirical model, which we utilize to investigate the relationship between macroeconomic conditions and gendered reallocation and reorganization of time spent caring for children over the 2003–2014 period.

2   Macroeconomic Conditions, Gender, and Time Use

Since the 1990s, feminist economic scholarship has developed gender-aware frameworks and models for analysis of macroeconomic phenomena and policies (Antonopoulos et al. 2013; İlkkaracan this volume; Karamessini and Rubery this volume; Rubery 1988; Rubery 2013).[2] Elson (2010) provides such a framework for analysis of the gender dimensions of the Great Recession, where inequalities by gender play a role in contributing to the financial crisis, and the recession as well as the subsequent policy responses have gendered outcomes in the three spheres of finance, production, and reproduction. Empirical evidence for the USA is consistent with this framework, as pointed out by Elson (2010) and others (Fukuda-Parr et al. 2013). For instance, targeting of single female heads of households, low-income households, and people of color, who have historically been excluded from credit markets by financial institutions for subprime lending have played a significant role in contributing to the financial crisis (Dymsky et al. 2013; Fukuda-Parr et al. 2013; Pressman 2014; Wisman and Baker 2014). Moreover, the recession had gendered outcomes in the sphere of production, primarily due to industrial and occupational segregation by gender, resulting in disproportionate job losses for men in the USA, Canada, and European countries most affected by the recession (Christensen 2015; Karamessini and Rubery this volume; MacPhail this volume).

Within Elson's (2010) framework, the reproductive sphere, which includes unpaid work within the household and in communities, and paid work in public services like health and education, acts as a safety net during the recessions. In the USA, for instance, Starr (2011) shows that the non-profit emergency-food system such as food pantries and soup kitchens have alleviated some but not all of the food insecurity that rose during the recession. Unpaid household work also acts as a safety net during recessions, and given their disproportionate share in unpaid labor, economic crises may increase women's relative unpaid work burden they compensate for loss of household income by increasing home production of previously market purchased goods and services (Benería and Feldman 1992). Women may also take on paid work during economic crises, in the face of male spouse's job loss, a phenomenon known as the "added worker" effect, leading to at least a temporary disruption and reversal of gender roles (Elson 1991; Elson 2010; Kaya Bahçe and Memiş 2013; Rubery 1988). There is evidence of an added worker effect during the Great Recession in the USA, Canada, and European economies (Berik and Kongar 2013; Karamessini and Rubery this volume; MacPhail this volume, Şahin et al. 2010; Starr 2014). However, in the USA, data on time use of household members other than the respondent are not available, and the impact of the recession on patterns of within-household gender division of unpaid labor are inferred from comparisons of nationally representative trends for coupled (married or cohabiting) women and men, who reside in the same household their spouse or unmarried partner (Berik and Kongar 2013; Kaya Bahçe and Memiş 2013; MacPhail this volume).[3]

In the year 2012, 64 percent of married couple families with children under the age of 18 were dual-income families with two employed parents (Glynn 2014: 5). About a quarter of the married mothers with earnings were the primary breadwinner in the family and 30 percent of married mothers with earnings contributed 25–49 percent of the family income (Glynn 2014, p. 7). Families where only the father was employed constituted 24 percent of the married couple families with children (henceforth father-earner families) in 2000, and 28.4 percent of them in 2012, and these families were as likely to be at the bottom of the income distribution as they were at the top in 2012. Accordingly, as pointed out by Glynn (2014), a married mother who is not an income-earner is not necessarily a "wealthy housewife" who "opts out" of the labor force (p. 9). Between 2000 and 2012, the percentage of dual-income parents among married couple families with children declined by about 7 percentage points from 71 percent to 64 percent, reflecting a rise in the share of father-earner families

and to a lesser extent also a rise in the share of mother-earner families.[4] Hispanic mothers make up 26.4 percent of married mothers with zero earnings while African-American mothers make up 6 percent, reflecting the historically high labor force participation rates among African-American women and likely also lower average earnings for Hispanic women compared to African-American women that discourage their entry into the labor force, especially within the US policy context, where only a few policies address work-family challenges (Glynn 2014).

While the contribution of mothers' earnings to family income has increased over time, only a few policies in the USA address the work-life conflict (Boushey 2016). The USA is the only advanced economy without mandated paid parental leave, and while the Family Medical Leave Act requires employers to provide job-protected leave for up to 12 weeks, this applies to businesses with at least 50 employees, and only workers who have worked for their employer in the last year and did so for at least 1,250 hours are eligible for this benefit (U.S. Department of Labor n.d.a). Paid parental leave may be provided by the employer, however, in the private sector, only 13 percent of workers and 6 percent of workers who are at the bottom of the wage distribution have access to paid parental leave (BLS 2016a). Rather than public provisioning of childcare services for children under the age 6, policies through tax deductions for childcare expenses encourage use of market provided services (Anxo et al. 2011). However, affordable good-quality childcare is limited, and enrollment rates of children under the age 6 in formal care or early education services is lower in the USA, compared to the OECD average (OECD 2016). In this work-life policy context, evidence suggests that dual-income families, especially low-income families, may try to achieve work-life balance by coordinating their work schedules, particularly with one parent working non-standard hours (Enchautegui 2013; Presser and Cox 1997; Wright et al. 2008). In the productive sphere, African-Americans, Hispanics, and workers without a college education are more likely to have non-standard work schedules. For African-American and Hispanic workers, this likely reflect not only an attempt to achieve work-life balance through this arrangement at the expense of family time but also limited job opportunities due to occupational segregation by race and ethnicity in the US labor markets.[5]

During the Great Recession, there is evidence of an increase in non-standard work hours, especially for women, and mothers without a college education, compared to men and fathers without a college education (Starr 2014). For instance, Enchautegui (2013) finds that, among workers

without a college degree, the odds of having non-standard paid work hours increased for women relative to men during the 2008–2011 period, compared to the 2004–2007 period, such that over the 2008–2011 period women were as likely to be working non-standard hours as men. This might reflect low-income women economizing on childcare expenses by being available at home to take care of children during the weekdays, and working for pay during non-standard work hours to contribute to family income, or that women without a college education are unable to find good jobs with standard hours in a recessionary context, where workers without a college education suffered more job losses (Presser and Cox 1997; Wright et al. 2008).

What we know in terms of the outcomes in the productive sphere is that when macroeconomic conditions worsened during the Great Recession, differences in unemployment rates by gender, race, ethnicity, and educational attainment widened. Between the fourth quarter of 2007 and the second quarter of 2009, the difference between the unemployment rates of men with and without a college education more than doubled, increasing from 3 percentage points to 7 percentage points.[6] The difference in the unemployment rates of married white married men and married African-American men more than tripled, and the difference between married Hispanic men and married white men nearly doubled.[7] As Ehrenreich and Muhammad (2009) argue, the recession was felt more like a depression for African-Americans who, due to legacy of a discrimination in the financial and productive spheres respectively in access to credit and jobs, are also less likely than their white counterparts to be able to absorb the shock by borrowing or depleting their savings accounts.

Morrill and Pabilonia's (2012) analysis of time use data from the 2003–2010 ATUS for married mothers and fathers who live in the same household with their spouse and at least one child under the age 19 show that, while the recession was associated with an increase in married mothers' total work burden relative to married fathers, this was primarily due to a large decline in fathers' paid work hours rather than an increase in mothers' unpaid work burden. Fathers, whose paid work hours declined during the recession, spent more time taking care of children during the recession, while mothers whose paid work hours increased seem to have protected their primary child caregiving time.

Other findings for the 2003–2010 period show that as the economy worsens, fathers spend more solo time with household children in

"enriching" child caregiving activities, such as reading to children and playing sports with children (Morrill and Pabilonia 2012). Previous findings in the literature for the 1991–1992 recession also show that the percentage of fathers who acted as (primary or secondary) childcare providers during their wives' paid working hours increased significantly during the recession, and declined in the immediate aftermath of the recession (Casper and O'Connell 1998). These findings show patterns that are consistent with increasing availability of fathers in the household due to job loss or shorter paid work hours during the recession. In terms of parents' secondary child caregiving time, for expansionary time periods, microeconomic analyses of parents' child caregiving time find that, in the USA and several other industrialized countries, employed mothers spend less time in child caregiving activities than nonemployed mothers, but the difference is primarily due to less time spent with children and in secondary child caregiving activities, rather than in primary child caregiving activities (Bianchi 2011; Connelly and Kimmel 2010; Folbre and Yoon 2007; Kalenkoski et al. 2007; Nock and Kingston 1988). Accordingly, we also explore whether the time parents spend in secondary child caregiving activities varies with macroeconomic conditions.

While ATUS does not collect information on the spouse's or unmarried partner's time use, it does collect information on with whom the respondent is during an activity for activities other than sleep and other forms of personal care. Using this information from the 2003–2010 ATUS data, Morrill and Pabilonia (2015) examine the relationship between (married or cohabiting, opposite-sex) couples' time together and state unemployment rates over the 2003–2010 period. They find a U-shaped relationship, where couples spend more time together when the state unemployment rate is low (5 percent) compared to when the state unemployment rate is high (at around 10 percent); however, when the unemployment rate increases above 9 percent, the time couples spend together increases. They observe the same relationship when couples are with their children. To explain why couples spend less time together when the unemployment rate is between 5 and 10 percent, Morrill and Pabilonia (2015) explore the possibility that mothers are working non-standard work hours, when the unemployment rate is between 8 and 10 percent. Contrary to previous findings in the literature for the expansionary period over the 2003–2006 period, Morrill and Pabilonia (2015) find evidence of non-standard schedules for mothers when the unemployment rate was between 8 and 10 percent over the entire 2003–2010 period.[8]

In this chapter, we focus on the relationship between state macroeconomic conditions and the time parents spend in child caregiving activities. Our child caregiving variables of interest are primary child caregiving, secondary child caregiving, solo time with children (time with children in the absence of the spouse), and family time (any time with child and spouse). We explore the relationships between these variables and within state variation in unemployment rates relative to other states, which we use as a proxy for the business cycle effect. Our methodology is similar to Aguiar et al. (2013) and Morrill and Pabilonia (2015) who use state unemployment rates as a proxy for macroeconomic conditions rather than individual-level data on employment status to estimate the effects of the recession.

Following Morrill and Pabilonia (2015), to explore the patterns of time use in the productive sphere, we model the relationship between time spent in paid work activities and macroeconomic conditions, and also explore the patterns in work schedules by distinguishing between weekend paid work hours, paid work hours during standard hours on weekdays, and paid work hours during non-standard hours. Variation in work schedules by the unemployment rate might reflect difficulty in finding opportunities for employment during standard hours on weekdays when the economy worsens. Moreover, during hard times, households may reduce their spending on childcare services, fearing job loss. These possible adjustments in work-related behavior are examples of how reallocation and reorganization of time within the household during times of high unemployment go beyond the adjustments in households who experience job loss. Accordingly, in our model, we explore the relationships between state unemployment rates and time use in all households regardless of the employment status of mothers, fathers, and their spouses.

We expect that reallocation and reorganization will be more necessary in low-SES households, compared to high-SES households, where the shock can be absorbed through dissaving and access to individual networks of support. Given the disproportionate impact of the recession on African-American and Hispanic households, and the segregated nature of US employment that limits job opportunities for African-American and Hispanic households, we also expect a more pronounced relationship between time use and macroeconomic conditions in these households, compared to their white counterparts. Gendered outcomes of the recession in the productive sphere, combined with different outcomes by race, ethnicity, and education will affect gendered patterns of time reallocation

and reorganization in the household. Mothers and fathers in these households reallocate and reorganize time in a recessionary context, balancing child caregiving responsibilities and paid work activities that aim to increase household income, within the context of gender norms. Below, we explore these relationships for mothers and fathers, and by race, ethnicity, and socioeconomic status.

3   DATA AND METHODOLOGY

Our sample of individual-level time diary respondents from the 2003–2014 ATUS data files includes women and men, who reside in the same household with their opposite-sex spouse or unmarried partner and with at least one child under the age of 19. For brevity, throughout the chapter, we refer to the women and men in our sample respectively as "mothers" and "fathers" and, to their spouse or unmarried partner as their "spouse." Following Morrill and Pabilonia (2015), we limit the sample to respondents between the ages of 25 and 64, and exclude diaries where the respondent reported either sleeping more than 20 hours or performing health-related self-care for more than 4 hours. Our sample construction is illustrated in Table 1. There are 24,957 mothers and 22,174 fathers in our sample.

Our time use categories of interest are primary child caregiving, secondary child caregiving, solo time with children, and family time. Primary child caregiving includes all child caregiving activities of

Table 1   Sample creation

Number of observations	85,452
Married and cohabiting individuals	84,988
Married and cohabiting individuals in heterosexual couples	67,646
Married and cohabiting individuals aged 25–64 in heterosexual couples	47,336
Only couples who have children in household under age 19	47,311
Drop those who slept more than 20 h on diary day	47,131
Drop those sick more than 4 h on diary day	
Total sample size	
Couples	47,131
Mothers	24,957
Fathers	22,174

Notes: Data from 2003–2014 ATUS. See text for discussion of sample creation

providing direct care to children as a primary activity, for example, providing physical care for children, reading to, playing with, and looking after children.[9] Secondary child caregiving encompasses activities during which children are supervised, but not actively engaged. In ATUS, secondary child caregiving data are available only for the parents of children aged 12 or younger. To avoid double-counting, we exclude from our secondary child caregiving time any time during which primary child caregiving was also provided, that is, our categories of primary child caregiving and secondary child caregiving do not overlap. We define family time as the time mothers and fathers spend in an activity while they are with their spouse and child. Solo time with children is any time mothers and fathers spend with their child in the absence of their spouse. We construct family time and solo time with children by aggregating detailed time use activities into the time spent together with spouse and/or child, using the "with whom" information from the ATUS data.[10]

To explore whether the time use variables vary with state unemployment rates over the course of the 2003–2014 business cycle, we use state level unemployment rate data from the US Bureau of Labor Statistics (BLS). Following Aguiar et al. (2013) and Morrill and Pabilonia (2015), we use an average of the 12 months ending in the interview month to control for variation in state unemployment rate due to short-term sampling errors. For the 2003–2014 period, the mean state yearly unemployment rate is 6.6 percent, the minimum rate is 2.6 percent and, the maximum rate is 14.0 percent. In our regression analysis, we control for long-term trends in time use and average unemployment rates, and use variation in unemployment rates within states over time to proxy state macroeconomic conditions (Aguiar et al. 2013; Morrill and Pabilonia 2015).

We examine our models separately by race, ethnicity, and SES, and expect the relationship between state unemployment rates and time use adjustments to be more pronounced in low-SES households, African-American households, and Hispanic households, compared to their respective counterparts, for reasons discussed earlier. By the end of 2014, mothers and fathers in our sample have experienced job recovery, and, with the exception of married African-American men, the unemployment rates were similar to their values in the last quarter of 2007.[11] With additional data for recovery years after 2010, we are able to explore the gendered patterns of time use over an expansion, a contraction, and

another expansion that reflects job recovery for all demographic groups within our sample of mothers and fathers.

While we attempt to analyze the variation in care work with macroeconomic conditions, our child caregiving variables are imperfect. In particular, the "with whom" variable in ATUS may overstate child caregiving responsibilities given the possibility that many adults are present during an activity who may be sharing responsibility (Folbre and Yoon 2007). Also, as pointed out by Folbre and Yoon (2007), Connelly and Kimmel (2010), and others, the activities ATUS defines as secondary child caregiving activities, may not reflect activities at all (Schwartz 2001), that is, it "does not designate an activity but rather a responsibility" (Connelly and Kimmel 2010, p. 36). These issues are further complicated by alternative conceptualizations of care work. Folbre (2006) argues that indirect care, which include activities that support direct care, for example, preparing food for children, doing their laundry, etc. is care work (Folbre 2006: 187; Nelson this volume). However, despite the problems with secondary and "with whom" Folbre and Yoon (2007) argue that it would be wrong to simply ignore secondary care responsibilities. Instead we take a broadbased approach and in doing so contribute to a more comprehensive and nuanced understanding of care work during the most recent recession.

4   EMPIRICAL MODEL AND RESULTS

Similar to Morrill and Pabilonia (2012), we model the relationship between child caregiving time and the state unemployment rate as follows:

$$\text{Child Caregiving Time}_{ist} = \alpha + \beta_1{}^*\text{Urate}_{s,t-1} + \beta_2{}^*\text{Urate}^2{}_{s,t-1}$$
$$+\beta_3{}^*\text{Urate}^3{}_{s,t-1} + \gamma\,X_{ist} + \delta_s + \theta_t + \varepsilon_{ist} \quad (1)$$

where Child Caregiving Time$_{ist}$ is the minutes parent i living in state s at time t spends in childcare activities; Urate$_{s,t-1}$ is the monthly state-level unemployment rate averaged over the prior 12 months ending in interview month ($t-1$), X$_{ist}$ is a vector of controls for individual and family characteristics, α is a constant, δ_s are state fixed effects, θ_s are year fixed effects, and ε_{ist} is a stochastic disturbance term assumed to follow a normal distribution.[12] We estimate all models of child caregiving time using ordinary least squares.[13] To examine whether the relationship between state macroeconomic conditions and our variables of interest vary by SES,

we estimate equation 1 separately for low-SES and high-SES households, which we differentiate by whether the father in the household has a college degree. We also estimate equation 1 separately for African-American mothers and fathers, white mothers and fathers, and Hispanic mothers and fathers.

4.1   Primary Child Caregiving Time

The results for primary child caregiving time from estimation of equation (1) for the full sample of mothers are presented in Panel A and for fathers in Panel B of Table 2. We find a cubic relationship between mothers' primary child caregiving time and the unemployment rate, where for primary child caregiving as mothers spend the most time in primary child care giving activities when the unemployment rate is at its lowest and the least time when the unemployment rate is at its highest, with a slight increase in their primary child caregiving time, when the unemployment rate is between 6 percent and 8 percent. Any variation in mothers' primary childcare time is small in absolute terms, until the unemployment rate exceeds 10 percent.

For fathers, we find a quadratic (U-shaped) relationship between primary child caregiving time and the unemployment rate, where higher unemployment rates between 3 percent and 6 percent unemployment rates is associated with fewer minutes of primary child caregiving, and when the unemployment rate exceeds 6 percent, fathers spend more time providing primary child caregiving.

During the Great Recession, the average unemployment rate in the USA increased from 5 percent in December 2007 to 10 percent in June 2009. According to our estimates, mothers spend the same amount of time – 118 minutes per day – providing primary child caregiving when the unemployment rate is at 5 percent and also when it reaches 10 percent. Fathers, on the other hand, spend 57 minutes when the unemployment rate is at 5 percent and 7 more minutes (64 minutes in total) when it reaches 10 percent. The 7-minute difference, is equal to 12 percent of the sample mean of 59 minutes.

We also estimate equation 1 separately for subsamples of mothers and fathers, and present these results in Panels C–F in Table 2. For mothers in low-SES households, we find a cubic relationship between mothers' primary child caregiving time and the unemployment rate. When the unemployment rate is at 10 percent, compared to when it is at 5 percent,

Table 2 Primary child caregiving time (in minutes) 2003–2014

	Sample		N	Mean primary childcare time	Urate	$Urate^2$	$Urate^3$	R^2
(A)	Mothers	Linear	24,957	118	-0.751 (1.055)			0.244
		Quadratic	24,957	118	0.013 (3.927)	-0.046 (0.238)		0.244
		Cubic	24,957	118	-18.506* (9.727)	2.482** (1.199)	-0.108** (0.049)	0.244
(B)	Fathers	Linear	22,174	59	2.154* (1.220)			0.121
		Quadratic	22,174	59	-5.129* (2.853)	0.427** (0.169)		0.121
		Cubic	22,174	59	-1.693 (6.854)	-0.039 (0.859)	0.020 (0.037)	0.121
					Mothers, subsamples by SES and race-ethnicity (Estimates using cubic specification)			
(C)	SES	Low-SES	14,900	105	-29.508* (16.889)	3.932 (2.364)	-0.170 (0.109)	0.204
		High-SES	10,057	140	-1.863 (24.840)	0.373 (3.579)	-0.017 (0.161)	0.292
(D)	Race/ethnicity	White	18,258	123	-14.754 (13.849)	1.737 (1.803)	-0.069 (0.076)	0.264
		African-American	1,338	89	16.712 (33.382)	-2.605 (4.633)	0.147 (0.197)	0.274
		Hispanic	3,678	108	-49.360 (31.338)	7.510* (4.062)	-0.354** (0.174)	0.187

Fathers, subsamples by SES and race-ethnicity (Estimates using quadratic specification)

(E)	SES	Low-SES	12,881	52	−5.598* (3.112)	0.475*** (0.170)	0.103
		High-SES	9,293	72	−5.427 (5.884)	0.424 (0.364)	0.136
(F)	Race/ethnicity	White	16,259	62	−2.485 (3.259)	0.244 (0.193)	0.138
		African-American	1,379	51	3.191 (11.676)	−0.068 (0.610)	0.151
		Hispanic	3,093	49	−13.468* (6.722)	0.906*** (0.332)	0.111

Notes: The sample includes women and men between the ages of 25 to 64, who reside in the same household with their married or unmarried partner and at least one household child under age 19. The dependent variable is family time (any time with spouse/partner and at least one child). Urate is state-level unemployment rates averaged over the 12-month period prior to the survey ending in the survey month. In alternative specifications, we include linear, quadratic, and cubic polynomials in state-level unemployment rates. We control for state and year fixed effects, and the following individual and family-level variables: own and spouse's age and age squared and indicators for the following: husband and wife education (high school dropout, some college, college, missing, with high school degree being the omitted category), race and ethnicity (non-Hispanic black, other, Hispanic, with non-Hispanic white being the omitted category), gender, age of youngest household child (infant, preschooler, elementary school aged, with high school aged being the omitted category), presence of household child older than age 18, number of children in the household by age group (Ages 0-1, 2-4, 5-9, 10-14, 15-18), cohabiting couple, gender composition of the children (all boy children, mixed gender children, with all girls being the omitted category), respondent lives in SMSA, and season (with fall being the omitted category). We use ATUS weights, and following Morrill and Pabilonia (2015), we reweight these weights to ensure equal day-of-week representation for each of our subsamples. Standard errors adjusted for clustering by state are reported in parentheses.
*** Significant at 1 %; ** significant at 5 %; * significant at 10 %

mothers in low-SES households spend 1.6 fewer minutes in primary child caregiving activities (Panel C in Table 2). While the point estimates for mothers in high-SES households are imprecise, they show that mothers spend 3.4 more minutes in primary child caregiving activities when the unemployment rate is at 10 percent, compared to when it is at 5 percent. For fathers in low-SES and high-SES households, the point estimates are similar to the full sample results, but they are precisely estimated only for fathers in low-SES households. When the unemployment rate is at 10 percent, compared to when it is at 5 percent, fathers in low-SES households spend about 4 more minutes, and fathers in high-SES households spend about 7 more minutes, in primary child caregiving activities. However, the latter relationship is not precisely estimated. These results suggest that if there is a substitution of fathers' care for mothers' care, for instance, in the face of an added worker effect, this is more likely to occur in low-SES households, compared to their counterparts. For high-SES households, our results are interpreted as either no effect on primary child caregiving time of fathers or mothers, or an increase in both.

In Fig. 1 we plot the estimated relationships between the state unemployment rate and the time mothers and fathers spend in primary child caregiving activities. Fig. 1 shows that, at low unemployment rates, mothers spend more time compared to the fathers in the full sample, as well as in low-SES and high-SES households. In high-SES households, mothers spend considerably more time in primary child caregiving activities than their counterparts in low-SES households. For instance, when the unemployment rate is at 3 percent, mothers in high-SES households spend about 18 more minutes in primary child caregiving activities. The gap widens to about 32 minutes when the unemployment rate is at 5 percent, and to about 37 minutes when the unemployment rate is at 10 percent. That the gap widens at higher unemployment rates suggests that the recession's impact on low-SES households goes beyond its effects in the productive sphere, possibly includes a widening the SES care gap across low-SES and high-SES households.

Examining our results for subsamples differentiated by race and ethnicity, we find a pronounced cubic relationship between primary childcare time and unemployment rate for Hispanic mothers (Panel D in Table 2). The point estimates for white mothers are smaller and imprecise, and the estimates for African-American mothers show an inverse pattern compared to white mothers and Hispanic mothers, but they are also imprecise. Hispanic mothers and white mothers spend the most amount of time in
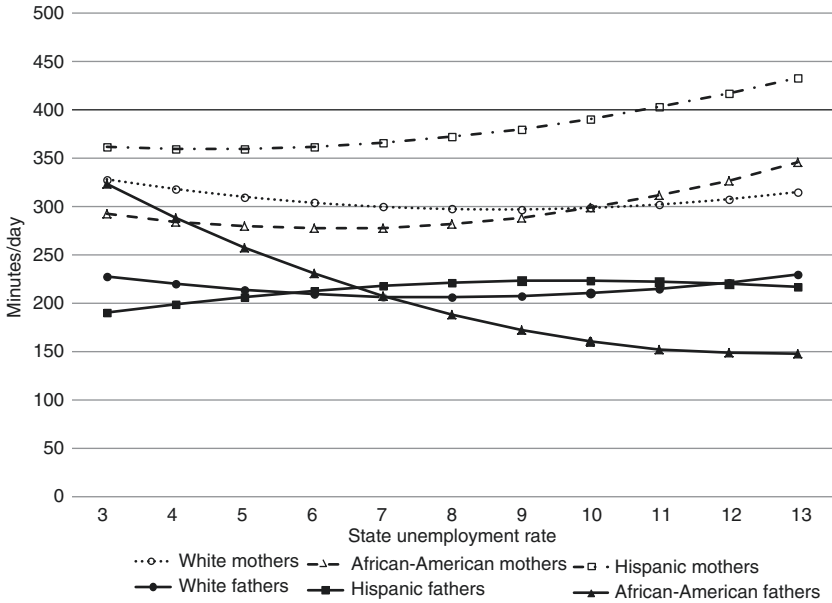
Fig. 1 Primary child caregiving time of mothers and fathers by socioeconomic status

Notes: Authors' calculations from 2003–2014 American Time Use Survey and US Bureau of Labor Statistics data. Fig. 1 shows the predicted mean minutes spent in primary childcare activities, by estimating equation 1 in quadratic form, and matches quadratic specifications in Table 2, Panels A, B, C, and E. The state unemployment rate is averaged over the 12 months ending in the interview month. See text for details on sample construction and variable definitions

primary childcare giving activities when the unemployment rate is at its lowest and the least amount of time in these activities when the unemployment rate is at its highest; however, these relationships are precisely estimated only for Hispanic mothers. The opposite relationship seems to hold for African-American mothers, but this is not precisely estimated. When the unemployment rate is at 10 percent, Hispanic mothers spend more time in primary child caregiving activities, compared to when it is at 5 percent, while white mothers and African-American mothers spend about the same amount of time in these activities when the unemployment rate is at 5 percent or at 10 percent.

For Hispanic fathers, (Panel F in Table 2) point estimates are also statistically significant, and compared to our full sample results and the results for white fathers, they are also larger. Hispanic fathers' primary child caregiving time varies by less than a minute between the unemployment rates of 5 and 10 percent, increasing when the unemployment rates exceed 10 percent. While not precisely estimated, primary child caregiving time in African-American households seems to follow a different pattern compared to their white and Hispanic counterparts, indicating different patterns of household adjustment in African-American households compared to their white and Hispanic counterparts. We present these relationships in Fig. 2. At low unemployment rates, Hispanic mothers spend more time in primary child caregiving activities, followed by white mothers, and African-American mothers.
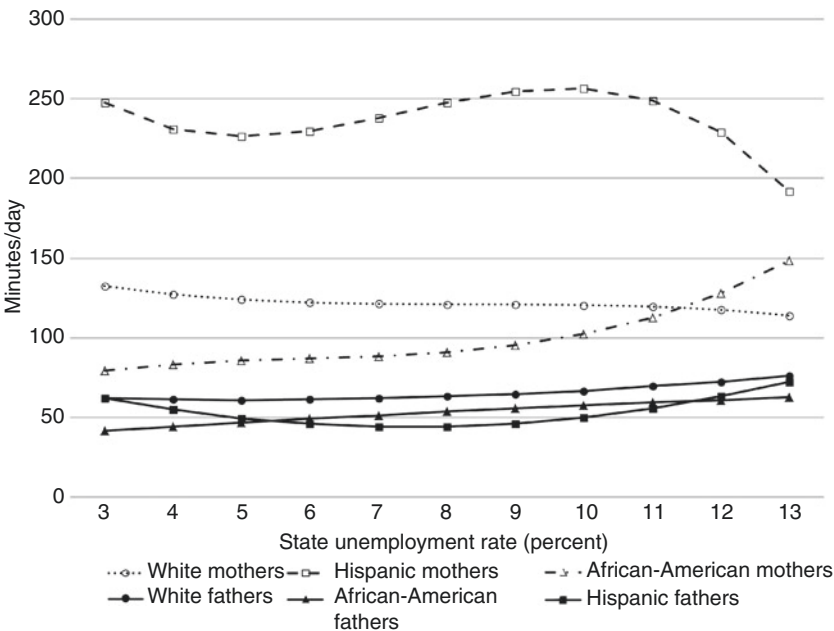
Fig. 2 Primary child caregiving time of mothers and fathers by race and ethnicity (See notes to Fig. 1. Fig. 2 matches the specification in Table 2, Panels D and F.)

These differences likely reflect that married African-American mothers have the highest and married Hispanic married mothers have the lowest labor force participation rates, with married white mothers in the middle.[14] Compared to when the unemployment rates are very low, when the unemployment rates are very high, the differences in the time mothers spend in primary child caregiving activities by race and ethnicity are smaller. This is because Hispanic mothers and white mothers spend less time in these activities and African-American mothers spend more time at high unemployment rates, and the latter is possibly due to increasing unemployment among African-American mothers who are more likely to participate in the labor force than their counterparts, and for whom unemployment rate increased more during the recession.

In sum, the results for fathers' primary child caregiving are consistent with previous findings in the literature that fathers spend more time in primary child caregiving activities in a recessionary context (Casper and O'Connell 1998; Berik and Kongar 2013). Similarly, our results for mothers are consistent with the findings in the literature mothers' primary child caregiving time is not much affected by the recession (Berik and Kongar 2013). However, our new analysis also suggests that, worsening state macroeconomic conditions is associated with different patterns of mothers' primary child caregiving time in low-SES households, compared to high-SES households, where mothers in low-SES households, spend less time in primary child caregiving activities when the unemployment rate is at 10 percent, compared to when it is at 5 percent. We do not observe a decline in mothers' primary caregiving time in high-SES households leading to widen SES gap for mothers' primary child caregiving time. Moreover, if there is an added worker effect during the recession and a subsequent substitution of fathers' care for mothers', this is more likely to be the case in low-SES households. We present more evidence of the added worker effect below. In terms of gender difference in primary child caregiving time, our results suggest that the gap is narrower at higher unemployment rates, as fathers provide more primary child caregiving possibly due to disproportionate job losses for men who take on more primary childcare responsibilities, narrower at higher unemployment rates. The differences by race and ethnicity is also smaller at very high unemployment rates, indicating different adjustments in time use across households when state macroeconomic conditions worsen.

4.2   Secondary Child Caregiving Time

We explore whether secondary child caregiving time varies with macroeconomic conditions, by estimating equation 1 with time spent in secondary child caregiving activities as the dependent variable. Our secondary child caregiving variable is the time spent in secondary child caregiving activities for children under the age 13 and excludes any secondary child caregiving time during which primary care was also provided. It is possible that secondary child caregiving time varies more with macroeconomic conditions than primary child caregiving time, as predicted by the microeconomic literature. The results presented in Table 3 show a U-shaped relationship between mothers' secondary child caregiving time and the unemployment rate, where the time mothers spend in secondary child caregiving activities decline until the unemployment rate reaches 7 percent, and increases afterward (Panel A). Compared to when the unemployment rate is at 5 percent, when the unemployment rate is at 10 percent, mothers spend about 1.5 more minutes in secondary child caregiving activities. Panel B in Table 3 shows that fathers' secondary childcare time also follows a U-shaped pattern, but the coefficients are not precisely estimated. For the full sample, secondary child caregiving time, like primary child caregiving time seems relatively unaffected by macroeconomic conditions.

When we restrict our samples to low-SES households, we find a more pronounced and statistically significant U-shaped relationship for both mothers and fathers (Panels C and E, in Table 3). Compared to when the unemployment rate is at 5, when the unemployment rate is at 10 percent, mothers in low-SES households spend about 7.5 more minutes in secondary child caregiving activities and fathers in these households spend 12 fewer minutes in these activities. When the unemployment rate rises above 10 percent, both mothers and fathers in low-SES households spend more time providing secondary child caregiving. For high-SES households, the estimates have the opposite signs and are imprecise. Our results suggest a U-shaped relationship between unemployment rate and secondary child caregiving time of mothers and fathers is driven by the results in low-SES households.

To illustrate the differences in the relationship between unemployment rate and secondary child caregiving time, we plot the relationships between unemployment rate and secondary child caregiving time of

Table 3 Secondary child caregiving time (in minutes) 2003–2014 (see notes to Table 1)

	Sample		N	Mean	Urate	Urate^2	R^2
(A)	Mothers	Quadratic Urate	24,957	317	-17.393** (7.344)	1.181*** (0.426)	0.251
(B)	Fathers	Quadratic Urate	22,174	214	-7.446 (4.901)	0.409 (0.278)	0.127
		Mothers, subsamples by SES and race-ethnicity (Estimates using quadratic specification)					
(C)	SES	Low-SES	14,900	318	-28.201*** (9.937)	1.979*** (0.570)	0.248
		High-SES	10,057	314	5.392 (11.494)	-0.420 (0.703)	0.267
(D)	Race/ethnicity	White	18,258	305	-16.799* (8.629)	0.968* (0.493)	0.266
		African-American	1,338	280	-18.543 (24.710)	1.491 (1.413)	0.234
		Hispanic	3,678	372	-9.032 (24.785)	1.015 (1.275)	0.247
		Fathers, subsamples by SES and race-ethnicity (Estimates using quadratic specification)					
(E)	SES	Low-SES	12,881	212	-17.818** (7.710)	1.031** (0.427)	0.130
		High-SES	9,293	218	6.661 (11.175)	-0.497 (0.534)	0.133
(F)	Race/ethnicity	White	16,259	211	-14.358** (5.804)	0.910*** (0.326)	0.145
		African-American	1,379	222	-47.984 (32.592)	1.904 (1.959)	0.179
		Hispanic	3,093	217	14.019 (18.764)	-0.707 (1.107)	0.109

mothers and fathers for the full sample and also for mothers and fathers in low-SES households, in Fig. 3. Compared to primary child caregiving time reported earlier, there is less of a difference in time spent in secondary child caregiving activities between low-SES and high-SES households, until the unemployment rate exceeds 10 percent. However, similar to primary child caregiving time, macroeconomic conditions affect secondary child caregiving time more in low-SES households. We also find that the gender gap in secondary child caregiving time is substantial, with mothers spending considerably more time in these activities. Compared to when the unemployment rate is lower than 5 percent, these differences are smaller when the unemployment rate is between 5 and 8 percent, and larger at very high unemployment rates.

Panel D in Table 3 shows that, when the sample is restricted by race and ethnicity of the mothers in our sample, we observe the same U-shaped
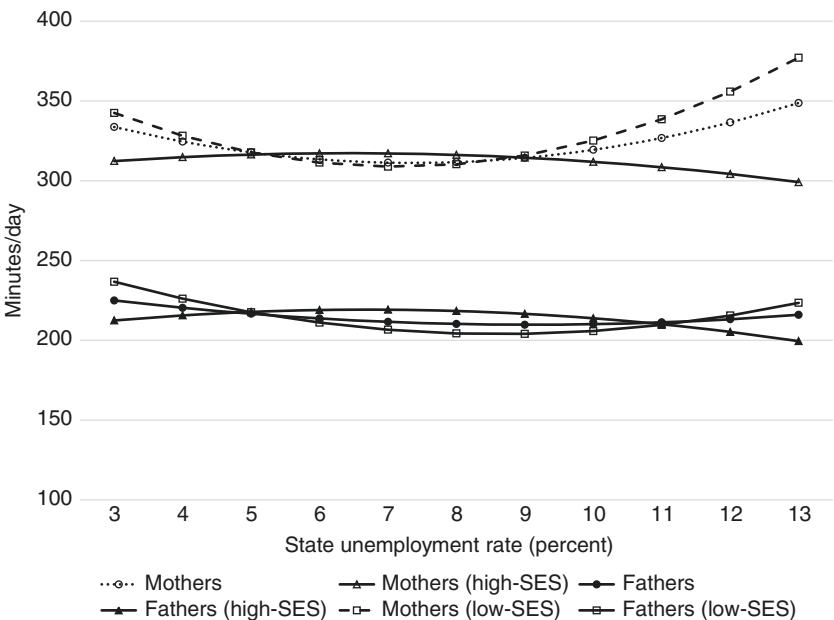
Fig. 3 Secondary child caregiving time by socioeconomic status (See notes to Fig. 1. Fig. 3 shows the predicted mean minutes spent in secondary childcare activities, and matches quadratic specifications in Table 3, Panels A, B, C, and E.)

pattern for all groups of mothers, but the relationship is precisely estimated only for white mothers. For African-American fathers and white fathers, we also find a U-shaped relationship (Panel F). While the point estimates are larger for African-American fathers, they are not precisely estimated. The point estimates for Hispanic fathers indicate a reverse pattern compared to African-American fathers and white fathers, but they are statistically insignificant.

4.3   Solo Time with Children

The next child caregiving activity we examine is solo time with children under age 19 (any time spent with children under age 19 without the spouse present). We estimate equation 1 with the dependent variable solo time with children, separately for mothers and fathers. Our findings are reported in Table 4. For fathers, there is a cubic relationship between the state unemployment rate and the time they spend solo with children, where fathers' solo time with children is at its highest at the lowest unemployment rates and is at its lowest at the highest unemployment rates (Panel B). The cubic relationship between the unemployment rate and fathers' solo time with children is mirrored by the results for mothers in the full sample, that is, the patterns for mother are fathers appear to be complementary, however, for mothers, our estimates are imprecise (Panel A).

We observe a cubic relationship for all subsamples of fathers, except for African-American fathers (Panels H and J). The cubic relationships are precisely estimated only for fathers in low-SES households and also for Hispanic fathers (Panels H and J). For African-American fathers, we find a quadratic relationship between alone time with children and the unemployment rate (Panel J). The results for mothers in low-SES households, African-American mothers, and Hispanic mothers, (Panels G and I) mirror the results for fathers in low-SES households, African-American fathers, and Hispanic fathers, respectively, but the estimates are precise only for Hispanic mothers.

We plot the relationships between solo time with children and the unemployment rate for our subsamples by race and ethnicity in Fig. 4. The estimates show symmetric patterns for mothers and fathers, although only those for Hispanic mothers and Hispanic fathers are precise. When the unemployment rate is 10 percent, compared to when the unemployment rate is 5 percent, Hispanic mothers spend about 30 more minutes alone with children, while Hispanic fathers spend about 3 fewer minutes. While not precisely estimated, our results also show symmetric patterns in

Table 4 Mothers' and fathers' solo time with children under age 19 (in minutes) 2003–2014 (see notes to Table 1)

	Sample		N	Mean	Urate	Urate²	Urate³	R²
(A)	Full sample	Mothers	Linear	24,957	219	0.202 (1.458)			0.161
			Quadratic	24,957	219	5.022 (6.429)	-0.288 (0.348)		0.161
			Cubic	24,957	219	-7.699 (20.360)	1.448 (2.723)	-0.074 (0.115)	0.161
(B)		Fathers	Linear	22,174	87	0.680 (1.355)			0.048
			Quadratic	22,174	87	-5.900 (4.230)	0.386 (0.237)		0.048
			Cubic	22,174	87	14.629 (12.934)	-2.398 (1.649)	0.118* (0.069)	0.049
	Estimates using quadratic specification and various subsamples								
(C)	SES	Mothers	Low-SES	14,900	214	3.687 (7.679)	-0.241 (0.403)		0.156
			High-SES	10,057	226	6.230 (9.120)	-0.328 (0.544)		0.182
(D)		Fathers	Low-SES	12,881	84	-9.468 (8.632)	0.596 (0.499)		0.051
			High-SES	9,293	92	-0.273 (6.719)	0.092 (0.399)		0.055
(E)	Race/ethnicity	Mothers	White	18,258	217	5.223 (6.517)	-0.357 (0.395)		0.180
			African-American	1,338	185	-1.985 (20.414)	0.502 (1.387)		0.208
			Hispanics	3,678	237	19.246 (26.280)	-1.072 (1.272)		0.147
(F)		Fathers	White	16,259	90	-2.558 (4.498)	0.238 (0.253)		0.055
			African-American	1,379	95	-45.075** (17.180)	1.869** (0.906)		0.105
			Hispanic	3,093	74	3.707 (11.309)	-0.066 (0.715)		0.053

Estimates using cubic specification and various subsamples

G)	SES	Mothers	No college	14,900	214	-15.563	(28.055)	2.381	(3.844)	-0.112	(0.164)	0.156
			College	10,057	226	6.837	(28.614)	-0.411	(3.971)	0.004	(0.178)	0.182
(H)		Fathers	No college	12,881	84	22.733	(18.258)	-3.751	(2.386)	0.183*	(0.104)	0.052
			College	9,293	92	1.714	(13.614)	-0.180	(1.819)	0.012	(0.081)	0.055
(I)	Race/ ethnicity	Mothers	White	18,258	217	5.878	(21.972)	-0.446	(3.128)	0.004	(0.140)	0.180
			African-American	1,338	185	-9.434	(78.177)	1.535	(10.661)	-0.045	(0.462)	0.208
			Hispanic	3,678	237	-85.615*	(49.456)	12.934**	(5.923)	-0.585**	(0.240)	0.148
(J)		Fathers	White	16,259	90	5.563	(12.758)	-0.869	(1.612)	0.047	(0.068)	0.055
			African-American	1,379	95	-78.711	(51.628)	6.393	(6.548)	-0.189	(0.266)	0.107
			Hispanic	3,093	74	126.838**	(60.104)	-16.608**	(8.032)	0.695*	(0.352)	0.056
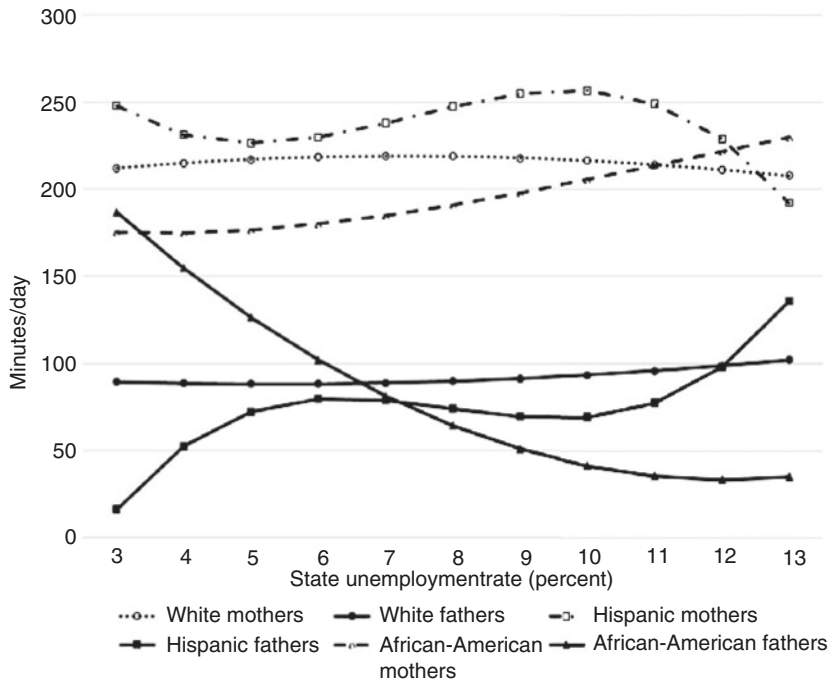
Fig. 4 Solo time with children by race and ethnicity (See notes to Fig. 1. Fig. 4 shows the predicted mean minutes spent alone with children, and matches quadratic specifications in Table 4, Panels E, F, I, and J.)

African-American households, where African-American mothers spend more solo time with children at higher unemployment rates, while African-American fathers spend less time. These results suggest a different pattern of time reallocation in subsamples differentiated by SES, race and ethnicity. That the patterns for mothers and fathers in each of the subsamples appear to be symmetric suggests that couples are coordinating their schedules so that one parent is with children at a given point in time as macroeconomic conditions change. Compared to their respective counterparts, this applies less to white households and high-SES households, where variation is small and statistically insignificant.

4.4   Family Time

The final child caregiving variable of interest is family time over the 2003–2014 period. For a pooled sample of mothers and fathers, we estimate equation 1 with family time as the dependent variable. We present our results in Table 5. Over the 2003–2014 period, we find a quadratic (U-shaped) relationship between family time and the unemployment rate, that is, families spend more time together when the state unemployment rate is low compared to when it is high, but at very high unemployment rates, families begin to spend more time together. These findings are consistent with Morrill and Pabilonia (2015) who found that the time couples spend together follows a U-shaped pattern over the 2003–2010 period, regardless of whether they are with or without their children during this time. Panel B shows our results for subsamples by socioeconomic status. We do not find a significant relationship between family time and the unemployment rate for high-SES households, and point estimates are small, while the results for low-SES households are statistically significant and point estimates are larger than the full sample results. These findings suggest that the U-shaped relationship between family time and state unemployment rates reflects primarily the patterns of time use in low-SES households. Our estimates, however, show that in absolute terms, the differences in the variation in family time between the unemployment rates of 5–10 percent is relatively small; compared to when the unemployment rate is at 5 percent, when the unemployment rate is at 10 percent, family time is, on average, 5 minutes shorter in low-SES households and, on average, 3 minutes shorter in high-SES households. Fig. 5 plots the relationships between unemployment rate and family time for the full sample and for low-SES and high-SES households, with the latter two not precisely estimated.

Panel C in Table 5 presents the results for subsamples differentiated by race-ethnicity. The results for white households are similar to the full sample results, but they are not precisely estimated. The point estimates are larger and statistically significant for African-American households, and while the point estimates for Hispanic households are similar to the estimates for African-American households, they are imprecise. We find that an increase in the unemployment rate from 5 to 10 percent, family time increases by more than 13 minutes in African-American households. In Hispanic households, our findings suggest a large (21 minute) decline in family time with an increase in the unemployment rate from 5 to 10

Tables 5 Family time (in minutes) 2003–2014 (see notes to Table 1)

	Sample		N	Mean	Urate		$Urate^2$		R^2
(A)	Full sample	Linear	47,131	161	−0.074	(1.453)			0.048
		Quadratic	47,131	161	−6.789	(4.071)	0.398**	(0.195)	0.048
		Estimates using quadratic specification and various subsamples							
(B)	SES	No college	27,781	157	−9.446*	(4.742)	0.567**	(0.228)	0.051
		College	19,350	121	−2.581	(5.187)	0.128	(0.249)	0.049
(C)	Race/ethnicity	White	34,517	191	−4.870	(5.130)	0.342	(0.277)	0.042
		African-American	2,717	171	−18.273	(15.703)	1.393*	(0.789)	0.055
		Hispanic	6,771	163	−15.896	(9.986)	0.773	(0.484)	0.058
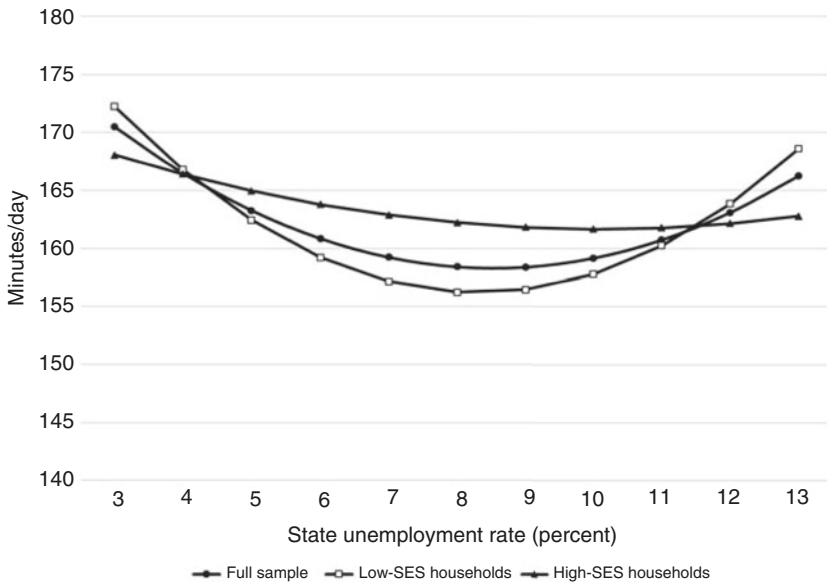
Fig. 5 Family time by socioeconomic status (See notes to Fig. 1. Fig. 5 shows the predicted mean minutes spent as a family, and matches quadratic specifications in Table 5, Panels A and B.)

percent, but the estimates are imprecise. We plot these relationships in Fig. 6, noting that only the estimates for African-American households are precisely estimated.

4.5   Paid Work and Work Schedules

Morrill and Pabilonia (2015) find that couples spend less time together when the unemployment rate is at 10 percent, compared to when it is at 5 percent, but couples spend more time together when the unemployment rate exceeds 9 percent. To explain the decline in the time couples spend together until the unemployment rate reaches 10 percent, Morrill and Pabilonia (2015) explore the possibility that couples are finding it difficult to coordinate their work schedules at high unemployment rates (between 8 and 10 percent). In this section, we examine the changes in time spent in paid work activities as well as the timing of work for the full sample, and
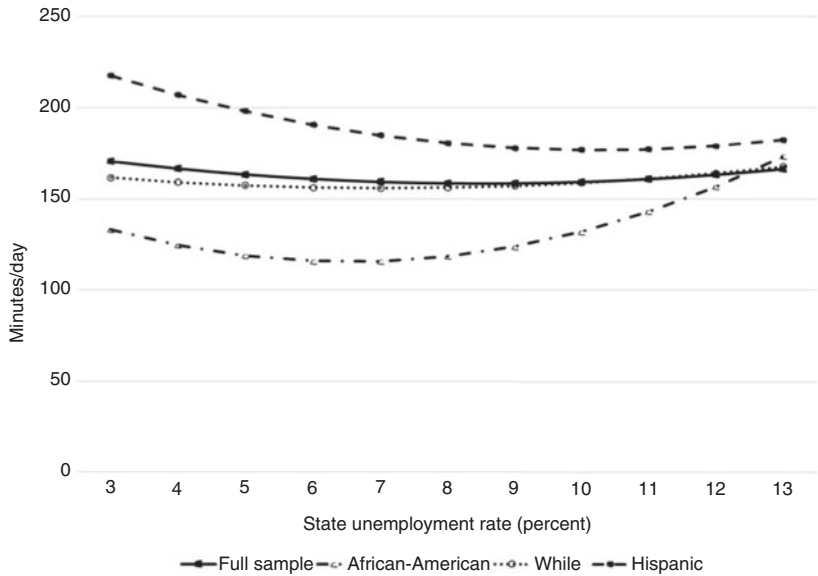
Fig. 6 Family time by race and ethnicity (See notes to Fig. 1. Fig. 6 shows the predicted mean minutes spent as a family, and matches quadratic specifications in Table 5, Panels A and C.)

also separately for subsamples differentiated by race and ethnicity, as well as by socioeconomic status, to explore the possibility of similar adjustments by the mothers and fathers in our sample. Paid work time includes any time spent working at a main job and other jobs, and work related activities. Following Morrill and Pabilonia (2015), for mothers and fathers, and for each subsample, we estimate a separate Tobit model where the dependent variable is minutes worked for pay during the specified time period. In alternative specifications, we model the relationship between paid work time and state unemployment rates as linear, polynomial, and cubic. We present our results in Tables 6 and 7, where the results for any time spent in paid work regardless of timing of work are presented in Columns 1–3. Columns 4–6 present paid work during standard hours (weekdays between 8 a.m. and 6 p.m.) and Columns 7–12 present the time spent in paid work during non-standard hours, with Columns 7–9 showing the results for time spent in paid work on weekdays between 8 p.m. and 6 a.m., and Columns 10–12 showing the results paid

Table 6 Time and timing of work by socioeconomic status (in minutes)

	All days			Weekdays 8 a.m. to 6 p.m.			Weekdays 6 p.m. to 8 a.m.			Weekends		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
A: Mothers												
Linear	−4.206	5.937	3.351	−2.833	2.432	42.210	0.602	9.383	7.526	−4.594	−0.763	−35.289
	(3.967)	(17.510)	(51.570)	(3.940)	(16.561)	(48.808)	(1.840)	(8.089)	(26.145)	(7.154)	(37.494)	(98.935)
B: Fathers												
Linear	−5.887	−11.271	−27.511	−7.545*	3.519	−25.057	−0.404	−5.971	18.545	7.124	4.802	81.022
	(4.053)	(9.667)	(36.446)	(4.479)	(10.835)	(39.700)	(2.636)	(6.476)	(18.637)	(10.355)	(25.217)	(75.314)
C: Mothers (low-SES)												
Linear	−4.085	6.289	3.235	−2.118	8.564	49.055	2.499	16.904*	7.219	−21.434**	−26.589	−78.451
	(4.522)	(24.253)	(70.302)	(3.987)	(22.650)	(70.538)	(2.384)	(9.671)	(37.410)	(9.663)	(46.619)	(127.972)
D: Mothers (high-SES)												
Linear	−6.535	−0.622	3.568	−7.646	−11.802	26.935	−4.409	−5.377	13.491	14.640	31.183	22.285
	(7.070)	(20.740)	(61.950)	(6.749)	(22.165)	(73.106)	(2.767)	(12.418)	(30.686)	(9.943)	(32.753)	(93.628)
E: Fathers (low-SES)												
Linear	−10.420**	−20.641	−13.653	−12.555**	−0.871	−25.233	−0.846	−11.582	35.499	4.003	−26.843	62.664
	(5.061)	(14.818)	(61.190)	(5.293)	(16.222)	(60.506)	(3.204)	(9.434)	(22.538)	(15.344)	(37.650)	(119.839)
Quadratic		0.598	−0.349		−0.682	2.625		0.627	−5.756*		1.810	−10.198
		(0.861)	(8.214)		(0.997)	(8.250)		(0.451)	(2.998)		(2.186)	(14.657)
Cubic			0.040			−0.140			0.270**			0.503
			(0.351)			(0.353)			(0.131)			(0.575)

Table 6 (continued)

	All days			Weekdays 8 a.m. to 6 p.m.			Weekdays 6 p.m. to 8 a.m.			Weekends		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
						F: Fathers (high-SES)						
Linear	2.330	7.621	−62.491	0.152	14.324	−37.506	0.142	0.081	−10.383	9.713	37.843	60.104
	(5.379)	(18.950)	(65.060)	(4.197)	(13.565)	(44.684)	(3.068)	(8.749)	(27.432)	(7.931)	(26.532)	(104.459)
Quadratic		−0.313	9.269		−0.837	6.237		0.004	1.431		−1.671	−4.727
		(0.943)	(8.308)		(0.679)	(5.852)		(0.441)	(3.387)		(1.469)	(13.367)
Cubic			−0.407			−0.299			−0.060			0.131
			(0.346)			(0.251)			(0.136)			(0.543)

Notes: The sample includes married or cohabiting mothers and fathers, respectively, who have co-resident household children under age 19. Marginal effects are estimated using Tobit models. Unemployment rates are measured at the state-level and all specifications include state and year fixed effects and individual and household-level control variables. Minutes of paid work include any time spent on paid work or related activities. ATUS final weights are used. Standard errors adjusted for clustering by state are reported in parentheses.*** Significant at 1 %; ** Significant at 5 %; * Significant at 10 %

Table 7 Time and timing of work by race and ethnicity (in minutes)

	All days			Weekdays 8 a.m. to 6 p.m.			Weekdays 6 p.m. to 8 a.m.			Weekends		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(A) White Mothers												
Linear	3.320	18.759	-29.136	0.995	8.829	41.210	3.671	12.086	14.920	1.950	10.883	-160.090
	(5.513)	(17.548)	(69.582)	(5.585)	(18.642)	(64.451)	(2.302)	(9.480)	(27.110)	(6.950)	(30.583)	(112.242)
Quadratic		-0.939	5.641		-0.480	-4.949		-0.514	-0.906		-0.532	22.622
		(0.945)	(9.065)		(0.951)	(8.177)		(0.575)	(3.428)		(1.803)	(13.976)
Cubic			-0.282			0.193			0.017			-0.981*
			(0.372)			(0.334)			(0.139)			(0.565)
(B) African-American Mothers												
Linear	-29.917*	89.117		-14.607	145.435***		7.303	85.714**		-2.913	100.662	
	(16.933)	(59.905)		(19.933)	(56.114)		(11.925)	(42.184)		(39.065)	(103.395)	
Quadratic		-7.509**			-10.126***			-5.003*			-6.348	
		(3.455)			(2.960)			(2.570)			(6.077)	
(C) Hispanic Mothers												
Linear	-10.848	-67.617	105.676	-8.895	-68.391	-87.128	-3.948	-26.460	-64.410	-5.404	-75.195	788.427***
	(7.766)	(54.401)	(163.496)	(9.176)	(43.159)	(158.155)	(4.804)	(20.110)	(77.368)	(14.603)	(114.116)	(327.072)
Quadratic		3.308	-19.946		3.479	5.991		1.316	6.416		4.047	-111.560***
		(2.922)	(20.555)		(2.199)	(19.633)		(1.108)	(10.132)		(6.516)	(40.344)
Cubic			0.973			-0.105			-0.214			4.839***
			(0.837)			(0.790)			(0.425)			(1.601)
(D) White Fathers												
Linear	-8.455*	-8.278		-7.594	11.113		-1.316	-15.965**		-10.010	-3.778	
	(4.576)	(14.247)		(5.006)	(12.694)		(2.600)	(6.400)		(10.250)	(27.530)	

Table 7 (continued)

	All days			Weekdays 8.a.m. to 6 p.m.			Weekdays 6 p.m. to 8 a.m.				Weekends	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Quadratic		-0.011			-1.118			0.876**			-0.372	
		(0.787)			(0.706)			(0.356)			(1.405)	
						(E) African–American Fathers						
Linear	20.047		-61.477	8.471	2.595	-190.027	-11.046	-29.204	78.250	57.100*	129.539	-526.799
	(23.069)		(158.266)	(19.549)	(50.600)	(137.991)	(10.586)	(30.380)	(103.086)	(33.885)	(119.662)	(439.987)
Quadratic		1.290	9.366		0.351	26.190		1.084	-13.282		-4.358	86.600
		(2.680)	(20.509)		(2.583)	(17.963)		(1.576)	(13.116)		(6.525)	(53.734)
Cubic			-0.338			-1.074			0.596			-3.945*
			(0.877)			(0.733)			(0.537)			(2.153)
(F) Hispanic Fathers												
Linear	-12.218	-16.382		-18.650***	-8.816		-1.012	21.769		32.439	-95.137	
	(10.023)	(31.843)		(5.938)	(22.703)		(4.163)	(15.869)		(23.918)	(66.508)	
Quadratic		0.240			-0.566			-1.308			7.361**	
		(1.761)			(1.346)			(0.820)			(3.716)	

Notes: See Notes to Table 6

work time on weekends. In Table 6, Panels A and B present the results for mothers and fathers, respectively, and panels C–F present the results for mothers in low-SES households, mothers in high-SES households, fathers in low-SES households, and fathers in high-SES households. In Table 7, we present the results for African-American, Hispanic, and white mothers and fathers.

Full sample results presented in Table 6 show no statistically significant relationship between the paid work time and state unemployment rates for mothers or for fathers (Columns 1–3 of Panels A and B).[15] However, when we limit the paid work hours to time spent in paid work activities during standard hours on weekdays, we find that fathers' paid work time declines linearly with an increase in the unemployment rate. For mothers, we do not find a statistically significant relationship between the unemployment rate and paid work time during any specified time period.

When we limit the sample to low-SES households, for mothers, we find that paid work time on weekends declines linearly with an increase in the unemployment rate (Column 10, Panel C). For mothers in high-SES households, we do not find a statistically significant relationship between the unemployment rate and paid work hours during any specified time period. If there is a relationship, it is the inverse of that for mothers in low-SES households, that is, in the linear specification, the coefficient estimate is positive, suggesting an increase in paid work hours, but this is not precisely estimated (Column 10, Panel D). For fathers in low-SES households, total paid work time declines linearly with an increase in the unemployment rate (Panel E, Column 1). This is primarily due to fewer minutes of paid work during standard hours on weekdays. For these fathers, we also find a statistically significant non-linear relationship between the unemployment rate and paid work time during non-standard hours on weekdays, where fathers' paid work time during non-standard hours on weekdays is at its lowest at the lowest unemployment rates and at its highest at the highest unemployment rates. We do not find a statistically significant relationship between the unemployment rate and paid work time of fathers in high-SES households. We present these relationships in Fig. 7.

Table 7 shows the results by race and ethnicity. We find that paid work time and timing of work exhibit different patterns when the mothers and fathers samples are restricted by race and ethnicity. For white mothers, we find a cubic polynomial relationship between paid work time on the
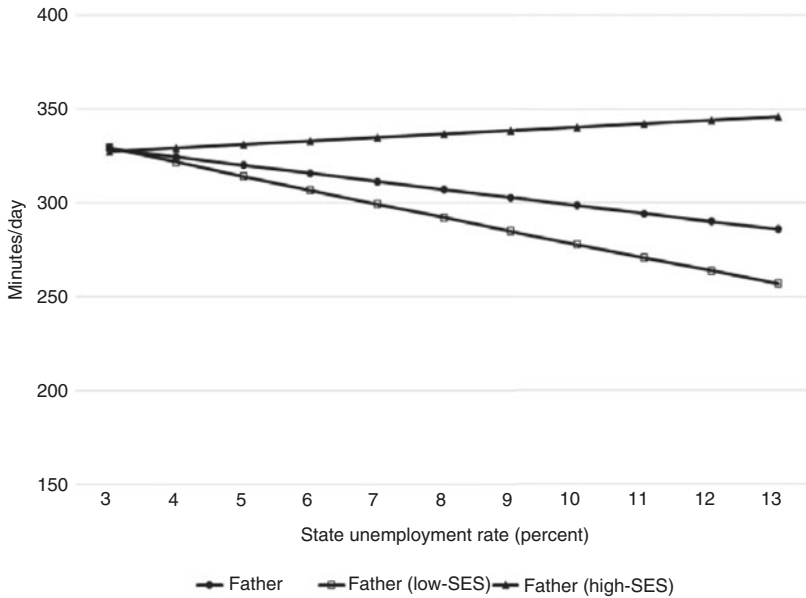
Fig. 7   Time spent in paid work activities by socioeconomic status

weekends and the unemployment rate, where white mothers' paid work time on the weekends is at its highest when the unemployment rate is at its lowest, and it is at its lowest when the unemployment rate is at its highest, with an increase in between the unemployment rates of 6–10 percent (Column 12, Panel A). When the unemployment rate is at 10 percent, relative to when it is at 5 percent, white mothers work for pay 8 more minutes on the weekends. White fathers' total paid work hours decline linearly with an increase in the unemployment rate (Column 1, Panel D). For white fathers, we also find a nonlinear relationship between the unemployment rate and paid work time during non-standard hours on weekdays, where an increase in the unemployment rate from 5 percent to 10 percent is associated with 5 fewer minutes of paid work (Column 8, Panel D). The statistically significant decline in white fathers' paid work hours coupled with the increase in weekend paid work hours of white mothers when the unemployment rate is between 6 and 10 percent is consistent with an added worker effect among white mothers when the unemployment rate is between 6 and 10 percent. When the unemployment rate exceeds 10

percent, possibly due to fewer employment opportunities at these high unemployment rates, this effect disappears.

For Hispanic mothers, we find a cubic relationship between the unemployment rate and paid work hours on the weekends, where Hispanic mothers spend 27 fewer minutes in paid work activities when the unemployment rate is at 10 percent, compared to when it is at 5 percent (Column 12, Panel C). For Hispanic fathers, when we consider only the standard work hours on weekdays, we find that their paid work hours decline linearly with an increase in unemployment rates (Column 4, Panel F). We also observe a quadratic relationship between Hispanic fathers' weekend paid work hours and the unemployment rate, where an increase in the unemployment rate from 5 to 10 percent is associated with 25 more minutes of paid work time on the weekends (Column 11, Panel F). The changes in weekend paid work hours of Hispanic mothers and Hispanic fathers are consistent with a scenario where Hispanic mothers whose weekend paid work hours decline are now available to take on childcare activities on the weekends. Meanwhile, fathers increase their paid work hours on the weekends. During standard hours on weekdays, Hispanic fathers spend less time in paid work activities.

For African-American mothers, we find a quadratic relationship between the unemployment rate and total paid work time, which we observe also in standard hours on weekdays, and in non-standard hours on weekdays (Columns 2, 5, 8, Panel B). An increase in the unemployment rate from 5 percent to 10 percent, is associated with an hour less time in paid work activities for African-American mothers. Between these unemployment rates, we also see on weekdays a shift in paid work hours from standard hours to non-standard hours. Specifically, for African-American mothers, an increase in the unemployment rate from 5 percent to 10 percent, is associated with 21 fewer minutes of paid work during standard hours and 23 more minutes during non-standard hours. This may be due to a decline in job opportunities during standard hours on weekdays when the economy worsens, and the jobs available are during on-standard hours.

For African-American fathers, we find a linear increase in weekend paid work hours with an increase in the unemployment rate, where African-American fathers work almost an hour more over the weekends when the unemployment rate increases by one percentage point (Column 12, Panel E). Compared to when it is at 5 percent, when the unemployment rate is at 10 percent, African-American fathers work two hours more on the weekends. These findings suggest the possibility that when African-American mothers' non-standard paid work hours on the weekdays

increase, fathers provide care for children while mothers are working for pay, and mothers are with the children over the weekend while fathers whose weekend paid work hours increased are away. Taken together with the findings for African-American mothers and Hispanic fathers, our findings for African-American fathers show that when the unemployment rate is at 10 percent, African-American mother and African-American fathers, and Hispanic fathers work longer non-standard hours, compared to when the unemployment rate is at 5 percent. Conversely, non-standard paid work hours of white fathers and for mothers in low-income households are shorter when the unemployment rate is at 10 percent. For white mothers, we observe an added worker effect, while African-American mothers, whose total work hours decline, work more during non-standard hours on weekdays. African-American fathers' paid work on the weekends increases. Hispanic mothers' weekend paid work hours decline and Hispanic fathers' weekend paid work hours increase by about the same amount.

5   CONCLUSION

In this study, we explore the relationship between state unemployment rates and the time mothers and fathers spend providing care for their children over the 2003–2014 period. Our variables of interest are primary child caregiving time, secondary child caregiving time, solo time with children, and family time.

Overall, we find that the relationship between these variables and the state unemployment rate tends to be more pronounced in low-SES households which were defined as households in which the father does not have a college degree. Given that workers without a college degree experienced more job losses during the recession and face higher income constraints than their counterparts, this finding suggests that the full sample results reflect the patterns of time use in households that experienced job loss or otherwise face greater income constraints. Similarly, we find that family time in African-American households and Hispanic households varies more with macroeconomic conditions, compared to their white counterparts. Our results suggest that the burden of household adjustment during the crisis is a phenomenon that describes the experiences of low-SES households, as well as African-American and Hispanic households, compared to their respective counterparts.

Understood through Elson's (2010) framework of analysis of the Great Recession through a gender lens, our findings show gender as well as race

and ethnicity differentiated outcomes in the reproductive sphere of worsening of state macroeconomic conditions. Mothers' primary child caregiving time does not decline significantly until the unemployment rate exceeds 10 percent. Fathers provide more primary child caregiving when the unemployment rate rises above 6 percent, however, the increase is small in absolute terms. Mothers' primary child caregiving time and the time they spend solo time with their children vary less with macroeconomic conditions, compared to their secondary child caregiving time and the time they spend as a family. Compared to fathers, mothers' time in primary and secondary childcare activities also varies less with the unemployment rate. Taken together, the full sample results suggest that primary and secondary child caregiving time, especially that of mothers, is inelastic to macroeconomic conditions.

We explore the patterns in paid work hours and work schedules, and find evidence of an added worker effect in white households, where, at high unemployment rates, mothers work longer hours on the weekends. These patterns in paid work time coincide with an increase in fathers' primary and secondary child caregiving time, while mothers' primary child caregiving time remains unchanged. The increase in fathers' caregiving time is more pronounced in low-SES households, compared to high-SES households. Therefore, macroeconomic conditions affect fathers' primary child caregiving time in households where mothers' paid work hours increase.

At higher unemployment rates, African-American mothers' paid work hours are shorter, and we also observe a shift away from standard to non-standard hours on weekdays. African-American fathers work longer hours on the weekends at high unemployment rates. Possibly due to more time together during standard hours on weekdays, in African-American households, family time increases when unemployment rates exceeds 7 percent. In Hispanic households, family time declines between the unemployment rates of 3–10 percent, and remains relatively unchanged when the unemployment rate exceeds 10 percent.

In African-American, Hispanic, and white households, we observe gender complementary patterns in the time mothers and fathers spent solo with children, suggesting that mothers and fathers are coordinating their paid work schedules in a way where one of them is with children. However, these adjustments are not as pronounced in white households or in high-SES households. Given the pronounced relationships between the unemployment rate and non-standard work hours in African-American and Hispanic households, it is not surprising that we find that alone time in childcare activities varies more with the unemployment rate in these households.

The long-term effects on children's well-being of economic crises that have been discussed within the context of declining household income and other monetary effects, should also include the impact on time use of parents. Specifically, "economic scarring" literature that explores the long-term well-being consequences of economic crises, should include in analyses the time parents spend with and caring for their children (Irons 2009). Increased secondary time or father time may improve child outcomes while reduced mother time may further contribute to the stress of the recession on family members.

Future research that investigates primary activities of mothers and fathers during their time with children would contribute to our understanding of how gender differences in unpaid work burden vary with state macroeconomic conditions.

APPENDIX

Table A Primary childcare activities and codes

030101 Physical care for household children
030102 Reading to/with household children
030103 Playing with household children, not sports
030104 Arts and crafts with household children
030105 Playing sports with household children
030186 Talking with/listening to household children includes 030106 (all years), 030107 (2003)
030108 Organization & planning for household children
030109 Looking after household children (as a primary activity)
030110 Attending household children's events
030111 Waiting for/with household children

Table A   (continued)

030112 Picking up/dropping off household children

030199 Caring for & helping household children, not classified elsewhere

030201 Homework (household children)

030202 Meetings and school conferences (household children)

030203 Home schooling of household children

030204 Waiting associated with household children's education

030299 Activities related to household child's education, not classified elsewhere

030301 Providing medical care to household children

030302 Obtaining medical care for household children

030303 Waiting associated with household children's health

030399 Activities related to household child's health, not classified elsewhere

040101 Physical care for nonhousehold children

040102 Reading to/with nonhousehold children

040103 Playing with nonhousehold children, not sports

040104 Arts and crafts with nonhousehold children

040105 Playing sports with nonhousehold children

040186 Talking with/listening to nonhousehold children includes 040106 (all years), 040107 (2003)

040108 Organization & planning for nonhousehold children

040109 Looking after nonhousehold children (as primary activity)

040110 Attending nonhousehold children's events

040111 Waiting for/with nonhousehold children

040112 Dropping off/picking up nonhousehold children

040199 Caring for and helping nonhousehold children, not classified elsewhere

040201 Homework (nonhousehold children)

040202 Meetings and school conferences (nonhousehold children)

040203 Home schooling of nonhousehold children

040204 Waiting associated with nonhousehold children's education

040299 Activities related to nonhousehold child's education, not classified elsewhere

040301 Providing medical care to nonhousehold children

040302 Obtaining medical care for nonhousehold children

040303 Waiting associated with nonhousehold children's health

040399 Activities related to nonhousehold child's health, not classified elsewhere

Note: Activity codes from 2003–2014 ATUS data files

NOTES

1. While our full sample of mothers and fathers include all races and ethnicities, we report separate results for only African-American, Hispanic, or white mothers and fathers, as the remaining group of mothers and fathers is too heterogeneous and the sample size is too small to allow for any meaningful interpretations of the results.

2. For a review of these models, see Benería et al. (2015).

3. Using data from 2003–2010 ATUS for women and men, Aguiar et al. (2013) find that women and men reallocate their foregone paid work hours to leisure activities and unpaid work in a similar manner. In particular, women and men reallocate 50 percent of the foregone market work hours during the recession to leisure activities, 30 percent to unpaid housework, and 5 percent to child caregiving. However, they also find that men's paid work hours declined by 11 percent while women experienced a less than 1 percent (0.32 percent) decline in their unpaid work hours (Aguiar et al. 2013, p. 1671).

4. The share of families where only the father was employed increased by 4.3 percentage points, the percentage of families where only the mother was employed increased by 1.5 percentage points (Glynn 2014, p. 9).

5. Workers in all but one of the ten occupations with the largest shares of workers in non-standard schedules are disproportionately black or African-American, and in all but two of them they are Hispanic (BLS 2016b). Four of these occupations, namely, registered nurses, health aides, personal care aides, and waiters and waitresses, are traditionally female occupation where at least 70 percent of the workforce are women.

6. Authors' calculations from quarterly unemployment rates data for married women age 25 or over, who live in households with their spouse by race and ethnicity for the 2003–2014 period, from the US Bureau of Labor Statistics, Labor Force Statistics from the Current Population Survey.

7. These trend are not attributable to differences in human capital only. An examination of differences in employment and earnings of non-college educated African-American men and non-college educated white men over the 2007–2009 shows that white men without a college degree were more likely to be employed and to have higher earnings than African-American men without a college degree (Dickerson vonLockette 2014).

8. As pointed out by Morrill and Pabilonia (2015), the different results in the literature regarding mothers' work schedules may be because during the expansionary period of 2003–2006, previous findings in the literature by Connelly and Kimmel (2011) may be due to a small number of mothers living in states where the unemployment rate was high during the expansionary period of 2003–2006.

9. We included codes 030101 to 040399 as primary child caregiving. This includes direct caregiving for children who live in the household and those who do not live in the household. The time devoted to nonhousehold children is quite low.

10. See DeGraff and Centanni, this volume for another analysis using the "with whom" information in the ATUS.

11. Our calculations using BLS data show that in the last quarter of 2014, the unemployment rates among college-education or noncollege educated women and men were one percentage point higher, compared to their respective values in the last quarter of 2007. Similarly, among married women and men, the unemployment rates among Hispanics and whites, were only half a percentage point higher, compared to the last quarter of 2007. One exception is African-American men for whom the unemployment rate was 2.6 percentage higher. However, this group too experienced job recovery, after their unemployment rate peaked at 13.5 percent in the first quarter of 2011.

12. The individual and family-level control variables are as follows: own and spouse's age and age squared and indicators for the following: husband and wife education (high school dropout, some college, college, missing, with high school degree being the omitted category), race and ethnicity (non-Hispanic black, other, Hispanic, with non-Hispanic white being the omitted category), gender, age of youngest household child (infant, preschooler, elementary school aged, with high school aged being the omitted category), presence of household child older than age 18, number of children in the household by age group (Ages 0–1, 2–4, 5–9, 10–14, 15–18), cohabiting couple, gender composition of the children (all boy children, mixed gender children, with all girls being the omitted category), respondent lives in SMSA, and season (with fall being the omitted category). For a review of the microeconomic literature that links most of these variables to time use, see Connelly and Kimmel (2010).

13. We use ATUS final weights for nationally representative results and following the methodology by Morrill and Pabilonia (2015), we reweight these weights to ensure equal day-of-week representation for each of our subsamples. In all regressions, we cluster standard errors by state of residence.

14. In 2012, among married mothers (spouse present), the labor force participation rate was 75.3 percent for African-American mothers, 68.5 percent for white mothers, and 58.9 for Hispanic mothers (BLS 2014, Table 6 on p. 20).

15. Morrill and Pabilonia (2015), who estimate these relationships using data for the 2003-2010 period, also report imprecise estimates.

REFERENCES

Aguiar, Mark, Erik Hurst, and Loukas Karabarbounis (2013). Time use during the great recession. *American Economic Review*, 103(5), 1664–1696.

Albelda, Randy (2014). Gender impacts of the "great recession" in the United States. In Maria Karamessini and Jill Rubery (Eds.), *Women and Austerity: The Economic Crisis and the Future of Gender Equality* (pp. 82–101). New York: Routledge.

Antonopoulos, Rania, Kijong Kim, Thomas Masterson, and Ajit Zacharias (2013). Investing in care in the midst of a crisis: A strategy for effective and equitable job creation. In Rania Antonopoulos (Ed.), *Gender Perspectives and Gender Impacts of the Global Economic Crisis* (pp. 49–72). New York: Routledge.

Anxo, Dominique, Letizia Mencarini, Ariane Pailhé, Anne Solaz, Maria L. Tanturri, and Lennart Flood (2011). Gender differences in time use over the life course in France, Italy, Sweden, and the US. *Feminist Economics*, 17(3), 159–195.

Benería, Lourdes, and Shelley Feldman (Eds.) (1992). *Unequal Burden: Economic Crises, Persistent Poverty, and Women's Work*. Boulder, CO: Westview Press.

Benería, Lourdes, Günseli Berik, and Maria S. Floro (2015). *Gender, Development and Globalization: Economics as If All People Mattered*. Second Edition. London: Routledge.

Berik, Günseli, and Ebru Kongar (2013). Time allocation of married mothers and fathers in hard times: The 2007–09 US recession. *Feminist Economics*, 19(3), 208–237.

Bianchi, Suzanne M. (2011). Family change and time allocation in American families. *The ANNALS of the American Academy of Political and Social Science*, 638(1), 21–44.

Boushey, Heather (2016). *The Economics of Work-Life Conflict*. Cambridge, MA: Harvard University Press.

Bureau of Labor Statistics (BLS) (2014). Women in the labor force: A databook. Report 1049. http://www.bls.gov/cps/wlf-databook-2013.pdf.

Bureau of Labor Statistics (BLS) (2016a). Labor force statistics from the current population survey. http://www.bls.gov/cps/cpsaat11.htm.

Bureau of Labor Statistics (BLS) (2016b). National compensation survey: Employee benefits in the United States. http://www.bls.gov/ncs/ebs/benefits/2016/ownership/private/table32a.pdf.

Casper, Lynne, and Martin O'Connell (1998). Work, income, the economy, and married fathers as child-care providers. *Demography*, 35(2), 243–250.

Christensen, Kimberly (2015). He-cession? She-cession? The gendered impact of the great recession in the United States. *Review of Radical Political Economics*, 47(3), 368–388.

Connelly, Rachel, and Jean Kimmel (2010). *Time Use of Mothers in the United States at the Turn of the 21st Century.* Kalamazoo, MI: W. E. Upjohn Institute for Employment Research.

Connelly, Rachel, and Jean Kimmel (2011). The role of non-standard work status in parental caregiving for young children. *Eastern Economic Journal*, 37, 248–269.

Dickerson Von Lockette, Niki (2014). Race and recession: A comparison of the economic impact of the 1980s and 2007–09 recessions on non-college-educated black and white men. In Martha A. Starr (Ed.), *Consequences of Economic Downturn: Beyond the Usual Economics* (pp. 121–138). New York: Palgrave MacMillan.

Dymski, Gary, Jesus Hernandez, and Lisa Mohanty (2013). Race, gender, power, and the US subprime mortgage and foreclosure crisis: A meso analysis. *Feminist Economics*, 19(3), 124–151.

Ehrenreich, Barbara, and Dedrick Muhammad (2009). The recession's racial divide. *The New York Times*, September 12. http://www.nytimes.com/2009/09/13/opinion/13ehrenreich.html. Accessed 20 September 2016.

Elson, Diane (Ed.) (1991). *Male Bias in the Development Process.* Second Edition. Manchester: Manchester University Press.

Elson, Diane (2010). Gender and the global economic crisis in developing countries: a framework for analysis. *Gender and Development*, 18(2), 201–212.

Enchautegui, Maria (2013). Non-standard Work Schedules and the Well-being of Low-income Families. Working Paper 26. Urban Institute. http://www.urban.org/research/publication/nonstandard-work-schedules-and-well-being-low-income-families. Accessed 20 September 2016.

Folbre, Nancy (2006). Measuring care: gender, empowerment, and the care economy. *Journal of Population Economics*, 7(2), 183–199.

Folbre, Nancy, and Jayoung Yoon (2007). What is child care? Lessons from time-use surveys of major English-speaking countries. *Review of Economics of the Household*, 5(3), 223–248.

Fukuda-Parr, Sakiko, James Heintz, and Seguino Seguino (2013). Critical and feminist perspectives on financial and economic crises: heterodox macroeconomics meets feminist economics. *Feminist Economics*, 19(3), 4–31.

Glynn, Sarah (2014). Breadwinning Mothers, Then and Now. Center for American Progress Report. Center for American Progress Report. https://cdn.americanprogress.org/wp-content/uploads/2014/06/Glynn-Breadwinners-report-FINAL.pdf. Accessed 20 September 2016.

Grown, Caren, and Emcet Tas (2014). Gender equality in the U.S. labor markets in the "great recession" of 2007–2010. In Martha A. Starr (Ed.), *Consequences of Economic Downturn: Beyond the Usual Economics* (pp. 167–189). New York: Palgrave Macmillan.

Hartmann, Heidi, Elyse Shaw, and Rachel O'Connor (2014). Women and men in the recovery: Where the jobs are. Institute for Women's Policy Research (IWPR). Briefing Paper C426. http://www.iwpr.org/publications/pubs/women-and-men-in-the-recovery-where-the-jobs-are-women-recover-jobs-lost-in-recession-in-year-five. Accessed 10 August 2016.

İlkkaracan, İpek (this volume). Unpaid work in macroeconomics: A stocktaking exercise.

Irons, John (2009). Economic scarring: The long-term impacts of the recession. Economic Policy Institute (EPI) Briefing Paper #243. Washington, DC: EPI. http://www.epi.org/files/page/-/img/110209scarring.pdf. Accessed 20 September 2016.

Kalenkoski, Charlene, David Ribar, and Leslie Stratton (2007). The effect of family structure on parents' child care time in the United States and the United Kingdom. *Review of Economics of the Household*, 5(4), 353–384.

Karamessini, Maria & Rubery, Jill (this volume). The challenge of austerity for equality: A consideration of eight European countries in the crisis. (Reprinted from Anne Eydoux, Antoine Math and Hélène Périvier (Eds.), *European Labour Markets in Times of Crisis: A Gender Perspective* (pp. 15–39), Paris: OFCE.

Kaya Bahçe, Seçil A., and Emel Memiş (2013). Estimating the impact of the 2008–9 economic crisis on work time in Turkey. *Feminist Economics*, 19(3), 181–207.

Morrill, Melinda Sandler, and Sabrina Wulff Pabilonia (2012). What effects do macroeconomic conditions have on families' time together? BLS Working Paper 454. https://www.bls.gov/ore/pdf/ec120030.pdf.

Morrill, Melinda Sandler, and Sabrina Wulff Pabilonia (2015). What effects do macroeconomic conditions have on the time couples with children spend together? *Review of Economics of the Household*, 3, 791–814.

Nelson, Julie (this volume). The challenge of "Indirect Care".

Nock, Steven L., and Paul W. Kingston (1988). Time with children: The impact of couples' work-time commitments. *Social Forces*, 67, 59–85.

OECD (2016). OECD Family Database. www.oecd.org/social/family/database.

Presser, Harriet B., and Amy G. Cox (1997). The work schedules of low-educated American women and welfare reform. *Monthly Labor Review*, 120(4), 25–34.

Pressman, Steven (2014). Inequality and its discontents: The real causes and consequences of the crisis. In Martha A. Starr (Ed.), *Consequences of Economic Downturn: Beyond the Usual Economics* (pp. 83–102). New York: Palgrave MacMillan.

Rubery, Jill (Ed.) (1988). *Women and Recession*. London: Routledge.

Rubery, Jill (2013). From "Women and Recession" to "Women and Austerity": A framework for analysis. In Maria Karamessini and Jill Rubery (Eds.), *Women*

and Austerity: the Economic Crisis and the Future for Gender Equality (pp. 17–36). London: Routledge.

Şahin, Aysegul, Joseph Song, and Bart Hobijn (2010). The unemployment gender gap during the 2007 recession. *Current Issues in Economics and Finance*, 16(2), 1–7.

Schwartz, Lisa K. (2001). Minding the children: Understanding how recall and conceptual interpretations influence responses to a time-use summary question. U.S. Bureau of Labor Statistics, unpublished paper. http://www.bls.gov/osmr/pdf/st010180.pdf.

Starr, Martha A. (2011). Recession and the social economy. In Martha A. Starr (Ed.), *Consequences of Economic Downturn: Beyond the Usual Economics* (pp. 819–214). New York: Palgrave MacMillan.

Starr, Martha A. (2014). Gender, added-worker effects, and the 2007–2009 recession: Looking within the household. *Review of Economics of the Household*, 12, 209–235.

US Department of Labor (n.d.a.). Family and Medical Leave Act. https://www.dol.gov/whd/fmla/

Wisman, Jon D., and Barton Baker (2014). Rising inequality and the financial crises of 1929 and 2008. In Martha A. Starr (Ed.), *Consequences of Economic Downturn: Beyond the Usual Economics* (pp. 63–82). New York: Palgrave MacMillan.

Wright, Vanessa R., Sara B. Raley, and Suzanne M. Bianchi (2008). Time for children, spouse, and self among parents who work nonstandard hours. *Social Forces*, 87(1), 243–271.

Ebru Kongar is Associate Professor of Economics at Dickinson College. Her research focuses on the gendered time-use and labor market outcomes of macro-economic developments, such as deindustrialization, offshoring, and the Great Recession in the US economy. She is a research associate at Levy Economics Institute of Bard College and an Associate Editor of *Feminist Economics*.

Mark Price is Labor Economist at Keystone Research Center in Harrisburg, Pennsylvania. His policy-oriented research focuses on labor markets and income inequality in the US economy. He received his Ph.D. in Economics from the University of Utah, and is the author of numerous reports and publications on US labor markets.

Time and Income Poverty in the City of Buenos Aires

Rania Antonopoulos, Valeria Esquivel, Thomas Masterson and Ajit Zacharias

1   INTRODUCTION

Feminist economists have long argued that the standard income-based poverty measures are inadequate because they do not include any monetizing of the substantial contribution to household well-being of the unpaid work of household members (Beneria et al. 2016). In many poor households, the ever-present demands to earn money income mean that household members work extremely long hours, which reduces their time available for unpaid care and domestic work (UCDW), leaving them deficient in this regard as well.

Existing literature has defined "time poverty" in different ways, as deprivation of "discretionary" time (Goodin et al. 2008), or as equal to too much working time (Bardasi and Wodon 2010). Yet, measuring time poverty has until recently been both less formalized than measures of

R. Antonopoulos · T. Masterson · A. Zacharias
Levy Economics Institute, Bard College, Annandale-On-Hudson, NY, USA
e-mail: rania@levy.org; masterso@bard.edu; zacharia@levy.org

V. Esquivel (✉)
Universidad Nacional de General Sarmiento and CONICET, Buenos Aires, Argentina
e-mail: valeria.r.esquivel@gmail.com

money income poverty and, with few exceptions (Merz and Rathjen 2014), has been calculated independently from income poverty.

The *Levy Institute Measure of Time and Income Poverty* (*LIMTIP*), responds to the need to both formalize the concept of time poverty and integrate time poverty into the income poverty measures. In doing so, the LIMTIP measure recognizes that the economic welfare of households and persons depends not only on paid work but also on UCDW, performed mostly by women. The inclusion of the UCDW in the very conceptualization and calculations of poverty sheds new light on differences in poverty among households, and differences between men and women in time poverty *within* households. The latter are particularly significant given the gendered nature of UCDW, and contrasts with traditional household-based income poverty measures. As a result, the LIMTIP framework allows for a more nuanced classification of households and persons who suffer from time and/or income deprivation, offering insights for more comprehensive poverty reduction policies.

Initially estimated for three Latin American countries, Chile, Argentina, and Mexico (Zacharias et al. 2012), the LIMTIP measure has now been calculated for Uruguay (Maier 2013), Colombia (Trujillo and Nova 2014), Turkey (Zacharaias et al. 2014a), and Korea (Zacharias et al. 2014b). In this chapter, we elaborate further on the research findings and analyses for the case of the city of Buenos Aires, Argentina's biggest, and richest, city. LIMTIP estimates are based on *Encuesta de Uso del Tiempo de la Ciudad de Buenos Aires* (Buenos Aires Time-Use Survey, BA-TUS) 2005,[1] expanded for this project through statistical matching techniques to all household members of *Encuesta Annual de Hogares* (EAH) 2005, the core survey the BA-TUS activity diary was attached to (Kum et al. 2010; Masterson 2011).

Our findings indicate that *time deficits matter* to understand the incidence and depth of poverty in Buenos Aires. Taking into account poverty-inducing time deficits changes the picture of poverty, as it extends its prevalence to also include some households whose members are employed and earning "middle class" wages. We also find that children are the most affected by these poverty-inducing time deficits, and are able to identify which poor households are unable to compensate for their lack of money income due to the gendered distribution of care responsibilities among adults. Indeed, as many as 20 percent of women who face time deficits do

so due to their care responsibilities, that is, even before contemplating devoting time to paid work.

Our focus on the city of Buenos Aires in the year 2005 is entirely determined by data availability. Our sense is that our findings are generalizable to the country as a whole, and to the period that followed, but no time-use data exist to substantiate our claim.[2] A simulation exercise that models the impact on households' time and income poverty as a result of their nonemployed adult members receiving paid full-time employment, similar to the growth process that unfolded after 2005, is eloquent on the positive impacts on poverty that it must have had for households and individuals alike. However, the inability of significant sections of households to exit poverty as a result of being employed points to the fact that job creation is a necessary, but not sufficient condition to improve living conditions enough to exit the poverty threshold. Indeed, our findings show that job creation needs to be coupled with increased formalization, better wages, and lower working hours if it is not to cause poverty-inducing time deficits. In particular, the fact that poor working women would enter the most unprotected sections of the labor market should there be a demand for their paid work underscores the tensions that they face when trying to "reconcile" employment and care responsibilities, and forcefully points to the need for expanded care services provision for their right to decent work and a life above the time-expanded poverty level to be realized.

In methodological terms, the simulation exercise indicates that LIMTIP framework is particularly well suited for performing "impact analyses" of economic growth that go beyond employment to incorporate the changes in the distribution of the unpaid care work. The LIMTIP framework also demonstrates that time-use data can be successfully used to calculate welfare measures, going beyond the usual aggregate, descriptive use of these datasets (Esquivel 2011b).

2   THE LEVY INSTITUTE MEASURE OF TIME AND INCOME POVERTY FRAMEWORK

Our central premise is that access to the necessities and conveniences of life is gained not solely through purchased goods and services (which require earned income), but also, through the UCDW (which requires that someone allocates time to housework or to care of persons).

Accordingly, the first key idea is that, similar to a *minimum amount of income* that secures access to a basic "basket" of goods and services available in markets, a *minimum amount of UCDW time* is equally necessary and must also be specified. This "poverty-level time requirement" is defined as the amount of time that needs to be spent by a household on housework and caregiving to survive with an income around the official poverty line. Poverty-level time requirements or thresholds were estimated for the city of Buenos Aires (for 12 types of households, differentiated by the number of adults and children) from available survey data on time allocation.

While a certain minimum amount of time is imperative and must be spent on UCDW, individuals within households do not necessarily supply this required time equally. Accordingly, the second key idea behind our methodology is that each individual's contribution of time to UCDW ought to be identified and taken into account in poverty-status assessments. Essentially, we wish to avoid the presumption that UCDW is shared equitably and cooperatively at all times.

At the outset, it is important to note that it makes no difference for the household's well-being *who* provides these time inputs. Potentially, any household member (15–74 years of age in our calculations), or insourcing/outsourcing (by hiring in or purchasing from the market) can fulfill this requirement. In other words, this UCDW time is *substitutable*. Yet, the actual modality and distribution of obligations to fulfill household responsibilities has a differential impact on individuals within the household according to their actual allocation and use of time.

Apart from their contribution to UCDW, individuals also need some minimal amounts of time for personal care (e.g., sleeping). Therefore, thresholds of personal care, assumed to apply uniformly to every adult individual, were also estimated from time-use data. In Buenos Aires, this minimal time amounted to 94 hours a week: 87 hours of personal maintenance (sleep: 57 hours; eating and drinking: 11 hours; hygiene and dressing: 4 hours; rest: 1 hour; minimum leisure time: 14 hours) and 7 hours of nonsubstitutable UCDW activities.

We begin our calculations of individuals' time deficits (18 to 74 years of age) by noting that each individual has 168 hours of total time in a week (24 hours*7 days).[3] If the sum of an individual's weekly hours of (i) minimum required personal care, (ii) employment (usual weekly hours of paid work as reported in EAH, plus average commuting time, which for full-time workers was estimated from time-use data at 3.8 hours a week),[4]

and (iii) the portion of the poverty-level UCDW time requirement that falls upon the individual exceed the total amount of hours in a week (168 hours), these individuals, and as a result the household to which they belong, run a *time deficit* and are considered *time-poor*.

The portion of the poverty-level time requirements that falls upon individuals is assumed to be equal to each individual's *observed* share of the total time his or her household actually spent on UCDW. The patterns of observed intra-household division vary widely in households with two or more individuals, ranging from one person performing all the UCDW to equal shares in households' total for all persons. Generally, as is well known, women tend to have higher shares than men – a phenomenon that is reflected in our estimates: adult women's mean and median share in UCDW is 60 percent, while adult men's mean share is 35 percent, and median share is 23 percent.[5]

A crucial aspect of our methodology is that household time deficits are calculated as the sum of household adult members' time deficits *without allowing for these deficits to be compensated for by the time surplus of another individual of the same household*. This is a sharp contrast to the usual assumption made when measuring income poverty that household income is distributed along with needs (requirements) – as a result, either all household members, or none, are income-poor, and there is no individual income poverty measure.

The third key idea behind the LIMTIP methodology is that when time deficits exist, the income-poverty threshold must be adjusted to reflect their existence. Specifically, we propose that *household time deficits* be monetized and added to the standard income-poverty line. In order to do so, we first convert household time deficits (measured in weekly hours) into monthly hours, multiplying it by 4, because the income-poverty line is specified on a monthly basis. Second, the monetization of the time deficit is performed using unit replacement costs which, following standard assumptions, are set at the average hourly wage of domestic workers. Our estimates were obtained from the EAH, and it amounted 3.54 pesos (at current 2005 prices). The monetized time deficit is subsequently added to the official income-poverty threshold (268.17 pesos per person per month), multiplied by the number of "equivalent household members". This modified income threshold is the household's LIMTIP income-poverty threshold. Concretely, if the time-deficient household does not have sufficient income at its disposal to buy the poverty-level consumption basket plus market substitutes for its time

deficit, then the household, and all its members, are facing a poverty-inducing time deficit.

In sum, what the LIMTIP measure reveals is that time poverty, especially when coupled with income poverty, imposes hardships on the adults who are time-poor as well as their dependents, particularly the children, elderly, and sick. Income poverty alone does not convey enough useful information about their deprivation.

3   TIME AND INCOME POVERTY IN THE CITY OF BUENOS AIRES

Argentina's good economic performance over the first decade of the twentieth century is well-known. After experiencing its deepest economic crisis over 1998–2002, by the end of 2005, Argentinean GDP was back to its pre-crisis peek and was already on track to sustain an intense recovery that continued up until 2008. Growth was fueled by a new relative price configuration that favored exports and import substitution, which in turn was transmitted to both investment and consumption. Such GDP dynamics were particularly powerful in terms of private-sector job creation. At the time the Buenos Aires TUS was collected, the national unemployment rate was 10 percent. Even though the drop in the poverty rate was significant, the number of individuals living in poverty was still 38 percent, as earnings recovery lagged behind GDP growth. The corresponding poverty figure for households was 25 percent.[6]

In the city of Buenos Aires the official poverty rate was relatively low in comparison to the country as a whole; 6 percent of households and 9 percent of individuals were below the poverty line in 2005.[7] Taking into account time deficits shows that the incidence of income poverty was grossly underestimated. The LIMTIP income-poverty rate stood at 11 percent for households – 5 percentage points higher than the official poverty estimation. In turn, LIMTIP income-poor individuals were 16 percent of the total population, almost twice the official level. The LIMTIP income-poverty rate for children under 18 years of age was 28 percent, compared to 16 percent under the official definition. LIMTIP income-poverty rates show that there is a sizeable proportion of households and population with incomes above the official poverty line who *are* income-poor, as they neither meet their UCDW requirements nor do they have the income that would allow them to buy substitutes for it. These households are the "hidden poor" – official measures classify them as

income-nonpoor, but their deprivations become visible when we augment their poverty line by the monetized value of their time deficit. (Fig. 1)

Table 1 shows that high-LIMTIP income-poverty rate of children is associated with the high-UCDW requirements they impart to their households, and the resulting higher vulnerability to income poverty of the households in which they live. Family households were more vulnerable to LIMTIP income poverty than all households (13.9 percent), and the presence of children made income poverty reach 22.6 percent. In other words, LIMTIP income poverty affected over a fifth of households with children. The poverty situation was even bleaker for single female-headed households with children. According to the LIMTIP, more than a quarter of these households (27 percent) were income-poor. It should be noted, however, that this situation in particular is not the result of time poverty being greater in poor households than in nonpoor ones (these stood at 63 and 72 percent, respectively), but from that lack of income to compensate for high time demands, often due to unemployment or underemployment.

In all other types of family households time poverty rates are higher among the poor, as compared to the nonpoor as shown in columns 3 and 4. Indeed, the higher the incidence of time poverty, the higher the likelihood of being LIMTIP income-poor. Married couples with children are a good example of this effect, as the incidence of time poverty among the LIMTIP poor households was 9 percentage points above the incidence for all married coupe households with children. This means that time poverty
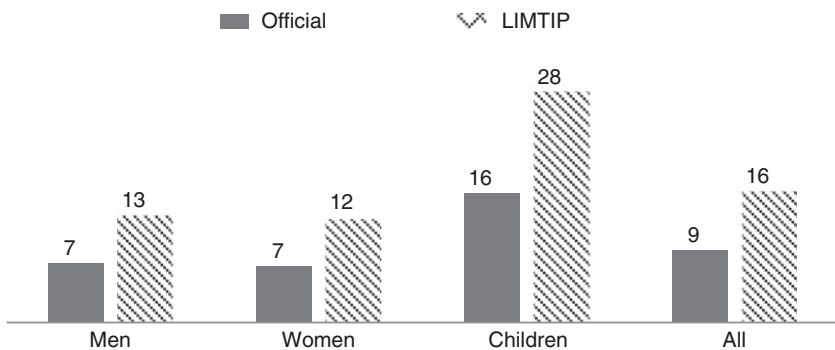
Fig. 1 Poverty rates of men, women, children, and all individuals (percent): official versus LIMTIP

Table 1 Rates of income poverty of households, and time poverty incidence, by type of family (percent)

			Income poverty		Time poverty
	Official	*LIMTIP*	*LIMTIP poor*	*LIMTIP nonpoor*	*All*
All households	6.2	11.1	70	49	52
Nonfamily households	2.2	2.3	5	17	17
Family households	7.5	13.9	74	61	63
Married couple	6.9	13.2	79	63	65
Single female head	9.7	16.2	59	58	59
Family households with children under 18	11.6	22.6	81	76	77
Married couple	9.7	20.8	89	80	82
Single female head	17.2	27.0	63	72	69

Note: Nonfamily households consist of one-person households and households with unrelated individuals. Single male heads are so few that they are not statistically representative, so they are not shown separately. We classify households as time-poor if at least one member (aged 18-74) is time-poor.

is responsible for 11.1 percentage points of hidden poverty among married couples with children (20.8-9.7).

Table 2 changes the focus from households to individuals. It shows that in Buenos Aires in 2005 the vast majority of children lived in time-poor households: 84 percent of all income-poor children, and 80 percent of income-nonpoor children lived in households that were time-poor.

Table 2 also shows the gendered dimension of time poverty for adults by LIMTIP status. In income-poor households, men had slightly higher overall rates of time poverty than women (41 versus 39 percent), and these were markedly higher than time poverty rates in their income-nonpoor counterparts. In income-nonpoor households, time poverty rates were higher for women than for men (31 versus 29 percent), and this reversal was due mostly to the sharper drop in time poverty rates for employed men between income-poor and nonpoor households. This result could be an indication of the higher wages men in nonpoor households are able to get, which allow their households to escape from income poverty without forcing them into time-poverty (although clearly other members of their households may be time-poor).

In addition, Table 2 shows that the time poverty rates of employed women in both the income-poor and the income-nonpoor groups (62 and

Table 2 Rates of income poverty, and time poverty incidence, of individuals by occupational status (percent)

	Income poverty		Time poverty LIMTTIP poor			Time poverty LIMTTIP nonpoor		
	Official	LIMTTIP	Employed	Nonemployed	All	Employed	Nonemployed	All
Men	7	13	58	5	41	35	4	29
(contribution)			(39)	(2)	(41)	(28)	(1)	(29)
Women	7	12	62	16	39	45	9	31
(contribution)			(31)	(8)	(39)	(28)	(3)	(31)
Children under 18	16	28			84			80

Note: the rows marked as "contribution" show poverty rate percentage points explained by the employed and nonemployed persons – obviously not applicable for children – depending on both groups relative weight.

45 percent, respectively) were considerably higher than the corresponding rates of employed men (58 and 35 percent, respectively). However, in the income-poor group, the contribution of the employed to the overall time poverty rate was lower for women than men because the proportion of employed women was lower than that of employed men. The feature that stands out, however, is that in LIMTIP income-poor households, 16 percent of nonemployed women were time-poor. This means that their UCDW times are so high that they incur in time deficits even without engaging in paid work. Overworked, nonemployed, and being poor becomes a triple-bind for these women. It was the contribution to the time poverty rate of the nonemployed women that brought the income-poor women overall poverty rate in line with men.

Clearly, being employed makes women more vulnerable to time poverty than men, particularly in nonpoor households. Whether this vulnerability converts into income poverty depends on their own labor income and that of other household members. Table 3 shows the trade-off between time and income poverty according to households' employment status.

Several findings stand out in Table 3. First, the impact of unemployment in income poverty calculations is remarkable: nonemployed households' official income-poverty rate (10.3 percent) is double that of employed households (5.2 percent). The gap in the income-poverty rate between employed and nonemployed households shrinks dramatically when time deficits are accounted for, as time deficits are smaller for the latter group. Indeed, with the LIMTIP poverty line, the gap between the employed and nonemployed dropped to 2.6 percentage points, given the time poverty incidence is 60 percent among income-poor employed households and only 33 percent among income-poor nonemployed households. This finding underscores that the effectiveness of employment in facilitating avoidance of poverty appears to be considerably weaker when the monetized value of time deficits are taken into account.

Second, the highest incidence of income poverty among employed households was found among households with employed head and nonemployed spouse.[8] When time deficits were taken into account, the poverty rate of this group increased from 11.1 to 18 percent. For these households, the existence of one household member (the spouse) available to provide the required UCDW is not enough to eliminate time deficits, either because the employed member works long hours, because the unemployed member shoulders very high-UCDW demands or both. We also found a ranking reversal between the "dual-earner" households (both

Table 3   Rates of income poverty of households, and time poverty incidence, by type of household according to employment status (percent)

	Income poverty		Time poverty		
	Official	LIMTIP	LIMTIP poor	Non-LIMTIP poor	All
All households	6.2	11.1	70	49	52
Employed household	5.2	10.5	82	57	60
Employed head of household, with employed spouse	2.7	9.0	95	80	82
Employed head of household, with nonemployed spouse	11.1	18.0	80	51	56
Employed head of household without spouse	4.0	7.4	69	41	43
Nonemployed head of household, with employed spouse	12.6	22.5	83	51	58
Nonemployed household Addendum:	10.3	13.1	33	18	20
Employed household with children under 18	8.5	17.1	87	79	81
Employed household with children under 6	9.9	21.8	95	80	83
Nonemployed household with children under 18	14.4	21.3	50	53	52

Note: "Employed household" is a household in which the head, spouse, or both are employed. "Nonemployed household" is a household in which neither the head nor spouse (if present) is employed.

head and spouse employed) and households with single (i.e., without spouse) employed head. The former group saw a tripling of their poverty rate when time deficits were taken into account (from 2.7 to 9 percent) – a non-surprising result given 95 percent of these income-poor households were also time-poor. At the same time, single-headed households experienced a lower, though still considerable, increase of income poverty (from 4 to 7.4 percent), as 69 percent of income-poor households were also time-poor. Thus, the monetization of time deficits tends to have a greater effect on the poverty rate of the employed than of the nonemployed households, and by extension, of key individuals in them (head and spouse).

Third, the poverty rate of employed households with children was higher than that of employed households in general, according to the

official measure. This is especially so among employed households with very young (under 6 years of age) children. Then, accounting for time deficits worsens the poverty picture of employed households with children to a larger extent than that of all employed households. As mentioned above, households with children are likely to incur higher time deficits because the threshold hours of UCDW are higher for them, for any given number of adults in the household. Another factor behind the larger increase in the poverty rate was that a greater fraction of them have household incomes that were barely above the poverty line. This is partly a reflection of these households' lower labor force participation (LFP) rates by household members (women, in particular) given their greater UCDW needs and partly a consequence of the low labor incomes of those employed.

Indeed, Table 4 shows nonemployed adults had a much higher rate of income poverty (17 percent/12 percent) than employed adults (11 percent/5 percent) by either measure (LIMTIP income poverty/official income poverty), but the margin is somewhat smaller when we use the LIMTIP poverty line. Among the nonemployed, accounting for time deficits increased measured poverty by a considerable extent for both men and women – meaning that they as individuals or others in their household experienced time deficits that could not be compensated by income. Among the employed men and women, LIMTIP poverty rate was roughly *double* the official rate (11 versus 5 percent for men and 10 versus 4 percent for women). This means that income poverty appears to be due not just to a lack of employment; it is also equally a question of people working for below-subsistence wages.

Low labor incomes combine with long paid working hours and high-UCDW requirements to produce high-LIMTIP income-poverty levels.

Table 4   Poverty rate by sex and employment status (percent): Official versus LIMTIP

		Official	*LIMTIP*
Nonemployed	Men	15	21
	Women	11	15
	All	12	17
Employed	Men	5	11
	Women	4	10
	All	5	11

Table 5 shows the poverty incidence of employed persons by sex and type of employment, and its association to their relative labor earnings.

Table 5 makes evident a persistent feature of Argentinean labor market that was also present in the City of Buenos Aires: the relatively high prevalence of wage work informality, and the low earnings of informal wage workers. The median male and female informal wage worker earned far less than the median worker, though the wage gap (1 – relative median earnings) was lower for men than for women (40 versus 60 percent). The gender pay disparity within each type of employment and the greater incidence of low-wage informal worker status among women contributed to the situation in which the median female worker earned only 75 percent as much as the median male worker (0.80/1.06).

For all employment types, the LIMTIP poverty rate was approximately double the official rate. Unsurprisingly, the highest income-poverty incidence (20 percent) was observed among informal wage workers. Although income poverty among male informal wage workers (21 percent) is slightly higher than among their female counterparts, women in this employment type are far more in absolute terms. Indeed, a third of LIMTIP income-poor employed women are informal wage workers (26/65). Among employed men, on the contrary, almost half of those LIMTIP poor are formal wage workers (20/77).

We can further examine this phenomenon by analyzing the distribution of LIMTIP income-poor earnings by earnings quintile, as shown in Table 6. The increase in measured poverty that occurs when time deficits are accounted for implies that individuals from relatively higher (relative, i.e., to the official poverty line) rungs of the income distribution are poor under the LIMTIP definition.

Reading across the row labeled "All Official" in Table 6 shows that 89 percent of the employed, officially income-poor are drawn from the first two quintiles (i.e., the bottom 40 percent) of the earnings distribution.[9] But while 83 percent of all employed poor women are in the bottom quintile, only 53 percent of men are. Accounting for time deficits in poverty assessment, that is, using the LIMTIP poverty line, lowers the share of the employed poor in the bottom 40 percent of the distribution considerably, as they now constitute 74 percent. The difference is explained by the substantial share of the employed LIMTIP income-poor with "middle class" wages (25 percent), that is, persons from the third and fourth quintile of the earnings distribution. However, this is less marked among women, as 84 percent of the employed poor women

Table 5 Employment, relative median earnings, official and LIMTIP poverty rates by type of employment and sex

	Employment		Relative median earnings	Official income-poor		LIMTIP income-poor	
	Number ('000)	Share		Number ('000)	Percent	Number ('000)	Percent
All	1,352	100	1.00	62	5	142	11
Men	717	53	1.06	35	5	77	11
Women	635	47	0.80	27	4	65	10
Self-employed	338	25	1.00	17	5	39	12
Men	207	15	1.20	11	5	23	11
Women	131	10	0.75	6	5	16	12
Formal wage workers	779	58	1.04	20	3	56	7
Men	412	30	1.20	13	3	33	8
Women	366	27	1.00	7	2	22	6
Informal wage workers	225	17	0.50	25	11	46	20
Men	95	7	0.60	11	12	20	21
Women	129	10	0.40	13	10	26	20

Note: "Percent" refers to percent of the relevant population, that is, poverty rate.

Table 6 Distribution of income-poor employed adults (18–74 years) by earnings quintile (percent)

	Poverty line	Earnings quintile					Total
		Lowest	Second	Third	Fourth	Highest	
All	Official	66	23	10	1	0	100
	LIMTIP	46	28	21	4	0	100
Men	Official	53	31	15	1	0	100
	LIMTIP	35	32	26	7	0	100
Women	Official	83	13	4	0	0	100
	LIMTIP	60	24	15	1	0	100

Note: Quintiles of monthly earnings computed for all employed individuals with nonnegative earnings in the samples (i.e., households with at least one adult 18–74 years).

come from the lowest two earnings income quintiles. This means that women who are employed and LIMTIP income-poor are so not only as a result of their time deficits but also because women find it harder to compensate for their time deficits given their lower earnings.

4 FULL-TIME EMPLOYMENT AND POVERTY

The economic and political regime that unfolded in Argentina in the aftermath of the 2002 crisis can be best characterized as an attempt at promoting *social inclusion through employment*. This model was indeed a success story on its own terms, at least up to 2008. Yet, taking time deficits into account in the measurement of poverty casts some shadows on the idea of employment being a sufficient condition to escape from poverty, given the fact that over 80 percent of LIMTIP income-poor households were employed households, and that roughly 60 percent of LIMTIP poor adults were employed individuals.[10]

Against this background, what would be the impact on income poverty of an expansion of employment, in line with the expectations that the Argentinean government held at the time the Buenos Aires TUS was collected? We attempt to grapple with this rather complicated question via a microsimulation exercise,[11] in which we model a hypothetical scenario: all *employable adults* are employed full-time, that is, spending 25 hours or more per week in paid work.[12] The simulation leaves the hours of employment and earnings of those who are already employed full-time

unchanged. For employable adults ("recipients"), we assign jobs and earnings that are in line with their labor market and demographic characteristics. In doing so, the microsimulation tends to replicate the actual industry-occupation employment structure – in particular, existing gender segregation – and the actual distribution of labor earnings, where gender wage gaps are, as we have already noted, pervasive.[13]

The additional earnings of the newly employed increase their household income, relative to what is observed in the data. We also assume that the intrahousehold division of UCDW may change in households with newly employed individuals ("recipient households"). Accordingly, the microsimulation also reassigns the UCDW times to individuals in recipient households that were observed for individuals most similar to them in households where all employable adults were actually employed full-time. Since the threshold hours of UCDW for the household do not change as a result of the simulation, what is involved here is the change in the shares into which the threshold hours are divided among the members of the household. As a result, people who were actually working full-time in recipient households may end up with time deficits, given the new pattern of intrahousehold division of labor. The newly employed individuals in recipient households may also be found to have time deficits as a result of their new pattern of time allocation to employment and UCDW. It is indeed possible that the additional earnings may turn out to be insufficient to offset the monetized value of additional time deficits for some income-poor recipient households. Such households would be LIMTIP income-poor even with full-time employment. Additionally, some recipient households may remain income-poor because even with full-time employment of all employable adults, their household income still falls below the official and LIMTIP income-poverty lines. On the other hand, for some income-poor recipient households, full-time employment would unambiguously pave the way out of income poverty.

The simulation exercise allows us to form (admittedly rough) quantitative ideas about the potential and sometimes contradictory effects of full-time employment on time and income poverty. Indeed, our simulations showed that full-time employment can achieve spectacular reductions in income poverty even without altering the current structure of earnings (Table 7). It appears that official income poverty would almost vanish if every employable poor adult were to work full-time: it would be as low as 1 percent in the case of households and 2 percent in the case of persons.

Table 7 Official and LIMTIP income poverty and time poverty rates for households and individuals, actual and simulated

| | Actual | | | | Simulation | | | |
| | Income poverty | | Time poverty | | Income poverty | | Time poverty | |
	Official	LIMTIP	LIMTIP Poor	LIMTIP Nonpoor	Official	LIMTIP	LIMTIP Poor	LIMTIP Nonpoor
Households	6	11	70	49	1	6	94	61
Persons	9	16			2	10		
Men	7	13	41	29	2	7	52	35
Women	7	12	39	31	1	7	72	45
Children	16	28	84	80	5	19	97	92

Note: For all individuals, their income-poverty status is ascertained at the household-level, that is, if their household income is below the poverty threshold then they are considered to be poor

The incidence of income poverty as measured by the LIMTIP also falls. Job creation means poverty reduction, irrespective of whether we use the official or LIMTIP poverty line as the yardstick.

Yet, it is striking that, even under the simulated scenario of all employable adults working full-time, the LIMTIP poverty rate for households does not disappear, as it is as high as the pre-simulation official poverty rate. The bulk of the LIMTIP income-poor households (5 percent out of 6 percent total) and individuals (8 percent out of 10 percent total) consist of the "hidden poor" – that is, those still invisible for official statistics but who are poor once time deficits are taken into account.

Over half (54 percent – 6/11) of LIMTIP income-poor households remain in income poverty after the simulation – they are the "hard-core poor". There are several reasons that prevented such sizeable proportions of the income-poor from escaping income poverty. The first factor was that some income-poor households have no employable adults to whom we could assign full-time employment in the simulation because individuals aged 18–74 are disabled, retired, or in education. A little over half of the hard-core poor households fell into this category (56 percent). Job creation is not be an effective route, at least directly, for eradicating poverty among these households and direct income-support policies via cash or in-kind transfers would be required.

Alternatively, all adults between the ages of 18 and 74 in the household may be already employed on a full-time basis. We found that, among adults living in hard-core poor households where we could find no one to assign full-time employment in our simulation, roughly 76 percent were actually working full-time. The only effective alternatives for these households would be labor market regulation (e.g., introduction of higher minimum wages, expansion of the ranks of formal wage workers), government transfers (cash and noncash), creation of jobs that pay living wages, or a combination of all three.

For the hard-core poor households who did have newly employed adults in our simulation (44 percent), the imputed earnings of the newly employed were systematically lower than the newly employed in other poor households. On average, the newly employed in hard-core poor households had earnings that were only 60 percent of the newly employed in other poor households. This is partly because employable adults in income-poor households (as in all households) were predominantly female

and less educated compared to existing full-time workers. However, women had a higher share of employable adults in the hard-core income-poor group than in the non-hard-core income-poor group. This difference was particularly marked (83 versus 63 percent). The burden of gender disparity in earnings thus bears down more heavily on the employable adults in hard-core poor households. We also found that the less educated (people with a high school degree or less) constituted a greater proportion of employable persons in hard-core than in other income-poor households (93 versus 80 percent had low educational credentials). In combination, the disadvantages that labor markets impose upon women and the less educated workers were severe enough to confine them and their households to a state of income poverty even when all employable adults in such households were in full-time employment.

Not surprisingly, time poverty was higher under the full-time employment scenario than the actual situation (Table 7). The main reason behind time poverty is the excess of hours of employment over the time available after setting aside the minimum required amounts of time for UCDW and personal care. As much as 64 percent of all households are time-poor under the full-employment simulation (as compared to 52 percent in the actual situation, Table 3). The incidence of time poverty among the income-poor (94 percent) is higher than among the income-nonpoor (61 percent), a disparity we had also noted in the actual situation. Only 6 percent of all LIMTIP income-poor households were able to avoid time poverty. Thus, while full-time employment, as simulated here, achieves impressive reductions in the incidence of income poverty, virtually all of the remaining poor would be in the double burden of income and time poverty.

In light of the evidence regarding the dramatic decline in income-poverty rates for households associated with full-time employment, it is not surprising that we found similar results for individuals. Yet, as we found for households, the LIMTIP income-poverty rates for women and men under the full-time employment scenario are still troublingly high and roughly similar to the actual official income-poverty rates for the respective groups (Table 7). But for children, the full-time employment LIMTIP income-poverty rate was 19 percent, higher than actual income-poverty rate by 3 percentage points. Children's vulnerability to income poverty thus remains pretty high even under the full-time employment scenario, a reflection of the higher income-poverty rate of households with children and the higher average number of children in poor households. This fact underscores the importance of considering policies specifically

aimed at children in poor, employed households as an integral part of job creation strategies if undesirable effects on the well-being of the children of the working poor are to be avoided.

Two strong features emerge in the analysis of individuals' time poverty (Table 7). First, women's time poverty incidence increases upon full-time employment (33 percentage points) much more than men's (11 percentage points) from a roughly similar actual incidence. This is partly because women make up the majority of individuals that were assigned full-time jobs in the simulation, and partly due to the gender disparity in the division of UCDW, which hardly changes as a result of the simulation.[14] In other words, the increase in time poverty of women is the combined result of the gender-based inequality in unpaid work burden and lack of adjustment of the burden between the spouses even when both work full-time. The second notable feature is children's time poverty. Almost all (97 percent) of LIMTIP poor children lived in households where at least one member was time-poor, and the situation was almost as bad (92 percent) for children living in nonpoor households. Parents' full-time employment (in particular, mothers' employment, see next section for further details) may or may not contribute to lift households out of income poverty, but it clearly converts in having less than the required time to care for children.

All in all, these findings expose the complexity of time and income poverty, and suggest that monitoring the incidence of poverty via official measures becomes even more biased when we attempt to evaluate the poverty-inducing impact of job creation.

5   POLICY (RE) CONSIDERATIONS FOR POVERTY ALLEVIATION

Despite the fact that the city of Buenos Aires, Argentina, shows a relatively low official poverty incidence – relative, that is, to the country as a whole – the LIMTIP framework and findings indicate that the poverty-inducing effect of *time deficits* that households and individuals encounter in meeting their UCDW requirements is indeed substantial.

The LIMTIP framework renders visible and measurable the inability of many households that fall under the radar of policy – those whom we have identified as the *hidden poor* – to meet their basic needs. It also reveals the insufficiency of the official poverty measure to account for the depth of the income deprivation of households with incomes below the poverty line. Our findings also show that poverty-inducing deficits in UCDW are not

uniformly distributed across households and individuals. Household employment status, family type, and presence of children matter a lot. Gender disparities in the division of UCDW, employment status, and earnings also shape the differences in time deficits across individuals and households. Hence, this study reinforces the idea that when remedial policies are contemplated, "one size does not fit all". We have also shown that job creation, while effective for increasing income to levels above the income-poverty rate for a large percentage of the income-poor population, is unlikely to be effective for a sizeable number of the income-poor, either because they are already employed at dismally low wages (and already working long hours) or because they face inordinate UCDW burdens, or both.

Our framework suggests there is a need to pay attention to three interlocking and *gender-differentiated* domains: *labor markets, demographic structures,* and *social protection policies* (i.e., social policies and care service provision), whose combined effect determines the time-adjusted poverty status of individuals and households, both in the actual and in the "full-time employment" situation. Prevailing labor market functioning, household demographics, social protection policies, and gender norms, though known, are not usually analyzed in a consistent manner in relation to income poverty in policy-oriented conversations. Yet, these dimensions should all be taken into account when formulating poverty-alleviation policies and other social and macroeconomic policies that have direct and indirect impacts on the incidence and depth of income poverty. Fig. 2 summarizes our analysis along these domains.

Typically, labor market functioning enters the analysis of income-poverty incidence in relation to unemployment, although as employment indicators improved in the aftermath of the 2002 crisis, there has been an increasing concern about the quality of the employment generated. Even with this growing concern, the gendered aspects of labor markets and demographic structures are usually ignored. As the "ideal worker norm" – the norm by which all workers should behave as if they didn't have care responsibilities – is naturalized, women's double time bind of paid work and UCDW goes unacknowledged and ignored by policy makers.

Admittedly, household demographics and the presence of dependents is a more traditional driver of poverty, and the rationale behind poverty-alleviation policies that target dependents. An obvious result of our methodology is that income poverty is clearly underestimated when UCDW
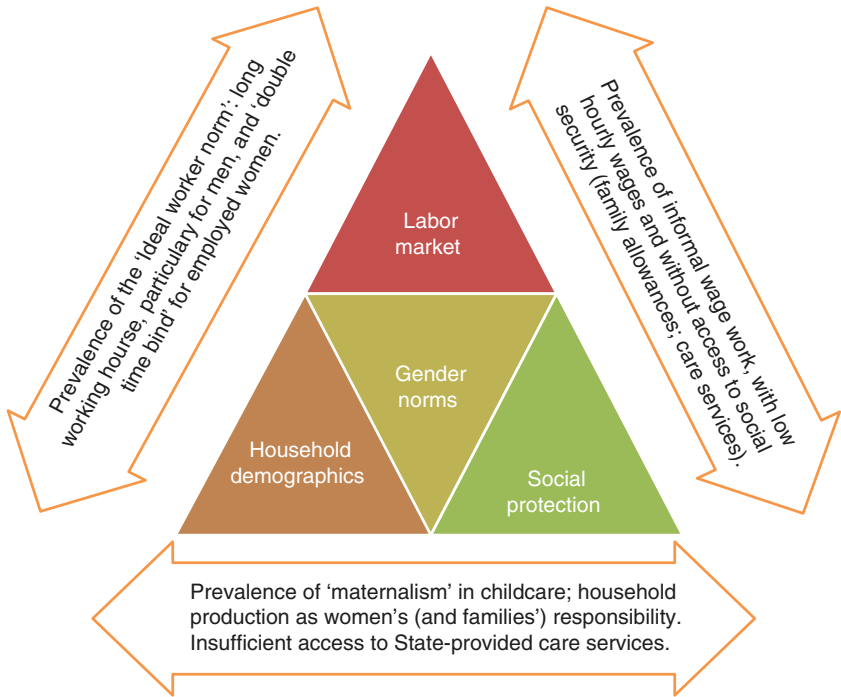
Fig. 2 The interlocking domains of disadvantage

requirements are not consistently included in poverty thresholds. But whether these poverty-inducing time deficits are tackled *via* cash transfers or care service provision has strong gender and distributive impacts that our measure can help uncover.

Indeed, when "gender" and "poverty" are put together, it is usually under the assumption that some women (typically, the "single female head" and "mother of many children") are "unemployable", and therefore in need of cash transfers in order to perform their care responsibilities as if these were their main and *only* role, as *Plan Familias* (in its full force in 2005) blatantly illustrated.[15] No connection is made to the actual functioning of the labor market, which penalizes poor women by limiting their decent job opportunities. Neither is a connection made to the lack of

care services, particularly for very young children, which are seen as a "private choice" of families.

Our findings reveal the *interconnections* of prevailing labor market functioning, household demographics, social protection and gender norms in bringing about time and income poverty *in an integrated and consistent framework*. They speak directly to the current debates around employment policy and social protection policies, and help identify different population groups with diverse income and time needs, which, in turn, require tailor-made policy initiatives, even in a full-time employment scenario.

5.1   Labor Market Outcomes

Several of our findings have strong implications for labor market interventions. The vast majority of households who are time and income-poor are employed households. The majority of individuals who suffer both time and income poverty do so because they face a time deficit that cannot be compensated for by their household's income precisely due to the time devoted to generate that income. As much as a third of the employed LIMTIP poor receive "middle class" wages. In particular, poor employed women are overrepresented in the lower earning quintiles, and are more likely to be in informal wage jobs than poor employed men. Therefore, income poverty was only partly a problem of lack of employment in the city of Buenos Aires. It was more so the result of people working for very long hours and/or for below-subsistence wages in informal jobs. These findings indicate a much greater need for regulation of the length of the working day as well as for higher hourly wages, possibly via expanding registered work opportunities.

Also, as the full-time employment simulation has revealed, women are more likely to get low-paying informal jobs, and thus remain in the ranks of the "hard core" poor even when employed (which, in fact, helps explain observed low-LFP rates among women). The importance of the decent job creation agenda is self-evident and requires little emphasis in this context. But along with it, addressing women's low LFP must come hand-in-hand with lowering the replacement cost of their UCDW requirements by expanding public care service provision. The fact that 72 percent of women who remained income-poor after the simulation were time-poor underscores the fact that UCDW provision remain very much women's – particularly poor women's – responsibility. In other words, more often than not, among poor households that desperately need

additional income, it does not "pay" for women to be full-time workers. Indeed, the prevailing labor market structure that is biased against women's wages and access to formal jobs, along with the time-poverty inducing long working hours that poor working men put in, reinforces the male-breadwinner/female-caregiver model. Therefore, inclusive growth policies will not benefit women if the prevailing labor market structure is reproduced. Unless women allocate more time to employment and men allocate more of their time to UCDW, income-poor women will remain time-poor due to too much time devoted to UCDW, and income-poor men will remain time-poor due to their much longer time devoted to paid work. The agenda of work-life reconciliation must receive due consideration, including the reduction of men's employment hours, in order to achieve a more equitable intra-household distribution of responsibilities.

5.2   *Household Demographics*

Household size and composition greatly influence the amount of time needed to fulfill UCDW requirements – a fact that is off the radar of official income-poverty measures. Single-headed households as well as households with children are at the greatest disadvantage when time deficits are taken into account. Among employed households, dual-earner households and those with children are the ones who experience the greatest increase in income poverty when time deficits are taken into account, a reflection of how household demographics and labor market functioning combine to make these households more vulnerable to income poverty. The emerging picture for children is particularly alarming: 80 percent of children live in time-poor households, while 28 percent of them live in income poverty.

The fact that a vast majority of income-poor children (84 percent) reside in households with time deficits, and that this proportion reached 95 percent in the full-time employment scenario, underscores that increasing hours of employment of parents (particularly of mothers, who are 61 percent of women who get employment in the full-time simulation, and 68 percent of the women who remain income-poor *after* the simulation) is not a real option for these households to escape income poverty, at least, not as long as mothers remain the main child care providers, their wages penalized and their working conditions precarious, and care provisioning remains limited and only accessible to workers in particularly protected sectors or with high enough earnings to pay for them.

There is indeed a tension between inclusive growth's central objective of job creation and demographic structures; a tension that can be addressed and mediated only in conjunction with some combination of care provisioning, regulating the length of the working day, and mandating higher wages.

5.3   Social Protection Policies

The hidden poverty uncovered by LIMTIP shows that social protection policies are not reaching the hidden poor because the latter fall outside the radar of official statistics: according to official poverty figures, these families' income covers their consumption requirements, but not the replacement cost of their unmet UCDW requirements. Furthermore, the LIMTIP methodology shows that cash transfers are inadequate to meet the full extent of deprivations of those in need when time deficits are taken into account. [16]

If the aim is helping households meet their UCDW requirements, the availability and access to public provisioning of care services, including new facilities and extended opening hours are essential policy goals. This is especially the case for care services for infants, young children, and those of school age, which impact women's ability to work for pay and determines in fact if they end up trading one form of poverty (actual income) for another (income poverty induced by time deficits). In other words, free public provision of care services is an in-kind transfer which prevents time-poverty from becoming income poverty. In this way, public policy offers poor families a way to escape income poverty that is already available to time-poor/income-nonpoor families (and women in them) who can "buy out" their time deficits by resorting to private sector care services. Our framework shows that the equalizing effect of the access to care services is not limited to those who receive these services (children and other dependents) and their families' poverty status but, via its effects on labor market outcomes, has significant implications for gender equality. Of course, these effects on labor market outcomes do not come about via supply-side changes only: even with the availability of care services, if poor unskilled women's wages remain as they are, expanding childcare services alone will turn out to be a necessary but not sufficient condition for poverty reduction. This brings us back to our initial remarks on labor market outcomes, and opens the path for practical policy considerations.

6   CONCLUDING REMARKS: LIMTIP POLICY LESSONS

We have highlighted the hidden deprivations time deficits impose on significant segments of the population. In fact, we have seen that time deficits interact with a lack of job opportunities for some; with low wages and, hence, the inability to attain a decent income within reasonable hours of employment for others; and with inadequate levels in the social provisioning of care (especially for households with children) – keeping a sizable proportion of the population locked in the grip of poverty. Therefore, a set of interlinked interventions that addresses these challenges in a coherent manner must lie at the core of any inclusive and gender-equitable development strategy that is worthy of the name.

The findings of this study suggest at least three avenues for change:

Employment generation proves an effective strategy for unemployed or underemployed (income-poor and time-nonpoor) working-age adults – The drastic reduction of the income-poor and time-nonpoor group of individuals as a result of the full-time employment simulation clearly proves this point. Indeed, our simulation showed that full-time employment can produce a dramatic reduction in the incidence of income poverty, even without altering the current structure of earnings. Job creation on such a scale translates into poverty reduction, irrespective of whether we use the official or LIMTIP poverty line as the yardstick. To us, this indicates the central importance of the efforts to steer economic development toward inclusive growth via policies that create employment generation conditions.

However, our simulations also showed that even with full employment, the LIMTIP poverty rate was as high as the actual (i.e., pre-simulation) official poverty rate. Important as the objectives and targets of inclusive growth may be for social cohesion and justice, we should recognize fully this reality and the challenges it poses for women in particular. The presence of a significant proportion of the population whose income poverty is impervious to full-time employment – the "hard-core poor" – indicates the limits of a poverty-reduction strategy that merely focuses on the "quantity" of employment. Economic inclusion and access to wage work is a fundamental right, but unless transformative labor market interventions are also part of the agenda, and unless investments in social care are put in place, much will remain to be desired. Substantial segments of the nonemployed and poor will end up joining the ranks of the working poor.

For the working poor (income-poor and time-poor), most of whom work in the informal sector, efforts to increase registration, wage policy, and working hours regulations are needed to lift them from poverty – Clearly, for those already employed – as well as for those who *fall* into time poverty, but remain income-poor as a result of having low quality jobs – job creation is not enough. In such cases, hourly wages are too low (and usually, paid working hours too long) to allow these workers and their households, to escape from income poverty. Indeed, the full-time simulation reproduces these features – low hourly wages and long hours of employment – when assigning employable adults to self-employment, informal wage jobs, and formal wage jobs.

In a country where the main driver of wage differentiation is formality, efforts to increase formal positions are as significant as collective bargaining in increasing real wages. Also, the active use of minimum wage policies is instrumental in setting a "minimum floor" for formal workers that informal workers could relate to and bargain for. The signaling role of minimum wages is particularly important in sectors where most jobs are in the informal such as construction or domestic service.

The reinstatement of wage bargaining, the active use of minimum wages, and the reestablishment of labor inspections to detect infractions of labor regulations are all part-and-parcel of the labor-based road to improve living conditions followed by the government. However, registration has progressed at too slow a pace, and wage differentials between formal and informal positions remained even as the labor market has become tighter. The implementation of the "Universal Child Allowance" at the end of 2009 was less a new form of "conditional cash transfer" (this time, child-centered instead of mother-centered, as *Programa Familias* was), as it was a tool to equalize family allowances (a labor right) among formal *and* informal workers, de facto complementing informal workers' wages.

An issue that has been less debated at the national level, but strongly emerges from the findings of this study is the "long working hours" regime. For those at the top of the earnings distribution, long working hours might be related to organizational culture, and to the ideal worker norm, in the case of wage workers; and to the dynamics of service provision (particularly for the independent professionals) for self-employed workers. For those at the bottom of the earnings distribution, particularly among the informal wage workers, the lack of working hours' regulations

explains this pattern, while long working hours are a survival strategy for some informal and self-employed workers. For them all, higher wages/labor earnings might ease the pressure to put in long hours of work. The formalization process that took place after 2005 onward could have brought shorter working hours with it, as working hours' regulations became increasingly enforced.

For all time-poor (income-poor and time-poor; income-nonpoor and time-poor), and for those who become time-poor as household members enter the labor market, the redistribution of care work to State-provided care services is needed to avoid time poverty – Our findings indicate that it is a mistake to create jobs as if they could be simply "taken" by women and men, with no crowding-out effects on UCDW. Indeed, employment creation works best for the unemployed or underemployed – those income-poor and time-nonpoor, who are indeed "free" to take employment opportunities.

But for *all* others who are time-deprived, a redistribution of UCDW times toward other members of the household, or from the household to the public sphere, is a pre-requisite for entering the labor market without becoming time-poor as a result. Redistribution of UCDW responsibilities *within* households seems to be desirable, yet remarkably difficult. It could be argued that more employment opportunities for women (and therefore more income) could trigger such a redistribution process. However, the full-employment simulation has shown that there is little such change brought about by employment. (Sometimes, household shares *cannot* change, as is the case in single-headed households.) Long paid working hours might combine with high care demands in ways that make "new" workers fall into time-poverty and remain or even fall into income poverty, if the wages generated by the new jobs (or by the new "full-time" hours) are not sufficient to compensate for the gap between income earned and the value of the displaced UCDW.

When redistribution within households is not enough (or cannot occur) there is a solid argument for socialization of UCDW, particularly of care, given how crucial care demands are making parents more likely to fall into time and income poverty than childless individuals and households. In the case of the city of Buenos Aires, this means expanding slots in pre-school care services, as well as their opening hours, and extending schools opening hours.

NOTES

1. The Buenos Aires Time Use Survey collected information only from one individual aged 15–74 years old per household. The surveyed population excluded board houses and shanty towns, due to fieldwork restrictions. For details on the TUS methodology, see Esquivel (2010).

2. During the third quarter of 2013, the National Statistical Institute (INDEC) collected the "National Survey on Unremunerated Work and Time Use". Unfortunately, it is a short task survey (3 questions). See Rodríguez Enríquez (2014).

3. For a formal presentation, see Zacharias (2011).

4. Commuting times are relatively low as compared to other countries in the LIMTIP study due to the fact that most Buenos Aires residents work in the city. Times would certainly be higher if we could factor in those employed in the city but residents of the city outskirts. Unfortunately, they were not covered by the time-use survey.

5. Non-adults members of the household (15–17 year-olds for whom we have time-use data) might contribute to UCDW and, as a consequence, diminish adults' shares.

6. See Beccaria et al. (2005) and Maurizio (2009).

7. These "official" figures are slightly lower than the published EAH poverty incidence rates (8 percent for households and 11.5 percent for individuals) due to the exclusion of pensions (boarding houses) and shanty towns from the database. For further methodological details, see Esquivel (2010).

8. We are ignoring here the households with nonemployed head and employed spouse because they constitute a relatively small fraction of the income-poor population.

9. We must consider this in light of the well-known inequality in earnings: the share of the bottom 40 percent of earners in aggregate earnings was 12 percent.

10. Results not previously shown.

11. See Zacharias et al. (2012).

12. Employable adults are defined as all individuals between the ages of 18 and 74 who are (a) not disabled, retired, in school, or in the military and (b) not employed or working part-time (less than 25 hours per week).

13. Of course we know that close to full employment, the employment structure and the distribution of earnings tend to change (even though knowing when changes kick off, their pace, and their direction is quite difficult to grasp, let alone model *ex ante*). Therefore, the microsimulation is an approximation of the effect of hours employed on earnings, keeping all other labor market features unchanged. It should be noted that the microsimulation does not mimic a "universal" public employment program. Rather, it is an aggregation of the impact on each household of each adult member in that

household being employed full-time in a job they are likely to acquire given actual labor market conditions in 2005. The analysis of the simulation is thus an assessment of the sum of the individual impact on households' (official and LIMTIP) poverty status of such a labor market transition.

14. Results not shown.

15. *Plan Familias* was a traditional CCT program under the view that "women with children" were "unemployable" and should therefore withdraw from the labor force. Plan Familias succeeded *Plan Jefes*, an employment program that according to the authorities, lead to an increase in women's LFP. See Esquivel et al. (2012).

16. Cash transfer programs indeed belong to the "logic of social protection" and do not fund care provision, even when conditionalities are tied to care checks. See Esquivel (2011a).

REFERENCES

Bardasi, Elena, and Quentin Wodon (2010). Working long hours and having no choice: Time poverty in Guinea. *Feminist Economics*, 16(3), 45–78.

Beccaria, Luis, Valeria Esquivel and Roxana Maurizio (2005). Empleo, salarios y equidad durante la recuperación reciente en la Argentina, *Desarrollo Económico*, N° 178, Vol. 45, julio-setiembre, Buenos Aires.

Beneria, Lourdes, Günseli Berik, and Maria S Floro (2016). *Gender, Development and Globalization: Economics as If All People Mattered*. Second Edition. New York: Routledge.

Esquivel, Valeria (2010). Lessons from the Buenos Aires time use survey. A methodological assessment. In Rania Antonopoulos and Indira Hirway (Eds.), *Unpaid Work and the Economy: Gender, Time Use and Poverty* (pp. 181–214). New York: Palgrave McMillan.

Esquivel, Valeria (2011a). *The Care Economy in Latin America: Putting Care at the Centre of the Agenda*. "Undoing knots, innovating for change" Series, UNDP. Panama: Regional Center for Latin America.

Esquivel, Valeria (2011b). Sixteen years after Beijing: What are the new policy agendas for time-use data collection? *Feminist Economics*, 17(4), 215–238.

Esquivel, Valeria, and Eleonor Faur (2012). Beyond maternalism? The political and social organization of childcare in Argentina. In Shahra Razavi and Silke Staab (Eds.), *Global Variations in the Political and Social Economy of Care. Worlds Apart* (pp. 103–121). New York: Routledge/UNRISD Research in Gender and Development.

Goodin, Robert E., James Mahmud Rice, Antti Parpo, and Lina Eriksson (2008). *Discretionary Time: A New Measure of Freedom*. Cambridge: Cambridge University Press.

Kum, Hyunsub, and Thomas Masterson (2010). Statistical matching using propensity scores: theory and application to the analysis of the distribution of income and wealth. *Journal of Economic and Social Measurement*, 35(3), 177–196.

Maier, S. (2013). *Resultados y aprendizajes de la aplicación de la medida de pobreza bidimensional LIMPTIP-LEVY para el caso uruguayo*. Uruguay: UNDP. Internal document.

Masterson, Thomas (2011). Quality of match for statistical matches used in the development of the Levy Institute Measure of Time and Income Poverty (LIMTIP) for Argentina, Chile, and Mexico. Levy Economics Institute Working Paper 692 (October). Annandale-on-Hudson, NY: Levy Economics Institute of Bard College.

Maurizio, Roxana (2009). Macroeconomic Regime, Trade Openness, Unemployment and Inequality: The Argentine Experience, The IDEAS Working Paper Series, Paper No. 03/2009, New Delhi.

Merz, Joachim, and Tim Rathjen (2014). Time and income poverty: An interdependent multidimensional poverty approach with German time use diary data. *Review of Income and Wealth*, 60, 450–479.

Rodríguez Enríquez, Corina (2014). El trabajo de cuidado no remunerado en Argentina: un análisis desde la evidencia del Módulo de Trabajo no Remunerado. Documentos de Trabajo "Políticas públicas y derecho al cuidado" 2., Buenos Aires: ELA – Equipo Latinoamericano de Justicia y Género.

Trujillo, J., and D. Nova (2014). Pobreza de tiempo e ingreso 2012 – 2013. Boletín Técnico, DANE, Noviembre.

Zacharias, Ajit. (2011). The measurement of time and income poverty. Levy Economics Institute Working Paper 690 (October). Annandale-on-Hudson, NY: Levy Economics Institute of Bard College.

Zacharias, Ajit, Rania Antonopulos, and Thomas Masterson (2012). *Why Time Deficits Matter: Implications for the Measurement of Poverty*. UNDP/Levy Economics Institute. Annandale-on-Hudson, NY: Levy Economics Institute of Bard College. http://www.levyinstitute.org/research/?prog=20.

Zacharias, Ajit, Thomas Masterson, and Emel Memiş (2014a). *Time Deficits and Poverty: The Levy Institute Measure of Time and Consumption Poverty for Turkey*. Research Project Reports. Annandale-on-Hudson, NY: Levy Economics Institute of Bard College. May.

Zacharias, Ajit, Thomas Masterson, and Kijong Kim (2014b). *The Measurement of Time and Income Poverty in Korea: The Levy Institute Measure of Time and Income Poverty*. Research Project Reports. Annandale-on-Hudson, NY: Levy Economics Institute of Bard College. August

Rania Antonopoulos is currently Alternate Minister for Labour, Greece. Prior to her current post she had served as the marcoeconomic advisor of UN Women, as senior scholar and Director of the Gender Equality Program of the Levy Institute,

professor at New York University, and expert advisor to UNDP and ILO. She received her PhD in economics from the New School for Social Research.

Valeria Esquivel is currently Economist, Gender Specialist at the International Labour Office. Previously, she was Research Coordinator on Gender and Development at UNRISD. Her research primarily focuses on the care economy. She coordinated the Buenos Aires Time Use Survey (2005) and the Rosario Time Use Survey (2010). She graduated with honors from Universidad de Buenos Aires, and earned an M.Sc. and a PhD in economics from the University of London.

Thomas Masterson is director of applied micromodeling and a research scholar in the Levy Economics Institute's Distribution of Income and Wealth program. He has worked extensively on the Levy Institute Measure of Well-being (LIMEW) and with other Levy scholars, was involved in developing the Levy Institute Measure of Time and Income Poverty (LIMTIP). His specific research interests include the distribution of land, income, and wealth.

Ajit Zacharias is a senior scholar and director of the Distribution of Income and Wealth program at the Levy Economics Institute of Bard College. His research primarily focuses on the theory, measurement, and analysis of economic well-being and deprivation. Zacharias holds a PhD from The New School for Social Research.

The Dual Problem of Unemployment and Time Poverty in South Africa: Understanding Their Linkages

Abhilasha Srivastava and Maria Sagrario Floro

1   Introduction

In recent years, the persistence of high unemployment and underemployment situation in South Africa has led to intense policy debates. At the same time, the issue of time poverty has become a growing concern as pointed out by some researchers (Antonopoulos and Memis 2010; Bardasi and Wodon 2010; Harvey and Mukhopadhyay 2007; Walker 2013), and where the issue of long work hours for some has drawn attention to "time-squeeze," "time deprivation," and "time poverty" that are affecting the lives and well-being of these individuals.

    Our objectives in this chapter are two-fold. First, we examine the gendered dimensions of time-use patterns of 9,871 respondents, aged 16–62 years old, who drawn from the 2000 South Africa Time Use Survey (TUS) in order to better understand their working life. Second, we apply the notion of time-squeeze, that is, those who lack time for rest and leisure due to long working hours, in order to analyze its coexistence with unemployment and underemployment among economically active

A. Srivastava (✉) · M.S. Floro
Department of Economics, American University, Washington, DC, USA
e-mail: as4571a@student.american.edu; mfloro@american.edu

persons, a situation referred to as a "double-bind" dilemma and explore the gendered dimensions of being time-squeezed. While it is the case that a significant proportion of the population deal with either one of these problems, we find that a non-trivial segment of the population is caught in this double-bind dilemma. Attempts to balance the need to earn income on one hand and the demand on one's time for household maintenance and caregiving on the other have led to long hours of work and thus many experience this conundrum. While some would argue that these are rational choices that an individual makes, the severity of the time constraint can shape the boundaries of real options that a person has for overcoming poverty and for developing his/her capabilities. The chronic experience of "time pressure" can lead to prolonged stress and ill health and can keep a person in the vicious cycle of poverty. For these reasons, the double-bind problem merits serious examination.

The last two decades have witnessed the growth of studies on time poverty and time deprivation. Collectively, this body of literature has brought about a better understanding of the time dimensions of well-being and has focused attention on less recognized forms of deprivation such as lack of rest and leisure. Chronic and severe time pressures have serious implications on a person's health and functioning as pointed out by Hunt and Annandale (1993) and Sparks, Cooper, Fried, and Shiram (1997); they are related to level of stress and the ability to overcome income poverty. At the same time, the problem of unemployment and underemployment continues to confront many women and men. Sen (2000) describes unemployment as being "not merely a deficiency of income that can be made up through transfers by the state . . . ; it is also a source of far-reaching debilitating effects on individual freedom, initiative, and skills. Among its manifold effects, unemployment contributes to the social exclusion of some groups and it leads to losses of self-reliance, and self-confidence." (p. 21).

Building on the literature on time poverty and time deprivation, this chapter critically examines the factors that affect the likelihood of an individual being doubly burdened by long working hours and unemployment (or underemployment). We then examine how women and men's time-use patterns differ in South Africa using the 2000 TUS data, and compare them across different labor force categories. Multinomial logit models and censored quantile regressions are estimated to examine the gendered dimension of this double-bind problem and to identify economic, social, and demographic factors correlated with being time poor

and underemployed. The findings, which are found to be robust, showed that gender roles, household composition and structure, wealth, and access to infrastructure influence the extent to which individuals face this double-bind problem.

The chapter is organized as follows: Section 2 briefly reviews the literature on the time dimension of well-being as well as the labor conditions in South Africa that makes it an interesting case study of the double-bind dilemma. Section 3 discusses the data and briefly describes the utilization of the 2000 South African TUS data in classifying the labor force categories of the TUS respondents, while Section 4 examines the time-use patterns of men and women across labor force categories. An empirical analysis using the 2000 South Africa TUS is performed using multinomial logit and censored regression models and the corresponding test results are given in Section 5. A summary of the main points and policy considerations concludes the chapter.

2   THE DUAL PROBLEM OF UNEMPLOYMENT AND TIME-SQUEEZE

Over the last two decades, varied forms of work unpaid household and care work, voluntary work in addition to labor market work, have increasingly been recognized by policymakers, researchers, and statistical agencies as important contributions women make to the economy. This recognition was brought about by the collective efforts of women's advocacy groups, feminist economists, time-use researchers, and the United Nations. The accounting of these work activities, which have been statistically invisible and absent in most policy discourses, has brought attention to less recognized forms of deprivation such as the lack of time for rest, leisure, and the development of a person's capabilities. The notion of time poverty was first introduced by Claire Vickery (1977), who argues that official poverty measures do not account for the household production necessary to produce consumption goods (Vickery 1977; Zacharias et al. 2012). Total consumption, as argued by Vickery, is determined not only by the purchase of market goods but also crucially depends on household production required to transformation those goods into consumption goods. She developed a two-dimensional measure of poverty to include those households whose combined money income and available time are deemed inadequate to meet a minimum level of consumption.

Building on this notion, a number of researchers have drawn attention to the increasing time pressures in peoples' lives and the gendered implications of the prevailing household division of labor in terms of "time poverty" or "time deprivation." Hochschild and Machung (1989) show that women in the US perform more housework than their husbands, even though both are engaged in paid work. Goodin et al. (2008) explore the availability of discretionary time with data from six developed countries and, similar to Vickery, studies those who can only escape "money poverty" by working long hours. In a time-use study of Canadian households, MacDonald et al. (2005) show that women's longer hours of unpaid work contributes to women experiencing more stress than men, and that hours spent on eldercare and housework are particularly stressful. Varied dimensions of workers' lives, such as the length of the working day and prolonged multi-tasking, have been shown to affect worker health and stress levels. Harvey and Mukhopadhyay (2007) also use Canadian data with a focus on a severely time-deprived group, namely single parents, living with one or more children under 15 years of age, and having no other adult member in the household. Kalenkoski et al. (2011) present similar findings in the US context using a defined time poverty threshold.

Bardasi and Wodon (2006a), in one of the first studies of time poverty in a developing country context, makes the distinction between those individuals who work long hours and yet are consumption poor, from those who work long hours and are above the consumption poverty line. This critical distinction is also made by Lawson (2008) in his study of the working lives of Lesotho's women and men. Defining time poverty as a multiple of 1.5 the median of the hours worked in the country, his finding that wealthier and more educated individuals are more likely to be "time poor" suggests the need for juxtaposing the long working hours with the lack of choice or deprivation of the freedom to choose how one wants to use her time. Other time use studies such as Burchardt (2008) also make the point that, while men have compensated for the time they spend working in the labor market by delegating household work to others in the household, women are likely to accommodate increased labor market participation by reducing leisure time and by doing simultaneous activities such as in the case of home-based workers (Floro and Pichetpongsa 2010). Women therefore increase not only their total work hours but also the incidence of work intensity; both are found to be highly correlated with lower subjective well-being. In a later study, Bardasi and Wodon (2010) consider the notion of time poverty in terms of individuals who are not

able to allocate sufficient time for important activities and are therefore forced to make difficult trade-offs. The element of choice in relation to time poverty is also explored by Goodin et al. (2005), who use the concept of discretionary time in their analysis of "time pressure illusion" using Australian time-use survey data.

Antonopoulos and Memis (2010) build on the work of Harvey and Mukhopadhyay (2007) and constructed a threshold of time deprivation and explored its incidence among the income poor using 2000 South Africa TUS data. They find that almost 10 percent of the total population is living under income poverty as well as being time deprived. "However, among the income-poor and time-deprived group, 46 percent of them appear to have a time surplus rather than deficit. The other 54 percent of time-deprived and income-poor households are identified as time poor by Harvey and Mukhopadhyay's measure." (p. 19). Also see Chapter in this volume by Antonopoulos, Esquivel, Masterson, and Zacharias for an application of a combined income and time poverty measure.

A few studies have examined the extent to which time poverty is related to labor force status (Wajcman 1998; Zacharias et al. 2012). Zacharias et al. (2012) highlight the interconnectedness of the earnings level of low-wage workers and time poverty. These workers have to work long hours at low wages to earn a living. The issue of time poverty among the unemployed and underemployed (UUN), however, has yet to be critically examined.

Our study differs from previous studies on time deprivations, time deficits, and time poverty in several respects. First, although we acknowledge the length of working hours as a critical dimension of well-being as do the other studies, we take into account the lack of choice in a person's situation through the paradox of wanting more (paid) work, while at the same time working long hours (mostly unpaid). This condition is quite different from that of full-time employed individuals who are well-paid and work long hours, as well as the situation faced by the low-wage workers who also work long hours (Lawson 2007; Bardasi and Wodon 2006b; Zacharias et al. 2012). Second, we demonstrate that this double-bind affects a non-trivial proportion of the population, the majority of whom are women. Gender norms reflected in the unequal household division of labor not only lead to heavy workload of women but also pose greater hurdles for women job seekers compared to men. Third, we identify the roles of wealth or access to resources, household composition, and access to public infrastructures and basic services in bringing about this dilemma by exploring the incidence of time-squeeze (long working

hours) across different labor force categories and by examining the factors that bring about the problem of time-squeeze among the UUN. Fourth, building on the previous works of Antonopoulos and Memis (2010), Floro and Komatsu (2011), and Zacharias et al. (2012), we use South Africa is case study for understanding the double-bind problem. The issue is particularly relevant to its labor force because of South Africa's high unemployment and underemployment rate and the fact that a non-trivial segment of its population are considered time poor (Kizilimak and Memis 2009). Supply-side approaches pursued after the country's first democratic elections in 1994 have produced jobless growth, especially during the 2007–2008 global financial crisis (Anand et al. 2016). Gender is an important marker of labor market outcomes in South Africa, as pointed out by Floro and Komatsu (2011). Fewer women are employed compared to men, and larger numbers of women are unemployed over time even though women's labor supply has increased substantially in the period 1995–2005.

3   DATA SETTING

3.1   Data Description and Sample Characteristics

The sample used in this chapter involves 9,871 adult respondents aged 16–62 and is drawn from the 2000 South Africa National TUS of 8,564 households. The survey was administered by Statistics South Africa[1] and conducted over three periods namely, February, June, and October 2000 (Statistics South Africa 2001a).[2]Household and demographic information of the respondents were collected alongside the varied activities performed by each respondent over a 24-hour period of the day preceding the interview.

The time use diary was divided into 30-minute time slots. Respondents were asked an open-ended question pertaining to the 30-minute slots. These responses were recorded and then coded by the fieldworker, according to an activity classification system. Respondents were able to report three activities per time slot and respondents were asked whether these activities were conducted sequentially or simultaneously. In reporting the time-use patterns of the TUS men and women respondents, we consider all activities reported during a given time slot including activities that are performed either simultaneously with or sequentially after the main activity.[3] We use a modified System of National Accounts (SNA)-based activity classification to define the following five time-use activity categories: labor

market activities, household work activities, volunteer and community service work activities, leisure and social activities, and personal care and self-maintenance activities.[4] Labor market activities involve both labor market work, that is, subsistence production, wage employment and other production of goods and services for income, and employment search activities. The latter involves job search activities and travel related to looking for employment. We classify activities associated with household maintenance, management, and shopping for own household; water and fuel collection; and care for children, the sick, elderly, and disabled for own household as "household work." We classify community service activities and those to help other households as "community service and volunteer activities." We identify social and cultural activities as well as mass media use as "leisure and cultural activities." Finally, we include all other activities associated with learning, personal care, and doing nothing as "personal care and self-maintenance."

There are some limitations of the TUS data that need mentioning. First, misreporting of the amount of time spent in activities is likely to occur since some respondents do not have watches and therefore an individual's perception or notion of time itself may influence his/her report of time spent in a given activity. Additionally, some respondents, women in particular, may have been acculturated into the performance of two or more activities sequentially or simultaneously in the given time frame without being conscious of it, leading to the underreporting of secondary activities involving paid or unpaid work. In addition, the data only reports gross household monthly income (from all sources) in terms of income range categories. Educational attainment categories include only up to Grade 12 so that we are unable to distinguish between those respondents who have completed high school and those with college, university, or higher degrees. Finally, the information on the relationship of the respondent to the households is not available and hence, we are unable to perform any analysis regarding intra-household comparison of time use or division of labor.

3.2 Labor Force Classification of TUS Respondents

This section describes how the TUS respondents are classified into labor force categories by using the method similar to that used in the 2000 Labor Force Survey (LFS) of South Africa (Statistics South Africa 2001b).[5] For our study purposes, we classify the respondents according to their labor

force status namely: 1) not in the labor force, 2) unemployed, 3) under-employed, or 4) employed using exactly the same set of questions that are used for the LFS estimates.[6] Those "not in the labor force" (NLF) refer to individuals who classified themselves as "housewife" or "retired"; we excluded "students" and "disabled." Individuals in the "unemployed" (U) category include those respondents who reported themselves to be looking for or wanting to work in the previous four weeks as well as those who are considered discouraged workers. Individuals are categorized as "underemployed" (UN) if s/he works in a "business for himself or herself"; is "self-employed"; "unpaid family worker"; performed "any work on household plot" or "catch fish"; or has done "any other work" not classified elsewhere and has worked less than 40 hours equivalent in the past week (Statistics South Africa (SSA) 2001b). In the case of employed (EMP), this category includes part-time and full-time employed.[7] Full-time workers refer to employed persons who normally work 35 hours or more per week. Part-time workers are those who normally work more than 20 hours and less than 35 hours per week.

Table 1 provides the labor force status of the TUS sample respondents aged 15–62 years. 31.8 percent and 23.4 percent of the women and men,

Table 1 Labor force status of 2000 TUS respondents[a], number and percent of total[b]

Labor force status	Women		Men	
	No.	*Percent*	*No.*	*Percent*
Not in labor force	1619	31.81	1117	23.36
Unemployed[c]	1066	20.94	647	13.52
Underemployed[c]	324	6.37	408	8.54
Subtotal UUN	1390	27.31	1055	22.06
Full-time employed[d]	1329	26	1954	41
Part-time[d]	751	14.76	655	13.7
TOTAL	2080	40.76	2609	54.7

[a]The employment status classification is based on respondents' answer to the question 2.11: "Did you do any of the following activities in the last seven days?" in the demographic part of the TUS questionnaire.
[b]The sample used for this study is the economically active population aged 15–62 years in the TUS data.
[c]Abbreviation refers to Unemployed, Underemployed who are treated as one (UUN) category in the study. Unemployed includes discouraged workers.
[d]For detailed definition of full-time and part-time employed see Floro and Komatsu (2011).

respectively are economically inactive or NLF.[8] The unemployment rates, using the broad definition, are 20.9 percent and 13.5 percent for women and men, respectively.[9] In terms of underemployment, the proportion of underemployed women in the TUS sample (6.4 percent) is slightly lower than those of men in the TUS sample (8.5 percent).[10]

3.3   Time-Use Patterns of Men and Women

The time-use patterns of men and women in our sample are provided in Table 2. It reports primary activity and then additionally secondary activities are reported. Secondary activities are activities that are performed either simultaneously with or sequentially after the main (primary) activity. With regards to primary activities. The primary activities recorded in Table 2 show a gendered work pattern consistent with those found in other time-use studies. Men spent, on average, more than 112 minutes more per day in labor market work than women, while women spent nearly three times the amount of time in household work and care activities (about 252 minutes per day) than men (about 93 minutes per day). The fact that women, on average, work longer hours in performing all types of work compared to men indicate that the former tend to have less time for leisure and social activities than men (135 minutes vs. 180 minutes), for learning (48 minutes vs. 55 minutes), as well as for personal care and self-maintenance (788 vs. 798 minutes). Table 2 also shows that the majority of secondary activities recorded by women and men respondents are non-work activities, for example, leisure and social activities or personal care and self-maintenance. Although men spend slightly more time in secondary labor market work activities than women, women spend 26 minutes more than men on secondary household work activities (44 minutes per day vs. 18 minutes per day). These figures are likely to underestimate the actual amount of time spent in secondary work activities since the 2000 TUS interviewers had not been diligent in prompting the respondents to recall them.

The time-use pattern of both women and men become more nuanced, however, when we take into account their labor force status. Table 3 presents the participation rates and the average time that NLF, unemployed, underemployed, and employed (part-time and full-time) women and men spent in different types of work as well as in looking for work. Participation rates are estimated as the percentage of respondents who

Table 2 Mean time spent by women and men in primary and secondary activities[a], by type of activity (in minutes per day)

	Primary activities		Secondary activities	
	Men	**Women**	**Men**	**Women**
A. Labor market activities	**268.91**	**156.68**	**13.92**	**10.48**
Labor market work[b]	257.28	154.50	13.73	10.37
Employment search activities[c]	11.63	2.19	0.19	0.12
B. Household work	**93.41**	**252.38**	**17.52**	**43.86**
Fuel and water collection	5.24	13.52	0.51	1.35
Domestic chores and care work, etc.[d]	88.16	238.86	17.01	42.51
C. Volunteer and community work[e]	**5.66**	**3.68**	**0.43**	**0.64**
D. Leisure and social activities	**179.96**	**135.36**	**102.53**	**87.13**
Leisure with family or alone[f]	62.15	56.82	43.55	54.00
Leisure with non-family and social activities[g]	117.81	78.54	58.97	33.13
E. Other activities	**889.50**	**877.05**	**107.53**	**108.89**
Learning[h]	55.41	47.95	2.13	2.76
Personal care[i]	797.81	788.50	103.31	104.14
Doing nothing	36.29	40.60	2.09	1.98

[a]Secondary activities include only those activities that are performed with non-work, first activities.
[b]SNA activities include wage and salary work, home-based work, unpaid family work, domestic and personal service, self-employed work, farming, animal husbandry, fishing, food processing and selling, textile, leather and other craft-making, construction, petty trading, tools and machinery making, other personal services. Labor market work here excludes a) travel to and from work and travel for seeking employment and b) seeking employment and related activities. The latter is given as a separate category.
[c]These SNA activities include seeking employment and activities related to seeking employment.
[d]These are non-SNA productive activities that are mostly unpaid. They include food preparation and clean up, laundry, ironing, clothes care, and other housework; animal care, and home maintenance and repair; household management, transporting household members, and travel associated with any of the above activities. They also include physical care and minding of own and other children, care for sick or disabled child, teaching own and other children, playing with own and other children, and travel associated with childcare, shopping and accessing government services.
[e]These refer to all unpaid community services including civic responsibilities, helping or caring for disabled adults and unpaid services for children who are not part of the household, and travel connected with these activities.
[f]These include socializing with family, spending time in arts, hobbies, sports, and games; being a spectator to sports, cinema, and other events; and reading, watching TV, listening to music, or other mass media use.
[g]These activities include participating in cultural activities, weddings, funerals, religious activities, socializing with non-family members, and travel related to these activities.
[h]These include attending school, training workshops, and doing homework.
[i]These include sleeping, eating, drinking, dressing, and washing.

Table 3 Participation rate[a] and mean time spent in performing work activities[b], by sex, activity type, and labor force status[c]

	Men		Women	
	Percent (%)	*Mean time Conditional on participation*	*Percent (%)*	*Mean time Conditional on participation*
1. Labor market work				
NLF	18.00	199.02	13.02	159.03
UUN	28.43	181.86	15.93	163.22
EMP	82.38	563.33	72.54	519.59
All	**59.97**	**487.68**	**40.33**	**437.32**
2. Employment search activities				
NLF	2.50	283.03	0.68	179.32
UUN	14.52	267.68	2.59	192.30
EMP	2.03	271.93	0.93	206.23
All	**4.69**	**270.17**	**1.30**	**194.27**
3. Household work				
NLF	79.98	156.96	95.53	314.20
UUN	82.74	195.01	97.26	408.78
EMP	68.68	133.21	94.66	243.73
All	**73.56**	**154.40**	**95.60**	**312.54**
4. Volunteer work				
NLF	2.74	102.07	2.58	93.11
UUN	4.37	162.56	3.48	193.89
EMP	2.30	200.79	3.49	147.98
All	**2.80**	**170.17**	**3.22**	**148.01**
NLF	83.08	204.37	96.00	340.59
UUN	89.14	286.93	98.00	440.16
EMP	95.74	583.00	99.12	609.54
All categories	**92.16**	**439.18**	**97.21**	**479.32**

The definitions of NLF, UUN, and EMP are given in Table 1.

[a]Percent of women and men in the total sample who have performed at least 30 minutes of the activity in the past 24 hours.

[b]Average time spent by respondents who performed at least 30 minutes of the activity in the past 24 hours.

[c]Minutes per day include time spent on first and secondary activity. Labor force status of respondent is based on the labor force questions in the time-use survey, which replicates those used in the 1999 South Africa LFS for classification.

[d]Respondents for these labor force categories reported performing this work activity in the past 24 hours. See Floro and Komatsu (2011).

performed at least 30 minutes of the activity in the past 24 hours, which is the TUS diary reference period.

Some interesting results are observed. First, 18.3 percent and 28.7 percent of men classified as NLF and unemployed, respectively spent an average of 219 and 288 minutes in labor market work. 13.0 percent of NLF women and 16.1 percent of unemployed women spent, on average, 170 minutes and 185 minutes in the labor market. The gender differences in the average time spent on these activities are statistically significant using *t*-tests.[11] Second, 14.5 percent of unemployed and underemployment men spent, on average, 268 minutes looking for work; on the other hand, fewer than 3 percent of women in the same labor force categories are able to spend about 192 minutes looking for work. Finally, we find that nearly all of the UUN women (97.3 percent) spent more than twice the amount of household and care work time spent by 82.7 percent of the UUN men (409 minutes vs.195 minutes). This pattern of unequal division of household and care work is also observed among those NLF and those employed, whether part-time or full-time. About 94.7 percent of employed women spend 244 minutes, on average, while only 68.7 percent of their male counterparts spend 133 minutes in household and care work.

3.4   Who Are Time-Squeezed?

We consider a person's total work hours as comprised of the amount of time spent in a) primary work activities involving i) labor market work, ii) household work, and iii) community service and volunteer work activities; and b) secondary work activities that are performed either simultaneously or sequentially with a non-work activity such as leisure.

In this study, we use two alternative methods for identifying who is time-squeezed. First, we use two absolute thresholds: a lower threshold equal to 50 hours a week following Bardasi and Wodon (2010); and an upper threshold equal to 1.5 times the median of the total individual working hours distribution. In this case, the threshold is 63 hours a week, based on a work week of 5.5 days. In the second method, which is a relative measure, we define a person as *moderately time-squeezed* if his/ her total working hours are in the 75th percentile of total working hours distribution. A person is considered *severely time-squeezed* if his/her work hours are in the 90th percentile of the distribution.

The kernel density graph of the distribution of total work hours by gender (Fig. 1) shows that while total working hours for men are
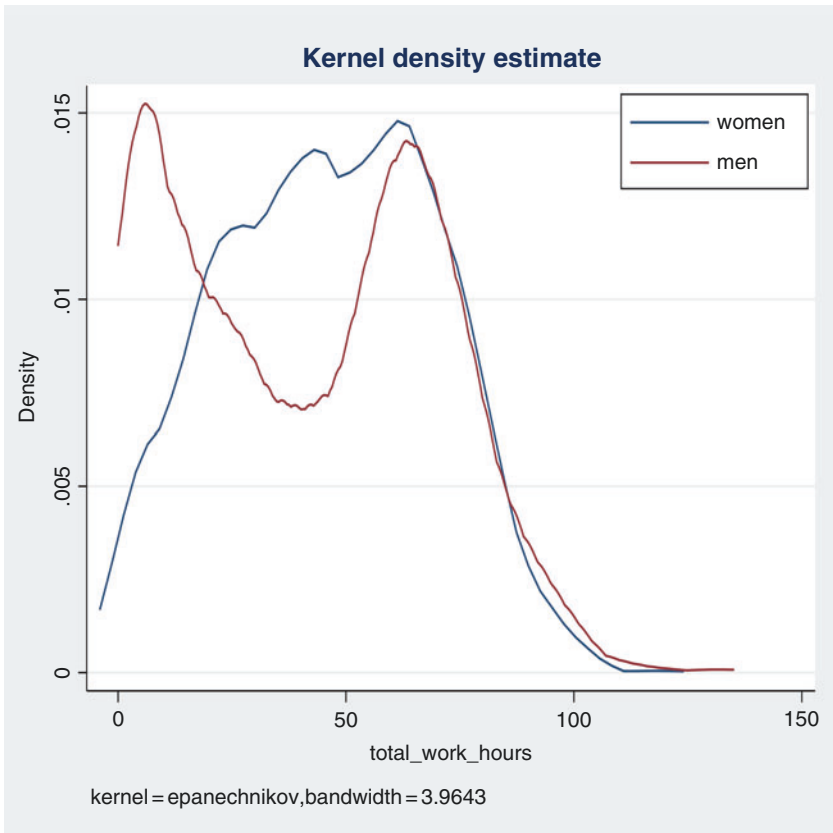
Fig. 1   Kernel density graph of the distribution of total work hours per week by sex

concentrated along two peaks with a clear demarcation between those who work long hours and those who do not, women's distribution is smoother with longer working hours, which are more than 50 hours per week. Further, the kernel density graph of total work hours by gender and employment categories (Fig. 2) shows that employed individuals are most time-squeezed, particularly among men. However, underemployed and unemployed women are much more time-squeezed than UUN men. Men who are NLF are the least time-squeezed individuals.
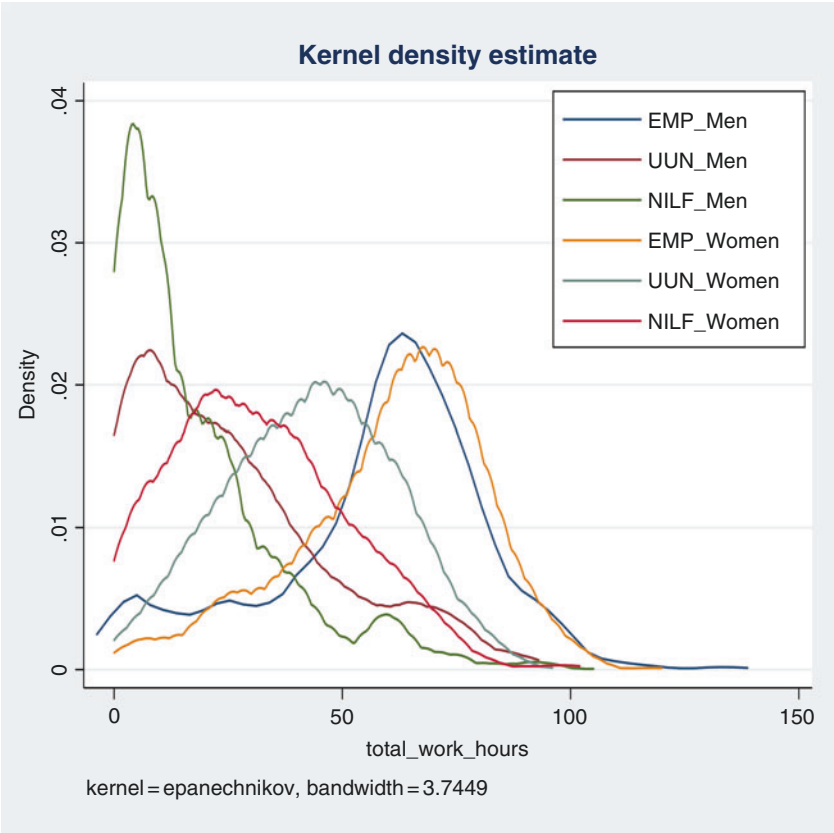
Fig. 2   Kernel density graph of the distribution of total work hours per week by sex and labor force status

These trends are confirmed in Table 4, which shows the incidence of time-squeeze among respondents for each labor force category using the lower and upper absolute thresholds. More than 80 percent of those employed worked more than 50 hours in the past week, about 60 percent worked even longer hours, more than 63 hours a week. While a third of the UUN women worked more than 50 hours in the past week, this problem concerns only 14 percent of UUN men. The gender disparity also occurs in the NLF: 18 percent of women versus 6 percent of men

Table 4 Number and proportion of respondents who are time-squeezed[a], by sex and labor force category

	Men				Women		
	No.	Percent (%) distribution of total	Proportion of total in labor force category (in %)	No.	Percent (%) distribution of total	Proportion of total in labor force category
Time-squeezed (>50 hrs.)							
NLF	68	2.99	6.08	298	12.13	18.41
UUN	143	6.31	13.58	459	18.68	33.01
Emp	2058	90.69	78.84	1700	69.20	81.70
All categories	2269	100.00	47.45	2457	100.00	48.27
Time-squeezed (>63 hrs.)							
NLF	32	1.99	2.83	127	7.71	11.40
UUN	74	4.67	7.04	199	12.03	18.86
Emp	1485	93.32	56.89	1326	80.28	50.81
All categories	1591	100.00	33.27	1652	100.00	34.56

[a]Time-squeezed individuals in this table refer to those whose total work hours are above the lower and upper thresholds.

NLF are above the 50-hours time-squeeze threshold. We observe a similar unequal workload pattern between men and women in UUN and NLF categories when we use the higher threshold of working more than 63 hours a week.

4   EMPIRICAL ANALYSIS

The probability of an individual working long hours and experiencing time-squeeze is likely to depend on a host of economic, demographic, and social factors that influence the amount of time a person spends on paid and unpaid work. In this study, we focus on the interplay of gender norms, household economic status (using wealth proxies) and composition, and a person's employment status. We also take into account the extent that access to public infrastructures and social services such as safe water, health clinics, and public transport can relieve a person of time pressure by reducing time for gathering water, commuting to work, shopping, taking children to school, etc.

Prevailing social and gender norms such as "men are breadwinners," "women are responsible for the children" influence the household division of labor. These social constructs induce men to spend more time in market work, while women perform much of the household maintenance and care work. Household wealth brings about an income effect and a substitution effect on a person's work hours; more wealth can reduce the economic compulsion to earn labor income, and at the same time, it enables the household to purchase labor-saving consumer goods and hire domestic help whose labor can substitute for that of a household member in household maintenance and caregiving.

Demographic factors also influence the length of a person's working day. Household composition, particularly the presence of young children, also plays an important role. Given the intensive nature of child caregiving, demand for care labor tends to be high. Young children aged 0–6 years place a higher demand on unpaid care work than do older children. On the other hand, the number of older children may reduce the unpaid work of other household members as they can provide assistance in doing household chores. Some, however, may depend on others' help in meeting their personal care and maintenance and other (cooked meals, clean clothes, help with homework, etc.) needs.

Finally, access to public infrastructures and social services, such as delivery of clean water, provisioning of public transport, and access to

health facilities may also affect the length of a person's working day. An often ignored benefit in standard cost-benefit analyses of these public investments and social services provisioning is a reduction in the unpaid work associated with gathering water, taking care of the sick, and shopping. Public infrastructure of roads and public transportation can also reduce the time spent in commuting to and from labor market work, if the workplace is outside the home.

4.1   *Multinomial Logit Model and Empirical Results*

The multinomial logit procedure is employed in order to estimate the effects of gender, household composition, wealth, and access to public infrastructures and basic services on the incidence of time-squeeze, taking into account the person's labor force status. Consequently, the focus is on the proportion of the labor force who fall into each of these categories.

The multinomial logit model in this case takes the form of:

$$\Pr(y_i = k) = \frac{\exp(\beta'_k X_i)}{\sum\limits_{j=1}^{5} \exp(\beta'_k X_i)} \tag{1}$$

where k is the labor force state, X is a vector of the independent variables, and β is the vector of parameters to be estimated. Since the regressors in the multinomial logit do not vary across the five alternatives, a normalization is required to identify the parameters – the coefficients corresponding to employed non-time-squeezed are set to zero. As a result of the normalization, the signs and magnitudes of the coefficient estimates may not bear any relation to the marginal effect of a variable change on the probability of being in a particular category (Greene 1998). Consequently, marginal effects (the partial derivatives of the probabilities with respect to the independent variables evaluated at the means) along with the associated standard errors are calculated.

We examine the determinants of the distribution of individuals across the following six categories:

1. Time-Squeezed, Employed (EMP_TSQUEEZED),
2. Time-Squeezed, Unemployed/Underemployed (UUN_TSQUEE-ZED),

3. Time-Squeezed, Not in Labor Force (NLF_TSQUEEZED)
4. Non-Time-Squeezed, Employed (EMP_NOTSQUEEZED),
5. Non-Time-Squeezed, Unemployed/Underemployed (UUN_NOTSQUEEZED), and
6. Non-Time-Squeezed, Not in Labor Force (NLF_NOTSQUEEZED).

For the purpose of this study, we focus our discussion below on those UUN who are time-squeezed (category 2). The individual-level independent variables in the model are the following: a) gender (woman); b) household wealth proxies, whether or not the household owns a refrigerator (fridge), and whether or not the household has domestic help (domestichelp); c) household composition, particularly the number of young children (child06) and school age (7–18 years) children, (child718); and d) access to electricity, public transport, health services, water dummy variables (electricity, transport, health, water). We also control for the following individual characteristics namely: e) lifecycle stage, represented by the age of the individual and age squared (age, agesq); f) marital status (married); g) educational attainment, represented by years of schooling (educ); and h) ethnicity (african, white, coloured, and indian). Household control variables such as headship type (single-head), and whether residing in rural area or not (rural) are taken into account. We also include some variables that control for any time-use errors related to being time conscious (wwatch) or not, and for any unobserved region effect (gautung). This region is considered to be the poorest region in South Africa. (See Appendix A for explanation of the variables used in the model estimations).

The multinomial model is expressed as:

Prob (State = 1, 2, 3, 4, 5, 6) = f [age, age squared, woman, woman × married, education, race, wealth, fridge, access to public transport, access to hospital and schools, single-headed, number of children 0–6 years, number of school-age children (7–18 years), rural dummy, watch dummy, gautung dummy]

where State = 1 if the person is category 1 (EMP_TSQUEEZED),

State = 2 if the person is category 2 (UUN_TSQUEEZED),

State = 3 if the person is category 3 (NLF_TSQUEEZED),

State = 4 if the person is category 4 (EMP_NOTSQUEEZED) (base model),

State = 5 if the person is category 5 (UUN_NOTSQUEEZED),

State = 6 if the person is category 6 (NLF_NOTSQUEEZED).

The regression results, along with the marginal effects calculated at the means of the variables, are given in Table 5 using the threshold of >50 work hours a week and in Table 6 using the threshold of >63 work hours.[12] Our analysis focuses on the determinants of the double-bind problem (state = category 2). A person is likely to be unemployed or underemployed and moderately time-squeezed if she is woman, and does not have access to safe water, is an unmarried head of household and colored. In fact, the marginal effect shows that being a woman raises the probability by 12 percentage points. The rest of the key explanatory variables are found to be not statistically significant. We discuss the reason in the next section.

We now turn to the characteristics of the person who is unemployed or underemployed and severely time-squeezed (>63 work hours per week). Table 6 shows that being female increases the likelihood of a double-bind by 4 percentage points. Being an unmarried head of household and colored also raises the probability of by over 3 percentage points. The marginal effects of wealth proxies, number of young children, and access to other basic services are found to be not statistically significant.

4.2   Censored Quantile Regressions and Results

As shown in Figs 1 and 2 (kernel density diagrams), the statistical distributions of the working hours of women and men have distinct patterns that deviate from a normal distribution. The heterogeneous variances observed between women and men's working hour distribution as well as for the distributions across the different labor force categories suggest that the multinomial logit models employed in the previous section give an incomplete picture of the relationships between the dependent and explanatory variables. Since there is not a single rate of change that characterizes changes in the probability distribution, a focus exclusively on changes in the means, as in the case of the multinomial logistic regression models, may underestimate or fail to distinguish real nonzero changes in heterogeneous distributions.

In order to better address this problem, we apply the quantile regression (QR) method since it allows one to study the effects of a covariate on the whole conditional distribution of the dependent variable, in this case a person's weekly work hours. QR analysis is basically an extension of the

Table 5 Multinomial logit model estimates: incidence of time-squeezed (working more than 50 hours per week), by labor force category[a].

Variable[b]	NLF_TSQUEEZED	EMP-TSQUEEZED	UUN-TSQUEEZED	UUN_NOTSQUEEZED	NLF_NOTSQUEEZED
Age	−0.000994	0.0253*	0.00373	−0.00714	−0.0353***
	(0.0942)	(0.0117)	(0.0059)	(0.0075)	(0.0052)
Agesq	0.0000166	−0.000245	−0.0000994	0.0000343	0.000447***
	(0.0000)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
woman (d)	0.0325***	−0.154***	0.121***	−0.0317	0.0416*
	(0.0098)	(0.0370)	(0.0243)	(0.0256)	(0.0196)
childo6h	0.00277	0.0157	−0.00974	−0.00806	0.00552
	(0.0059)	(0.0256)	(0.0124)	(0.0169)	(0.0121)
child18h	−0.000424	−0.00309	0.00436	−0.000588	−0.0158*
	(0.034)	(0.0149)	(0.0089)	(0.0100)	(0.0077)
singleheaded (d)	−0.00551	0.203***	−0.0644***	−0.0582**	−0.0595***
	(0.0101)	(0.0373)	(0.0173)	(0.0212)	(0.0128)
remit (d)	0.0432*	−0.521***	0.121***	0.307***	0.0820***
	(0.0177)	(0.0253)	(0.0324)	(0.0385)	(0.0239)
white (d)	0.0466	0.176**	0.0156	−0.143***	−0.031
	(0.0373)	(0.0575)	(0.0430)	(0.0184)	(0.0253)
indian (d)	0.0513	−0.00648	−0.0307	−0.135***	0.225**
	(0.0350)	(0.0795)	(0.0629)	(0.0175)	(0.0780)
coloured (d)	0.0254	0.134**	−0.0480*	−0.0950***	0.0167
	(0.0207)	(0.0442)	(0.0220)	(0.0175)	(0.0232)
Educ	0.000105	0.00822	0.00102	−0.00316	−0.00432
	(0.0010)	(0.0046)	(0.0025)	(0.0031)	(0.0025)
fridge (d)	−0.0195*	−0.038	−0.0131	0.026	0.0109
	(0.0089)	(0.0347)	(0.0182)	(0.0225)	(0.0172)

transport (d)	0.00016	-0.0805	0.03	0.0730**	0.0255
	(0.0124)	(0.0444)	(0.0222)	(0.0254)	(0.0252)
health (d)	0.000958	-0.0476	-0.0196	-0.0016	0.0339*
	(0.0079)	(0.0328)	(0.0198)	(0.0209)	(0.0160)
water (d)	-0.0204	0.042	-0.0483*	-0.00756	0.00511
	(0.0108)	(0.0373)	(0.0231)	(0.0238)	(0.0158)
domestichelp (d)	-0.0360***	-0.141	0.0827	0.0665	0.0207
	(0.0068)	(0.0851)	(0.1020)	(0.0686)	(0.0396)
wwatch (d)	0.00126	0.114***	-0.0221	-0.0896***	-0.00747
	(0.0081)	(0.0302)	(0.0159)	(0.0225)	(0.0171)
gautung (d)	-0.0066	-0.0353	0.0444	-0.00306	0.00549
	(0.0117)	(0.0440)	(0.0393)	(0.0240)	(0.0210)
rural (d)	0.00246	-0.0317	0.0211	-0.0639**	0.0526*
	(0.0095)	(0.0416)	(0.0225)	(0.0227)	(0.0234)
N	3650	3650	3650	3650	3650
pseudo-R square	0.175	0.175	0.175	0.175	0.175

[a]Marginal effects are reported here. Standard deviations are in brackets below.
[b](d) refers to dummy variables.
Note: ***, **, and * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Table 6 Multinomial logit model estimates: incidence of time-squeezed (working more than 63 hours per week), by labor force category[a].

Variables[b]	NLF-TSqueezed	EMP-TSqueezed	UUN-TSqueezed	UUN-Not Squeezed	NLF-Not Squeezed
Age	−0.000934	0.0250*	0.00608	−0.00946	−0.0366***
	(0.0012)	(0.0111)	(0.0041)	(0.0087)	(0.0061)
agesq	0.00000847	−0.000254	−0.000106	0.00004	0.000472***
	(0.0000)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
woman (d)	0.00572	−0.0652	0.0422**	0.0365	0.0730***
	(0.0066)	(0.0361)	(0.0158)	(0.0287)	(0.0215)
child06	−0.0000493	0.0343	−0.00195	−0.0154	0.00864
	(0.0032)	(0.0237)	(0.0075)	(0.0196)	(0.0134)
child718	0.00369*	−0.0128	−0.000648	0.00532	−0.0231**
	(0.0019)	(0.0144)	(0.0061)	(0.0119)	(0.0085)
singleheaded (d)	−0.00531	0.223***	−0.0358***	−0.0834**	−0.0565**
	(0.0053)	(0.0431)	(0.0078)	(0.0286)	(0.0173)
remit (d)	0.0123	−0.392***	0.0502*	0.365***	0.121***
	(0.0107)	(0.0222)	(0.0221)	(0.0378)	(0.0266)
white (d)	0.0279	0.134*	0.0431	−0.187***	−0.0178
	(0.0265)	(0.0559)	(0.0380)	(0.0213)	(0.0305)
indian (d)	0.00072	−0.079	0.0202	−0.182***	0.302***
	(0.0106)	(0.0635)	(0.0636)	(0.0202)	(0.0830)
coloured (d)	−0.00755*	0.078	−0.0344***	−0.113***	0.0558
	(0.0037)	(0.0492)	(0.0087)	(0.0243)	(0.0322)
educ	−0.000197	0.00538	−0.000356	−0.00148	−0.00403
	(0.0005)	(0.0044)	(0.0015)	(0.0037)	(0.0027)
fridge (d)	−0.00742	0.00957	−0.00474	0.0153	−0.00102
	(0.0051)	(0.0327)	(0.0106)	(0.0268)	(0.0198)
transport (d)	−0.00948	−0.114*	0.0123	0.0854*	0.0429
	(0.0106)	(0.0455)	(0.0141)	(0.0333)	(0.0263)

health (d)	-0.000794	-0.05	-0.0111	-0.00863	0.0374*
	(0.0055)	(0.0296)	(0.0126)	(0.0241)	(0.0173)
water (d)	-0.00964	-0.0132	-0.0185	-0.0329	-0.00675
	(0.0058)	(0.0348)	(0.0112)	(0.0293)	(0.0194)
domestichelp (d)	-0.0137***	-0.132*	0.0631	0.052	-0.00258
	(0.0036)	(0.0573)	(0.0650)	(0.0740)	(0.0373)
wwatch (d)	0.00441	0.0686*	-0.0139	-0.0942***	-0.0119
	(0.0052)	(0.0284)	(0.0102)	(0.0251)	(0.0184)
gautung (d)	-0.00356	-0.00686	0.0333	0.00112	0.00118
	(0.0057)	(0.0380)	(0.0292)	(0.0276)	(0.0236)
rural (d)	-0.00187	-0.0882*	0.019	-0.0614*	0.0530*
	(0.0040)	(0.0370)	(0.0161)	(0.0273)	(0.0261)
N	3650	3650	3650	3650	3650
pseudo-R square	0.163	0.163	0.163	0.163	0.163

[a]The base category for mlogit is EMP-NOTSQUEEZED. Marginal effects are reported here. Standard deviations are in brackets below.
Note: ***, **, and * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

standard least square estimation of conditional mean models. It yields a group of models for conditional quantile functions, of which the median regression estimator or Least Absolute Deviation (LAD) estimator is a special case that minimizes a sum of absolute errors (Koenker and Hallock 2001). It has been particularly useful in the analysis of wage and earnings structures (Buchinsky 1994; Morillo 2000; Poterba and Rueben 1994). QR provides a richer characterization of the data, allowing us to consider the impact of a covariate on the entire distribution of the dependent variable, y, and not merely on its conditional mean.

The method is relevant to our study since gender difference in work burden and time use entail much more than the fact that women, on average, work longer hours than men. We, thus, examine the effects of wealth, household composition, gender, employment status, and access to public infrastructures and services on the different points of the total work hour distribution. Two models are considered: a) a simple, gender-disaggregated model and b) a three-group model, fitted for specific labor force groups namely: EMP, UUN, and NLF. Although more QRs can potentially be more informative, the estimation in this study is made only to five quantiles: 0.10, 0.25, 0.50, 0.75, and 0.90. The dependent variable in all regressions is the estimated weekly work hours performed by the individual. Time-squeeze in this analysis refers to those individuals whose total work hours are in the 75th (*moderately time-squeezed*) and 90th (*severely time-squeezed*) quantiles; it changes in a different manner for women and for men, as well as for the different labor force groups.

Since our dependent variable data is censored at zero, we make use of the censored QR model as proposed by Powell (1986, p. 194). We estimate the following model (Buchinsky 1994): Let $y_i^* = x_i'\beta_\theta + u_{\theta i}$ with $\text{Quant}_\theta(u_{\theta i}|x_i) = 0$, and let $y_i = y_i^*$ if $y_i^* \leq y^0$ and $y_i = y^0$ if $y_i^* \leq y^0$, where y^0 is the censoring value. Then the conditional quantile of y, given by x, is given by $\text{Quant}_\theta(y|x) = \min(y^0, x'\beta_\theta)$. A consistent estimator for β_θ is obtained as a solution to

$$\min_\beta \frac{1}{N} \sum_{i=1}^{N} \rho_\theta\left(y_i - \min\left(y^0, x'_i\beta_\theta\right)\right) \qquad (2)$$

where $\rho_\theta(\lambda) = I\left(\lambda 0\right) - I(\lambda \leq 0)$. In estimating β_θ only the observations for which $x'_i\hat{\beta}_\theta < y^0$ are used.

In estimating the asymptotic covariance matrix for $\hat{\beta}_\theta$, in the censored QR model, we employ the design matrix bootstrap method (DMB). This

method provides valid estimates for the asymptotic covariance matrix of the quantile estimates even if one considers the regression estimates only as linear predictors. Our analysis employs a reduced-form equation and emphasizes mainly the effects of wealth proxies, household composition, and access to public infrastructures and services on the conditional quantile of work hours. In the case of model 1 that examines gender groups, we take into account the labor force status. We take gender into account in model 2, which examines labor force categories. The results, along with the standard errors, are reported in Tables 7 and 8, respectively.

Several results are apparent from Table 7. First, women with young children aged 0–6 years perform more work at all quantiles, but this is not the case for men. In fact, men with young children in the 90th quantile significantly perform less work. The effect of young children on women is highest for those in the lower quantiles and the highest (90th) quantiles. On the other hand, women experience less work if there are older children (aged 7–18 years) in all quantiles, especially in the lower and median quantiles. But the older children's presence increases the work hours of men at the lowest and highest quantiles. These results suggest the significant demand of child caregiving on women's time work, but not for men. Older children provide assistance in household work and help reduce the work burden of women but increase the income demands on men increasing their employment hours at the top and bottom of the distribution.

Second, not surprisingly we observe that total work hours increase if one is employed compared to being NLF (base dummy variable), in all quantiles for both women and men. However, the work hours also increase if one is unemployed or underemployed compared to being NLF in all quantiles for women; this, however, is true only for men at the 90th quantile. This pattern of results indicates the incidence of being time-squeezed and unemployed or underemployed is greater for women.

Third, the impact of wealth, as proxied by having a domestic help is significant for women at all quantiles; its effect in terms of the reduction in total work hours increases the more a woman is time-squeezed. On the other hand, the effect of having a refrigerator is more nuanced: it reduces the work hours only of the women with low work hours (25th and 50th quantiles) and those who are severely time-squeezed (90th quantile). The effect of wealth (i.e., having a fridge and having a domestic help) on men's work hours is less compared to the impact on women's and it is significant only for men in higher quantiles (75th and 90th).

Table 7 Censored quantile regression estimates, by sex

Quantiles	Women					Men				
	0.1	0.25	0.5	0.75	0.9	0.1	0.25	0.5	0.75	0.9
Age	1.525**	2.698***	2.245***	1.835***	2.608***	-0.902*	-0.976**	-0.292	-0.0354	-0.277***
	(0.5400)	(0.4630)	(0.2540)	(0.1390)	(0.2960)	(0.3710)	(0.3430)	(0.2350)	(0.3310)	(0.0761)
agesq	-0.0185**	-0.0337***	-0.0280***	-0.0230***	-0.0316***	0.00959*	0.0115**	0.00264	0.00102	0.00118
	(0.0068)	(0.0061)	(0.0033)	(0.0019)	(0.0040)	(0.0046)	(0.0042)	(0.0029)	(0.0040)	(0.0009)
EMP	19.11***	22.72***	20.81***	20.03***	20.32***	36.70***	46.35***	42.67***	32.14***	23.55***
	(1.7500)	(1.6570)	(0.8750)	(0.4840)	(0.9300)	(2.4060)	(1.9700)	(1.3200)	(2.0080)	(0.2860)
UUN	7.612**	5.859***	5.908**	5.349***	4.657***	-0.0625	1.413	2.322	3.179	5.863***
	(1.9570)	(1.7510)	(0.9250)	(0.5330)	(1.1460)	(2.5470)	(2.3060)	(1.5310)	(2.4430)	(0.3790)
Married	6.248***	3.449**	1.630*	1.467***	-0.258	-2.358	1.774	2.204**	1.544	3.861***
	(1.2740)	(1.1820)	(0.6140)	(0.3320)	(0.7220)	(1.2870)	(1.1570)	(0.8230)	(1.2430)	(0.2770)
child06	2.395*	3.648***	2.228***	1.914***	2.856***	-1.653	-1.212	0.123	-1.027	-0.381*
	(1.1890)	(0.9470)	(0.4950)	(0.2640)	(0.5870)	(0.9250)	(0.8430)	(0.5570)	(0.7760)	(0.1640)
child718	-2.231*	-3.014***	-2.388***	-0.659***	-0.689*	2.345***	0.695	0.239	1.396**	1.291***
	(0.6810)	(0.5990)	(0.3100)	(0.1650)	(0.3250)	(0.5120)	(0.4560)	(0.3330)	(0.5180)	(0.1110)
singlehead	-2.174	-2.093	-1.657	1.432**	-0.987	11.84***	10.42***	8.407***	13.54***	11.45***
	(2.1580)	(1.8500)	(0.9650)	(0.5260)	(1.1570)	(1.6270)	(1.3430)	(0.8840)	(1.2550)	(0.2600)
Remit	0.436	-2.94	-2.537*	-1.617***	-3.742***	-4.096	2.271	1.306	2.858	-1.572***
	(1.5760)	(1.5280)	(0.7800)	(0.4480)	(1.0400)	(2.2070)	(2.3780)	(1.4040)	(2.2740)	(0.3550)
White	9.884***	7.184***	5.527***	4.536***	0.545	18.29***	7.633***	2.886*	8.986***	5.507***
	(2.2130)	(2.3690)	(1.1380)	(0.7120)	(1.6970)	(1.8070)	(1.7460)	(1.2580)	(1.9200)	(0.2660)
Indian	-8.233**	3.206	-1.197	-4.500***	-4.567**	16.82***	8.775***	5.505**	16.27***	4.230**
	(2.6070)	(3.4320)	(1.6490)	(1.0220)	(1.5040)	(2.2260)	(2.3860)	(1.9570)	(3.7990)	(0.2450)

Coloured	6.981*** (1.8110)	7.735*** (1.6370)	4.791*** (0.8970)	3.409*** (0.5130)	2.084 (1.3160)	12.07*** (1.5450)	3.993** (1.2820)	-1.791 (1.1880)	-0.15 (1.4810)	-1.088** (0.3500)
Educ	0.430* (0.2170)	0.632*** (0.1800)	0.399*** (0.0987)	0.146** (0.0513)	0.372** (0.1160)	0.502** (0.1680)	0.188 (0.1520)	0.247* (0.1000)	0.00895 (0.1340)	0.151*** (0.0231)
Fridge	-0.072 (1.4160)	-1.325 (1.3120)	-3.549*** (0.7130)	-2.923*** (0.3990)	-4.169*** (0.7170)	-0.528 (1.1420)	-2.129* (1.0720)	-1.554* (0.7590)	-1.477 (0.9850)	-2.455*** (0.2070)
Transport	0.504 (2.0580)	-0.88 (1.8270)	1.341 (0.9540)	-1.702** (0.5430)	0.572 (0.9640)	-4.908** (1.5610)	-5.327*** (1.4860)	-4.586*** (1.2430)	-5.968** (2.2270)	-7.749*** (0.1720)
Health	-4.682*** (1.3630)	-5.888*** (1.1660)	-3.522*** (0.6010)	-1.524*** (0.3300)	-0.677 (0.7110)	-1.995 (1.1470)	0.0572 (1.0000)	0.745 (0.7030)	-0.054 (0.9750)	0.405* (0.1660)
Water	-5.119*** (1.3660)	-2.891* (1.2560)	-2.773*** (0.7380)	-3.893*** (0.4050)	-2.216** (0.7820)	5.416*** (1.3550)	-1.066 (1.1860)	-4.707*** (0.7760)	-3.237** (1.1080)	-1.619*** (0.1870)
domestichelp	5.598* (2.4310)	1.828 (3.5410)	2.014 (1.3460)	-1.780* (0.7300)	-7.096*** (1.5340)	-7.847** (2.5340)	-5.878** (2.1430)	-6.559*** (1.4510)	-13.16*** (1.8810)	-15.71*** (0.3190)
Wwatch	3.214* (1.4520)	3.735** (1.1740)	3.857*** (0.6330)	2.687*** (0.3410)	0.442 (0.6690)	-3.290** (1.1060)	-1.614 (1.0030)	-1.874** (0.6880)	1.1 (0.9500)	0.305 (0.1640)
gautung	5.694*** (1.6330)	6.541*** (1.5280)	2.735*** (0.7650)	0.354 (0.4370)	-0.328 (1.1170)	1.281 (1.2120)	-1.35 (1.2110)	-1.509 (0.9130)	4.087** (1.4910)	0.732*** (0.1630)
rural	6.647*** (1.4830)	7.598*** (1.3640)	3.195*** (0.8000)	-0.685 (0.4610)	-0.83 (0.9590)	8.106*** (1.6420)	1.57 (1.4580)	-2.857** (0.9580)	-1.099 (1.3800)	-2.941*** (0.2700)
N	1891	1896	1900	1902	1902	1501	1630	1636	1634	1637

Note: ***, **, and * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Table 8 Censored quantile regression estimates, by labor force category

Quantiles	EMP					UUN					NLF				
	0.1	0.25	0.5	0.75	0.9	0.1	0.25	0.5	0.75	0.9	0.1	0.25	0.5	0.75	0.9
Age	-1.908*	-0.0958	0.650*	0.402	1.052***	2.019***	0.517*	-0.118***	1.420***	2.728***	2.075***	3.067***	2.943***	2.582***	0.918*
	(0.8610)	(0.4700)	(0.2900)	(0.3390)	(0.2660)	(0.1900)	(0.1820)	(0.0000)	(0.0860)	(0.3970)	(0.3010)	(0.2930)	(0.4170)	(0.3240)	(0.3590)
Agesq	0.0222*	0.000474	-0.00796*	-0.0028	-0.0110***	-0.0210***	-0.00520*	0.000384***	-0.0192***	-0.0355***	-0.0263***	-0.0378***	-0.0383***	-0.0316***	-0.0126***
	(0.0106)	(0.0059)	(0.0036)	(0.0043)	(0.0033)	(0.0025)	(0.0025)	(0.0000)	(0.0012)	(0.0052)	(0.0038)	(0.0036)	(0.0053)	(0.0041)	(0.0043)
woman	-4.135	-0.583	1.147	2.725*	0.622	23.53***	28.04***	25.53***	14.96***	3.298*	19.38***	19.89***	19.65***	10.17***	0.468
	(2.6520)	(1.5980)	(0.8590)	(1.0990)	(1.0770)	(0.6110)	(0.6330)	(0.0000)	(0.3060)	(1.2320)	(1.6790)	(1.6890)	(2.0020)	(1.4810)	(1.8280)
Child06	0.823	0.444	1.856***	1.550*	0.325	1.472**	-3.216***	-0.825***	3.849***	4.334***	-0.0986	4.439***	-1.977	-0.377	2.384
	(1.6850)	(1.1200)	(0.5400)	(0.7640)	(0.5930)	(0.5380)	(0.3670)	(0.0000)	(0.2030)	(0.7840)	(0.8540)	(0.7390)	(1.1530)	(0.9930)	(1.6350)
Child718	-0.848	-0.854	-1.010***	-0.61	0.21	-2.628***	-0.830***	0.0410***	-0.893***	-0.648	-0.292	-0.328	3.072***	2.173**	1.540*
	(0.9530)	(0.6400)	(0.3300)	(0.4510)	(0.3790)	(0.2390)	(0.2380)	(0.0000)	(0.1240)	(0.7280)	(0.6170)	(0.5130)	(0.7070)	(0.6780)	(0.7300)
singlehead	5.13	5.586**	4.762***	7.152***	8.146***	-8.036***	-0.552	-6.577***	-3.924***	-7.736***	5.571***	3.143	6.668**	2.253	4.287*
	(2.7840)	(1.7980)	(0.8760)	(1.1890)	(1.3040)	(1.2030)	(0.7360)	(0.0000)	(0.3230)	(1.8600)	(2.0010)	(1.7250)	(2.5600)	(1.3380)	(1.8790)
remit	-8.716*	-12.26***	-7.909***	-4.011	-2.688	5.039***	0.21	1.672***	-1.235***	0.752	-4.941***	-3.402***	2.421	-5.444***	-2.978*
	(4.3130)	(3.2000)	(1.7920)	(2.1180)	(1.9640)	(0.5300)	(0.4560)	(0.0000)	(0.2300)	(1.1480)	(1.0850)	(0.9830)	(1.2950)	(1.1330)	(1.2460)
white	15.74***	4.164	0.696	3.325	0.063	3.466**	19.90***	24.54***	20.12***	20.65***	21.87***	12.75***	16.00***	30.06***	22.29***
	(3.3270)	(2.1700)	(1.1700)	(1.7570)	(1.2260)	(1.0710)	(1.0360)	(0.0000)	(1.1240)	(1.9430)	(2.1830)	(2.1160)	(2.8310)	(1.9320)	(3.7550)
indian	16.43***	6.032*	-1.024	-0.559	-5.168*	-6.332***	1.318	52.79***	33.66***	14.35***	12.73***	9.965***	0.348	-1.964	-13.68***
	(3.7720)	(2.7370)	(1.6810)	(2.3620)	(2.3570)	(0.8390)	(1.8890)	(0.0000)	(0.4420)	(1.6640)	(2.2180)	(1.7500)	(2.4290)	(2.4470)	(2.8660)
coloured	8.386**	3.625	1.988	2.441	1.273	-2.168*	4.353***	2.269***	-3.766***	-8.377***	9.908***	4.346**	-2.88	-0.276	-3.455*
	(3.0030)	(2.6050)	(1.0850)	(1.4330)	(1.6810)	(0.8700)	(0.8350)	(0.0000)	(0.3080)	(1.4990)	(1.3240)	(1.3800)	(2.0280)	(1.9190)	(1.5490)
educ	0.356	0.0445	0.193	0.213	0.570***	1.209***	0.609***	0.0148***	0.103*	-0.450**	0.960***	0.400*	0.308	0.156	0.0844
	(0.3560)	(0.2030)	(0.1040)	(0.1310)	(0.1330)	(0.1060)	(0.0660)	(0.0000)	(0.0356)	(0.1390)	(0.1620)	(0.1650)	(0.1950)	(0.1500)	(0.1910)

fridge	0.622	1.057	0.293	-1.9	-1.109	5.149***	-1.751***	-4.806***	-2.545***	-6.436***	-3.886**	0.952	-3.945**	-1.089	-4.064**
	(2.4280)	(1.5010)	(0.7920)	(1.0620)	(1.0780)	(0.4790)	(0.5250)	(0.0000)	(0.2330)	(0.9360)	(1.4150)	(1.2320)	(1.4250)	(1.1730)	(1.3010)
transport	2.449	-2.145	-1.759	-2.193	-6.505***	-6.705***	-2.385***	-1.468***	-1.483**	3.094**	-13.38***	-10.25***	-1.739	-0.162	5.620*
	(3.1490)	(1.8510)	(1.1320)	(1.9050)	(0.9970)	(0.8580)	(0.6970)	(0.0000)	(0.4710)	(1.1090)	(2.1130)	(1.5650)	(1.9570)	(1.5150)	(2.3270)
Health	-6.427**	-2.472	-3.027***	-1.601	-0.931	0.73	-2.846***	0.837***	3.405***	-1.029	1.814	-3.850***	-2.604	-2.763*	-7.536***
	(2.1260)	(1.3740)	(0.6930)	(0.9170)	(0.8730)	(0.4700)	(0.4870)	(0.0000)	(0.2200)	(1.0790)	(1.0700)	(1.0930)	(1.3840)	(1.1520)	(1.4100)
water	-3.357	-4.076**	-4.352***	-4.063***	-1.331	-4.775***	-2.245***	-4.508***	-4.636***	-3.968***	-0.00348	-6.297***	-9.042***	-10.49***	-8.377***
	(2.5850)	(1.5420)	(0.8180)	(1.1910)	(1.1000)	(0.4970)	(0.4620)	(0.0000)	(0.2180)	(0.9510)	(1.4080)	(1.2220)	(1.5940)	(1.4840)	(1.4370)
domestichelp	-1.516	-1.3	-0.943	-6.421***	-6.032***	4.726***	-1.52	-1.555***	-5.612***	-16.89***	-15.19***	-24.15***	-37.37***	-12.65***	-19.05***
	(4.0590)	(2.5360)	(1.3550)	(1.8340)	(1.5730)	(1.0270)	(1.1790)	(0.0000)	(1.0590)	(1.2710)	(2.8080)	(2.1110)	(2.9370)	(3.2200)	(2.8960)
wwatch	-1.313	0.399	0.952	-0.259	2.510**	2.292***	4.301***	1.671***	-0.839***	-1.111	-3.546***	-0.535	3.152*	1.601	1.364
	(2.0820)	(1.2940)	(0.7030)	(0.9310)	(0.9250)	(0.6020)	(0.4740)	(0.0000)	(0.2070)	(0.9570)	(0.9070)	(0.9850)	(1.2590)	(1.0260)	(1.1470)
gautung	-0.904	-0.174	0.397	1.913	1.473	2.872***	7.247***	1.082***	-0.973***	-1.916	-9.260***	1.281	-2.022	3.047	-3.233
	(2.4360)	(1.8880)	(0.9290)	(1.2010)	(1.4440)	(0.5330)	(0.5990)	(0.0000)	(0.2530)	(1.1380)	(1.7760)	(1.3390)	(1.8500)	(1.8320)	(1.7700)
rural	4.893	-1.239	-3.412***	-1.569	-1.511	12.67***	14.79***	4.289***	3.737***	0.838	11.40***	3.529**	-7.280***	-5.610***	-13.59***
	(2.8660)	(1.7630)	(0.9480)	(1.2940)	(1.2440)	(0.5750)	(0.5560)	(0.0000)	(0.2860)	(1.2850)	(1.1430)	(1.1680)	(1.5640)	(1.4720)	(1.4600)
N	2302	2338	2335	2318	2267	715	819	831	837	840	398	428	428	419	426

Note: ***, **, and * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Fourth, access to transportation has a significant and negative effect on women's work hours; the higher the quantile or more time-squeezed the person, the larger the reduction in the quantile. The negative effect is not significant for men, however, except for the moderately time-squeezed (75th quantile). It is clear from the results that access to safe water delivery system reduces the workload of women and men at all quantiles.

Model 2 is estimated for each of the labor force groups at the same five quantiles as in Model 1. The estimated quantiles are reported in Table 8 along with their standard errors. Being female does not affect the workload of those who are employed. However, it increases the work hours of UUN, as well as those not in the labor force (NLF) at all quantiles; the magnitude of this effect declines at higher quantiles. This indicates that the gender gap in work hours are largest at the lower tail end of the distribution, and it tends to diminish among individuals who are moderately time-squeezed (75th quantile) and severely time-squeezed (90th quantile). The positive effect of gender on work hours is magnified among UUN and NLF when the woman is married as indicated by the interaction variable, especially in the lower (10th and 25th) and highest (90th) quantiles. These results support our earlier finding that women are more likely to face the dual problem of being unemployed or underemployed and time-squeezed.

The results in Table 8 show that having young children significantly increases the work hours of UUN particularly of those who are moderately time-squeezed (75th quantile) and the severely time-squeezed (90th quantile). Interestingly, it has the opposite effect for the UUN with median and below median (25th) quantiles. This pattern of results suggests that child caregiving demands contributes to the likelihood of being both time-squeezed and unemployed or underemployed. The negative effect of older children on the workload is statistically significant mainly among the NLF at higher quantiles; the magnitude is small among the UUN and for those in the 75th quantile and below. Third, the coefficients of the refrigerator wealth proxy are found to be statistically significant and negative among UUN and NLF at higher quantiles. Surprisingly, having a refrigerator increases the work hours of the UUN at the lowest tail of the distribution. One plausible explanation is that certain household tasks are easier or less tedious to perform with modern convenience and an UUN person is more likely to perform them.

The negative effect of domestic help is largest among the NLF at all quantiles, and among the moderately and severely time-squeezed (75th and 90th quantiles) UUN and EMP individuals. These results suggest that access to labor substitutes or time-saving durables like a refrigerator can lower the incidence of being time-squeezed, regardless of the labor force status.

Third, among the UUN, access to safe water and public transportation has a negative effect on the workload at nearly all quantiles, except for the severely time-squeezed UUN. Interestingly, access to public transport has a positive impact on the latter. This may be explained by the increased incentive provided for the unemployed or underemployed individual to seek employment outside the village or neighborhood. Among those employed and NLF, the effects of access to public infrastructures and social services are mixed. While access to public transportation only reduce the work hours of EMP individuals who are severely time-squeezed, access to health care benefits those EMP who are in the lower tail of the distribution. Access to safe water, on the other hand, tends to reduce the work hours of those in the middle quantiles (0.25, 0.50, and 0.75). NLF individuals do less work if they have access to safe water at higher quantiles (0.25 and higher), if they have access to a health facility at low and high quantiles, and if they have access to public transport at lower quantiles.

To summarize, the censored QR estimates presented in Tables 7 and 8 indicate that women are more likely to be time-squeezed, including those who are UUN. Our results also indicate that demands for child caregiving make it difficult for UUN women to seek employment as shown in Table 3, while at the same time increases their total work hours. Access to wealth in terms of being able to obtain modern conveniences such as a refrigerator and being able to afford to hire domestic help reduces the workload, at all quantiles. The pattern of changes brought about by access to public infrastructures and social services in the 0.90–0.10 spreads differs significantly across the various labor force groups. The results we obtained for the different types of basic services such as transport, health facility, and safe water are not however generally consistent within the labor group model. This implies that our model needs to allow for interactions among the covariates and also require a more flexible functional form for these factors. The labor force group model presented in this study is unable to capture the changes in the total workload in general across these

different labor force groups. This, however, is beyond the scope of this chapter.

5   CONCLUDING REMARKS

In this study, we explore the manner in which South African women and men in various labor force categories make use of their time. The study also examines the influence that pertinent economic, social, and demographic factors may have on the length of a person's working hours and the incidence of being time-squeezed. We applied the notion of time-squeeze, that is, those individuals who lack of enough time for rest and leisure, and analyze its coexistence with unemployment and underemployment among economically active respondents in the 2000 South Africa National TUS. Multinomial logit and censored QR models were estimated to examine the gendered impact of pertinent economic, social, and demographic factors on the probability of a person facing a double-bind, that is, being unemployed or underemployed and time-squeezed. The finding showed that women are more likely to experience being unemployed or underemployed and time-squeezed than men, a result of the interplay of gender, lack of (wealth) economic means to relieve them of their unpaid work, and little or no access to public infrastructures and basic services such as safe water, health centers, and public transportation. The importance of these findings lies in the fact that time-use data are now receiving greater attention among policymakers and researchers concerned with measurement and analysis of policy impacts on unpaid work and women's labor force participation as well as with the formulation of gender-sensitive economic and social policies. Our study indicates that the conundrum that South African women in particular face requires a coordinated set of gender-sensitive labor and care policies in order to break the cycle of poverty. It highlights the urgency for policymakers to make job creation and the promotion of decent employment a priority. These policies, however, are likely to be ineffective in addressing gender inequality and women may be unable to avail themselves of decent employment if the long hours of unpaid work that they perform are not reduced by means a comprehensive set of economic and care policies that support the development of a care sector providing affordable care services especially to low-income households.

APPENDIX A

Definition of variables

Variable	Definition
Age	Age of the respondent
Woman	A dummy variable. A value of 1 is given if the respondent is a woman, 0 otherwise.
In labor force	1) If the respondent performed any activities in the last seven days: a) business for yourself; b) help/unpaid in family business; c) do any work on a household plot; d) catch any fish; e) do domestic work for another household for payment; f) do any other work paid: or 2) Did not work in the ref week, but is available to start work in a week: or 3) The respondent has a job to return to, or is did not look for work because they are satisfied with current job.
Not in labor force (NLF)	If respondent is not "in labor force" defined above. This is the base dummy in the censored quantile regressions.
Unemployed (U)	Did not work in the reference week, but is available to start work in a week
Underemployed (UN)	1) If they worked in the ref week, or they have a job that they will return to; and 2) They looked for work in the last 4 weeks, or they are available to start work in a week; and 3) They worked less than 4.4 hours in the day of the time-use survey (approx. 22 hours a week)
Employed (EMP)	They include full-time and part-time workers.
Education (educ)	Highest education attainment in years.
Married	Dummy variable. 1 if person is married, or living together as husband and wife
Children 0–6 years (child06)	Number of children under 7 years old living in the household.
Children 7–18 years (child718)	Number of school-aged children (7–18 years old) living in the household.
Single-headed (singlehead)	Dummy variable. 1 if there is no 2nd respondent, and no other eligible person (aged over 10 years old) in the household.
Remit	Dummy variable. 1 if household receives remittance as main source of household income. 0 otherwise.
African	Dummy variable. 1 if respondent is African.
Coloured	Dummy variable. 1 if respondent is Coloured.
Indian	Dummy variable. 1 if respondent is Indian.

(continued)

Variable	Definition
Rural	Dummy variable. 1 if dwelling is in a rural area. Excludes commercial farming.
Access to Public Transport (transport)	Dummy variable. 1 if the dwelling is within 30 minutes (2 km) of a bus, train, or a minibus.
Access to Health services (health)	Dummy variable. 1 if the dwelling is within 30 minutes (2 km) of a clinic or hospital
Access to Water (water)	Dummy variable. 1 if the piped water in dwelling, on site, or in yard is household's main source of water.
Gautung Province	Dummy variable. 1 if the respondent lives in Gautung, 0 if elsewhere.
Fridge	Dummy variable. 1 if respondent has a fridge, 0 otherwise.

NOTES

1. See description of sampling methodology in Statistics South Africa (2001) which ensure that the sample is representative of the country's population.
2. This is to ensure that any seasonal variation is captured in the survey. Two respondents, aged 10 years or above, were selected in each sampled household.
3. The SSA used two different methods of assigning minutes to multiple activities. When there were two or three activities in a half hour that were performed sequentially, then each activity was assigned 10 or 15 minutes. However, when two or more activities were performed simultaneously, then it assigned 30 minutes to each of the three activities in order to show a more accurate duration of a particular activity.
4. The SNA considers the last three activity categories to be "non-productive" activities. These activities fail what is referred to as the "third person test" in that these activities cannot be performed for a person by someone else.
5. In our calculation of the unemployment, NLF, and employment rates of the 2000 TUS sample, we make use of the person-weight variable in the TUS data that is calculated by SSA. This is to adjust the raw survey data for under-enumeration and to align the survey estimates with independent population estimates (Budlender et al. 2001, pp. 112–113). TUS-based unweighted estimates of unemployment, employment, and NLF are available upon request.
6. The 2000 LFS estimates of persons in the different labor force categories are based on a number of hurdle questions. The first question asked is whether the respondent performed any work in the last seven days in Q2.1. The definition of work includes whether the respondent runs a business, work for a wage employment, as a domestic worker, grow vegetables on a family

farm, catch fish, perform any construction or repair work, or beg for money or food. A positive response to any one of the above questions classifies the respondent as employed as shown in Fig. 1. A "No" response to Q2.1 is then followed by a set of questions that explore whether the individual is economically active. In order to be classified as unemployed using the broad definition of unemployment, those without work have to be willing to accept work within a week in Q3.7. In contrast, those classified as unemployed using the official (or narrow) definition, refers to individuals without work, are available to accept work in the next week, and have taken action during the previous four weeks to seek employment. Under this official definition of unemployment, those that have not actively sought employment because they have given up hope in finding work are classified as not-economically active, whereas these "discouraged job seekers" are classified as unemployed under the expanded definition of unemployment.

7. South Africa does not have an official definition of paid part-time work. SSA makes use of different working thresholds in different surveys (Posel and Muller 2008). In our study, we define paid part-time work as less than 22 hours per week. This is based on the South African labor legislation that specifies part-time work for the service sector.

8. In comparison, the estimated percent of women and men aged 15–64 years old in the October 2000 LFS sample, who are NLF are 36.2% and 27.5%, respectively.

9. These are significantly lower than the unemployment rate estimates of 41.1% and 30.8% in the October 2000 LFS.

10. These estimates using the TUS data are different from those reported using the LFS data. This is due to the difference in sampling frames and methodologies between the two surveys. The LFS is a household survey that collects data on all eligible members of a much larger sample of randomly selected 30,000 households and is primarily aimed at deriving estimates of employment and unemployment. The TUS on the other hand covers a smaller number of households and selects two people from the randomly selected households, regardless of the household size. If larger households are more likely to have unemployed people, or those NLF, then selecting two members regardless of household size would create a downward bias in the number of unemployed. Moreover, the TUS data are weighted differently than that of the LFS. In particular, the TUS data are weighted "to reflect the 25,000 odd individuals aged 10 years and above whom one would have expected to find in 10,800 dwelling units rather than the number of people of this age in the full population." (Budlender et al. 2001, p. 18).

11. Results available upon request from authors.

12. Note that category (4), which is the base, is not included in Tables 5 and 6.

REFERENCES

Anand, Rahul, Siddharth Kothari, and Naresh Kumar (2016). South Africa: labor market dynamics and inequality. International Monetary Fund Working Paper 16/137. Retrieved September 11, 2016, from https://www.imf.org/external/pubs/cat/longres.aspx?sk=44078.0

Antonopoulos, Rania, and Emel Memis (2010). Time and poverty from a developing country perspective. Levy Institute Working Paper 600. Retrieved from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1616671

Bardasi, Elena, and Quentin Wodon (2006a). Measuring time poverty and analyzing its determinants: Concepts and application to Guinea. In Mark Blackden and Quentin Wodon (Eds.), *Gender, Time Use, and Poverty in sub-Saharan Africa* (pp. 75–95). World Bank Working Paper. Retrieved from https://mpra.ub.uni-muenchen.de/11082/.

Bardasi, Elena, and Quentin Wodon (2006b). Poverty reduction from full employment: A time use approach. In Mark Blackden and Quentin Wodon (Eds.), *Gender, Time Use, and Poverty in sub-Saharan Africa* (pp. 119–132). World Bank Working Paper. Retrieved from https://mpra.ub.uni-muenchen.de/11084/.

Bardasi, Elena, and Quentin Wodon (2010). Working long hours and having no choice: time poverty in Guinea. *Feminist Economics*, 16(3), 45–78.

Buchinsky, Moshe (1994). Changes in the U.S. wage structure 1963–1987: Application of quantile regression. *Econometrica*, 62(2), 405–458. http://dx.doi.org/10.2307/2951618.

Budlender, Debbie, Ntebaleng Chobokoane, and Yandiswa Mpetsheni (2001). *A Survey of Time Use: How South African Women and Men Spend Their Time*. Pretoria: Statistics South Africa.

Burchardt, Tania (2008). Time and income poverty. Retrieved from http://eprints.lse.ac.uk/28341/1/CASEreport57.pdf

Floro, Maria S., and Anant Pichetpongsa (2010). Gender, work intensity, and well-being of Thai home-based workers. *Feminist Economics*, 16(3), 5–44. http://dx.doi.org/10.1080/13545701.2010.499657.

Floro, Maria S, and Hitomi Komatsu. (2011). Gender and Work in South Africa: What Can Time-Use Data Reveal?. *Feminist Economics*, 17(4): 33–66.

Goodin, Robert E., James M. Rice, Michael Bittman, and Peter Saunders (2005). The time-pressure illusion: discretionary time vs. free time. *Social Indicators Research*, 73(1), 43–70. http://dx.doi.org/10.1007/s11205-004-4642-9.

Goodin, Robert E., James M. Rice, Antti Parpo, and Lina Eriksson (2008). *Discretionary Time: A New Measure of Freedom*. Cambridge and New York: Cambridge University Press. Retrieved from http://search.proquest.com/econlit/docview/56755486/E39B51C151394F4CPQ/1.

Greene, William H. (1998). *Econometric Analysis*. 3 Sub edition. Upper Saddle River, NJ: Prentice Hall College Div.

Harvey, Andrew S., and Arun K Mukhopadhyay (2007). When twenty-four hours is not enough: time poverty of working parents. *Social Indicators Research*, 82 (1), 57–77. http://dx.doi.org/10.1007/s11205-006-9002-5.

Hochschild, Arlie R., and Anne Machung (1989). *The Second Shift: Working Parents and the Revolution at Home.* New York, NY: Viking.

Hunt, Kate, and Ellen Annandale (1993). Just the job? Is the relationship between health and domestic and paid work gender specific?. *Sociology of Health & Illness*, 15(5), 632–664.

Kalenkoski, Charlene M., Karen S. Hamrick, and Margaret Andrews (2011). Time poverty thresholds and rates for the US population. *Social Indicators Research*, 104(1), 129–155. http://dx.doi.org/10.1007/s11205-010-9732-2.

Kizilirmak, Burca, and Emel Memis (2009). The unequal burden of poverty on time use. Levy Institute Working Paper 572. Retrieved from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1452851

Koenker, Roger, and Kevin Hallock (2001). Quantile regression. *Journal of Economic Perspectives*, 15(4), 143–156.

Lawson, David (2007). A gendered analysis of time poverty – The importance of infrastructure. Global Poverty Research Group Working Paper Series-078. Retrieved from http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.604.452&rep=rep1&type=pdf

Lawson, David (2008). Infrastructure and Time Poverty in Lesotho. *South African Journal of Economics*, 76, 77–88. http://dx.doi.org/10.1111/j.1813-6982.2008.00163.x

MacDonald, Martha, Shelley Phipps, and Lynn Lethbridge (2005). Taking its toll: the influence of paid and unpaid work on women's well-being. *Feminist Economics*, 11(1), 63–94. http://dx.doi.org/10.1080/1354570042000332597.

Morillo, Daniel S. (2000). *Essays in Nonparametric Econometrics.* United States, Illinois, (Ph.D.). University of Illinois at Urbana-Champaign. Retrieved from http://search.proquest.com.proxyau.wrlc.org/docview/304598751/abstract/B1B1BDCA86A143A4PQ/1.

Posel, Dorrit, and Colette Muller (2008). Is there evidence of a wage penalty to female part-time employment in South Africa? *South African Journal of Economics*, 76, 466–479. http://dx.doi.org/10.1111/j.1813-6982.2008.00197.x

Poterba, James M., and Kim S. Rueben (1994). *The Distribution of Public Sector Wage Premia: New Evidence Using Quantile Regression Methods* (Working Paper No. 4734). National Bureau of Economic Research. Retrieved from http://www.nber.org/papers/w4734

Powell, James L. (1986). Censored regression quantiles. *Journal of Econometrics*, 32(1), 143–155. http://dx.doi.org/10.1016/0304-4076(86)90016-3.

Sen, Amartya (2000). *Development as Freedom.* Reprint edition. New York: Anchor.

Sparks, Kate, Cary Cooper, Yitzhak Fried, and Arie Shirom (1997). The effects of hours of work on health: A meta-analytic review. *Journal of Occupational and Organizational Psychology*, 70(4), 391–408.

Statistics South Africa (SSA). (2001a). *A Survey of Time Use: How South African Women and Men Spend their Time*. Pretoria: South Africa.

Statistics South Africa (SSA) (2001b). *Labor Force Survey*. September 2001. Pretoria: South Africa.

Vickery, Clair (1977). The time-poor: a new look at poverty. *The Journal of Human Resources*, 12(1), 27–48. http://dx.doi.org/10.2307/145597.

Wajcman, Judy (1998). *Managing Like a Man: Women and Men in Corporate Management*. Cambridge, UK: Polity Press in association with Blackwell Publishers Ltd. Retrieved from http://www.polity.co.uk/.

Walker, Julian (2013). Time poverty, gender and well-being: lessons from the Kyrgyz Swiss Swedish Health Programme. *Development in Practice*, 23(1), 57–68. http://dx.doi.org/10.1080/09614524.2013.751357.

Zacharias, Ajit, Rania Antonopoulos, and Thomas Masterson (2012). Why time deficits matter: Implications for the measurement of poverty. *In World Economic Association Conference, The Political Economy of Economic Metrics (Vol. 28)*. Retrieved from https://www.researchgate.net/profile/Thomas_Masterson/publication/264854913_WHY_TIME_DEFICITS_MATTER_IMPLICATIONS_FOR_THE_MEASUREMENT_OF_POVERTY/links/53f604dd0cf2888a7492364e.pdf

Abhilasha Srivastava is a doctoral student in the Department of Economics at American University, Washington DC. Her dissertation project looks at the inter-linkages between gender, social norms, and intra-household decision-making in India using interdisciplinary approaches. She is interested in multi-site comparative analysis of time-use data from a gender/feminist perspective and is currently working on time-use data from South Africa, India, and Pakistan.

Maria S. Floro is Professor of Economics at American University in Washington DC and co-director of the Graduate Program on Gender Analysis in Economics (PGAE). Her book publications include *Informal Credit Markets and the New Institutional Economics, Women's Work in the World Economy*, and *Gender, Development, and Globalization: Economics as if All People Mattered* (co-authored). She has worked with South Africa, Australia, China, Mongolia, and Thailand time-use data and led the 2014-15 UNESCAP project on time-use training and data analyses.

Women and the Urban Economy in India: Insights from the Data on Migration

Smriti Rao

1   INTRODUCTION

Historical materialist approaches to capitalist development have long recognized the crucial role of migration (that is coercive to differing degrees) in the creation and maintenance of a labor force that is divorced from the means of production (Breman 1996; De Haan 1999). In areas like East Asia or Latin America, the migration of large numbers of young, single women from rural to urban areas has resulted in some attention to the ways that female migration for employment can serve as the basis for the development of a capitalist labor force (Sassen-Koob 1984; Standing 1999; Piper 2005). Feminist research has also shown how women's unpaid work in Latin America and East Asia can sustain patterns of circular male migration by ensuring social reproduction in rural areas – while men undertake economically risky urban migration (Chant 1998). This work has helped us reconceptualize migration as not an individual but a household or community-level decision that is predicated upon gender as well as class inequalities. In the case of India, however, these links remain underresearched, perhaps due to the absence of large streams of female economic migration.

S. Rao (✉)
Department of Economics, Assumption College, Worcester, MA, USA
e-mail: srao@assumption.edu

This chapter brings together two disparate strains of literature on Indian economic development. The first is the growing body of literature that examines the causes and consequences of strikingly low and stagnant female labor force participation rates in India, with the debate being over whether particular trajectories of economic growth in India have resulted either in women's exclusion from, or their withdrawal from, the paid labor force. A second strand of literature examines stagnant rates of permanent economic migration within India, once again exploring the extent to which capitalist development in India has resulted in "exclusionary" patterns of urban growth and thus posing a similar set of questions about "push" versus "pull" factors in the Indian economy. This second strand of literature has, however, focused almost entirely on male economic internal migrants. There is very little by way of systematic exploration of women's internal migration patterns in India and the ways in which the latter may be linked to changes in female productive and reproductive labor, male migration and the broader trajectories of Indian economic development.

All the chapters in this edited volume highlight the importance of seriously considering the causes and consequences of unpaid, reproductive labor, once defined as "non-economic", and still left out of many non-feminist analyses of the economy. In this chapter, I follow this tradition of feminist political economy by examining forms of migration defined as "non-economic" and arguing for serious consideration of the economic causes and consequences of such patterns of migration (Lee 2012). Women migrants are classified by the quinquennial Indian National Sample Survey (NSS) as "economic", "follower" or "marriage" migrants.[1] While the first is defined as migration in order to obtain employment, follower migrants are defined as those who "accompany" the primary migrant or primary earner, while marriage migrants are women (or men) who migrate at the time of marriage in order to move into their spouse's home.[2] Both follower and marriage migration are forms of migration that appear to occur within the family and thus outside the market economy. But, as feminist economists have taught us, the family is a site of production and reproduction, and economic change cannot be understood without understanding changes in household production and reproduction.

Indeed, if we look beyond economic migration, we find that Indian women's overall rates of migration have risen. According to Indian NSS data, by 2007–2008, women migrants comprised 71% of urban,

married, working age women, compared to 61% in 1983, even as the share of economic migrants fell.[3] Economic outcomes for marriage and follower migrants thus have a large and significant impact on measured gender inequalities in urban India today. In particular, the labor force participation of female non-economic migrants has dropped by more than that of female non-migrants. Learning more about the lives of these women could therefore help us better understand some of the factors driving the declines in urban female labor force participation in India.

In this chapter, I trace patterns of female marriage, follower, and economic migration into urban India from 1983 to 2008 using NSS data. Specifically, I use the four most recent rounds of the NSS employment-unemployment survey that have asked detailed questions about migration.[4] These are the 38th round conducted in 1983, the 43rd round in 1987–1988 and, skipping forward a decade and a half, the 55th round conducted in 1999–2000 and the 64th round for 2007–2008.[5] Given that Indian economic policy shifted to emphasize privatization and market liberalization in the early 1990s, this data covers both pre- and post-liberalization India.

The NSS surveys provide information on household consumption expenditure, the demographic characteristics of the household and occupational details of each household member. NSS data also allows us to categorize "principal status" employment (employment for 183 days or more) as self-employment, regular or salaried wage employment, casual or irregular wage work or as unpaid help in a family business. Women who report purely domestic work or the free collection of goods for the household are not counted as "employed". All descriptive statistics are reported using NSS population weights. In order to establish some links between male and female migration patterns, I restrict my sample to working age, married men and women in urban areas.

I begin with a discussion of some stylized facts about the nature of urban growth in India, followed by a summary of the literature on economic migration into urban India, largely based on studies of male migrants. I then turn to an analysis of the socio-economic correlates of different streams of female migration in India, arguing that the decline in female urban economic migration cannot be understood without an examination of increasing female urban marriage migration.

2   CAPITALIST DEVELOPMENT AND THE GENDER DIVISION OF LABOR IN URBAN INDIA

There is widespread consensus that the Indian economy experienced a deepening of its urban bias after liberalization. Between 1993 and 2008, the urban economy grew from 45% to 60% of GDP based on the growth of services like information technology that employ a relatively narrow group of urban elites. Vakulabharanam (2010) shows that the most significant beneficiaries of post-1993 economic growth have been those in these high-skill service occupations in urban areas, with the majority of urban workers actually losing ground over this period. Providing further evidence of this "urban enclave" model of development, a number of studies find that inequality between rural and urban areas has risen since the 1990s, while urban areas themselves have become more unequal (Himanshu 2004; Thorat and Dubey 2012; Motiram and Sarma 2014).

While agriculture received some flows of public investment in the 1970s and 1980s, since the 1990s this investment has declined. As a result of the stagnation in agriculture, the income share of rural peasants and agricultural laborers has declined when compared to the income share of large farmers and those who are self-employed in non-agriculture (Vakulabharanam 2010). Relatively low-skill informal labor (such as construction work) in nearby towns and peri-urban areas often provide the highest wage options for rural residents. This means that rural and urban livelihoods in most parts of the country are highly diversified, but also highly precarious, depending upon the ability of household members to move in and out of a number of unstable and low-wage economic activities during the course of a single year.

Due to the prevalence of informal and unstable employment, Indian employment surveys are notoriously unable to capture unemployment as it is defined in traditional economics. In contexts where the meaning of work is constantly changing, self-employment for men or intra-household, domestic work for women often become residual categories that absorb those who would otherwise be counted as unemployed. It is notable then that among those who are employed in urban India, self-employment is the only category of employment that has expanded for urban married men. The share of working age married men with regular or salaried employment for a majority of the year dropped from 45% in 1983 to 39% in 2008, while the share of those with casual wage work has remained

relatively stable. Meanwhile, a large and growing share of urban, married, working age women reported that their principal occupation is household work.

The shares of married men in the urban and rural labor force (versus those who may be full time students or otherwise not in the labor force) have both remained stable and high. In fact, labor force participation rates for married men (97% in 2008) are significantly higher than for single men of working age (89% in 2008), while the opposite is true for Indian women, particularly in urban areas.

Thus, urban India is characterized by a strong form of the male-breadwinner "classic patriarchy" model in which marriage is positively and strongly associated with entry into the labor force for urban men, and equally strongly but negatively associated with labor force participation for women (Kandiyoti 1998). The decreases in urban women's labor force participation and economic migration would seem to suggest that this model is being even more firmly inscribed over time. As we see further, some authors interpret this as a sign of rising economic well-being that allows women to withdraw from the labor force. I argue instead that while there is clearly a strong normative emphasis on the "male provider", the data on women's migration suggest that these norms are being reinforced by India's urban enclave model of growth and are a result of economic instability and relative dispossession for a majority of urban households, rather than a sign of their growing prosperity.

3   CHANGING PATTERNS OF INTERNAL MIGRATION IN INDIA

The existence of growing rural-urban inequality creates an interesting puzzle for researchers of economic migration in India. Despite what would seem to be almost overwhelming incentives for large waves of economic migration from rural to urban areas, rates of permanent economic migration into urban India have declined slightly. Economic migrants declined from 32% to 27% of the urban, male, working age married population and from 3% to 1% of the urban, female, working-age married population (Table 1).

Based on this data, India has lower migration rates than most other Asian countries (Bell and Muhidin 2009). The literature largely explains this as the outcome of the Indian government's hostility to urban in-migrants and the relative under-development of labor intensive formal sector occupations in Indian cities (Kundu 2009). Such studies have

Table 1 Share of migrants in the urban, working-age (15–64), married population

	Women				Men	
	All migrants	*Economic*	*Follower*	*Marriage*	*All migrants*	*Economic*
1983	61	3	18	40	37	32
1988	61	2	17	45	36	31
1999	74	2	16	49	33	28
2008	79	1	17	52	31	27

found that men from relatively higher castes and those with relatively more education are more likely to engage in internal economic migration within and to urban areas in India (Dubey et al. 2006; Vakulabharanam and Thakuratha 2012). Kundu and Sarangi (2007) also find that these male urban in-migrants tend to be relatively well-off (although not the very richest) in urban areas. These authors thus suggest that what we see in India is not an unwillingness to move, but an inability to do so in a permanent and stable way. This argument is particularly compelling given the existence of large and growing streams of circular migration (Breman 1996; Deshingkar and Akter 2009; Deshingkar and Farrington 2009).

The narrow focus on economic migration means that these studies have only analyzed the male migrants who dominate this category of permanent economic migrants, going from 86% to 91% of all economic migrants during this period. While the established story of Indian migration is currently that rates of permanent migration are very low, if we look beyond economic migration, permanent migrants as a whole have actually risen as a share of the Indian population, from 23% in 1983 to 29% by 2007–2008. The rising share of female migration accounts for 87% of this increase, with 90 million additional women reporting migration for marriage between 1983 and 2008. Marriage migrants went from 40% to 52% of working age, married, urban women, the share of women migrating to "follow an earning member of the family" edged down from 18% to 17% (Table 1). The share of non-migrants among working age, married, urban women fell to 29% by 2007–2008.[6]

The male rate of migration (of all kinds) was stagnant over the same period, falling from 37% to 31% of working age, married, urban men, primarily due to a decline in the share of male economic migrants

(Table 1). Male marriage migration was negligible in all rounds (under 1%) and urban follower migration has been stable at 4% since 1987–1988. This means that men have become less likely to permanently migrate into urban areas, even as women are more likely to do so.

4   Explaining the Lack of Female Economic Migration in India

Despite the need to more fully explore the multiple forms of migration for women, it is worth pausing to note that the almost miniscule, shrinking percentage of Indian women who report migrating for economic reasons is unusual when compared to most other developing countries including China, South Korea, Thailand, Bangladesh, Mexico or even the United States and United Kingdom in the nineteenth centuries. Most developing countries have relied upon migrant female workers in what Elson and Pearson (1981) called the "nimble fingers" phenomenon. In each case, deliberate attempts by state and capital to culturally legitimate the migration of young, single women from rural to urban areas have allowed these female migrants to serve as a docile, reliable and low-paid reserve army (Bagchi 2011; Standing 1999). The absence of this phenomenon in India is therefore notable (Ghosh 2002).

4.1   Disguised Economic Migration?

One possible explanation for this absence (compared to the historical experience of other countries) is that the much larger streams of female "marriage" and "follower" migration in India are, in fact, disguised forms of economic migration. It is certainly possible that the NSS surveys are mis-classifying some economic migration by women as marriage migration (Krishnaraj 2005). However, as shown elsewhere (Rao and Finnoff 2015), the data do not bear out this hypothesis.

First, if the need for employment were indeed driving female marriage and follower migration, we would expect to see higher economic activity rates for female marriage and follower migrants as compared to non-migrants (Krishnaraj 2005). However, follower migrants have much lower shares of economic activity than non-migrants[7] (Table 2). In 2008, 15% of follower migrants reported employment of any kind, as compared to 81% of economic migrants as compared to 21% of

Table 2 Share of those with principal or subsidiary employment (as a % of urban, working age, married women or men)

| | Women | | | | | Men | | |
	Non-migrant	Economic	Follower	Marriage	Total	Non-migrant	Economic	Total
1983	23	62	15	24	23	96	97	96
1988	24	66	16	22	23	96	97	96
1999	22	63	18	19	21	95	96	95
2008	21	81	15	17	19	95	96	95

non-migrants. Marriage migrants' rates of employment are also several times lower than the rates reported by economic migrants and have fallen considerably over time. By 2008, only 17% of marriage migrants reported being employed, down from 24% in 1983.

Second, if, in fact, marriage migration is disguised economic migration, this would mean that married women move with their husbands with the intent of working at the destination point, much as the husband does, but then report their move as a move "for marriage". Thus, husbands must also be migrants and the actual journey made by the man and woman in the household must be identical – they should both, for example, report moving to the same destination. However, in 2007–2008 only 18% of spouses of married female marriage migrants of working age were also migrants – as compared to 99% for follower migrants and 90% for economic migrants (Table 3). Furthermore, this share has dropped 10 points over the years.

Even if we assume that every one of these female marriage migrants with migrant spouses is indeed a disguised economic migrant, the overall share of economic migrants would only go up to about 3% of the female, working age, married population in 2007–2008, and would not change the narrative of a declining time trend (down from 4% in 1983). At least in this dataset, it does not seem that a substantial share of marriage migrants are disguised economic migrants.

Thus, we analyze the NSS data as at least internally consistent and use it to understand more about these women migrants. In particular, we use the data to test our two competing hypotheses about the insignificance and further decline in female economic migration: the first that norms of "sanskritization" that have strengthened across castes and regions, resulting in a "withdrawal" effect[8]; the second that "domestic" work is a

Table 3 Share with a spouse who is a migrant (as a % of urban, working age, married women or men)

	Women				Men	
	Non-migrant	Economic	Follower	Marriage	Non-migrant	Economic
1983	12	94	98	28	47	92
1988	12	94	98	27	53	92
1999	11	88	98	23	57	93
2008	10	90	99	18	63	94

residual category that captures increasing female un/underemployment and the growing burdens of social reproduction within the urban precariat.

4.2   Withdrawal Versus Exclusion

If the low level of and decline in migration for employment by women is indeed a real phenomenon, and linked to wider declines in female labor force participation, what explains the lack of interest that Indian capitalists seem to display in exploiting this very large pool of cheap labor?

Ghosh (2002) focuses on the low levels of female workforce participation in the export sector in India, a key sector for female employment and economic migration in other Asian contexts. She argues that Indian manufacturing for export has remained trapped in low value-added sectors, which promotes a cost-cutting, rather than productivity-increasing mentality. Indian capitalists are, thus, more interested in finding ways to sub-contract into the low-cost and low-productivity informal sector. As a result, production for export in India tends not to rely directly upon female workers. Instead it does so indirectly, to the extent that female workers may be found in the informal sector.

Insofar as migration goes, this kind of urban development mutes the incentive as well as the ability to migrate permanently, by confining workers to an urban precariat not so different from the rural one with which they are intimately familiar. The fact that male permanent migration has also fallen is evidence in favor of this explanation. Meanwhile, in a context where male livelihoods are fragile, the unpaid labor of social reproduction that women perform is likely to involve considerable ingenuity and time without which the urban precariat, upon which the current model of Indian development is based, would not be able to secure the conditions of its existence. As we will see further, female marriage migrants are now both a majority of the urban female population as well as most likely to be part of this urban precariat, and the fact that this is the group that has seen the largest decreases in employment could be evidence in favor of such an effect.

A different explanation would link low female economic migration and labor force participation to a "withdrawal effect" (Abraham 2013). The greater prevalence of female seclusion among higher castes and the fact that symbols of class and caste mobility are deeply intertwined in India, mean that sanskritization processes result in women withdrawing from the labor

force as household incomes rise (Srinivas 1998). Several studies suggest that as a result, female labor-force participation in India is distress driven and correlated with lower levels of female literacy (Eswaran et al. 2011; Neff et al. 2012; Abraham 2013), and seen, even within such households, as a failure of masculinity (Qayum and Ray 2010). The absence of female economic migration would, thus, be an extension of this phenomenon. Its decline over time could even be seen as a sign of the increased economic status of potential "sending" households in rural and urban India.

In examining these two hypotheses, the main differences lie in the theorized impact of class (in the Weberian sense of a combination of education and income) upon female economic migration. If changes in female migration patterns are being driven by exclusionary urban growth or decreased demand for female workers, we would expect to see higher class status (education, household per capita consumption and employment status) become stronger predictors of female economic migration as permanent migrations streams become restricted to ever more narrow groups of the privileged. On the other hand, if female economic migration is being driven by a withdrawal effect, then it is likely to be more educated and better off women who drop out first to signal their higher status. Understanding that marriage and follower migration may also be shaped by these broad economic forces, I examine the changing class correlates of those forms of migration as well.

5   Socio-economic Characteristics of Urban Migrants

Since 1987–1988, there has been an increase in the share of married, working age, male economic migrants whose spouses report being migrants (Table 3). In particular, a rising share of their spouses reported being follower migrants, 94% by 2008. Thus, married male economic migrants became more likely to report making the journey with their spouses, who, in turn, were less likely to report being economic migrants themselves. Meanwhile, female marriage migrants became more likely to be married to male non-migrants. In 2007–2008, 82% of marriage migrants reported that their husband was a non-migrant, a percentage that grew from 72% in 1983 (Table 3).

As prior research has shown, male economic migrants in urban India belong to higher class groups. Almost 32% belonged to the top income quintile as compared to 17% of non-migrants (Table 4) and 70% had some

Table 4 Share in the top consumption quintile (as a % of urban, working age, married women or men)

	Women				Men	
	Non-migrant	Economic	Follower	Marriage	Non-migrant	Economic
1983	18	34	31	19	17	38
1988	21	35	31	17	17	36
1999	25	38	31	17	19	34
2008	24	39	30	17	17	32

post-primary education as compared to 67% of non-migrants, although these gaps have narrowed over time (Table 5). Interestingly, while economic migrants were more likely to have regular or salaried wage employment than non-migrants, there has been a relatively sharp fall in the share of male migrants with such employment (Table 6) and a corresponding increase in the share of migrant men who are self-employed.[9] This may help explain the somewhat surprising finding that among married male migrants, the share of rural-urban migrants has grown, even as migration as a whole has become less likely (Table 7). Thus among married men, urban-urban migration has become less significant over time. To the extent that self-employment is increasingly more important as a source of livelihood for men, for men already residing in urban areas there may not be the same imperative or incentive to move that comes with salaried employment. Since most married, permanent male migrants move with their spouses (who then may not be employed), the benefits of urban-urban migration for self-employment may not be high enough to justify the move.

Table 5 Share with any post-primary education (as a % of urban, working age, married women or men)

	Women				Men	
	Non-migrant	Economic	Follower	Marriage	Non-migrant	Economic
1983	27	31	32	26	44	53
1988	32	41	34	29	47	54
1999	50	54	48	53	60	66
2008	58	59	52	53	67	70

Table 6 Share of those with regular/salaried wage work (as a % of urban, working age, married women or men)

	Women				Men	
	Non-migrant	Economic	Follower	Marriage	Non-migrant	Economic
1983	5	33	3	4	36	65
1988	7	31	3	3	36	62
1999	8	38	6	4	34	58
2008	7	53	5	4	33	56

Table 7 Share of rural-urban migrants (as a % of married, working age migrants)

	Women				Men	
	All migrants	Economic	Follower	Marriage	All migrants	Economic
1983	61	62	53	64	62	61
1988	62	63	54	64	62	63
1999	59	56	57	61	65	65
2008	59	57	59	59	66	67

Turning to women migrants, economic migrants had significantly higher shares of households in the top quintile (Table 4). Follower migrants resembled economic migrants in this, while marriage migrants had the lowest shares of top quintile households. Table 5 shows us that female economic migrants, as well as, over time, non-migrants, had higher shares of post-primary education than marriage migrants. Female marriage migrants, the only group that actually grew over this period, were the least privileged across these different metrics.

Not surprisingly, female economic migrants were overwhelmingly more likely to be employed, with the share of employed female economic migrants going from 62% in 1983 to 81% in 2007–2008 (Table 2). They also had high and growing shares of salaried employment, which come with benefits and are usually relatively stable (Table 6). Follower migrants had the lowest shares of employment, but it was marriage migrants who saw the largest declines in employment over this period.

Unlike in the case of men, the share of female economic migrants from rural areas fell over the rounds (Table 7). Thus, the little permanent

Table 8 Share who belong to Dalit and Adivasi caste groups (as a % of urban, working age, married women or men).

| | Women | | | | Men | |
	Non-migrant	Economic	Follower	Marriage	Non-migrant	Economic
1983	15	18	15	17	17	16
1988	15	18	14	16	17	15
1999	17	23	16	18	19	16
2008	17	19	17	17	18	17

economic migration that is taking place is becoming less accessible to rural women. The share of female marriage migrants from rural areas also fell, but that is perhaps to be expected as India's urban areas grow and there is an increase in urban-urban marriages. Due to the rising share of rural-urban migrants among men, female follower migrants, whose socio-economic characteristics most closely resemble those of male migrants, were increasingly likely to be rural-urban.

Female economic migrants were, however, slightly more likely to belong to the lower caste Dalit and Adivasi groups (Table 8). This may reflect the relative absence of a tradition of female seclusion among these groups, even though other studies suggest these norms are converging across castes (Deshpande 2012). It is also possible that what we are seeing here (given the very small absolute number of economic migrants) is the effect of state affirmative action policies in employment that increase the likelihood of Dalit and Adivasi women holding jobs in education or other forms of government service.

While the sample thus far has been restricted to married men and women, if we expand the sample to all working age women, about 43% of all female economic migrants were currently unmarried with a greater share (20%) being divorced or separated than never married (16%). A further 15% of all working age female economic migrants were married, but had spouses who were not currently employed. Thus, half of all female economic migrants were, to use Raka Ray's terminology, "women without men", either literally or figuratively.[10] Thus, there is likely to be a sub-group of female economic migrants without male providers, who are less well-off.

Returning to the married, working age, urban sample, follower migrants were not only the most likely to have employed husbands but also the most likely to have employed husbands with salaried jobs, a

Table 9 Share with a spouse who is employed (as a % of urban, working age, married women or men)

| | Women | | | | Men | |
	Non-migrant	Economic	Follower	Marriage	Non-migrant	Economic
1983	89	84	91	91	19	12
1988	89	82	93	91	18	13
1999	88	83	92	91	17	14
2008	88	75	92	90	17	13

Table 10 Share of married, urban, working age women whose spouse has a salaried job

	Non-migrant	Economic	Follower	Marriage
1983	38	50	62	40
1988	41	49	58	38
1999	40	50	55	34
2008	36	43	51	33

tendency that has strengthened over successive NSS rounds (Tables 9 and 10). Follower migrants thus emerged as the most likely to fit the narrative of a genuine "withdrawal effect" – relatively well-off and with spouses in salaried employment.

On almost all metrics non-migrants were close to, but slightly better off than marriage migrants. They were certainly better educated, had slightly higher shares of top quintile households and higher shares of spouses with salaried employment, but, in the latter two cases, they were worse off than follower and economic migrants. They also had lower shares of employed husbands and migrant husbands. Based on our indicators of class status, they appear relatively economically vulnerable, although perhaps not as much as marriage migrants.

Non-migrants were also the only other group who saw a decline in the share of women with employment, although the decline was smaller than in the case of marriage migrants. While follower migrants continued to have the lowest female labor force participation rates during this time period, our preliminary analysis suggests that it is among the two most

economically vulnerable groups that we see the greatest declines in female labor force participation.

Looking at categories of female migration separately suggests that while a "withdrawal" story may fit the situation of follower migrants into urban areas, it is less likely to hold up for marriage migrants. Furthermore, given the shrinking socio-economic privilege of male economic migrants, it is quite possible that any socio-economic basis for a withdrawal effect among follower migrants is weakening. Meanwhile, the female economic migration of married women has become more concentrated among the highest class groups.

There is undoubtedly a very strong "male provider" norm that governs the gender division of labor in urban India. However, this preliminary examination suggests that a lack of supply of good jobs in the urban economy for both women and men, in conjunction with increases in the burden of reproductive labor, may better explain the changing migratory patterns we observe than a withdrawal effect that is driven by rising class status. It is useful then to turn to regression analysis to test if these socio-economic correlations hold up to the introduction of controls.

6   Logistic Regression Analysis

Where I report regression results, due to considerable endogeneity between the various independent variables used, I interpret the results as partial correlation coefficients rather than as evidence of causality. In the case of the regressions, I do not use weights both because I am combining data across different rounds as well as to avoid problems of inflated standard errors and thus levels of significance. I control for heteroscedasticity by clustering standard errors upon the primary sampling unit, the village.

Table 11 presents odds ratios for a logistic regression with the dependent variables being the probability of being an economic, follower or marriage migrant respectively, within the sample of all urban, working age, married women.[11] Among the independent variables are age in years and a dummy variable that takes the value 1 if the woman has received any post-primary education. I include (log) real monthly per capita household consumption (in 2011–2012 Rupees) as well as the square of the (log) real monthly household per capita consumption to account for any U-shaped effects. I use dummy variables to signify membership in the most historically disadvantaged caste groups, Adivasis and Dalits.

Table 11 Logistic Regression Analysis: Likelihood of economic, follower and marriage migration for urban, working age, married women (state dummies included but not reported, available upon request)

| | Economic migrant | | Follower migrant | | Marriage migrant | |
| | N = 173967 | | N = 173967 | | N = 173967 | |
	Odds ratio	Std error	Odds ratio	Std error	Odds ratio	Std error
Age	1.015***	0.002	1.012***	0.001	0.988***	0.001
Post-primary education	1.226***	0.052	0.782***	0.015	1.051***	0.016
Adivasi	2.271***	0.202	0.954	0.048	0.699***	0.035
Dalit	1.435***	0.092	0.931*	0.027	1.081***	0.026
Household: Self employed	0.476***	0.022	0.531***	0.010	1.423***	0.019
(log)mpce(2011–12 rs)	0.912	0.263	40.709***	13.430	1.053	0.116
(log) mpce squared	1.038*	0.018	0.818***	0.017	0.976*	0.007
State average per capita consumption	1.000	0.000	1.000	0.000	0.999***	0.000
State gini(rural)	0.493	0.470	1.664	0.806	134.111***	64.808
Year_1983	1.826***	0.243	1.046	0.066	0.274***	0.018
Year_1988	1.559***	0.218	0.998	0.065	0.332***	0.023
Year_1999	1.235*	0.130	0.895*	0.042	0.588***	0.029

*$p<0.05$, **$p<0.0$, ***$p<0.001$

The principal occupation at the household level is the occupational category, either self-employment or wage work and unpaid family help, that accounts for the largest share of household income. This is likely to coincide with the primary earner's occupation (usually the husband). As we have seen above, economic and follower migrants are more likely to have spouses who are engaged in regular or casual wage work, while marriage migrants, who tend to marry non-migrants, are more likely to have spouses who are part of the urban self-employed. Time dummies for each of the first three NSS rounds are included to capture changes over time (relative to 2008) that persist after controlling for these variables.

I use the NSS household consumption data to calculate the average urban state-level household per capita consumption. This helps control for the fact that better off states may attract larger streams of male and female economic migrants. I also include the urban Gini coefficient at the state level. Greater urban inequality, as discussed earlier, may reduce the ability and desire to engage in permanent economic migration.

In another model available from the author, I add two key characteristics of the spouse: a dummy variable that takes the value 1 if the spouse is currently employed, and a dummy variable that takes the value 1 if the spouse is a migrant. Introducing these variables helps control for the fact that household income may be a function of the man's characteristics as much as the woman's. In the case of follower migrants, since 99% of female follower migrants had migrant spouses, there were insufficient observations for women with non-migrant spouses. As a result the dummy for the spouse being a migrant was not included in that regression. The results presented in Table 11 are highly robust to the inclusion of husbands' economic characteristics.

The results in Table 11 largely confirm the descriptive analysis above. Economic and follower migrants are more likely to be older than other women while marriage migrants are younger. Post-primary education increased economic and marriage migration, but decreased follower migration. Economic and follower migrant households were more likely to earn a majority of their income from forms of wage work, rather than self-employment.

Household per capita consumption exponentially increased the likelihood of economic migration for women. The fact that the poorest (those most in need of additional earnings) are least likely to migrate for work provides more weight to the exclusion hypothesis. However, being Dalit or Adivasi also increased female economic migration, which suggests that

caste-based norms about women's mobility have not entirely converged yet. As expected based on the exclusion hypothesis, urban inequality lowered the likelihood of economic migration for women, but this was not statistically significant.

The time dummies indicate that the reduced likelihood of economic migration in 2008 was not fully explained by the included variables. However, the reduction in the size of the time dummies over time suggests that this unexplained component is declining, and thus, that this shrinking group of economic migrants is indeed becoming more concentrated among better-educated and better-off lower caste women.

Follower migrants were, as expected, from upper caste household with wage work as the primary source of household income. The inverted U-shaped result for household consumption implies such migrant households were more likely to inhabit the middle of the urban consumption distribution. These results align with what we know about male urban economic migrants, whom these women reported following. Controlling for the spouse being employed did not change any of the results.

Based on the time dummies, the likelihood of follower migration was higher in 2008 as compared to 1999–2000. This may, as suggested earlier, match the "withdrawal" hypothesis for this relatively upper caste and class group. On the other hand, this could also be a result of reproductive work burdens that both require men to bring their spouses with them, and then keep women out of the paid labor force.

The results for marriage migrants echo our prior analysis in almost every respect. They were younger and lived in poorer households (the relationship is exponential) whose income came primarily from self-employment. As with economic migrants, Dalits were more likely to be marriage migrants. There was also an increase in the likelihood of such marriage migration over time. Controlling for the spouse's employment and migration status did not change any of these results.

The likelihood of marriage migration increased in poorer states and was strongly and positively correlated with greater levels of urban inequality. These results are discussed further in Rao and Finnoff (2015). There we argue that for relatively well-off rural families, marrying their daughters and sisters to men who live in urban areas provides a very valuable foothold into the urban economy that the highly skewed labor market is unable to afford them. Whether these women's lives are improved by becoming part of the urban precariat is an open question, but for the poorer urban families who receive them, this is not only a much needed

and otherwise lacking validation of status in the most unequal urban areas but also comes with material benefits given the rising levels of dowry that accompany such marriages.

The preliminary analysis also suggested some interesting differences between rural-urban and urban-urban migrants. In Table 12, I examine the correlates of *rural-urban* economic, follower and marriage migration (versus all other urban women), keeping in mind that rural-urban migrants have grown as a share of female follower migrants, but fallen as a share of economic and marriage migrants.

Table 12 shows that across the board rural-urban migrants are less educated than other urban women, which is unsurprising given the rural-urban gaps in educational attainment. Importantly, the results on household consumption and spousal employment tell us that rural-urban economic migrants are in the less well-off sub group within economic migrants and also that spousal unemployment is not a key feature of their households (suggesting that urban-urban women without male providers are another more vulnerable sub-group of female economic migrants). The time dummies for the 1987–1988 and 1999–2000 also become insignificant, suggesting that there is less of an unexplained time trend in this case.

In the case of rural-urban follower migrants, there is further strengthening of the inverted U-shape for household consumption and the time dummies do become significant for all three rounds. This time trend may have something to do with factors driving male economic migration, but not included in this regression.

Based on the results for household consumption in this regression, there is a slight inverted U-shape for rural-urban marriage migrants, although the size of this effect is several times smaller than for follower migrants. Thus, at least a few such migrants belong to households in the middle rather than the bottom of the urban income distribution. In Smriti and Finnoff (2015), we argue that rural-urban marriage migration is a strategy that better-off rural households engage in, in order to secure footholds in the urban economy. The results here are consistent with that argument.

7   Discussion of the Regression Results

Patterns of migration suggest some evidence for a "withdrawal effect" among relatively well-off follower migrants, but not for economic migrants or marriage migrants. In particular, the regression results above

Table 12 Logistic Regression Analysis: Likelihood of rural-urban economic, follower and marriage migration for urban, working age, married women with spousal characteristics included (state dummies included but not reported, available upon request)

	Rural urban economic migrant N = 131110		Rural urban follower migrant N = 136307		Rural urban marriage migrant N = 128916	
	Odds ratio	Std error	Odds ratio	Std error	Odds ratio	Std error
Age	1.008****	0.003	0.992***	0.001	0.992***	0.001
Post-primary education	0.875*	0.056	0.597***	0.014	0.580***	0.010
Adivasi	2.764***	0.271	1.038	0.052	1.024	0.036
Dalit	1.900***	0.136	1.008	0.029	1.244***	0.024
Household:Self employed	0.791***	0.048	0.672***	0.014	1.076***	0.015
(log)mpce(2011–12 rs)	0.578**	0.105	129.237***	40.717	1.567**	0.232
(log) mpce squared	1.018	0.013	0.737***	0.015	0.949***	0.009
State average per capita consumption	1.000	0.000	1.000*	0.000	1.000***	0.000
State gini(rural)	0.458	0.488	0.621	0.257	16.283***	4.695
Spouse_employed	0.837	0.078	1.881***	0.068	1.075**	0.026
Spouse_migrant	24.596***	2.319	0.008	0.511***	0.008	
Year_1983	1.475**	0.210	0.727***	0.038	0.395***	0.014
Year_1988	1.231	0.189	0.733***	0.041	0.486***	0.018
Year_1999	1.002	0.111	0.727***	0.028	0.639***	0.017

*p<0.05, **p<0.0, ***p<0.001

clearly indicate that most marriage migrants are among the worst off in urban areas. This finding makes it extremely unlikely that their swelling numbers should signal a "shining India" where increasing economic well-being has made it possible for women to stay home. Instead these migration patterns taken as a whole tell a story of a population responding in complex ways to an exclusionary urban economy where labor market opportunities for men and women are highly restricted. The willingness to look beyond narrow notions of the "economic" reveals that these responses occur through the market as well as the family, and in the context of migration, through changes in women's marriage and follower migration as well as economic migration.

It seems likely that many of these migrant women are being shut out of the labor force by a lack of decent work that can accommodate their reproductive work responsibilities. However, knowing that some marriage migrants (even if they are a falling share) are relatively well-off, rural-urban marriage migrants also suggests that some normative status effects may be at work. Field studies show that in rural areas, brides who have some education and are able to bring large dowries with them are unwilling to perform "hard labor". They see their dowries as guaranteeing that they will not have to perform arduous work "outside" (Ramamurthy 2011). The urban precariat in India has little access to work that is not arduous and thus, as suggested by Deshpande (2012) and Jackson and Rao (2009), the absence of "good" jobs may reinforce norms of female seclusion, making women's labor force participation even less likely. Indeed one could argue that women, or rather the family structures that surround them, draw upon these norms to actively resist becoming cheaper, super-exploited replacements for men and machines.

Srinivas' original formulation of sanskritization described not an unchanging tradition making its presence felt but rather a morphing of tradition to accommodate status signaling in the context of rising inequality and social churn (Srinivas 1998). Evidence on dramatic changes in gender norms in recent years have been provided by a variety of studies showing that norms among the lower castes and in the relatively more gender-progressive southern regions of India have changed to resemble those of the upper castes in northern India, in a patriarchal "race to the bottom" of sorts (Deshpande 2002, 2012; Kapadia 1995; Basu 1999; Rahman and Rao 2004). Gender norms in India are thus not immutable (Uberoi 2012). This body of work suggests that rather than changing to accommodate greater paid female labor force participation, they have

changed to suppress it. I argue here that these changes are a response to heightened inequality and economic instability. Our "missing" female economic migrants in India may thus be as much an outcome of the particular model of capitalist development in India as the rising share of the urban economy in GDP.

In the long term, there is the potential for a vicious cycle where the failure to create the kinds of decent work that families in India would be willing to allow their women to perform also adversely affects decisions to invest in female education. While Indian parents are more likely to send their daughters to elementary and middle school than before, there has been much less change in rates of *higher* education among Indian girls. In the NSS data, only 24% of rural 18-year old girls were in school in 2008, an increase from 1983, not dramatically so. As Kingdon and Unni (2001) have shown, in India returns to education increase with higher levels of education so that schooling below the middle school level has almost no labor market benefits. These are the young girls who would have been drafted by urban capital in the alternate universe of India-as-China. In India, however, in the absence of employment that can justify permanent economic migration into and across urban areas, they are ever more dependent on marriage as the source of their livelihood.

8   CONCLUSION

Overall the NSS data across these four rounds is fairly internally consistent. That is, we do not see any sharp overlaps or inconsistencies in the data that might suggest that disguised economic migration is high in India, at least when it comes to long-term migration. Instead, economic migration appears restricted to two groups: well-educated and well-off Dalit and Adivasi women, or women without a male breadwinner. While follower migrants do exhibit some signs of a "withdrawal effect", marriage migrants appear to occupy such precarious spaces in the urban economy that the decline in their labor force participation rate is unlikely to be a sign of increased prosperity. Furthermore, the fact that a majority of their husbands are not economic migrants themselves suggests that it is marriage, rather than employment, that is the direct draw to the city for these women. We are left with the sense that there is no significant stream of permanent female employment migration in India, disguised or otherwise.

The absence of a large, labor-intensive manufacturing sector in urban India is certainly part of the reason for the absence of large permanent

female employment migration, but so is the complex interplay between "classic patriarchy" norms about male breadwinners (which promise women economic security through marriage) and a climate of clear and present economic insecurity. Economists tend to be preoccupied with the ways in which market and state reshape each other. But examining patterns of female economic as well as non-economic migration in India remind us yet again that economic change plays out equally dramatically in the interaction between the family and market. Indeed, it may be that struggle, and the continuing resilience of patriarchal norms in that struggle, that is one of the most remarkable features of the Indian economic landscape today.

NOTES

1. In each case the NSS asks if the current place of enumeration (based on NSS codes for cities, towns and villages) of each household member differs from the last "usual place of residence" and then the reason for leaving the last "usual place of residence". The answer to the first questions helps us define the category of "migrants" – those who answer "yes"; while the second helps us classify migrants as "economic", "marriage", etc. Given that the NSS does not ask about the woman's natal family, we do not have information on the exact location (at the district level) or socio-economic details of the natal home. We are able to use information on the place of last residence to determine which sectoral stream (rural or urban) the migrant is part of.

   In this chapter I do not analyze educational migrants, who comprise less than 1% of male and female working age migrants. I also exclude international migrants.

2. Patrilocality continues to be the dominant tradition in India, with the wife moving into the husband's home after marriage. The husband's home often includes the husband's parents. Thus when women report being marriage migrants, they are already in their marital homes. Female marriage migration statistics thus represent in-migration to the marital household and region.

3. It should be noted that this data captures only "permanent migration", defined in India as occurring when migrants stay a year or longer at the destination. Field studies provide compelling evidence that temporary and circular migration has grown tremendously in India over the last few decades, and the inability of NSS surveys to capture such migration is an issue that requires urgent attention (Deshingkar and Akter 2009).

4. The NSS employment-unemployment survey is a quinquennial household survey, but the module on migration is only intermittently included.

5. The three earlier surveys are "thick" rounds of the quinquennial Employment Unemployment Survey conducted alongside the

consumption expenditure surveys, and the latter 2007–2008 is a separate additional round conducted to specifically investigate migration. However, unlike other thin rounds, the sample size is similar to those of the "thick" rounds.

6. If we expand the sample to all working age women, we find that of those who were non-migrants, 53% were never-married and thus perhaps just not yet eligible for "follower" or "marriage" migrant status.

7. We assume here that even if the NSS is failing to capture women's work and thus underestimating female economic activity rates, it is equally unable to capture the work of female migrants and non-migrants, so that differences between these rates and changes over time are likely to be more accurate than the levels at any given point.

8. "Sanskritization" indicates a process by which Indian households make socio-economic status claims by adopting upper caste norms such as female seclusion, particular forms of dowry, certain religious rituals etc. (Srinivas 1998).

9. Casual wage worker shares have remained low and stable for male economic migrants.

10. "The Precarious Middle Class: Gender and Migration in India's New Economy," lecture by Raka Ray at Boston University, Feb 28, 2014.

11. Odds ratios greater than 1 indicate that a unit change in the independent variable increases the likelihood of the dependent variable taking the value 1. The size of the odds ratio (above/below the value of 1) indicates the size of the increase/decrease.

REFERENCES

Abraham, Vinoj (2013). Missing labor or consistent de-feminization?. *Economic and Political Weekly*, 48(31), 99–108.

Amitabh, Kundu (2009). Urbanization and migration: An analysis of trends, patterns and policies in Asia. *Human Development Research Paper 2009/16*, UNDP.

Bagchi, Amiya Kumar (2011). Mobility: Internal and international. *Development and Change*, 42(1), 419–436.

Basu, Alaka Malwade (1999). Fertility decline and increasing gender imbalance in India, including a possible south Indian turnaround. *Development and Change*, 30(2), 237–263.

Bell, Martin, and Salut Muhidin (2009). Cross-national comparisons of internal migration. *Human Development Research Paper 2009/30*. UNDP.

Breman, Jan (1996). *Footloose Labor: Working in India's Informal Economy.* Cambridge: Cambridge University Press.

Chant, Sylvia (1998). Households, gender and rural-urban migration: Reflections on linkages and considerations for policy. *Environment and Urbanization*, 10 (1), 5–22.

De Haan, Arjan (1999). Livelihoods and poverty: The role of migration: A critical review of the migration literature. *Journal of Development Studies*, 36(2), 1–47.

Deshingkar, Farrington (2009). *Circular Migration and Multilocational Livelihood Strategies in Rural India*. New Delhi: Oxford University Press.

Deshingkar, Priya, and Shaheen Akter (2009). Migration and human development in India. *Human Development Research Paper 2009/13.* UNDP.

Deshpande, Ashwini (2002). Assets versus autonomy: The changing face of the gender caste overlap in India. *Feminist Economics*, 8(2), 19–35.

Deshpande, Ashwini (2012). *The Grammar of Caste: Economic Discrimination in Contemporary India*. New Delhi: Oxford University Press.

Dubey, Amaresh, Richard Palmer-Jones, and Kunal Sen (2006). Surplus labor, social structure and rural to urban migration: Evidence from Indian data. *The European Journal of Development Research*, 18(1), 86–104.

Elson, Diane, and Ruth Pearson (1981). Nimble fingers make cheap workers: An analysis of women's employment in third world export manufacturing. *Feminist Review*, 7, 87–107.

Eswaran, Mukesh, Bharat Ramaswami, and Wilima Wadhwa (2011). Status, caste, and the time allocation of women in rural India. *Indian Statistical Institute Discussion Paper 11–12.*

Ghosh, Jayati (2002). Globalization, export-oriented employment for women and social policy: a case study of India. *Social Scientist*, 30(11/12), 17–60.

Himanshu, Abhijit Sen (2004). Poverty and inequality in India, II: Widening disparities during the 1990s. *Economic and Political Weekly*, 39(39), 4361–4375.

Jackson, Cecile, and Nitya Rao (2009). Gender inequality and agrarian change in liberalizing India. In Shahara Razavi (Ed.), *Gendered Impacts of Liberalization: Towards "Embedded Liberalism"* (pp. 63–98). New York: Routledge.

Kandiyoti, Deniz (1998). Bargaining with patriarchy. *Gender & Society*, 2(3), 274–290.

Kapadia, Karin (1995). *Siva and Her Sisters*. Boulder: Westview Press.

Kingdon, Geeta Gandhi, and Jeemol Unni (2001). Education and women's labor market outcomes in India. *Education Economics*, 9(2), 173–195. August 2001.

Krishnaraj, Shanthi (2005). Gender dimensions in rural- urban migration in India: policy imperatives. Paper presented at the International Union for the Scientific Study of Population XXV International Population Conference Tours, France, July 18-23, 2005.

Kundu, Amitabh, and Niranjan Sarangi (2007). Migration, employment status and poverty. *Economic and Political Weekly*, 42(4), 299–306.

Lee, Hyunok (2012). Political economy of cross-border marriage: Economic development and social reproduction in Korea. *Feminist Economics*, 18(2), 177–200.

Motiram, Sripad and Nayantara Sarma (2014). Polarization, inequality and growth: The Indian experience. *Oxford Development Studies*, 42(3), 297–318.

Neff, Daniel, Kunal Sen, and Veronika Kling (2012). The puzzling decline in rural women's labor force participation in India: a reexamination. *GIGA Research Unit: Institute of Asian Studies.* Working paper 196.

Piper, Nicola (2005). Gender and migration. Paper prepared for the policy analysis and research program of the global commission on international migration, September 2005.

Qayum, Seemin, and Raka Ray (2010). Male servants and the failure of patriarchy in Kolkota (India). *Men and Masculinities*, 13(1), 111–125

Rahman, Lupin, and Vijayendra Rao (2004). The determinants of gender equity in India: examining Dyson and Moore's thesis with new data. *Population and Development Review*, 30(2), 239–268.

Ramamurthy, Priti (2011). Rearticulating caste: the global cottonseed commodity chain and the paradox of smallholder capitalism in south India. *Environment and Planning A*, 43, 1035–1056.

Sassen-Koob, Saskia (1984). Notes on the incorporation of third world women into wage-labor through immigration and off-shore production. *International Migration Review*, 1144–1167.

Smriti, Rao, and Kade Finnoff (2015). Marriage migration and inequality in India 1983–2008. *Population and Development Review*, 41(3), 485–505.

Srinivas, Mysore Narasimhachar (1998). *Village, Caste, Gender and Method: Essays in Indian Social Anthropology.* Delhi: Oxford University Press.

Standing, Guy (1999). Global feminization through flexible labor: A theme revisited. *World Development*, 27(3), 583–602.

Thorat, Sukhdeo, and Amaresh Dubey (2012). Has growth been socially inclusive during 1993–94 – 2009–10? *Economic & Political Weekly*, 47(10), 43–54.

Uberoi, Patricia (Ed.) (2012). *Family, Kinship and Marriage in India.* New Delhi: Oxford University Press.

Vakulabharanam, Vamsi (2010). Does class matter? Class structure and worsening inequality in India. *Economic and Political Weekly*, 45(29), 67–76.

Vakulabharanam, Vamsi, and Saswata Thakuratha (2012). Why do migrants do better than non-migrants at destination? Migration, class and inequality dynamics in India. Mimeo.

Smriti Rao is Associate Professor of Economics and Global Studies at Assumption College, and Resident Scholar at the Women's Studies Research Center, Brandeis University. She is a development economist who works on gender inequality in labor and credit markets and is very interested in gendered patterns of migration, both within and across national borders.

The Microeconomics of Gendered Time Use – The Intersectionality of Care Work, Labor Market Work, and Housework

The Challenge of "Indirect Care"

Julie A. Nelson

1   INTRODUCTION

Feminist scholars have made landmark—and much needed—advances in the study of care. Care work, and especially unpaid care work done in homes by women, had been long overlooked by a male-dominated economics profession. Yet it is possible that this scholarship, when not placed in a wider context, may reify dualistic thinking and stereotypes. That is, it may tend to reinforce the impression that we have a "care economy" in which women do emotional, caring labor, in the service of people, leaving the rest of the economy to be populated by—as neoclassical economic theory tells us—rational and self-interested "economic man," whose work is for the purpose of earning money.

Nancy Folbre (2006), in her essay "Measuring Care: Gender, Empowerment, and the Care Economy," provides an opening we might use to rethink this division. She distinguishes between what she calls "direct" and "indirect" forms of care. "Direct care," she writes, is that which "involves a process of personal and emotional engagement" (p. 187). Among the examples she lists are hands-on care of children, the frail elderly, and the sick and disabled, as well as counseling or face-to-face teaching of health or nutrition (e.g., "counselor, nutritionist, yoga

J.A. Nelson (✉)
Department of Economics, University of Massachusetts, Boston, MA, USA
e-mail: julie.nelson@umb.edu

instructor") to other adults. "Indirect care activities," on the other hand, she specifies, are those "that provide support for direct care." She goes on to argue that:

> Virtually all activities can be construed as providing support for direct care, even the production of steel boxes, which are likely to be used to help transport goods or services that facilitate care. Therefore the "indirect care" category represents a residual of sorts—whatever is not direct care . . . All goods and services can be seen as indirect inputs into the provision of care . . . All workers make important contributions to the care economy. (p. 187)

In one of her tables, she perhaps modifies this slightly, writing that "*most* paid jobs not listed in other cells" are indirect care activities (p. 188, emphasis added).

This essay develops the concept of "indirect care" further, arguing that Folbre's inclusion of a broad swath of types of paid employment under this rubric is both important and somewhat problematic. It is problematic because the category is over-inclusive. Yet truly engaging with the idea that everyday paid employment might be seen as a form of care could open up much wider and more fertile arenas for feminist analysis and activist work concerning care than have been recognized to date.

2   TOO BROAD

Probably because the distinction between "direct" and "indirect" care was only one aspect of her very wide-ranging essay, some problematic aspects of the above definition of indirect care seem to have gone unnoticed. Implicit in the idea that an activity supports care is the assumption that the activity is actually *good for people*. In Paula England, Michelle Budig, and Nancy Folbre's (2002) "Wages of Virtue" article, for example, the term "care work" is used:

> . . . to refer to occupations in which workers are supposed to provide a face-to-face service that *develops the human capabilities of* the recipient. By "human capabilities" we refer to health, skills, or proclivities that are useful to oneself or others. These include *physical and mental health, physical skills, cognitive skills, and emotional skills*, such as self-discipline, empathy, and care. (p. 455, emphasis added)

Clearly, many common employment activities *do* indirectly contribute to care. One cannot enjoy physical health without the production of food, shelter, and medicine, and the sorts of physical and communications infrastructures that make their production and distribution possible. Activities that provide entertainment and other comforts can support happiness and mental well-being. In an ideal world, all activities *would* contribute to human well-being.

But we do not live in an ideal world, and many very common activities do *not* contribute to well-being. Is the work of marauding armies, wiping out whole villages, a form of "care"? Producing or distributing cocaine, cigarettes, assault rifles, land mines, violent porn – some activities lead to the anti-care outcomes of death, injury, illness, emotional stunting, and ill-being. Arguably, many other activities many people engage in on a daily basis—generally legally and without moral qualms—also have strong elements of non-care, leading at least potentially to very harmful outcomes. Examples that come to mind include engaging in the production and marketing of health-damaging food, the encouragement of mis- and over-use of psychotropic drugs and alcohol, public "services" gone wrong (such as racist actions by police), the manufacture and use of internal combustion engines (given climate change), and the production of falsehood-filled political propaganda. Hence, the definition of all that is not direct care as "indirect care" is far too broad.

Two further points should be noted. The first is that distinguishing between care and un-care or anti-care requires real, careful, and pragmatic moral and empirical exploration, and the results will often not be firm or clear cut. Orthodox neoclassical economics skips over the whole problem of distinguishing well-being from ill-being by invoking the extreme and naïve assumption of "consumer sovereignty"—that is, by simply assuming that whatever someone "chooses" is what "maximizes their utility." The claim of consumer sovereignty is used, for example, to justify the selling of many harmful consumer goods, ignoring the heavy marketing that goes into whipping up desires for these goods. On the other hand, once we engage in the exercise of distinguishing contributions to well-being from their opposite, we can see that it is possible to rationalize just about anything as a form of "care" for *someone* or *something*, as long as we are willing to be very flexible in our logic. Military actions, for example, are commonly framed by the people carrying them out as protective or defensive—that is, supportive of the lives of some particular "us" and/or a noble cause, even though

at the cost of the deaths of many of "them." The issue then becomes one of distinguishing legitimate reasons from contrived rationalizations. The current essay will not try to answer such questions, but simply points out that one cannot really talk about "care" without, at some level, engaging the deeper, knottier moral question of what counts as "good."

The second point is that recognition that some work is *not* caring also, in fact, applies to "direct care." Implicit in Folbre's essay is the assumption that time and money devoted to activities such as hands-on childcare or eldercare is, in fact, in service of supporting or developing the capabilities of the recipient. For the most part, they are. But sometimes they are not. It is unrealistic to expect that every caregiver is sufficiently motivated by "caring feelings," practically skilled, appropriately knowledgeable, and sufficiently healthy themselves to be capable of delivering a continuous stream of high-quality care. They (we) are, after all, human beings. Goods and services bought for children may include junk food and violent video games, which may interfere with their physical, cognitive, and/or emotional growth. Time use studies can tell us about the hours spent on caregiving, but not about whether the care is neglectful or abusive. Sometimes hands-on "care," unfortunately, results in bruises and broken bones.

So where does this leave us? I would suggest friendly amendments to Folbre's essay. Instead of claiming that "All goods and services can be seen as . . . inputs into the provision of care" and "All workers make important contributions to the care economy" we should ponder how "All goods and services *could potentially be* inputs into the provision of care" and "All workers *could potentially* make important contributions to the care economy." Such an amended formulation leads us to ask why this is not happening in our current economies, and how we could move in such a direction.

3   IMPORTANT IMPLICATIONS

Folbre foregrounds the category of *direct* care in her essay, leaving *indirect* care mostly in the background—treating it as, as she writes, "a residual of sorts." By narrowing her focus to direct care she fails to develop the radical—and potentially vastly important—implications of thinking about other kinds of work, in the broader economy, as having caring potential.

The direct care of children and other dependents was, as mentioned earlier, a much-understudied area of human activity until feminist care theorists put it in the spotlight. Their work has been a major contribution to our understanding of the way the world works. Perhaps based on the fact that such care has traditionally been the work of women, has taken place in homes, and has been thought to have distinctive emotional and even moral dimensions, there has been a tendency in the literature to think of "care" as possible only within a narrow range of human relations. The mother-and-child relationship, for example, has been made iconic in much of this literature (Ruddick 1989; Noddings 2010). Expansions of "care" to include paid work are often restricted to jobs involving health or education. Notions of a broader "caring economy," when proposed, often envision a utopian system composed exclusively of small, local, cooperatively run, non-profit, and non-money-using organizations.

The qualities of intimate care are often dualistically contrasted, by feminist theorists, with what are assumed to be the essentially masculine, uncaring, a-moral or immoral nature of businesses, commerce, and money (e.g., Hochschild 2003; Held 2005). Behavior in contemporary capitalist economies is widely assumed to be driven, essentially and exclusively, by self-interest, money, and competition – and therefore to be the very antithesis of care, social relations, and cooperation. Capitalism is commonly described in terms of "laws," "drives," "mechanisms," a "mandate to profit maximize," and a "growth imperative." The economy is portrayed as a mechanical sphere that exists outside of normal human sociality and ethics. Mainstream economists have certainly long popularized this image. Critics of neoliberal economics often share these assumptions.

But these are not neutral facts, arrived at by observing how businesses and markets actually behave. They are myths and ideological fantasies, created by economists to serve sexist and self-aggrandizing ends. Let me explain by drawing a parallel between well-known feminist economics critiques of the "theory of the household" and the critiques we *should be* more actively making of the "theory of the firm."

Feminist economists were quick to critique the orthodox neoclassical theory of *household* behavior. According to this theory, the household seamlessly maximizes a single "utility function" (i.e., makes decisions that allocate time and resources to provide the greatest satisfaction). The decision-maker is often said to be the household "head." In one influential elaboration of the theory, it was said that "altruism" would motivate the "head" to share the household's resources with the other household

members. The actual agency, needs, and desires of women and children were made invisible, as were power dynamics and situations of disagreement—not to mention situations of conflict, violence, or neglect. Feminist economists pointed out that households in actuality include *multiple* people, and that these people have varied preferences, capabilities, degrees of power, needs, and desires. Households are sites of altruism *and* selfishness, cooperation *and* conflict (Sen 1990). Feminist economists, in unpacking these theories, pointed out that the neoclassical models were based on notions of male dominance and superiority (e.g., Ferber and Birnbaum 1977; Bergmann 1995), while the methodology used reflected "physics envy"—the desire of economists to use math to emulate the methods of the hard sciences (Nelson 1992). The collapsing of an entire, complex (though small scale) social organization into representation by a single "utility function" served the purpose of collapsing household behavior into a calculus "maximization" problem, easily analyzable using equations and graphs. The need to deal with the messiness of actual human and social behavior—the subject matter of sociology and other fields looked down on as "soft" (and hence relatively "feminine" and inferior) by economists—could thus be avoided.

Yet, right alongside the "theory of the household" in microeconomics textbooks, we find the "theory of the firm." In this theory, the business firm is likewise assumed to seamlessly maximize a single function, in this case one representing monetary profits. The firm is assumed to act like a single decision-maker, making decisions without debate and implementing them with no slippage. When economists look at workers within the firm, they assume that they are only self-interested and financially motivated—which, again, facilitates mathematization. About a decade after I had first written on methodology and households, I began to question whether the practice of collapsing of entire, complex, social organization into calculus problems might be just as misleading for firms and workers as it is for households (Nelson 2003). The more I have looked into this, the more I have found it to be so.

The widely believed notion that there is a "mandate to profit-maximize" did not come from careful study of the law or careful observation of the business world: *it was invented by economists*. The idea that people, in their working lives, are solely motivated by financial gain did not come from a careful study of psychology or careful observation of employee behavior: *it was invented by economists*. And similarly for many of the other phenomena often thought to be essential to the nature of capitalism.[1] Really, businesses

are not, in fact, legally required to make every last possible dollar of profit, nor, for many of them, does market competition force this on them (Bratton 2011; Nelson 2011; Stout 2012). Employees do not check their values and emotions at the door, when they go to work (Herzberg 1987; Nelson 1999). Money is a part of real human and social relationships (Zelizer 2011).

Folbre's claim—with my friendly amendments—is that "*All* goods and services could potentially be inputs into the provision of care" and "*All* workers could potentially make important contributions to the care economy." If we suitably delve into the work of studying how firms and commerce really work, we could help to make this a reality (Nelson 2006). Since we would no longer buy into the constructed (and misleading) dualism of care *versus* profit, we would see that we do not need to wait for some utopian dismantling of the corporate sector. Rather, by working to revive standards of care and responsibility in commerce (Nelson 2016), we could directly combat the neoliberal ideology that preaches that work under capitalism is devoid of social meaning and uncaring. The fact that this ideology is fast becoming a self-fulfilling prophecy has become all too obvious. We should examine all real-world institutions, big and small, to see how and where they promote well-being, and how and where they promote ill-being. No longer trapped by an image of the economy as an asocial "other," we would be freed to demand that it serve human needs.

4   CONCLUSION

The bad news is that not all "care work" promotes health and well-being. The good news is that authentic care is much more possible in the economy at large than (mainstream) economists have led us to believe. If we understand these two points, we will be better equipped to help to transform not only the "direct care" economy, but the current "indirect care" economy in the direction of better serving human needs.

NOTE

1. I find it discouraging how often feminist scholars who are very careful to avoid "essentializing" gender or talking about women's "nature" turn around and expound upon presumably essential, a-historical, totally non-socially constructed characteristics believed to make up the irredeemable "nature" and "essence" of capitalism. For interesting work on why humans are drawn to essentializing, see Gelman (2005).

References

Bergmann, Barbara (1995). Becker's theory of the family: Preposterous conclusions. *Feminist Economics*, 1(1), 141–150.

Bratton, William W. (2011). At the conjunction of love and money: Comment on Julie A. Nelson, Does profit-seeking rule out love? Evidence (or not) from economics and law. *Washington University Journal of Law and Policy*, 35, 109–115.

England, Paula, Michelle Budig and Nancy Folbre (2002). Wages of virtue: The relative pay of care work. *Social Problems*, 49(4), 455–473.

Ferber, Marianne A., and Bonnie G. Birnbaum (1977). The "new home economics": Retrospects and prospects. *Journal of Consumer Research*, 4, 19–28.

Folbre, Nancy (2006). Measuring care: Gender, empowerment, and the care economy. *Journal of Human Development*, 7(2), 183–199.

Gelman, Susan A. (2005). Essentialism in everyday thought. *Psychological Science Agenda*, 19(5), 1–6.

Held, Virginia (2005). *The Ethics of Care: Personal, Political, Global*. New York: Oxford University Press.

Herzberg, Frederick (1987). One more time: How do you motivate employees? *Harvard Business Review*, 65(5), 109–120.

Hochschild, Arlie Russell (2003). *The Commercialization of Intimate Life*. Berkeley, CA: University of California Press.

Nelson, Julie A. (1992). Gender, metaphor, and the definition of economics. *Economics and Philosophy*, 8, 103–125.

Nelson, Julie A. (1999). Of markets or martyrs: Is it ok to pay well for care? *Feminist Economics*, 5, 43–60.

Nelson, Julie A. (2003). Separative and soluble firms: Androcentric bias in business ethics. In Marianne Ferber and Julie A. Nelson (Eds.), *Feminist Economics Today: Beyond Economic Man*. Chicago: University of Chicago Press.

Nelson, Julie A. (2006). *Economics for Humans*. Chicago: University of Chicago Press.

Nelson, Julie A. (2011). Does profit-seeking rule out love? Evidence (or not) from economics and law. *Washington University Journal of Law and Policy*, 35(69), 69–107.

Nelson, Julie A. (2016). Husbandry: A (feminist) reclamation of masculine responsibility for care. *Cambridge Journal of Economics*, 40(1), 1–15.

Noddings, Nel (2010). *The Maternal Factor: Two Paths to Morality*. Berkeley: University of California Press.

Ruddick, Sara (1989). *Maternal Thinking: Toward a Politics of Peace*. Boston: Beacon Press.

Sen, Amartya (1990). Gender and cooperative conflicts. In Irene Tinker (Ed.), *Persistent Inequalities*. New York: Oxford University Press.

Stout, Lynn (2012). *The Shareholder Value Myth: How Putting Shareholders First Harms Investors, Corporations, and the Public*. San Francisco: Berrett-Koehler.

Zelizer, Viviana A. Rotman (2011). *Economic Lives: How Culture Shapes the Economy*. Princeton: Princeton University Press.

Julie A. Nelson is Professor of Economics at the University of Massachusetts Boston. She is the author of *Economics for Humans* (2006) and *Feminism, Objectivity, and Economics* (1996), as well as many journal articles, and coeditor of *Beyond Economic Man: Feminist Theory and Economics* (1993) and *Feminist Economics Today* (2003).

Caregiving by Older Adults in the United States: Gender Differences in Well-being

Charlene M. Kalenkoski

1 INTRODUCTION

Unpaid caregiving by older adults is substantial. Johnson and Schaner (2005) report that nearly 40% of people aged 55 and older spent time caring for family members in 2002. They also report that about 7% of adults aged 55 and older cared for multiple generations of relatives and that the likelihood of providing spousal care increases with age. The U.S. Bureau of Labor Statistics (BLS) (2015) reports that 23% of individuals aged 45–64 and 17% of individuals aged 65 and over provide care to elderly adults, based on the 2013–2014 American Time Use Surveys (ATUS).

Given the prevalence of caregiving by older adults, it is important to examine how such caregiving may affect their well-being. In general, caregiving can affect the caregiver's utility (i.e., happiness or satisfaction) in multiple ways. The caregiver may derive utility directly from the well-being of the recipient of the care. This may be thought of as outcome utility. For example, if I care for an ailing spouse, then the well-being of my spouse will increase. Because I care directly about my spouse's

C.M. Kalenkoski (✉)
Department of Personal Financial Planning, Texas Tech University,
Lubbock, TX, USA
e-mail: charlene.kalenkoski@ttu.edu

well-being, my well-being will increase. However, there is also process utility or disutility that can be obtained as a result of caregiving. For example, if I take my ailing spouse to the park and I enjoy the conversation, I can obtain direct, positive utility from this caregiving activity. However, if I need to help my spouse use the bathroom, I may find this unpleasant, generating direct negative utility from the caregiving activity.

Another way caregiving can increase utility is if caregiving is performed as an investment. A good example is child caregiving. If I care for my children, then they will care for me in the future and so my future utility will be higher or they will do better in the future and that increases my utility (Kimmel and Connelly 2007). Alternatively, if I care for an ailing parent, then my children will learn from my example and care for me in the future, increasing my future utility (Cox and Stark 2005).

Finally, caregiving can affect the caregiver's utility through social norms and approbation. If the caregiver cares about following social norms and/or social approval, and caregiving is deemed to be an appropriate, desirable, and/or necessary activity, then the caregiver will derive utility in this way from the social approbation of caregiving.

This chapter uses activity-level data from the 2009 Disability and Use of Time Supplement (DUST) to the Panel Study of Income Dynamics (PSID) to examine how the unpaid caregiving responsibilities of older adults affect their well-being, paying particular attention to gender differences. The results show that controlling for pre-existing levels of reported life satisfaction, caregiving activities are associated with reduced levels of tiredness and pain compared to other activities by husbands. Wives did not experience any difference in tiredness or pain while engaging in caregiving compared to other activities. In addition, caregiving activities are not found to elicit any greater or lesser amounts of calm, happiness, frustration, worry, or sadness than other activities by either husbands or wives.

2   Evidence on Caregiving for Frail Older Adults and Dementia Patients by Caregivers of Any Age

Much of the existing evidence on caregiving for frail older adults and dementia patients has focused on physical and medical caregiving activities and has found mainly negative associations between caregiving and the well-being of the caregiver. Pinquart and Sorenson (2003) present results from a meta-analysis of caregiving studies that examine differences in the

well-being of caregivers and non-caregivers to frail older adults. They find that these caregivers have higher levels of stress and depression and lower levels of subjective well-being, physical health, and self-efficacy than non-caregivers. Vitaliano et al. (2003) also show results from a meta-analysis, but they focus on studies of caregivers for dementia patients. They find that caregivers of dementia patients exhibit a slightly higher risk for health problems than non-caregivers. Not all effects have been found to be negative, however. While Pinquart and Sorenson (2004), in yet another meta-analysis of caregivers for older adults, find that caregiving stressors are associated positively with depression, they also find that there are "uplifts" of caregiving that are associated positively with well-being.

Hansen et al. (2013) examine the effects of providing personal care for a parent on the well-being of the caregiver in Norway. In particular, they examine effects on cognitive well-being as measured by life satisfaction, partnership satisfaction, and self-esteem. They also examine the effects of such caregiving on affective well-being as measured by happiness, positive and negative affect, depression, and loneliness. Finally, they examine the effects on the caregiver's sense of mastery, defined as the extent to which people feel they can affect outcomes in their own lives. Overall, they too find negative effects of caregiving on the caregiver's well-being, but only when the caregiver is co-resident with the recipient of care.

3   Evidence on Caregiving Performed by Older Adults

Deaton and Stone (2013) use data from the Gallup Healthways Wellbeing Index to examine the effects of living with children under age 18 on elderly Americans' well-being. Their measures of well-being are the Cantril Ladder, a life evaluation measure, that asks people to rate their lives on a scale of 0 (the worst possible life for you) to 10 (the best possible life for you). They also examine respondents' answers to questions asking "whether or not they experienced X 'during a lot of the day yesterday'." Using these measures, they find that elderly Americans who live with people under age 18 have lower life evaluations than those who do not. They also find that American elderly who live with people under age 18 experience less happiness and enjoyment and more stress, worry, and anger than those who do not. This is the case even after controlling for selection into co-residence with these young people. However, they only examine the effects of co-residence, not caregiving itself. The data do not provide information about actual caregiving provided by the elderly to such children, just their presence in the

household. However, contrary results are found by another study (Stanca 2012). While Stanca also shows negative effects of having children on life satisfaction and happiness worldwide, she finds that the effects for widowers and older individuals are positive.

Most relevant to the analysis performed in this chapter is a recent study by Kalenkoski and Oumtrakool (2017) that uses the 2010 and 2012 ATUS and their accompanying Well-being Modules. It focuses on the process utility/disutility that retirees experience from performing caregiving activities and finds mostly negative effects. The caregiving activities they examine are broad categories that include caring for household children, caring for non-household children, caring for household adults, and caring for non-household adults. The aspects of well-being they examine include how meaningful respondents find their activities and how much happiness, sadness, tiredness, pain, and stress their activities cause them. Also using ATUS data, Connelly and Kimmel (2015) examine the effects of caring for children on caregiver's well-being using affect measures and an unpleasantness index derived from these measures. The unpleasantness index is defined as the percentage of time devoted to activities that are experienced as unpleasant. They focus on mothers and fathers only and do not find any gender differences in the effects of caregiving on these measures of well-being. However, given that their focus is on mothers and fathers, their sample is younger than that investigated here.

The similarities between the analysis performed in this chapter and the Kalenkoski and Oumtrakool (2017) paper are that both examine older adults as caregivers, both utilize time-diary data, and both examine affect measures reported for three randomly selected activities on a diary day. However, there are major differences between the studies, many of which have to do with the different sources of data and the well-being measures available in each. First, while Kalenkoski and Oumtrakool examine retirees specifically, this chapter examines all older adults, whether working or not. Second, the affect measures reported for each activity are similar, but not exactly the same in the two studies. Both the ATUS and the DUST ask for levels of happiness, tiredness, sadness, and pain associated with an activity. However, only the ATUS asks for the meaningfulness of the activity and the level of stress created by the activity, while only the DUST asks about the levels of calm, frustration, and worry associated with the activity. Third, Kalenkoski and Oumtrakool compress the activity-level data to the respondent level and do a respondent-level analysis, while this chapter uses the activity as the unit of observation. Fourth, the ATUS is much larger in terms

of sample size than the DUST used in this chapter. Fifth, Kalenkoski and Oumtrakool are able to identify broad recipients of care (adults or children inside or outside the household) using the ATUS, while this is not possible in this chapter. Ideally, one would like to examine whether the recipient of care is a grandchild, spouse, or parent and this is theoretically possible in the DUST. However, the small sample size in the DUST does not allow examination of caregiving by the type of recipient separately. Sixth, the ATUS includes respondents of all marital statuses, while DUST 2009 includes married couples only.[1] Seventh, the ATUS does not include a global life satisfaction measure to control for pre-existing well-being (i.e., well-being prior to performing an activity recorded in the time diary) so Kalenkoski and Oumtrakool (2017) must model selection into caregiving. Because the DUST includes a global life satisfaction measure reported prior to performing any diary-day activity, which can be included to control for existing well-being, it simply can be included as a control on the right-hand side of the regression equations that are estimated in this chapter. Eighth, due to the requirements of modeling selection into caregiving jointly with the effects of caregiving on various measures of well-being, Kalenkoski and Oumtrakool (2017) include only a dummy variable in their models to account for gender differences. The DUST analysis in this chapter examines caregiving separately by gender.

Perhaps as a result of any or all of these differences, Kalenkoski and Oumtrakool find many negative effects of caregiving on well-being as measured by affect and meaningfulness of the activity, while this chapter finds no negative effects for either men or women and a couple of positive effects of caregiving for men. However, a key contribution of this chapter is the inclusion of a measure of global life satisfaction as an explanatory variable. Studies that do not include such a measure or do not adequately control for selection into caregiving may have an omitted variable bias problem if less satisfied/happy individuals report more negative affect scores and less positive affect scores and are more likely to engage in caregiving than more satisfied/happy individuals. If this is the case, then any estimated negative effects of caregiving on affect may be overstated.

4   Data

This paper uses the DUST Supplement to the PSID. DUST sampled married couples in the PSID in which both spouses were at least age 50 on December 31, 2008 and at least one spouse was at least age 60. The

sample is representative of married people aged 60 and over and their spouses. Each spouse was asked to complete a survey and two time diaries, one for a weekday and one for a weekend day. The data collection period was approximately five months, from July 2009 through November 2009.

A subsample of the activities reported in the diaries was selected for well-being or "affect" questions. These included how happy, calm, frustrated, worried, sad, and tired each activity made the respondent feel and how much pain he or she experienced as a result of the activity. Answers to these questions fell on a scale from 1 (*not-at-all* happy, calm, frustrated, worried, sad, tired, or in pain) to 7 (*very* happy, calm, frustrated, worried, sad, tired, or in pain). Given this scale, an ordered probit model is estimated for each of these well-being measures, where the unit of observation is an activity.

The key explanatory variable is an indicator for whether the activity was a caregiving activity. Caregiving activities are defined to be those categorized as "Physical Care and Assistance to Others" and "Medical Care for Others." Missing information and small sample size prevented the use of more detailed caregiving variables that would indicate for whom this assistance is provided, such as a spouse or parent.

All ordered probit models are estimated separately by gender and control for the respondent's age and global life satisfaction. The global life satisfaction measure is provided by the survey respondent prior to completing his or her time diaries and is included to ensure that the reported effects of caregiving activities on well-being are particular to those activities being performed and are not the result of pre-existing differences in the well-being of the person performing the activity. It is also measured on a scale of 1–7, with 1 being the lowest level of life satisfaction and 7 being the highest. It is included as a continuous regressor rather than a series of dummy variables due to a lack of variation within some cells. Activity-level weights are provided and used to ensure that the results based on this subsample are representative of all activities engaged in by older married couples.

5   RESULTS

Table 1 shows descriptive statistics for the two samples, activities performed by husbands (N = 2,128) and activities performed by wives (N = 2,249), weighted to be representative of all activities. Both husbands

Table 1 Descriptive statistics

	Husbands		Wives	
	Mean	Standard error	Mean	Standard error
Dependent variables (ranges from 1 (not at all) to 7 (very))				
Calm	**6.405**	0.038	**6.306***	0.053
Happy	6.063	0.048	5.946	0.056
Frustrated	1.802	0.061	1.924	0.079
Worried	1.537	0.053	1.623	0.061
Sad	**1.261**	0.029	**1.423*****	0.057
Tired	2.539	0.087	2.629	0.080
Pain	1.767	0.072	1.967	0.092
Caregiving activity (= 1 if yes; 0 if no)	0.019	0.005	0.026	0.005
Respondent age	**69.055**	0.577	**66.145*****	0.490
Respondent life satisfaction	6.052	0.060	6.010	0.072
Number of observations	2,128		2,249	

These means are weighted using DUST activity weights and are thus representative of all activities. *** indicates that the means are statistically different at the 1% level, ** indicates that the means are statistically different at the 5% level, and * indicates that the means are statistically different at the 10% level

and wives, on average, report high levels of calm and happiness and low levels of frustration, worry, sadness, tiredness, and pain with respect to their activities. However, wives report a statistically lower level of calm and a statistically higher level of sadness than husbands. Table 1 shows that the wives in the sample are younger than the husbands in the sample, as expected.

Table 2 shows the estimated coefficients and standard errors for the ordered probit models. The estimated coefficients show the effects of the explanatory variables on the latent well-being of the person performing an activity. Husbands report lower levels of tiredness and pain with caregiving activities compared to other activities. They do not experience differential levels of calm, happiness, frustration, worry, or sadness in caregiving activities compared to other activities. Wives do not experience any differences in affect measures between caregiving and other activities.

Table 2 Ordered probits: Caregiving and reported well-being

	Calm	Happy	Frustrated	Worried	Sad	Tired	Pain
Panel A: Husbands (N = 2,128)							
Caregiving activity	0.362	-0.313	-0.172	-0.162	0.041	-0.701***	-0.737***
Age	0.003	0.007	0.005	0.001	0.019*	-0.001	-0.000
Life satisfaction	0.274***	0.416***	-0.172***	-0.147**	-0.214***	-0.201***	-0.136
Panel B: Wives (N = 2,249)							
Caregiving activity	0.068	0.241	-0.150	0.146	0.058	0.321	-0.296
Age	0.008	0.022***	-0.010	-0.014**	-0.017***	-0.011*	-0.000
Life satisfaction	0.194***	0.268***	-0.139***	-0.201***	-0.190***	-0.108***	-0.123***

Regression coefficients are presented. They show the associations of the explanatory variables with latent well-being. Standard errors are in parentheses. These results are weighted using the DUST activity weights. *** indicates statistical significance at the 1% level, ** indicates statistical significance at the 5% level, and * indicates statistical significance at the 10% level

Life satisfaction of the performer of an activity does greatly affect how well-being from an activity is reported. For both husbands and wives, greater overall life satisfaction results in greater reported levels of calm and happiness and lower reported levels of frustration, worry, sadness, and tiredness from an activity. For wives, greater overall life satisfaction also leads to lower levels of pain reported by wives from any given activity.

Age also plays a role in reported well-being. Older husbands experience greater levels of sadness with any given activity than younger ones. Older wives experience greater levels of happiness and lower levels of worry, sadness, and tiredness than younger ones.

Table 3 shows the marginal effects of an activity being a caregiving activity on the probabilities of choosing particular categories of each of the affect measures. Caregiving activities performed by husbands increase the probability of being in the not-at-all categories of tiredness and pain by 0.263 and 0.206, respectively, and decrease the probabilities of being in the greater tiredness and pain categories compared to other activities. Husbands are also slightly less likely to report being in the not-at-all calm category and slightly more likely to be in the next to highest happy category. Wives are slightly more likely to report middle categories of tiredness in caregiving activities compared to other activities.

6   CONCLUSION

This study examines the effects of engaging in caregiving activities on the well-being of the caregiver and finds that caregiving activities are associated with lower levels of tiredness and pain than other activities for husbands. Caregiving activities are not different at all from other activities in how they affect wives' well-being. This result differs from others in the literature that find negative effects of caregiving on the well-being of caregivers. Unlike other studies, this study controls for general life satisfaction to ensure that measured changes in well-being are the result of performing a caregiving activity rather than the result of pre-existing differences in the general well-being of caregivers and non-caregivers. Future research will focus on broader measures of caregiving beyond simply physical and medical care.

Table 3 Marginal effects of caregiving on reported well-being

	Calm	Happy	Frustrated	Worried	Sad	Tired	Pain
Panel A: Husbands (N = 2,128)							
Category chosen							
1 (not at all)	**-0.008***	0.015	0.054	0.045	-0.008	**0.263***	**0.206***
2	-0.002	0.002	-0.007	-0.010	0.003	-0.252	**-0.046***
3	-0.006	0.006	-0.011	-0.010	0.002	**-0.051***	**-0.060***
4	-0.019	0.038	-0.011	-0.010	0.001	**-0.063***	**-0.047***
5	-0.029	0.036	-0.008	-0.009	0.001	**-0.066***	**-0.034***
6	-0.051	**0.015***	-0.011	-0.003	0.001	**-0.038***	**-0.009***
7 (very)	0.116	-0.112	-0.005	-0.002	0.001	**-0.019***	**-0.009***
Panel B: Wives (N = 2,249)							
1 (not at all)	-0.002	-0.007	.050	-0.045	-0.014	-0.121	0.104
2	-0.001	-0.001	-0.008	0.009	0.003	-0.005	-0.016
3	-0.001	-0.004	-0.007	0.008	0.003	**0.006***	-0.025
4	-0.006	-0.025	-0.008	0.010	0.004	**0.028***	-0.024
5	-0.008	-0.034	-0.011	0.008	0.002	0.038	-0.019
6	-0.009	-0.020	-0.009	0.005	0.001	0.026	-0.012
7 (very)	0.025	0.091	-0.006	0.005	0.001	0.029	-0.009

These results are weighted using the DUST activity weights. *** indicates statistical significance at the 1% level, ** indicates statistical significance at the 5% level, and * indicates statistical significance at the 10% level

NOTE

1. DUST 2013 includes respondents with other marital statuses.

REFERENCES

Connelly, Rachel, and Jean Kimmel (2015). If you're happy and you know it: How do mothers and fathers in the US really feel about caring for their children? *Feminist Economics*, 21(1), 1–34.

Cox, Donald, and Oded Stark (2005). On the demand for grandchildren: Tied transfers and the demonstration effect. *Journal of Public Economics*, 89(9), 1665–1697.

Deaton, Angus, and Arthur A. Stone (2013). Grandpa and the snapper: The wellbeing of the elderly who live with children. NBER Working Paper No. 19100.

Hansen, Thomas, Britt Slagsvold, and Reidun Ingebretsen (2013). The strains and gains of caregiving: An examination of the effects of providing personal care to a parent on a range of indicators of psychological well-being. *Social Indicators Research*, 114, 323–343.

Johnson, Richard W., and Simone G. Schaner (2005). Many older Americans engage in caregiving activities. The Retirement Project: Perspectives on Productive Aging, No. 3, pp. 1–5.

Kalenkoski, Charlene Marie and Eakamon Oumtrakool (2017). The caregiving responsibilities of retirees: What are they and how do they affect retirees' well-being? *Applied Economics,* 49(13), 1298–1310.

Kimmel, Jean, and Rachel Connelly (2007). Mothers' time choices: Caregiving. leisure, home production, and paid work. *Journal of Human Resources*, 42(3), 643–681.

Pinquart, Martin, and Silvia Sorenson (2003). Differences between Caregivers and Noncaregivers in Psychological Health and Physical Health: A Meta-Analysis. *Psychology and Aging*, 18(2), 250–267.

Pinquart, Martin, and Silvia Sorenson (2004). Associations of caregiver stressors and uplifts with subjective well-being and depressive mood: A meta-analytic comparison. *Aging and Mental Health*, 8(5), 438–449.

Stanca, Luca (2012). Suffer the little children: Measuring the effects of parenthood on well-being worldwide. *Journal of Economic Behavior and Organization*, 81, 742–750.

U.S. Bureau of Labor Statistics (2015). Unpaid Eldercare in the United States: 2013–2014 data from the American time use survey. News Release 9/23/15.

Vitaliano, Peter P., Jianping Zhang, and James M. Scanlan (2003). Is caregiving hazardous to one's physical health? A meta-analysis. *Psychological Bulletin*, 129(6), 946–972.

Charlene M. Kalenkoski is Professor and the Director of the Ph.D. program in Personal Financial Planning at Texas Tech University. She graduated from the George Washington University with her Ph.D. in Economics in 2002.

Division of Workforce and Domestic Labor Among Same-Sex Couples

Esther D. Rothblum

1   INTRODUCTION

One Father's Day the *New York Times Magazine* featured a cover story entitled "When Mom and Dad Share it All" (Belkin, July 15, 2008) about heterosexual married couples who try to be true equals in sharing housework and child caregiving. The article describes a number of challenges related to gender roles that couples face in this endeavor. According to Belkin, couples who share housework equally are rare, since on average wives spend twice as much time per week doing housework as husbands, and five times as many hours as husbands in child caregiving. Men who "help out" just a bit already feel virtuous when comparing themselves to their fathers. Women are more experienced and thus competent in tasks such as cooking and changing diapers, so that they end up in the supervisory role. Women assume the "gatekeeper" role, reminding husbands whose turn it is to do the laundry or when it is time to take the children to the dentist. If their child arrives at daycare with mismatched socks, or the in-laws do not get a holiday card, it is wives who feel the social pressure to set higher standards. Women may be attracted to men with high ambitions,

E.D. Rothblum (✉)
Department of Women's Studies, San Diego State University,
San Diego, CA, USA
e-mail: erothblu@mail.sdsu.edu

283

which translates into husbands who earn high salaries and spend long hours at the office, not those who are home with the children. In fact, workplaces may be more accommodating for women who want shorter hours in order to take care of children than they are with men who ask for flexible schedules. Finally, Belkin suggests that women may want to be the parent that young children call for when they want to be soothed at night.

The article then states "There is one pocket of American parenting in which equality is the norm or, at least, the mutually-agreed-upon goal. Same-sex couples cannot default to gender when deciding who does what at home" (Belkin 2008, p. 7). This chapter will present some methodological challenges and opportunities in using same-sex couples as a model for division of labor in the home and in the workforce. It will review the literature on same-sex couples' division of employment, housework, and child caregiving, focusing specifically on income and gender roles.

2   METHODOLOGICAL CHALLENGES AND OPPORTUNITIES IN STUDYING SAME-SEX COUPLES' DIVISION OF LABOR

2.1   Who Is a Couple?

The vast majority of the heterosexual couple literature has focused on married couples, and research on cohabiting heterosexual couples finds them to be more egalitarian than those who are married. In the absence of legal relationships for same-sex couples before the year 2000, researchers studying same-sex couples had to decide how to define a couple (see Rothblum 2008, for a review). Some researchers included anyone who was in a same-sex relationship, no matter how recently, some stipulated a minimum length of relationship (e.g., 1 year or 5 years), and others required that couples needed to be living together in order to be included in the study. For same-sex couples not in legalized relationships, it may be difficult to define the relationship, and the two partners may disagree on the seriousness or degree of commitment. Green and Mitchell (2002, p. 552) describe the possible varieties of relationships as: "Is it a best friendship, a social acquaintanceship, a romantic involvement, a lifelong primary commitment, a temporary dating relationship, a mainly sexual encounter, a commercial exchange, a temporary separation, a mentoring arrangement, an ongoing affair secondary to a primary relationship, or a former-lovers-now-friends bond?"

2.2   *Who Are the Heterosexual Comparison Groups?*

It is not easy to find lesbians, gay men, bisexuals (LGBs) and heterosexuals using the same data sources. Researchers who recruit participants via subscribers to LGB periodicals and members of LGB organizations will find few heterosexuals and those who recruit participants via "mainstream" sources will find few LGBs. Consequently, heterosexual comparison groups are often far from ideal.

What further complicates the difficulty in finding appropriate heterosexual comparison groups for LGBs is that studies of LGBs find them to be demographically very different from heterosexuals in the general population. For example, lesbians and gay men are more highly educated and not very religious, and gay men tend to live in large urban areas (see Rothblum 2008, for a review). This could be due to actual differences between LGBs and heterosexuals, or to the very different recruiting sources that have been used.

Fortunately, large, population-based surveys now routinely ask one or more items about sexual orientation, including the US Census that since 1990 has asked about unmarried partners of either gender who are living in the same household (e.g., Black et al. 2000). Yet there are some problems with census data. Black et al. (2000) estimated that there were 6,863 same-sex partnered households in the 1990 Census 5 percent Public Use Micro Sample (PUMS); while this is a huge number compared to more specialized datasets, the same-sex households make up only 0.1% of the over 5 million other households in the census. Thus, if even a small percentage of heterosexual couples checks off a wrong box on the survey so that they are erroneously classified as same-sex couples, a large proportion of the sample of same-sex couples will consist of misclassified data. Furthermore, as Black et al. state, it is difficult to know how representative same-sex couples in census data are compared with same-sex couples who are living apart or those who do not want the government to know about their sexual orientation.

I have argued in the past (see Rothblum et al. 2005, for a review) that a useful comparison group for LGBs are their heterosexual siblings. Siblings are generally the same race, ethnicity, and age cohort, and grew up with the same religion and parental socioeconomic status. My research on LGBs and their siblings (Rothblum and Factor 2001; Rothblum et al. 2004, 2005) has shown that lesbians are more highly educated, have occupations with greater status, are less religious, and more geographically mobile than heterosexual women recruited from sisters. Heterosexual women are more similar to census data in terms of marriage, children,

religion, and homemaker status. Gay men have moved to large cities, are more highly educated, and less likely to have children than heterosexual men recruited from brothers. In general, bisexual women are more comparable demographically to lesbians, whereas bisexual men are more similar to heterosexual men. Interestingly, despite their higher educational levels, LGBs in our studies do not earn higher incomes than heterosexual siblings (see Rothblum et al. 2007, for a review).

These demographic differences have a number of implications for comparisons of same-sex and opposite-sex couples on division of labor. Full-time homemakers do a large proportion of housework and child caregiving, yet the role of homemaker is reserved almost completely for heterosexual married women. Division of labor among opposite-sex couples becomes even less egalitarian when couples have children, and opposite-sex couples are far more likely to have children (80% in our research; Solomon et al. 2004) than female same-sex couples (33%) and male same-sex couples (12–16%). It is possible that opposite-sex couples' greater religiosity influences a more traditional division of labor. Even the fact that siblings earn comparable individual incomes does not translate into comparable household income. Same-sex couples consisting of two men will have a higher standard of living than couples consisting of a man and a woman or of two women.

There is also a difference between same-sex and heterosexual couples who have children. Due to the cost of adoption and donor insemination, the major ways that lesbian couples have children, and the cost of egg donors and surrogacy, the main ways that gay male couples have children, these couples tend to be older and economically well off when compared with heterosexual couples. Same-sex couples are also more likely to adopt children of color (e.g., Patterson et al. 2004).

2.3   Division of Domestic Labor as Self-report

Compared to more subjective issues such as morality, religiosity, and relationship satisfaction, it would seem that nothing could be more objective than reporting housework. But, in fact, the various types of activities that constitute housework are complex and highly variable. "Cooking" can refer to anything from micro-waving a processed meal purchased by one's partner to serving dinner to a large family in which every item is made from scratch. "Doing the laundry" may or may not include ironing and putting the clothes away.

Carrington (1999) interviewed 52 same-sex couples in the San Francisco Bay Area and also accompanied and observed eight couples for a week as they went about household duties. He states (p. 14): "Separate interviews with partners resulted in contradictory accounts of many aspects of domesticity. There were also many contradictions between what the interviews elicited and what I observed in the field study. Such contradictions point to the importance of recognizing that powerful ideological pressures influence participants' answers to questions about domestic work." Similarly, in a study of 76 gay men parenting children, Panozzo (2015) found that 56% of gay fathers reported sharing child caregiving equally based on a global item, but when specific parenting tasks were listed only 12% indicated that they shared each task equally.

In contrast, Khor (2007) found that same-sex couples have high levels of agreement on cooking and dish washing, which she attributed to the fact that these are clearly defined activities that occur on a daily basis. Couples disagreed more often on tasks that were less precise or occurred less frequently.

Carrington (1999) emphasizes that much of housework is both invisible, yet takes an enormous amount of time. He states (p. 180): "Monitoring the house for cleanliness, monitoring the calendar for birthdays, monitoring the catalog for appropriate gifts, monitoring the cupboard for low supplies, monitoring the mood of one's spouse, and monitoring the family finances are all expressions of domesticity, and all are mostly invisible."

3   DIVISION OF WORKFORCE LABOR IN US STUDIES

Given these methodological issues, what *has* the research found about division of labor among same-sex couples? As Patterson et al. (2004, p. 179) state:

> Among heterosexual couples, mothers are generally responsible for the bulk of child caregiving and household work, and fathers are likely to devote more time to paid employment. This pattern, in which one partner's efforts are centered on paid employment and the other partner's efforts are focused on unpaid family work, may be described as specialized.

A number of recent studies have used US Census data and other large, population-based surveys to examine such measures as differences in

income, hours worked, and full- versus part-time employment, to examine differences among types of couples. Overwhelmingly, heterosexual couples show a greater degree of specialization on these measures than same-sex couples (Giddings et al. 2014; Jepsen and Jepsen 2015; Leppel 2009). Both married and cohabiting heterosexual couples are more likely to have one partner (the husband) in the labor force, employed full time, and working more hours per week than male and female same-sex couples (Giddings et al. 2014). The other partner in heterosexual couples (the wife) is engaged in "home production" (Leppel 2009, p. 198). Using 2000 US Census data, Black et al. (2007) found that 19.4% of male and 19.5% of female same-sex couples had only one partner in the labor force compared with 31.9% of heterosexual couples (both married and cohabiting). The discrepancy in specialization is greater for heterosexual married couples than for heterosexual cohabiting couples relative to same-sex couples (Giddings et al. 2014). Yet even same-sex couples show some degree of specialization when compared with non-partnered roommates in 2000 Census data (Jepsen and Jepsen 2015).

Part of this specialization is due to the fact that heterosexual couples are more likely to have children (Giddings et al. 2014). In the 2000 Census, for example, heterosexual women were three times more likely to have children (66%) than women in same-sex relationships (21%; Antecol and Steinberger 2013). This gap in earnings and employment is reduced when controlling for the presence of children (Antecol and Steinberger 2013), but even lesbians with children are more likely to work full time than heterosexual women with children (Leppel 2009; Tebaldi and Elmslie 2006). Gay men with children are less likely to work full time, but only a small percentage of gay men have young children in the home (Jepsen and Jepsen 2015).

In the 2000 US Census, lesbians earn more than heterosexual women, even when lesbians with children are compared with heterosexual women with children, and when lesbians with young children are compared to heterosexual women with young children (Jepsen 2007). Jepsen (2007, p. 712) speculates that " . . . if lesbian couples 'create' their families in ways that are more expensive than the ways that opposite-sex couples 'create' their families, such as through artificial insemination or adoption, we could observe that lesbians with children have higher earnings simply because only those with higher earnings can afford to have children." Furthermore, same-sex marriage did not exist anywhere in the USA during the 2000 US Census, and Jepsen states that lesbians rearing children

needed to earn an income because there would be no child support from a partner in the event of a relationship break-up.

Data from the 2001 Current Population Study (Tebaldi and Elmslie 2006) indicate that gay men are more likely to work part-time and to work fewer hours per week than heterosexual married and heterosexual cohabiting men. Tebaldi and Elmslie postulate that gay men may be discriminated against in the workforce (e.g., due to the stigma of AIDS), while lesbians are favored over heterosexual women (because the latter group may become pregnant or take time off for child care).

Oreffice (2011, p. 146) used data from the 2000 US Census to examine differences within couples in "bargaining power," defined as the partner who has more non-labor financial resources. Heterosexual married men have significantly more financial bargaining power than wives, whereas same-sex couples are more similar in financial assets.

Nevertheless, Giddings et al. (2014, p. 509) have found the "specialization gap" between heterosexual and same-sex couples, though still significant, to have narrowed from the Baby Boomers (born between 1946 and 1965) to Generation X (born between 1966 and 1979) to Generation Y (born between 1980 and 1993). Using data from the 1990 US Census and from the 2000–2011 American Community Survey, they found that with each younger cohort, heterosexual couples are more likely to consist of two partners who are both employed, both employed full time, and who work comparable numbers of hours. Giddings et al. attribute this to the fact that US women were more likely to enter the workforce in recent decades, including married women and women with children. Additionally, they state that the income disparity between men and women has decreased, and so has the birth rate, so that fewer heterosexual couples have children.

3.1   *Division of Domestic Labor in US Studies*

The US Census does not ask about hours spent on housework or child caregiving, so researchers have inferred heterosexual married women's greater responsibility for these tasks from their lower level of employment in the workforce. Patterson et al. (2004) describe the pattern of division of labor among lesbian couples as "shared." This shared pattern has been found repeatedly when researchers survey same-sex couples via quantitative measures. Here, I will review the results of housework and child

caregiving in some of the major same-sex couple studies in the US, many of which are longitudinal and ongoing.

Beginning in 1986 when donor insemination became available to unmarried women, Gartrell and her colleagues (1999) followed 84 lesbian mothers (70 coupled, 14 single) who had a child via donor insemination, first when the mothers were pregnant and continuing to the present day. Semi-structured interviews at time 2, when the children were 2 years old, indicated that 53% of the mothers had reduced their work hours in order to spend more time with the child, and alternated their work schedules so that at least one mother was home with the child most of the time. They reported sharing housework about equally, and 75% of the coupled lesbians reported sharing child caregiving equally. Among the remaining 25%, it was usually the birthmother who was the primary parent in terms of child rearing. When the mothers were interviewed at time 4 when the children were 10 years old, 14 of the 37 couples who were still together (38%) reported sharing housework and child caregiving equally (Gartrell et al. 2006). In seven cases (19%), the birthmother did more domestic and child caregiving work, and in five cases (14%) it was the co-mother.

Kurdek (1993) studied the allocation of household tasks as part of his longitudinal research comparing lesbian, gay male, and heterosexual married couples without children. Lesbian couples tended to share tasks, and both lesbian and gay male couples divided tasks so that each partner performed an equal number of tasks. In married heterosexual couples, women did the majority of household tasks. When Kurdek (2007) compared 36 lesbians and 43 gay men on six household tasks commonly performed by women (dusting/vacuuming, cooking, cleaning the bathroom, laundry, shopping for groceries, and cleaning the dishes), he found no difference between lesbian and gay couples on frequency of doing these tasks. However, lesbian partners tended to do each task equally whereas gay men "specialized" in certain tasks. Partners who were more satisfied with the division of labor also reported higher relationship satisfaction and relationship equality, and were less likely to terminate their relationship in this longitudinal study.

Patterson's (1995) Bay Area Family Study followed 26 lesbian couples who had at least one child aged 4–9 years. Division of domestic labor was measured via the Who Does What? (Cowan and Cowan 1990) scale that has 13 household and 20 child caregiving items scored from 1 (I do it all), 5 (we do this equally), to 9 (my partner does it all). Lesbian mothers

tended to score household tasks as 5, on average, but biological mothers did more child caregiving than co-mothers.

Chan et al. (1998) compared 30 lesbian couples with 16 heterosexual couples recruited from the same sperm bank; thus, both types of couples had one biological and one non-biological parent and a child aged 5–11. The two types of couples were comparable on age, income, length of relationship, and hours spent in paid employment, though lesbians had higher levels of education. Division of labor was measured via the Who Does What? Scale; the scores for lesbians were close to a score of 5, indicating equally shared tasks. Heterosexual couples tended to report sharing housework, but heterosexual women did more child caregiving than heterosexual men.

Solomon et al. (2005) examined the division of household tasks and finances among same-sex couples who had civil unions in Vermont, their coupled same-sex friends who had not had civil unions, and married heterosexual siblings and spouses. In this longitudinal study, they used a scale of the division of housework from the Blumstein and Schwartz (1983) American Couples Study. This 19-item subscale assessed which partner does various household tasks (e.g., repairing things around the house, doing the dishes, taking out the trash). Items were rated on 9-point Likert Scales where 1 = "I do this all of the time," 5 = "We do this equally," and 9 = "He/she does this all of the time." Items could also be marked "not applicable." Summary variables were created by taking the mean score for traditionally women's housework and traditionally men's housework items. The Women's Housework subscale included doing the dishes, cooking breakfast, cooking dinner, vacuuming, doing laundry, cleaning the bathroom, shopping for groceries, and ironing. The Men's Housework subscale included repairing things, taking out the trash, mowing the lawn, and driving the car. The Division of Finances subscale, also from the American Couples Study, asked whose income pays for each of 10 items (e.g., rent/house payment, utilities, groceries). Items were rated on 9-point Likert Scales where 1 = "my income pays for all," 5 = "both of our incomes contribute equally," and 9 = "my partner's income pays for all." Items could also be marked "not applicable."

Married heterosexual women reported doing more of the household tasks than their husbands did, including doing the dishes, cooking the evening meal, vacuuming the carpets, doing the laundry, cleaning the bathroom, doing the grocery shopping, ironing, and taking the children to their activities and appointments. Married heterosexual women

reported that their husband more often took out the trash, took care of the lawn, fixed drinks for company, and drove the car when the couple was going somewhere in town together. Lesbians in civil unions and those not in civil unions were more likely to report sharing these household activities more equitably. Married heterosexual women were more likely to report that their partner paid for items in general, including rent/mortgage, utilities, groceries, the women's own clothing, major household appliances, entertainment and eating out, and the women's personal spending money. Lesbians in civil unions and those not in civil unions tended to report sharing finances more equally.

Among men in this study, married heterosexual men reported greater responsibility than their wives for repairing things around the house, taking out the trash, doing the grocery shopping, taking care of the lawn, fixing drinks for company, and driving the car when they are going somewhere in town. Married heterosexual men reported doing less cooking of the evening meal, vacuuming, laundry, cleaning the bathroom, and ironing than their wives. Gay men in both types of groups (those in civil unions and those not in civil unions) reported sharing household tasks more equitably.

The couples in all of these studies are overwhelmingly white, highly educated, and earning high incomes. Moore (2008) surveyed 32 lesbians who were African American ($N = 28$) or in partnered relationships with African American women (2 Latinas and 2 white women). All couples had children, 59% were in working-class occupations, and the sample had a wide range of education. Generally, partners' individual incomes were comparable, and each partner valued economic independence. Using the scale of the division of housework from the Blumstein and Schwartz (1983) American Couples Study, Moore found that the biological mother did more of the housework, which also translated into greater authority over childrearing.

Much of the research on gay fathers consists of men who had children in prior heterosexual relationships; there has been relatively little research focused on gay fathers who had children after coming out. Tornello et al. (2015) surveyed 52 gay fathers who had a child via surrogacy. This is expensive, and so, not surprisingly, the median household income was $230,000. Using the Who Does What? Scale, the authors found gay men to share both housework and child caregiving equally, regardless of who was the biological parent.

Panozzo (2015) studied 76 gay men who had children in the context of a gay male relationship, also using the Who Does What? Scale. About half had adopted children (mostly boys) and one-quarter had a child via surrogacy. In contrast to Tornello et al., Panozzo found fathers to differ in child caregiving, with the partner who earned less money and who had expressed a greater desire to have a child doing more of the child caregiving.

Goldberg et al. (2012) interviewed 55 lesbian, 40 gay male, and 65 heterosexual couples who were in the process of adopting a child, and then interviewed them again post-adoption. The couples did not differ in average age, educational level, length of their relationship, and gender of the child they adopted. Gay male couples had higher incomes and also adopted children who were younger. The authors divided the Who Does What? Scale into feminine tasks ("the most repetitive, time-consuming, inflexible tasks," p. 818) and masculine ones (those that were more flexible and less frequent). Heterosexual couples were the most specialized, with fathers doing masculine tasks and mothers performing feminine tasks.

Prickett et al. (2015) used data from the 2003–2013 American Time Use Survey to examine time spent with children. Women and men in same-sex couples and women in heterosexual couples spent about twice as much time with children as men in heterosexual couples.

Nevertheless, some researchers have criticized the equal division of labor among same-sex couples as exaggerated. Part of the problem is that when a couple consists of two women or two men, it is difficult to conduct between-partner comparisons across a large number of participants (see, e.g., Oerton 1998, for a discussion). Carrington's qualitative and observational study (1999) found a large variety of patterns of domestic labor among same-sex couples. About three-quarters of the couples consisted of one partner who specialized in domesticity. Couples who were more egalitarian were either those with high incomes, who outsourced much of housework, or else young couples, mostly male, who were sharing living space with other housemates and who thus had an explicit arrangement of domestic duties.

3.2   *Division of Domestic Labor in International Studies*

In general, available data from studies conducted outside the US have found similar results among same-sex couples regarding domestic labor. Bos et al. (2007) compared 100 lesbian families in which the child was born into

the relationship with 100 comparable heterosexual families as part of their longitudinal research in the Netherlands. Each parent was asked to complete an activity log every 15 minutes from 7 a.m. to 10 p.m. during an average week in which they checked off whether they were engaged in paid employment, housework, or child caregiving. Compared with heterosexual fathers, both lesbian biological mothers and co-mothers spent more hours on child caregiving and housework, and fewer hours in paid employment. The lesbian co-mothers also spent less time doing housework and more time in paid labor than the heterosexual mothers.

Rawsthorne and Costello (2010) interviewed 17 lesbian mothers in Australia. In a country with excellent paid maternal leave policies, most of the biological mothers took a year's maternal leave and a number of co-mothers also took leaves up to six months. Couples often had a strong commitment to shared housework and child caregiving, but "Work and family life were interacting in such a way that these women were finding it difficult to live up to their own expectations and aspirations of parenthood" (p. 196). The authors found three patterns of domestic labor: (1) individual preferences shaped who did what, (2) couples had traditional division of labor, and (3) couples were "flexible, adaptable and creative" (p. 199). The couples with the more traditional division of labor – the birth mother working part-time and the co-mother full-time – had the most conflict about domestic labor.

Kamano (2009) interviewed 21 lesbians (including both members of 9 couples) in Japan about division of housework, a country in which heterosexual women do a larger share of domestic labor than their husbands, and where the role of housewife has a particular status. The women described a wide range of domestic labor, from one partner doing most of it to both partners sharing each task equally. Kamano found that for most couples, how they divide up housework had undergone a number of changes since they first became a couple, sometimes even involving daily negotiation. Work schedules, personal preferences and abilities, and attitudes toward housework all contribute to division of labor.

Khor (2007) analyzed data of 31 women (including both members of 7 couples) and 24 men (including both members of 5 couples) living with a same-sex partner in Sweden. Among the women, one third shared housework equally, a third almost equally, and a third unequally. Among the men, about one-quarter shared housework equally, over 40% somewhat equally, and one-third unequally. The few couples who had children and/ or pets tended to have one person responsible for child or pet care.

3.3   *The Role of Income in Division of Housework*

Money and housework are not unrelated concepts. Those who earn a higher income (men) do less housework than those who earn a lower income (women). One of the problems in studying division of labor among heterosexual couples is that gender is confounded with income. Because most men earn higher incomes than most women, it is hard to know whether women do more of the housework because of gender role socialization, or because they have less power due to earning less money than their male partners. This is where studying same-sex couples is a methodological opportunity, since it allows examination of income difference without the confounding variable of gender. In the Solomon et al. (2005) study, they conducted a series of hierarchical linear regression analyses in order to identify the extent to which sexual orientation, income difference between partners, and their interaction predicted division of labor. The overall model that predicted women's housework was significant, and it accounted for 33% of the variance. Sexual orientation, income difference between partners, overall contribution to household finances, and total number of hours the couple spent on housework all made unique contributions to the model, whereas income and full-time employment did not. The overall model that predicted men's housework was also significant, and it accounted for 28% of the variance. However, once all variables were accounted for, only sexual orientation made a unique contribution to the model. Thus, being in a same-sex relationship is more important in equalizing housework, than is having similar incomes.

Khor (2007) did not find income to be related to division of labor in her sample of male and female same-sex couples in Sweden. Similarly, Kamano (2009) found that income was rarely mentioned by her lesbian interviewees; in Japan women earn less than men and so the couples viewed themselves as pooling economic resources.

Patterson et al. (2004) proposed four models for why couples might divide household labor. The Relative Resources hypothesis implies that the partner who earns more money does less housework, while the Structural hypothesis postulates that the partner who works fewer hours outside the home does more domestic labor. The Ideological hypothesis suggests that spouses who hold egalitarian views will share household labor, and the Family Systems hypothesis implies that when partners are more satisfied with their relationship, they share domestic labor. The authors surveyed 33 lesbian couples and 33 heterosexual couples, all of

whom were parenting 4–6-year-old children. Division of labor was measured via the Who Does What? Scale. Parents completed this scale in three versions: what they really did, what they ideally would like to do, and how competent they felt doing each task.

Lesbian couples reported more egalitarian division of housework and child caregiving and also considered this division ideal. Heterosexual women did more housework and child caregiving, earned less income, and had occupations with less prestige than heterosexual men. Of the four hypotheses, the Structural hypothesis had the most support in that fewer hours spent in paid employment was associated with that parent's participation in child caregiving for both types of couples. Among lesbian couples there was some support for the Relative Resource and the Ideological hypotheses in that disparities in occupational prestige and education level (but not income) were associated with child caregiving, and so was self-reported ideal distribution of labor. The Family Systems hypothesis was not significant for either type of couple.

3.4   Gender Roles

As Green et al. (1996) have pointed out, the general public often believes that lesbians and gay men play "male" and "female" roles in relationships. They state (p. 219): "Yet this same public remains largely unconscious . . . about its own problematic conformity to the socially constructed 'butch/femme' roles in heterosexual relationships."

In my qualitative study of 64 sexual minority women who identify as femme, butch, or neither (Rothblum 2010), butch/femme identity was a core aspect of many women's lives, and was related to physical appearance, dress, and choice of romantic partner. But it was not related to division of housework and child caregiving. One lesbian in her twenties stated "There is no specific division of labor (except she does roaches, and I do pilot lights) – we prefer to do chores together, but that's not often practical time-wise." Another young lesbian described equal division of housework due to her feminism: "My current lover would very easily let me take over all the cleaning and cooking and she is very good at home repair and would like to do all home repair/maintenance tasks. Unfortunately, I am a feminist and insist that household chores should be shared." Although more research is needed, including studies of men, butch and femme women are models of equality when it comes to division of labor.

In contrast, Moore's (2008, p. 352) study of African-American step-families found that the biological mothers (who did more household labor) tended to report a "more feminine gender display" than their partners. When she examined the scale on division of housework, the more feminine partner reported doing more housework. Similarly, a recent study by Civettini (2016) found that women in same-sex relationships who report higher levels of stereotypically masculine traits did less housework, and men in same-sex relationships who report higher levels of stereotypically feminine traits on the Bem Sex Role Inventory (Bem 1974) did more housework.

Carrington's (1999) interviews indicated a number of exceptions to egalitarian division of labor among same-sex couples. He states (p. 15): "Furthermore, partners in many lesbigay relationships work together to camouflage the actual divisions of domesticity and to prevent threats to the gender identities of their partners, particularly for women who do little domestic work and for men who do a lot." Carrington argues that gay men who do most of the housework under-report this in order to preserve traditional masculine roles, whereas lesbians who do less of the housework are aware of feminist perspectives about equality and thus over-report their labor.

3.5   Transgender Couples

It has become common to refer to sexual minorities with the umbrella term LGBT (lesbian, gay, bisexual, and transgender), yet there is practically no research on couples in which one or both partners are transgender. These individuals do not identify fully with the sex and/or gender to which they were assigned at birth. This includes *transwomen* (referred to in the past as male-to-female) and *transmen* (referred to in the past as female-to-male or FTMs) who want to "pass," others who want to be part of a visible transgender community, and still others for whom it changes depending on context, often for issues of safety. Some individuals take hormones to change their appearance but cannot afford, or have no interest in, genital surgery. Some who embrace fluid and/or non-binary gender identify as *genderqueer*. Transwomen, transmen, and genderqueer individuals differ from *cisgender* (non-transgender) individuals, those whose assigned gender at birth corresponds with their current gender identity.

Transgender couples complicate the meaning of "same-sex couples" since one partner may be transitioning gender during the relationship

and/or either partner may identify as genderqueer. Ward (2010) has written about "gender as labor," focusing on the role of female partners of transmen. She states (p. 239) that there has been almost no attention on "...the intimate relations of transgender world/home-making or the 'wifely' and/or maternal care that often keeps genders, and masculinity in particular, in motion. Here, I place labor at the center of my analysis of femme/FTM relationships in order to focus attention not only on the affective labors that constitute these relations (e.g., compassion, nurturing, witnessing) but also the physical and feminized labors that contribute to the production of queer (and normative) genders (e.g., cooking, sexual services, nursing care, administering gender technology/hormones, chest-binding)."

Pfeffer (2010) interviewed 50 women who were partnered with transgender or transsexual men. Generally, the women did more housework than their partner, yet argued that this was not due to gender role socialization. Pfeffer stated (p. 177): "What was less expected, however, was that these feminist-identified interviewees employed a distinct type of family myth or gender strategy predicated on ideals of individualism, free will, and choice."

Kelly and Hauck (2015) interviewed 30 participants who identified as queer (sexual identities that included lesbian, gay, bisexual, pansexual, and queer) and who also varied in gender identity (including cisgender, transgender, and non-binary gender categories). About half the participants were in couples in which one or both partners were transgender. The results indicated that only 8 out of 30 participants reported sharing housework and child caregiving equally; those couples tended to be ones in which both partners identified as cisgender females. Kelly and Hauck discuss "doing gender" versus "re-doing gender" (challenging normative gender roles) as individuals take on transgender identities. In general, gender identity did not affect division of labor. Instead, factors such as higher income, longer hours in paid labor, and personal preferences determined which partner did which domestic tasks.

4   SAME-SEX COUPLES AS A MODEL?

Research on division of housework and child caregiving overwhelmingly demonstrates that same-sex couples divide these tasks more equally than heterosexual couples. When same-sex couples have children, it is often the biological parent who does more of the child caregiving, but not to the

extent to which heterosexual mothers do most of the child caregiving. At the same time, same-sex couples are aware that they are the objects of greater scrutiny than their heterosexual neighbors, and thus may exaggerate positive aspects of their relationship and downplay the negative. Nevertheless, it is easier to divide chores when two partners are of the same gender, and thus with equally skilled (or unskilled) backgrounds in various domestic tasks.

Among heterosexual parents, those who divide housework and child caregiving more equally are more satisfied with their relationship (See Chan et al. 1998 for a review). In this regard, the more "traditional" division of labor based on gender is not ideal.

Vermont civil union certificates, like marriage certificates, asked whether couple members had been previously married (before the year 2003, "married" meant heterosexual marriage only). Over 40% of same-sex couples who had a civil union in Vermont during the first year of that legislation had previously been in a heterosexual marriage (Solomon et al. 2005). It would be interesting in future research to ask couples how the transition from partnering with an opposite-sex to a same-sex partner changed their views about, and participation in, housework and child caregiving.

What is interesting about the results by Solomon et al. (2005) is that the married couples in this study are not typical heterosexuals, because each heterosexual respondent was the sibling or in-law of a lesbian or gay man. In order to participate in this study, same-sex couples had to be "out" to the sibling and in-law who were sent questionnaires. This raises questions about how women and men are socialized to assume gendered roles in adult relationships, because heterosexuals grew up in the same households as some of the lesbians and gay men in this study.

Heterosexual women are also unique among other groups in that they alone typically identify as homemakers if they are not employed outside the home. This identity is rarely assumed by lesbians or gay men in couples when one partner is not employed. Dunne (1997, 1998) interviewed 60 non-heterosexual women in the United Kingdom. What was striking to these women as they came out as sexual minorities was a realization that they could not rely on men for income. Dunne states (1998, p. 3): "It could be seen, for example, that a lesbian lifestyle both *necessitates* and *facilitates* financial self-reliance." Consequently, a number of women obtained higher education or changed to higher paying jobs (often blue-collar and more non-traditional for women).

Does parental division of labor influence children's gender roles? Fulcher et al. (2008) surveyed 66 children aged 4–6 years, half of whom had lesbian parents and half heterosexual parents, about their "occupational aspirations." Children whose parents divided work less equally had more traditional, gender-related aspirations. As in other studies, lesbian parents divided housework and child caregiving more equally, and worked more equal numbers of hours outside the home than did heterosexual parents. Parental division of child caregiving was the best predictor of children's occupational aspirations compared with other variables such as parental sexual orientation, child's gender, and parents' attitudes about the acceptability of children's sex-typed and non-sex-typed behavior. Fulcher et al. state (pp. 338–339): "…children in the current study reported detailed knowledge of gender stereotypes and strong preferences for sex-typed childhood activities. These preferences were particularly strong in children whose parents divided paid labor less equitably. Children whose parents modeled egalitarian divisions of labor were, however, able to envision occupational futures that were less constrained by gender stereotypes."

In sum, as Kelly and Hauck state (2015, p. 461), "…it may be useful to revisit heterosexual couples' household division of labor with a 'queer' eye. If we take seriously the idea that queer couples can redo gender in the domestic sphere, does it not follow that heterosexual couples might also be able to engage in these practices as well?"

REFERENCES

Antecol, Heather, and Michael D. Steinberger (2013). Labor supply differences between married heterosexual women and partnered lesbians: A semi parametric decomposition approach. *Economic Inquiry*, 51(1), 783–805.

Belkin, Lisa (2008). When mom and dad share it all. *New York Times Magazine*, http://www.nytimes.com/2008/06/15/magazine/15parenting-t.html?_r=0

Bem, Sandra L. (1974). The measurement of psychological androgyny. *Journal of Consulting and Clinical Psychology*, 42, 155–162.

Black, Dan, Gary Gates, Seth Sanders, and Lowell Taylor (2000). Demographics of the gay and lesbian population in the United States: Evidence from available systematic data sources. *Demography*, 37(2), 139–154.

Black, Dan, Seth Sanders, and Lowell Taylor (2007). The economics of lesbian and gay families. *Journal of Economic Perspectives*, 21(2), 53–70.

Blumstein, Phillip, and Pepper Schwartz (1983). *American Couples: Money, Work, Sex*. New York: William Morrow.

Bos, Henny M.W., Frank Van Balen, and Dymphna C. Van Den Boom (2007). Child adjustment and parenting in planned lesbian-parent families. *American Journal of Orthopsychiatry*, 77, 38–48.

Carrington, Christopher (1999). *No Place Like Home: Relationships and Family Life Among Lesbians and Gay Men*. Chicago: University of Chicago Press.

Chan, Raymond W., Risa C. Brooks, Barbara Raboy, and Charlotte J. Patterson (1998). Division of labor among lesbian and heterosexual parents: Associations with children's adjustment. *Journal of Family Psychology*, 12, 402–419.

Civettini, Nicole (2016). Housework as non-normative gender display among lesbians and gay men. *Sex Roles*, 74, 206–219.

Cowan, Carolyn P., and Philip A. Cowan (1990). Who does what? In Barry F. Perlmutter John Touliatos and Murray Arnold Straus (Eds.), *Handbook of Family Measurement Techniques* (pp. 447–448). Newbury Park, CA: Sage.

Dunne, Gillian A. (1997). *Lesbian Lifestyles: Women's Work and the Politics of Sexuality*. Toronto: University of Toronto Press.

Dunne, Gillian A. (1998). *Living "Difference": Lesbian Perspectives on Work and Family Life*. New York: Harrington Park Press.

Fulcher, Megan, Erin L. Sutfin, and Charlotte J. Patterson (2008). Individual differences in gender development: Associations with parental sexual orientation, attitudes, and division of labor. *Sex Roles*, 58, 330–341.

Gartrell, Nanette, Amy Banks, Jean Hamilton, Nancy Reed, Holly Bishop, and Carla Rodas (1999). The national lesbian family study: 2. Interviews with mothers of toddlers. *American Journal of Orthopsychiatry*, 69, 362–369.

Gartrell, Nanette, Carla Rodas, Amalia Deck, Heidi Peyser, and Amy Banks (2006). The USA national lesbian family study: Interviews with mothers of 10-year olds. *Feminism & Psychology*, 16, 175–192.

Giddings, Lisa, John M. Nunley, Alyssa Schneebaum, and Joachim Zietz (2014). Birth cohort and the specialization gap between same-sex and different-sex couples. *Demography*, 51(2), 509–534.

Goldberg, Abbie E., JuliAnna Z. Smith, and Maureen Perry-Jenkins (2012). The division of labor in lesbian, gay, and heterosexual new adoptive parents. *Journal of Marriage and Family*, 74, 812–828.

Green, Robert J., and Valory Mitchell (2002). Gay and lesbian couples in therapy: Homophobia, relational ambiguity, and social support. In Alan S. Gurman and Neil S. Jacobson (Eds.), *Clinical Handbook of Couple Therapy* (pp. 546–568). New York: Guilford Press.

Green, Robert J., Michael Bettinger, and Elli Zacks (1996). Are lesbian couples fused and gay male couples disengaged? Questioning gender straightjackets. In Joan Laird and Robert Jay Green (Eds.), *Lesbians and Gays in Couples and Families: A Handbook for Therapists* (pp. 185–230). New York: Jossey-Bass.

Jepsen, Lisa K. (2007). Comparing the earnings of cohabiting lesbians, cohabiting heterosexual women, and married women: Evidence from the 2000 Census. *Industrial Relations: A Journal of Economy and Society*, 46(4), 699–727.

Jepsen, Christopher, and Lisa K. Jepsen (2015). Labor market specialization within same sex and difference sex couples. *Industrial Relations: A Journal of Economy and Society*, 54(1), 109–130.

Kamano, Saori (2009). Housework and lesbian couples in Japan: Division, negotiation and interpretation. *Women's Studies International Forum*, 32, 130–141.

Kelly, Maura, and Elizabeth Hauck (2015). Doing housework, redoing gender: Queer couples negotiate the household division of labor. *Journal of GLBT Family Studies*, 11(438–464). DOI: 10.1080/1550428X.2015.1006750.

Khor, Diana (2007). "Doing gender": A critical review and an exploration of lesbigay domestic arrangements. *Journal of GLBT Family Studies*, 3, 35–73.

Kurdek, Lawrence A. (1993). The allocation of household labor in gay. lesbian, and heterosexual married couples. *Journal of Social Issues*, 49(3), 127–130.

Kurdek, Lawrence A. (2007). The allocation of household labor by partners in gay and lesbian couples. *Journal of Family Issues*, 28, 132–148.

Leppel, Karen (2009). Labour force status and sexual orientation. *Economica*, 76 (301), 197–207.

Moore, Mignon R. (2008). Gendered power relations among women: A study of household decision making in Black, lesbian families. *American Sociological Review*, 73, 335–356.

Oerton, Sarah (1998). Reclaiming the "housewife"? Lesbians and household work. *Journal of Lesbian Studies*, 2(4), 69–83.

Oreffice, Sonia (2011). Sexual orientation and household decision making: Same-sex couples' balance of power and labor supply choices. *Labour Economics*, 18 (2), 145–158.

Panozzo, Dwight (2015). Child care responsibility in gay male-parented families: Predictive and correlative factors. *Journal of GLBT Family Studies*, 11, 248–277.

Patterson, Charlotte J. (1995). Families of the lesbian baby boom: Parents' division of labor and children's adjustment. *Developmental Psychology*, 31, 115–123.

Patterson, Charlotte J., Erin L. Sutfin, and Megan Fulcher (2004). Division of labor among lesbian and heterosexual parenting couples: Correlates of specialized versus shared patterns. *Journal of Adult Development*, 11, 179–189.

Pfeffer, Carla A. (2010). "Women's work"? Women partners of transgender men doing housework and emotion work. *Journal of Marriage and Family*, 72, 165–183.

Prickett, Kate C., Alexa Martin-Storey, and Robert Crosnoe (2015). A research note on time with children in different-and same-sex two-parent families. *Demography*, 52(3), 905–918.

Rawsthorne, Margot, and Mayet Costello (2010). Cleaning the sink: Exploring the experiences of Australian lesbian parents reconciling work/family responsibilities. *Community, Work & Family*, 13, 189–204.

Rothblum, Esther D. (2008). An overview of same-sex couples in relationships: A research area still at sea. In Debra A. Hope (Ed.), *Contemporary Perspectives on Lesbian, Gay and Bisexual Identities* (pp. 113–140), Volume 54 of the Nebraska Symposium on Motivation. NY: Springer.

Rothblum, Esther D. (2010). The complexity of butch and femme among sexual minority women in the 21st Century. *Psychology of Sexualities Review*, 1(1), 29–42.

Rothblum, Esther D., and Rhonda J. Factor (2001). Lesbians and their sisters as a control group: Demographic and mental health factors. *Psychological Science*, 12(1), 63–69.

Rothblum, Esther D., Kimberly F. Balsam, and Ruth M. Mickey (2004). Brothers and sisters of lesbians, gay men, and bisexuals as a demographic comparison group: An innovative research methodology to examine social change. *The Journal of Applied Behavioral Science*, 40, 283–301.

Rothblum, Esther D., Kimberly F. Balsam, Sondra E. Solomon, and Rhonda J. Factor (2005). Siblings and sexual orientation. Products of alternative families or the ones who got away? *Journal of GLBT Family Studies*, 1, 71–87.

Rothblum, Esther D., Kimberly F. Balsam, Sondra E. Solomon, and Rhonda Factor (2007). Lesbian, gay male, bisexual, and heterosexual siblings: Discrepancies in income and education in three U.S. samples. In Lee Badgett and Jeff Frank (Eds.), *Sexual Orientation Discrimination: An International Perspective* (pp. 62–75). NY: Routledge.

Solomon, Sondra E., Esther D. Rothblum, and Kimberly F. Balsam (2004). Pioneers in partnership: Lesbian and gay male couples in civil unions compared with those not in civil unions, and heterosexual married siblings. *Journal of Family Psychology*, 18(2), 275–286.

Solomon, Sondra E., Esther D. Rothblum, and Kimberly F. Balsam (2005). Money, housework, sex, and conflict: Same-sex couples in civil unions, those not in civil unions, and heterosexual married siblings. *Sex Roles*, 52, 561–575.

Tebaldi, Edinaldo, and Bruce Elmslie (2006). Sexual orientation and labour supply. *Applied Economics*, 38(5), 549–562.

Tornello, Samantha L., Stacy M. Kruczkowski, and Charlotte J. Patterson (2015). Division of labor and relationship quality among male same-sex couples who became fathers via surrogacy. *Journal of GLBT Family Studies*, 11, 375–394.

Ward, Jane (2010). Gender labor: Transmen, femmes, and collective work of transgression. *Sexualities*, 13, 236–254.

Esther D. Rothblum, Ph.D. is Professor of Women's Studies at San Diego State University and editor of the *Journal of Lesbian Studies.* She has edited 27 books, and her research and writing have focused on LGBT relationships and mental health.

Double Shift, Double Balance: Housework in the Presence of Children in the United States

Deborah S. DeGraff and Rebecca M. Centanni

1   INTRODUCTION

With the monumental changes in women's roles in the late twentieth century, the twenty-first century has witnessed a renewed interest in issues related to work-family balance. This is a large and complex topic, many aspects of which have been well studied in a developed country context. This paper focuses on a relatively unexplored dimension of the topic, the extent to which women combine household chores or housework with minding children. Given that housework can be done along with child care, but presumably at a cost, this characteristic of home production time constitutes another margin in women's lives where the balancing act of their many roles plays out. To explore this topic using data for the United States, we take advantage of an unusual and heretofore under-utilized aspect of the American Time Use Survey (ATUS), its questions on "the

D.S. DeGraff (✉)
Department of Economics, Bowdoin College, Brunswick, ME, USA
e-mail: ddegraff@bowdoin.edu

R.M. Centanni
Analysis Group, Boston, MA, USA
e-mail: centannirm@gmail.com

305

presence of others". We seek to understand what underlies the large differences we observe in the data with respect to how home production is accomplished vis-à-vis children and, especially, to evaluate whether women who are more heavily engaged in employment are systematically different in this respect. Even though the trend in home production time for women in the United States has been decreasing, several studies suggest that women feel considerable time pressure and fare worse than men according to a variety of subjective measures of well-being related to time use (Bittman and Wajcman 2000; Connelly and Kimmel 2013, 2015; Hamermesh and Lee 2007; Krueger 2007; Pew Research Center 2006; Sevilla et al. 2012; Stevenson and Wolfers 2009; Wang 2013). A closer look at the nature of time spent in home production can shed further light on how women with children seek to find balance in their lives.

First rising to widespread recognition among the populace following the coining of the term "the second shift" in Arlie Hochschild's (1989) influential book, more recent publicity on work-family issues has centered on highly educated women choosing to "opt out of" or "lean into" their careers (Belkin 2003, 2013; Sandberg 2013). A recurring theme of these national conversations has been the stresses women face in balancing the demands of employment with the needs of family, personal, and home life, given the historical precedent for household chores and child care to rest largely with women. A growing recognition of the importance of these issues is also evident in the policy arena, as exemplified by the White House Summit on Working Families held in June 2014. The White House briefing paper for the Summit stated: "A growing number of working Americans – both men and women – struggle to balance the needs of their families with the responsibilities of their jobs" and argued that these issues are important not only for the well-being of individuals and families but also for the health of the American economy (White House 2014).

In the shadow of the publicity, researchers have focused considerable attention on these issues. Through this body of research, we have gained a more comprehensive understanding of trends from the 1960s onward regarding how adults use their time, key factors that influence time use, and the nature of stresses experienced by individuals and families in balancing the various dimensions of their lives. Much of the more recent work on these topics in the United States has been informed by the ATUS, which has made available large-sample, nationally representative and detailed time use data beginning in 2003. Our study contributes to this literature by using the ATUS to explore a related but largely unexamined

set of questions. Specifically, given the time that women allot to house-hold chores, how do they spend this time vis-à-vis the presence of chil-dren? Do women tend to engage in these tasks without children present, perhaps allowing them to complete household chores more quickly? Or do they instead tend to use their home production time to multi-task, by also being with their children while they do chores?

To facilitate exposition, we introduce the term "intensity" of home production. As defined here, home production time is considered more intensive if children are present while one is engaged in household chores, and less intensive if chores are done alone. We model this behavior to identify what characteristics of women and their households influence them to shift toward one end of the home production intensity spectrum versus the other, while also taking into account the endogeneity of time allocation decisions. Within this broad question, we are especially inter-ested in establishing whether women who spend more time in employ-ment are systematically different with respect to this dimension of how they do housework. Do longer labor market hours motivate women to use their household chore time in the most productive way with regard to completing such tasks (i.e., without children present), or do longer work hours motivate them to make up for lost time with children by keeping them close while engaged in household chores? We find the former to be the case. Controlling for covariates, greater employment time encourages women to choose the less intensive form of home production.[1]

2   BACKGROUND AND CONCEPTUAL FRAMEWORK

Recent decades have seen a growing research focus in the United States and other industrialized countries on women's labor supply and time allocation to non-market activities, and the division of child care and household chores between women and men. Numerous studies have examined trends in these behaviors.[2] The increase in women's labor supply in the United States since the 1960s is well documented, in terms of both participation and average hours in employment. These trends have been accompanied by other changes in time use. For example, a number of studies document decreases in total time that households devote to house-work and especially in the time women spend on housework. Recently, there has been an increase in men's time devoted to housework and child care in the United States, but no corresponding decrease in women's time spent caring for children. Combining all work activities (labor market,

home production, and child care), women still devote more time to work on average than do men (Aguiar and Hurst 2007; Bianchi 2000; Connelly and Kimmel 2010; Fox et al. 2013; Sayer 2005; Sayer et al. 2004).

These patterns give rise to concern about the time pressures faced by families, and by women in particular. While these trends were associated with an increase in average leisure time between the 1960s and 1980s for both sexes, the increase for women was less pronounced and has reversed in recent decades (Aguiar and Hurst 2007, 2009; Ramey and Francis 2009). In view of these trends, numerous studies have focused on the stresses of the double shift (i.e., work in both the labor market and at home) faced by employed women (see, e.g., Hochschild 1989; Hamermesh and Lee 2007; Milkie et al. 2009; Ruppanner and Pixley 2012; Sayer et al. 2009). A substantial literature examining the determinants of women's (and sometimes men's) time allocation to employment, non-market work, and leisure has developed, supported by the increasing availability of detailed time use surveys. This body of work advances the earlier research on women's labor supply in a variety of ways. Of greatest relevance to our analysis, some studies incorporate a detailed focus on parental child care, distinguishing between care, that is, primary versus secondary, or active versus passive, as well as discussing the measurement of time devoted to child care. Some studies additionally incorporate a focus on home production time, making distinctions between primary and secondary activities (Bryant and Zick 1996; Folbre et al. 2005; Folbre and Yoon 2007; Kalenkoski et al. 2005, 2009; Milkie et al. 2009; Moro-Egido 2012; Sayer and Fine 2011; Sayer et al. 2009). Time use diaries allow the parsing of home production time in ways that further the understanding of this complex set of activities. However, little attention has been given to the focus of this chapter, that is, the qualitative nature of home production time with respect to the presence of children.[3] We seek to better understand, given women's allocation of time across alternative uses, how they utilize the time they allot to housework in terms of being with children. In other words, given the time that a woman devotes to household chores, does she tend to do these tasks alone or with children present?

Following many of the previous studies, we assume that the first layer of decision-making is choosing the allocation of time to employment, non-market work, and leisure. We add to this a second layer of decision-making in which, given the initial time allocation decision, women decide how to divide their housework time between time

alone and time with others present, especially children. We assume that most household chores can be completed more efficiently without children present (e.g., try washing the floor or balancing the checkbook accompanied by children). In a given amount of time, more or higher quality household production can generally be accomplished without children present, thereby increasing household utility.[4] In addition, depending on preferences, to the extent that there is any process benefit of housework, that is, one might receive pleasure from the act of washing the floor and not just from the end result of a clean floor (Hallberg and Klevmarken 2003; Juster et al. 1985), it might be greater if the task is done alone. These forces would motivate women to "specialize" their time, focusing on chores during household production time and using leisure and primary childcare time to be with children.

However, spending time with one's children (or other individuals) is also likely to be beneficial, at least up to a point. Moreover, children's presence while doing household chores can also include an investment component, in teaching them how to do such work, further contributing to household utility (Keith and Zick 1996). These opposing effects create a tradeoff, suggesting that it is not appropriate to view women's time inputs into home production as homogenous, but rather, being of two forms, solitary and non-solitary.

Some literature speaks to this argument while neither focusing on our question nor pursuing our empirical modeling. For example, the discussion of active versus passive child care in Folbre et al. (2005) is generally consistent with the idea of home production time being more efficient without children present and, conversely, more intensive with children present due to the multi-tasking nature of the work. Floro and Miles (2003: 882) speak of the "intensification" of work when one engages simultaneously in primary and secondary activities (though, in contrast to our analysis, they focus on non-market work as a secondary activity) and, using data from Australia, estimate models of the amount of time spent in non-market work overlapped with any type of primary activity. In addition, Hamermesh and Lee (2007), noting the 24-hour day as the most binding of constraints, argue that anything which increases the efficiency of household chores is equivalent to an increase in "effective" time and thereby a source of reduced stress. Foster and Kalenkoski (2015) provide empirical evidence regarding the increased efficiency of doing housework without children present. These arguments create an

incentive to engage in housework on a solitary basis, but this comes at the cost of spending less time with one's children.

With this tradeoff in mind, we seek to determine what characteristics of women and their households systematically shift the division of home production time toward or away from solitary time or, conversely, toward or away from having children present when engaged in housework. Such analysis contributes to a better understanding of the nature of the stresses that women face in trying to fulfill their multiple roles. We are especially interested in whether women who spend more time in employment are systematically more or less likely to choose home production time that is solitary in nature. The a priori theoretical arguments are ambiguous. On the one hand, women who spend more time in employment may feel it is better to have a larger proportion of solitary housework time because their absence from home while doing labor force work places a premium on the greater efficiencies of solitary home production. Conversely, such women may place a greater value on spending housework time with children to compensate for time away from home.

3   DATA AND SAMPLE

The primary data source for this analysis is the ATUS for 2003 through 2011, and the corresponding linked Current Population Survey (CPS) data. Each year during this time period, a cross-sectional random sample of households was drawn from the outgoing CPS sample for administration of a detailed time use survey. The respondents were individuals aged 16 and older, with only one individual interviewed per household. We use a sample of women who are either the head or spouse of the head of the household. We further narrow the sample to exclude women younger than 24 or older than 60, and also the small number who are self-employed or unpaid family workers. The age-based exclusions remove most women whose primary activity is still educational (at the younger ages), and who have already retired (at the older ages). We exclude the two employment categories because the distinction between employment time and home production time is likely much less clear for these women. The sample size after these exclusions is 43,419.[5] The analysis sample for the primary model is further limited, as discussed in the later text, to women with children less than 18 years old. Each respondent was asked to complete a time use diary based on recall for the 24-hour period ending at 4:00 a.m. for the day prior to the interview. Diaries were completed through an

interview process with prompting in order to enhance recall accuracy and detail. In addition to the ATUS data, we make use of a variety of annual indicators of local labor market conditions available from the Bureau of Labor Statistics.

The ATUS is characterized by highly detailed time use designations that we use to determine the amount of time allocated to non-market work, employment, and leisure as primary activities, as identified by the respondent. Non-market work as primary activity encompasses two categories: household chores and child care, each as primary activity. Household chores includes activities such as food shopping and meal preparation, laundry and household cleaning, financial management, home maintenance, and travel related to household activities.[6] Childcare time includes caring for and helping household children, activities related to household children's education and health, travel and waiting related to such activities and to the use of childcare services.

An important feature of the ATUS for our purposes is that it asks respondents to indicate who was present when engaged in each primary activity, except employment, sleep, and personal care. It is this information that allows us to determine whether housework time was spent alone, with children aged 17 or younger present, or with other individuals present. A shortcoming of the ATUS is that it asks only about primary activities. As a result, if an individual is simultaneously performing tasks from multiple time use categories, only the task self-identified as primary is recorded. However, given the information on who was present during each primary activity, the data largely capture the form of multi-tasking which is the focus of this analysis, where keeping an eye on children takes place while doing household chores as the primary activity.[7]

Given this information, we are able to construct measures of the proportions of housework time spent alone (without anyone else present) and spent with children present. Table 1 shows that for our sample of women with children younger than 18, approximately 31% of women's housework time is spent alone (implying 69% with someone else present), and 57% with children present (implying 43% without children present). We also see evidence of variation in this behavior in that, as expected, the percentage of home production time spent alone tends to be greater for unmarried than for married women. In addition, not controlling for other characteristics, women engaged in employment activity during the diary day spend a higher percentage of their home production time alone and a lower percentage with children than do women with no employment

Table 1   Division of home production time by key characteristics, women ages 24–60 with children younger than 18 (n = 24,670)

	% of Home production time alone | not alone	% of Home production time without | with children <18
Full sample	31 | 69	43 | 57
Married	29 | 71	42 | 58
Not married	35 | 65	46 | 54
Employment time = 0	29 | 71	42 | 58
Employment time > 0	34 | 66	46 | 54

activity. The same pattern holds when using a conventional measure of employment status (not shown), which differs from zero versus positive employment minutes captured in the ATUS, due to the narrow time frame of the 24-hour diary period that might coincide with an employed woman's off-day.

4   ESTIMATION STRATEGY

4.1   Structure of Model

Our primary goal is to better understand what factors influence the division of women's housework time between a solitary state and having others present, and between having children present or not. Within that over-arching objective, we are especially interested in whether women with greater time in employment are more, less or equally inclined in these choices about housework time. Accordingly, the dependent variable of our main estimated model is the proportion of housework time spent alone/not alone (or, alternatively defined, with/without children present), expressed as a function of the amount of time in labor market work, in non-market work and in leisure, controlling for a set of individual, household, and local characteristics argued to influence preferences, opportunities, and constraints related to the division of housework time (the control variables are discussed in the later text).

A number of econometric issues must be addressed in the estimation of this model. First, while we believe that the home production division

decision is distinct from decisions regarding the amount of time allocated to employment, non-market work, and leisure activities, the latter are likely to be related to the former. For example, unobservables pertaining to work ethic or beliefs about child rearing could influence time allocation decisions as well as decisions about with whom to do housework. To address this, we use an instrumental variables approach in which estimates of the time allocated to employment, non-market work, and leisure are derived in a first-stage model. The structure of the model is summarized as follows:

Home production division (main model):

$$\Omega_i = \beta_0 + \beta_{1j}\tau^*_{ij} + \beta_2 X^{\Omega}_i + \upsilon_i \tag{1}$$

Time allocation (first-stage model):

$$\tau_{ij} = \alpha_{0j} + \alpha_{1j}\hat{w}_i + \alpha_{2j}X^{\tau}_i + \varepsilon_{ij} \tag{2}$$

where j indicates employment, non-market work, or leisure, $\hat{w}$ is the selection corrected estimated ln(wage), X^{τ} is the vector of exogenous explanatory variables used in each of the time allocation equations, τ^*_j are the three estimated time use values derived from Eq. (2), X^{Ω} is the vector of exogenous explanatory variables used in the home production division equation, and ε_j and υ are the disturbance terms.

The dependent variable, Ω_i, in Eq. (1) can be alternatively defined to allow for multiple possible divisions of housework time. We focus on two versions: one measuring the proportion of housework time spent alone in contrast to not being alone and the other contrasting housework time with children present to no children present. Given that the dependent variables in Eq. (1) are proportions, we use a version of a Generalized Linear Model (GLM) with options that limit the estimated values of the dependent variable to the [0, 1] range (0–100%).[8] The dependent variables for the three equations represented by Eq. (2) are in terms of the number of minutes, which raises the possibility of censoring at zero. For both non-market work and leisure, the percentage of respondents with zero minutes is small enough that a linear functional form can be assumed; these equations are estimated using Ordinary Least Squares (OLS). In contrast, a sizeable percentage of respondents have a value of zero minutes for time in employment during the diary period. Accordingly, this equation is estimated using a Tobit specification.[9] The same explanatory

variables are used for each of the three equations in Eq. (2), and are discussed in the later text; these equations are estimated using the full sample defined earlier in order to benefit from as much information as possible. The main equations in Eq. (1) are estimated using a more narrowly defined sample including only those women with children younger than 18. The logic here is that the results for the intensity of housework time might be skewed simply by the presence/absence of children in the household. We also re-estimate Eq. (1) using the full sample to check for sensitivity of results to the large and possibly non-random reduction in sample size.[10]

Any model of this structure must be attentive to the necessary exclusion restrictions for statistical identification. The three time-allocation equations in (2) include the following variables that are argued to affect overall time-use decisions, but have no direct effect on the division of home production time into solitary time or time with children present: a time dummy distinguishing before versus after the onset of the financial crisis in 2008, estimated log wage, the interaction of these two variables, and a set of interactions between education and ethnicity variables. The time dummy captures the argument that, as presented in Aguiar et al. (2013) and Berik and Kongar (2013), time allocation decisions were systematically different during the Great Recession. The second two variables capture the opportunity cost of women's time itself and juxtaposed with the economic downturn. All of these factors should influence her overall time allocation decisions, but not how she uses her allotted housework time. The interactive terms between the respondent's ethnicity and educational attainment are indicative of how the labor market values education differently according to ethnicity. As these variables reflect labor market valuation of certain characteristics, they will affect how the respondent divides her time between market and non-market work and leisure, but not how she then chooses to use her housework time. The pattern of statistical significance of these variables, as discussed in the later text, satisfies the conditions for statistical identification of the model as a whole.[11]

Finally, as mentioned previously, we include married (or partnered) and unmarried women in our sample.[12] Given that the presence of a spouse may fundamentally alter the decisions modeled in Eqs. (1) and (2) (Connelly and Kimmel 2009), we recognize this possibility using two alternative approaches. First, we estimate Eqs. (1) and (2) for the combined sample including interactions between spouse present and key explanatory variables. Second, we estimate Eqs. (1) and (2) separately by

sub-sample based on marital status. The results of these two approaches are highly consistent. For brevity, we present results for the combined sample and briefly mention results from the sub-sample estimation where they provide additional insight.[13]

4.2   Control Variables

In addition to the three estimated time use values from Eq. (2), the estimation of Eq. (1) controls for a large set of individual, household, and local characteristics thought to influence the division of housework time between solitary and non-solitary forms, given the total amount of non-market work time chosen. Descriptive statistics for explanatory variables used in the estimation of Eq. (1) are given in Appendix Table A.1. At the individual level, we include respondent's age, years of education, and ethnic/cultural background. Such characteristics may influence preferences or expectations regarding women's roles. Women's estimated wage, while included in the overall time allocation model represented by Eq. (2), is not included in the estimation of Eq. (1). The estimated wage represents the opportunity cost of non-labor time, and therefore is an integral part of the choice between paid and unpaid time. However, the decision represented by Eq. (1) is not between labor force and non-labor force time; it is about dividing housework time between solitary and non-solitary forms. The opportunity cost of spending time outside of employment is irrelevant to this decision.

At the household level, we use a detailed set of demographic structure variables which, in part, capture individuals who need watching. Given that the need for supervision decreases as children age, we include the number of children in each of five age groups ranging from 0 to 17 years. We also include the number of other adults, as well as a spouse/partner, who could share in the housework with the respondent (as might some children), or simply be present as company. Such individuals could also influence the nature of the housework to be done. In addition, we include the partner's average weekly hours of employment, as this may influence the importance women place on being efficient in household chores. Finally, we control for exogenous income (i.e., income other than labor earnings of the respondent) because women from higher income households are less constrained in purchasing market substitutes for home produced goods, promoting a higher proportion of housework time with children present.[14]

In addition to individual and household characteristics, we also include geographic region, residence in an urban area, and interactions between these variables. Finally, we control for whether the time diary period was during the week versus on the weekend.

4.3   Time Allocation Estimation

The explanatory variables included in Eq. (2) are similar to those found in recent literature on women's labor supply and time use, and are intended to capture preferences or norms regarding women's roles, income, relevant prices, and factors that reflect opportunities and constraints related to time use. This set of variables overlaps substantially with those used in the estimation of the proportional division of housework time in Eq. (1), with some exceptions. As previously noted, women's estimated wage is included in the estimation of Eq. (2) but not Eq. (1), as are the variables used for statistical identification discussed earlier. Conversely, while each estimated time use value derived in Eq. (2) is included in the estimation of Eq. (1), it is not included as an explanator in the other two time-use equations in Eq. (2). The rationale is that these values are assumed to be joint outcomes of a single time allocation process. Finally, world region of origin variables are included in the estimation of Eq. (1) but not Eq. (2), as these variables are argued to influence women's choices regarding only the division of home production time with respect to the presence of children and others as they are intended to allow for differing cultural norms about how housework is done.

5   RESULTS

5.1   First-Stage Time Allocation Results

We very briefly review results for the three time allocation equations to establish validity in support of our use of the predicted values from Eq. (2) in the estimation of Eq. (1). Results for time in employment, non-market work, and leisure are presented in Appendix Table A.2. The time allocation equations have significant explanatory power, with a Probability > F value of approximately zero in each case ($F = 385.33$, $F = 249.59$, and $F = 211.62$ for employment, non-market work, and leisure, respectively). Also, as mentioned earlier, the pattern of statistical significance of the variables intended to identify the model meets the necessary conditions

for identification. Specifically, in each of the three estimated time allocation equations, the set of potential identifier variables considered as a whole is jointly significant (at ≤ 0.1%), with sufficient explanatory power to support the instrumental variables approach as indicated by the corresponding test statistics (Bound et al. 1995; Stock and Yogo 2005).[15] Furthermore, in each equation at least three of the identifier variables are individually statistically significant (at ≤ 5%), with the pattern of significance differing across equations.

Turning to specifics, we highlight a few results to illustrate that overall, the time allocation model is consistent with expectations and previous literature. First note the standard finding that the estimated wage has a positive effect on women's time in employment and a negative effect on leisure time. Controlling for own wage, women's education is positively associated with employment and leisure time, and negatively associated with non-market work. In addition, the results show the usual effects of the presence of a spouse: a substantial decrease in women's time in employment, accompanied by increases in non-market work and leisure.

The results also exhibit the standard negative effect of exogenous income on women's time in employment, and the corresponding positive effect on leisure. The effect on non-market work time is positive as well, suggesting that normal good income effects for women's primary child care and home produced goods (e.g., bigger houses, higher standards of housekeeping, more time-intensive foods) outweigh any effects of income that might decrease total non-market work, such as purchasing market replacements (e.g., hired housekeepers, market child care, or prepared meals). Finally, the demographic composition variables also display the expected results. The number of children has a negative effect on time in employment and leisure, and a positive effect on time in non-market work, with the magnitude of effects decreasing with children's age. Conversely, the number of adults in the household, that is, individuals who might help out in the home, promotes women allocating more time to labor market work and less time to non-market work.

5.2   The Division of Home Production Time

The division of home production time, as explained earlier, can be sliced many ways with respect to who was present or not present while the respondent was engaged in these chores. For each version, we

identify a category and its mutually exclusive and all-inclusive converse, so that the dependent variable measures the proportion of home production time spent in the designated category. Results for two versions of the dependent variable – solitary (versus non-solitary), and children younger than 18 present (versus children not present) – using the sample of women with children less than age 18, are included in Appendix Tables A.3 and A.4. Table 2 extracts from the Appendix the results for the estimated time-use variables for this sample, and also presents these results for the larger sample including women without children younger than 18.[16] For each time-use variable, two sets of results are presented in Table 2, the main results which apply to all sample women, and interacted with marital status to allow these effects to differ according to the presence of a spouse/partner. We are principally interested in the results for women's time in employment, but include all three time-use variables for completeness.

Table 2 Estimated results – marginal effects for time-use variables on proportional division of home production time, women ages 24–60

	Proportional division of home production time			
	Women with children <18		All women ages 24–60	
	(*n* = 24,670)		(*n* = 43,419)	
	(a)	(b)	(c)	(d)
Explanatory variable:	Proportion alone	Proportion with children <18	Proportion alone	Proportion with children <18
1. Time in employment	0.00032*	–0.00034*	0.00048*	–0.00051*
(1) x Married	–0.00026*	0.00016	–0.00046*	0.00023*
2. Time in non-market work	0.00085*	–0.00060*	0.00144*	–0.00086*
(2) x Married	0.00010	–0.00008	0.00030*	–0.00069*
3. Time in leisure	0.00172*	–0.00190*	0.00235*	–0.00348*
(3) x Married	–0.00043*	0.00023	–0.00097*	0.00057*

* indicates statistically significant at a 5% level or lower. Full model results are presented in Appendix Tables A.3 and Tables A.4 for the sample of women with children younger than 18.

Focusing first on the main effect for time spent in employment, we see a clear pattern that women with greater labor market attachment are more likely to do household chores alone, and are less likely to have children present during home production time, ceteris paribus. Recall that the a priori theoretical arguments regarding time in employment are ambiguous. Greater labor force time may encourage use of housework time in the most efficient way with respect to the completion of chores (i.e., do them alone), while at the same time motivating women to make up for lost time with children by keeping them close during housework time (i.e., intensive home production). Our results suggest that the first of these influences is stronger. Furthermore, we also see evidence of these overall effects being less pronounced for married women relative to women without a partner present. The point estimates for the interaction between employment time and marital status are of opposite sign from the main effects and of smaller magnitude, and are mostly statistically significant. The separate regressions by marital status sub-samples are consistent with this pattern. Thus, the tendency for longer employment time to place a premium on production efficiency in home production time, while present for all women, is stronger for unmarried women. To gauge the magnitude of these effects, we conducted a series of simulations comparing a doubling of employment time (starting from the mean of about 2½ hours) to various other changes.[17] The simulations show that while the predicted effect on home production intensity of doubling employment time is much smaller than for adding a very young child to the household, it is of similar magnitude as the predicted effect of increasing exogenous income by 50%.

The pattern of results for time allocated to leisure is similar to that for time in employment, but with relatively less difference in estimates by marital status. This could be indicative of a certain type of specialization among women who choose more leisure time, in which housework time is geared toward production efficiency with leisure activity (and also primary childcare time) being where time with children tends to take place. Women who allocate more time to non-market work also tend to choose a greater proportion of solitary housework time and less in the company of children. Women who choose to allocate more time to non-market work likely feel that overall, there is more work to be done in this realm. This same feeling may then translate into a

greater emphasis on production efficiency in deciding how best to use housework time. Also, given that non-market work in the first-stage time allocation equation is total time, that is, home production as primary activity plus primary child care, larger non-market work minutes may reflect a larger allocation of time to child care as a primary activity, resulting in less importance being attached to having children present during housework time.

Results for selected additional explanatory variables are also worthy of mention (see Appendix Tables A.3 and A.4). Exogenous income has a negative effect on the proportion of housework time spent alone and a positive effect on the proportion spent with children. Greater financial resources represent the ability to more easily acquire technologies that render home production time more efficient, thereby offsetting the need to choose the more efficient solitary form of housework. The findings for women's education are also interesting. Higher education is likely associated with greater out-of-office demands from employment, which would encourage prioritizing efficiency in home production. At the same time, more highly educated women might make secondary child care a priority, as argued by Hill and Stafford (1985). Our results suggest that these influences tend to offset one another, resulting in non-significant effects of education.

The results also suggest systematic differences in the division of home production time across ethnic groups, with African American and Hispanic women being more likely than other ethnic groups to engage in housework alone and less likely to have children present, ceteris paribus. Additionally, the pattern of results for numbers of children by age is as hypothesized. Finally, weekend diary days, as expected, have a negative effect on the proportion of housework time spent alone and a positive effect on the proportion spent with children. The generally more relaxed time constraints of weekends in many households may motivate women to choose a balance of housework time that emphasizes time with children and others, in addition to the higher likelihood that household members are at home.

6   Conclusion

Substantial research has been conducted to better understand the allocation of women's time in the United States and elsewhere, and the balancing act that women face with respect to the many roles they play. This study adds

another dimension to that balancing act by exploring under what conditions women are more likely to engage in home production alone or with children present, based on a model that accounts for endogeneity of time allocation decisions. The results indicate systematic differences in this behavior according to a number of characteristics of women and their households. Of particular interest, women with greater labor force attachment, as measured by minutes in employment, are more likely to engage in household chores alone and are less likely to have children present while doing housework. This suggests that the dominant influence of employment with respect to the nature of home production time is to motivate women to use this time efficiently vis-à-vis the completion of chores (i.e., without children present), rather than to use this time intensively to "make up" for time away from family. This result holds for both married and unmarried women and, in some cases, is stronger for women without a partner.

According to the ongoing initiative of the Organization for Economic Co-operation and Development (OECD) to better understand what contributes to quality of life, the United States ranks lower for work-life balance than for any other areas of life quality considered, and ranks lower in this topic area than most OECD countries. OECD (2014) The focus of policy leaders in the United States on this issue, therefore, is timely. Using the unusual and not yet fully exploited data in the ATUS on the presence of others, this analysis contributes to the discussion by highlighting an additional margin where women try to find balance in their lives, one that is qualitatively distinct from well-studied time allocation choices. Further research to more fully examine what occurs inside the "black box" of home production would enhance knowledge regarding the sources and nature of stresses that detract from the quality of life in the United States. A related topic which we do not address in detail, but that is worthy of attention, is the impact of children's presence on the efficiency of doing household chores.

APPENDIX

Table A.1   Descriptive statistics for explanatory variables used in primary models

Explanatory variables	Mean	Standard deviation
Estimated time use variables:		
Employment time	138.392	112.491
Partner × employment time	94.666	109.246
Non-market work time	329.481	81.174
Partner × non-market time	255.256	169.082
Leisure time	351.445	77.500
Partner × leisure time	253.142	168.641
Partner present	0.727	0.446
Employed hours of partner	28.457	23.421
Exogenous annual income	39595	36846
Education, years	14.001	2.908
Age	37.777	7.500
Age × partner	27.517	17.978
No. own children 0–2	0.280	0.515
No. own children 3–5	0.331	0.548
No. own children 6–9	0.482	0.657
No. own children 10–12	0.351	0.558
No. own children 13–17	0.440	0.652
No. other children 0–17	0.030	0.206
No. other adults	0.065	0.246
Other children × other adults	0.011	0.137
African American	0.104	0.305
Asian American	0.040	0.196
Hispanic	0.146	0.353
Other ethnicity	0.029	0.167
Weekend	0.516	0.500

Note: Models also include dummy variables representing location of residence, world region of origin, and home ownership status.

Table A.2 Summary of regression results for minutes in employment, non-market work, and leisure

Explanatory variables	Employment	Non-market work	Leisure
ln estimated wage	51.07*	89.97*	−102.02*
Partner present	−151.65*	61.88*	76.89*
Partner × ln wage	35.91*	−24.67*	−8.72
Employed hours of partner	0.3969*	0.2673*	−0.2876*
Exogenous annual income	−0.0014*	0.0007*	0.0006*
Education, years	3.3463*	−8.67*	5.72*
Age	−2.3547*	0.9795*	2.70*
Age × partner	0.8249*	0.3420	−1.26*
No. own children 0–2	−56.31*	122.99*	−41.70*
No. own children 3–5	−25.25*	66.01*	−27.99*
No. own children 6–9	−17.78*	48.77*	−17.00*
No. own children 10–12	−10.91*	40.17*	−18.80*
No. own children 13–17	−2.21	29.46*	−17.40*
No. other children 0–17	−6.01	39.81*	−17.40*
No. other adults	12.43*	−10.50*	−2.55
Other children × other adults	8.23	−34.70*	14.26*
African American	−44.12*	−81.57*	71.41*
Asian American	−16.87	4.56	3.67
Hispanic	0.3640	26.36*	−47.16*
Other ethnicity	−13.42	−2.37	−38.23
African American × educ	3.25*	2.77*	−4.63*
Asian American × educ	1.08	−0.1066	−1.55
Hispanic × educ	−0.1790	−1.41	1.50
Other × educ	−0.1416	0.5654	2.57
Interview pre-2008	38.26*	36.98*	−46.30*
Pre-2008 × ln wage	−13.12*	−4.90	11.65
Weekend	−197.06*	37.13*	136.90*
Constant	25.07	−1.68	443.85*
R^2	0.0433	0.1853	0.01581
n	39,273	39,273	39,723

Note: Regressions also control for region of residence, urban location and home ownership status.
*Significance at the 0.05 level or less.

Table A.3 Regression results for proportion of home production time spent alone

Explanatory variables	Coefficient	Standard error	t-Statistic	Marginal effect
Estimated time use variables:				
Employment time	0.0016*	0.0006	2.57	0.0003
Partner × employment time	−0.0013*	0.0006	−2.02	−0.0003
Non-market work time	0.0042*	0.0012	3.43	0.0009
Partner × non-market time	−0.0005	0.0007	−0.71	−0.0001
Leisure time	0.0085*	0.0015	5.62	0.0017
Partner × leisure time	−0.0021*	0.0009	−2.40	−0.0004
Partner present	0.4622	0.5393	0.86	0.0935
Employed hours of partner	0.0005	0.0007	0.76	0.0001
Exogenous annual income	−5.36E−06*	1.41E−06	−3.79	−1.08E−06
Education, years	0.0127	0.0082	1.55	0.0026
Age	0.0018	0.0048	0.37	0.0004
Age × partner	0.0105*	0.0036	2.90	0.0021
No. own children 0–2	−0.7502*	0.1224	−6.13	−0.1518
No. own children 3–5	−0.3454*	0.0666	−5.19	−0.0699
No. own children 6–9	−0.1983*	0.0501	−3.96	−0.0401
No. own children 10–12	−0.1195*	0.0425	−2.81	−0.0242
No. own children 13–17	0.0590	0.0330	1.79	0.0119
No. other children 0–17	−0.3277*	0.0831	−3.94	−0.0663
No. other adults	−0.1095*	0.0455	−2.41	−0.0222
Other children × other adults	0.4522*	0.1137	3.98	0.0915
African American	0.2028*	0.0615	3.30	0.0410
Asian American	0.0622	0.0957	0.65	0.0126
Hispanic	0.1585*	0.0499	3.17	0.0321
Other ethnicity	−0.0573	0.0612	−0.94	−0.0116
Weekend	−1.2070*	0.2098	−5.75	−0.2443
Constant	−4.5147*	0.6992	−6.46	
log pseudolikelihood	−10567.83			
n	22,501			

Note: Regression also controls for location of residence, world region of origin, and home ownership status.
*Significance at the 0.05 level or less; marginal effects for dummy variables represent a discrete change from 0 to 1.

Table A.4 Regression results for proportion of home production time with children present

Explanatory variables	Coefficient	Standard error	t-Statistic	Marginal effect
Estimated time use variables:				
Employment time	−0.0015*	0.0006	−2.47	−0.0003
Partner × employment time	0.0007	0.0006	1.12	0.0002
Non-market work time	−0.0026*	0.0012	−2.19	−0.0006
Partner × non-market time	−0.0004	0.0007	−0.56	−0.0001
Leisure time	−0.0084*	0.0014	−5.79	−0.0019
Partner × leisure time	0.0010	0.0009	1.21	0.0002
Partner present	0.0959	0.5281	0.18	0.0218
Employed hours of partner	0.0010	0.0007	1.40	0.0002
Exogenous annual income	5.12E–06*	1.36E–06	3.76	1.16E–06
Education, years	−0.0066	0.0080	−0.83	−0.0015
Age	0.0003	0.0047	0.06	0.0001
Age × partner	−0.0148*	0.0036	−4.14	−0.0034
No. own children 0–2	0.7664*	0.1197	6.40	0.1738
No. own children 3–5	0.3749*	0.0647	5.80	0.0850
No. own children 6–9	0.2450*	0.0492	4.98	0.0556
No. own children 10–12	0.1645*	0.0417	3.95	0.0373
No. own children 13–17	−0.1002*	0.0325	−3.08	−0.0227
No. other children 0–17	−0.1415	0.0722	−1.96	−0.0321
No. other adults	−0.1506*	0.0430	−3.50	−0.0342
Other children × other adults	−0.0134	0.0984	−0.14	−0.0030
African American	−0.2479*	0.0606	−4.09	−0.0562
Asian American	−0.0843	0.0924	−0.91	−0.0191
Hispanic	−0.2432*	0.0475	−5.12	−0.0552
Other ethnicity	0.0459	0.0594	0.77	0.0104
Weekend	0.9704*	0.2013	4.82	0.2201
Constant	3.5235*	0.6758	5.21	
log pseudolikelihood	−11552.98			
N	22,501			

Note: Regression also controls for location of residence, world region of origin, and home ownership status.
*Significance at the 0.05 level or less; marginal effects for dummy variables represent a discrete change from 0 to 1.

NOTES

1. We use the terms "home production" and "housework" interchangeably to refer to doing household chores; it does not refer to child care. The term non-market work encompasses both home production and the care of children.

2. See Connelly and Kimmel (2013) for a detailed summary of the literature on these trends in the United States.

3. An exception is Foster and Kalenkoski (2015) who, using experimental data, examine the effects of multi-tasking on productivity in the context of doing *either* a household chore or childcare activity only, versus engaging in both activities simultaneously.

4. We do not attempt to establish empirical evidence to support this assumption, however, see Foster and Kalenkoski (2015) for experimental evidence on the negative effect of children's presence on efficiency in home production.

5. It is widely recognized that the response rate for the ATUS, while higher than for most time use diary surveys, is lower than ideal (approximately 54–58%). Abraham et al. (2006) analyze the pattern of non-response and conclude that it is largely due to failure to contact respondents (as opposed to refusal) which appears to be relatively randomly distributed across the pool of possible respondents. Therefore, meaningful bias due to sample selection is unlikely to be present.

6. The detailed listing of time use designations of the ATUS can be found at the Bureau of Labor Statistics website (www.bls.gov/tus/lexicons.htm).

7. As argued by Folbre et al. (2005) and Folbre and Yoon (2007), the data may underestimate the extent of child care as a secondary activity if, for example, young children who are asleep or playing in another room are *not* considered to be in the presence of the respondent.

8. We use Stata for all estimations.

9. Because of the complexities of differing functional forms in Eq. (2), we do not allow for the possibility of correlated error terms across time use categories as in, for example, Kalenkoski et al. (2005) and Kimmel and Connelly (2007). If such correlation is present, which is reasonable to assume, not accounting for it reduces the statistical efficiency of Eq. (2), resulting in larger standard errors for the estimated coefficients. However, the estimates maintain the property of unbiasedness. Given that our primary purpose in estimating (2) is to derive unbiased instruments to use in the estimation of (1) rather than to test hypotheses within (2), the loss of efficiency is not a cause for concern.

10. Breusch-Pagan tests indicated the presence of heteroscedasticity in Eqs. (1) and (2), thus, we estimate using the robust option to adjust estimated standard errors.
11. Wages are estimated using the Heckman sample selection model. The wage equation includes the following variables that are not included in Eq. (2): age-squared and education-squared, the state unemployment rate, the unemployment rate interacted with the pre-2008 dummy, and an indicator of whether the state minimum wage is higher than the federally mandated minimum wage.
12. As is common in this literature, we treat women's marital status as exogenous. See Blau and Kahn (2007) for one study that controls statistically for the possible endogeneity of marriage in a model of women's labor supply and finds that results are generally not sensitive to selection into marriage.
13. Full results for the sub-samples are available upon request.
14. Approximately 10% of observations are missing information on income and, therefore, are dropped. An alternative to dropping these observations would be to use spouse's earnings to proxy for exogenous income. Because we include unmarried women in the sample, this measure seems more problematic due to the systematic nature of the missing information, and the much larger portion of the sample affected. Nonetheless, we check for sensitivity to this alternative specification. Also, the time gap between household income data (from the CPS), and the data used to calculate women's labor market earnings (from the ATUS collected several months later), results in the latter being larger than the former for a small percentage of observations. We therefore also estimate two versions of the model, one setting negative values to zero and one treating them as missing. Results are not sensitive to these alternatives; reported results set negative values to zero.
15. The F values for joint significance in the non-market work and leisure equations are 16.39 and 13.35, respectively, and the corresponding chi-squared value for the employment equation is 69.24.
16. We also estimated Eq. (1) using a more limited sample, based on women with children younger than age 13. The results are generally highly consistent across samples, especially with respect to the explanatory variables of greatest interest to us.
17. Simulations are conducted for prototypes based on marital status and education level, and using the modal or mean value within each prototype group for other explanatory variables. Detailed simulation results are available upon request.

REFERENCES

Abraham, Katherine G., Aaron Maitland, and Suzanne M. Bianchi (2006). Nonresponse in the American Time Use Survey: Who Is Missing from the Data and How Much Does It Matter? *Public Opinion Quarterly*, 70(5), 676–703.

Aguiar, Mark, and Erik Hurst (2007). Measuring Trends in Leisure: The Allocation of Time over Five Decades. *The Quarterly Journal of Economics*, 122(3), 969–1006.

Aguiar, Mark, and Erik Hurst (2009). A summary of trends in American time allocation: 1965-2005. *Social Indicators Research*, 93, 57–64.

Aguiar, Mark, Erik Hurst, and Loukas Karabarbounis (2013). Time Use During the Great Recession. *American Economic Review*, 103(5), 1664–1696.

Belkin, Lisa (2003). The Opt-out Revolution. *New York Times Magazine* (October 26).

Belkin, Lisa (2013). The Retro Wife Opts Out: What Has Changed and What Still Needs To. *The Huffington Post* (March 19).

Berik, Günseli, and Ebru Kongar (2013). Time Allocation of Married Mothers and Fathers in Hard Times: The 2007–2009 US Recession. *Feminist Economics*, 19(3), 208–237.

Bianchi, Suzanne (2000). Maternal Employment and Time with Children: Dramatic Change or Surprising Continuity? *Demography*, 37(4), 401–414.

Bittman, Michael, and Judy Wajcman (2000). The Rush Hour: The Character of Leisure Time and Gender Equity. *Social Forces*, 79(1), 165–189.

Blau, Francine D., and Lawrence M. Kahn (2007). Changes in the Labor Supply Behavior of Married Women: 1980–2000. *Journal of Labor Economics*, 25(3), 393–438.

Bound, John, David A. Jaegar, and Regina M. Baker (1995). Problems with Instrumental Variables Estimation When the Correlation between the Instruments and the Endogenous Explanatory Variable is Weak. *Journal of the American Statistical Association*, 90(430), 443–450.

Connelly, Rachel, and Jean Kimmel (2009). Spousal Influences on Parents' Non-market Time Choices. *Review of Economics of the Household*, 7, 361–394

Connelly, Rachel, and Jean Kimmel (2010). *The Time Use of Mothers in the United States at the Beginning of the 21st Century*. Kalamazoo, MI: W.E. Upjohn Institute for Employment Research.

Connelly, Rachel, and Jean Kimmel (2013). Gender Differences in Unpaid Time Use by Family Structure. In Esther Redmount (ed.), *Family Economics: How Households Impact Markets and Economic Growth*. Santa Barbara, CA: ABC-CLIO.

Connelly, Rachel, and Jean Kimmel (2015). If You're Happy and You Know It: How Do Mothers and Fathers in the U.S. Really Feel about Caring for Their Children? *Feminist Economics*, 21(1), 1–34.

Floro, Maria Sagrario, and Marjorie Miles (2003). Time Use, Work and Overlapping Activities: Evidence from Australia. *Cambridge Journal of Economics*, 27, 881–904.

Folbre, Nancy, and Jayoung Yoon (2007). What Is Child Care? Lessons from Time-use Surveys of Major English-speaking Countries. *Review of Economics of the Household*, 5, 223–248.

Folbre, Nancy, Jayoung Yoon, Kade Finnoff, and Allison Sidle Fuligni (2005). By What Measure? Family Time Devoted to Children in the United States. *Demography*, 42(2), 373–390.

Foster, Gigi, and Charlene Kalenkoski (2015). Measuring the Relative Productivity of Multitasking to Sole-Tasking in Household Production: Experimental Evidence. *Applied Economics*, 47(16–18), 1847–1862.

Fox, Liana, Wen-Jui Han, Christopher Rulm, and Jane Waldfogel (2013). Time for Children: Trends in the Employment Patterns of Parents, 1967-2009. *Demography*, 50(1), 25–49.

Hallberg, Daniel, and Anders Klevmarken (2003). Time for Children: A Study of Parent's Time Allocation. *Journal of Population Economics*, 16, 205–226.

Hamermesh, Daniel S., and Jungmin Lee (2007). Stressed Out on Four Continents: Time Crunch or Yuppie Kvetch? *The Review of Economics and Statistics*, 89(2), 374–383.

Hill, Russell C., and Frank P. Stafford (1985). Parental Care of Children: Time Diary Estimates Of Quantity, Predictability, and Variety. In F. Thomas Juster and Frank P. Stafford (eds.), *Time, Goods, and Well-Being* (pp. 415–437). Ann Arbor, MI: The University of Michigan.

Hochschild, Arlie Russell (1989). *The Second Shift: Working Parents and the Revolution at Home*. New York: Viking Penguin.

Kalenkoski, Charlene M., David C. Ribar, and Leslie S. Stratton (2005). Parental Child Care in Single-parent, Cohabiting and Married-couple Families: Time Diary Evidence from the United Kingdom. *AEA Papers and Proceedings*, 95(2), 194–198.

Kalenkoski, Charlene M., David C. Ribar, and Leslie S. Stratton (2009). The Influence of Wages on Parents' Allocation of Time to Child Care and Market Work in the United Kingdom. *Journal of Population Economics*, 22, 399–419.

Keith, Bryant, W., and Cathleen D. Zick (1996). An Examination of Parent-Child Shared Time. *Journal of Marriage and the Family*, 58(1), 227–237.

Kimmel, Jean, and Rachel Connelly (2007). Mothers' Time Choices: Caregiving, Leisure, Home Production, and Paid Work. *The Journal of Human Resources*, 42(3), 643–681.

Krueger, Alan (2007). Are We Having More Fun Yet? Categorizing and Evaluating Changes in Time Allocation. *Brookings Papers on Economic Activity*, 2, 193–215.

Milkie, Melissa A., Sara B. Raley, and Suzanne M. Bianchi (2009). Taking on the Second Shift: Time Allocations and Time Pressures of U.S. Parents with Preschoolers. *Social Forces*, 88(2), 487–518.

Moro-Egido, Ana I. (2012). Changing Trends of Mothers' Active and Passive Childcare Times. *Journal of Family and Economic Issues*, 33, 11–23.

OECD (2014) Better Life Index. http://www.oecdbetterlifeindex.org/ (accessed August 2014).

Pew Research Center (2006). Who's Feeling Rushed? (Hint: Ask a Working Mom). *Social Trends Report* (February 28).

Ramey, Valerie, and Neville Francis (2009). A Century of Work and Leisure. *American Economic Journal: Macroeconomics*, 1(2), 189–224.

Ruppanner, Leah, and Joy E. Pixley (2012). Work-to-Family and Family-to-Work Spillover: The Implications of Childcare Policy and Maximum Work-Hour Legislation. *Journal of Family and Economic Issues*, 33, 283–297.

Sandberg, Sheryl (2013). *Lean In: Women, Work and the Will to Lead*. New York NY: Knopf Publishing.

Sayer, Liana C. (2005). Gender, Time and Inequality: Trends in Women's and Men's Paid Work, Unpaid Work and Free Time. *Social Forces*, 84(1), 285–303.

Sayer, Liana C., and Leigh Fine (2011). Racial-Ethnic Differences in U.S. Married Women's and Men's Housework. *Social Indicators Research*, 101, 259–265.

Sayer, Liana C., Suzanne M. Bianchi, and John P. Robinson (2004). Are Parents Investing Less in Children? Trends in Mothers' and Fathers' Time with Children. *American Journal of Sociology*, 110(1), 1–43.

Sayer, Liana C., Paula England, Michael Bittman, and Suzanne M. Bianchi (2009). How Long Is the Second (Plus First) Shift? Gender Differences in Paid, Unpaid and Total Work Time in Australia and the United States. *Journal of Comparative Family Studies*, 40(4), 523–545.

Sevilla, Almudena, Jose I. Gimenez-Nadal, and Jonathan Gershuny (2012). Leisure Inequality in the United States: 1965–2003. *Demography*, 49(3), 939–964.

Stevenson, Betsy, and Justin Wolfers (2009). The Paradox of Declining Female Happiness. *American Economic Journal: Economic Policy*, 1(2), 190–225.

Stock, James H., and Motohiro Yogo (2005). Testing for Weak Instruments in Linear IV Regression. In D.W.K. Andrews (ed.), *Identification and Inference for Econometric Models* (pp. 80–108). New York, NY: Cambridge University Press.

Thomas, Juster, F., Paul N. Courant, and Greg K. Dow (1985). A Conceptual Framework for the Analysis of Time Allocation Data. In F. Thomas Juster and Frank P. Stafford (eds.), *Time, Goods, and Well-Being* (pp. 113–131). Ann Arbor, MI: The University of Michigan.

Wang, Wendy (2013). Parents' Time with Kids More Rewarding than Paid Work – And More Exhausting. Pew Research Center (October).

White House (2014) *Summit on Working Families*, http://workingfamiliessummit.org/ (accessed July 2014).

Deborah S. DeGraff is Professor of Economics at Bowdoin College. She holds a Ph.D. in Economics from the University of Michigan. Her research focuses on household decisions and outcomes, primarily in developing countries, regarding children's work and schooling, women's labor force participation and time use, and the economic well-being of older persons.

Rebecca M. Centanni is Senior Analyst at Analysis Group, Boston. She is a 2013 Magna Cum Laude graduate of Bowdoin College with High Honors in Economics. She was also co-recipient of the 2013 Noyes Political Economy Prize awarded by the Department of Economics, Bowdoin College, for her thesis studying women's "double burden."

How Do Caregiving Responsibilities Shape the Time Use of Women and Men in Rural China?

Margaret Maurer-Fazio and Rachel Connelly

1   INTRODUCTION

In this chapter, we examine what is known about the way rural Chinese women and men divide their work time among income-earning endeavors (agricultural work and off-farm employment), household tasks, and caregiving with an emphasis on the provision of care for children and elders. The analysis is grounded in a multi-generation context, focusing on up to four generations of potential workers within the household – young and prime-working-age women and men who tend to specialize in market-oriented work and their mature and older household counterparts who tend to specialize in unpaid work and who, with age, eventually, reduce their overall hours of work.

One can picture these four generations as consisting of mature parents with their adult children, their young adult grandchildren, and their own

M. Maurer-Fazio (✉)
Department of Economics, Bates College, Lewiston, ME, USA
e-mail: mmaurer@bates.edu

R. Connelly
Department of Economics, Bowdoin College, Brunswick, ME, USA
e-mail: connelly@bowdoin.edu

elderly parents. Of course, most households do not have four generations of potential workers. We use the term "workers" here in a very broad sense, which includes those working in unpaid as well as paid endeavors. The households of the mature parents who are relatively young may contain adult children, school-age or preschool-age grandchildren, and older parents. In some households, the oldest generation will be already deceased; in some, the youngest generation will not yet be born; and in others, as is currently commonplace in rural China, one or more members of the middle generations will be absent/away from the household due to their migration to urban areas. In the data we analyze later in the text, almost one half of the households have three or more generations living together.

We are particularly interested in how households divide their time along gender and generational lines and whether the time use of individuals in particular age/gender groups typically complement or substitute for the time of others who are engaged in income-generating activities. We are also particularly interested in how culture/ethnicity may intersect with age, gender, and household composition in the allocation of household time. In this chapter, we first survey and synthesize the existing literature on time use in rural China. We then analyze data from the 2011 Chinese Household Ethnicity Survey (CHES), highlighting the time-use patterns of rural women and men in seven Chinese regions with high concentrations of ethnic minority populations.

In the analysis that follows, we separate household members into five age-delimited categories: children, young adults (age 16–24), prime-age adults (age 25–45), mature adults (age 46–70), and older adults (age 71 or older). We determined the parameters of these age groups by carefully considering the different roles men and women play in contemporary rural China by age. Young adults are very likely to migrate. Prime-age adults may migrate as well, but many in this age group return home after a period of migration to take up family responsibilities: raising young and school-age children, farming, working locally off farm and, in some cases, caring for old and disabled family members. Mature adults are much less likely to migrate, though their rates of migration have increased over time. Most of them are still healthy enough to work on and off farm and to care for family members old and young. Rates of widowhood increase with age within the mature age category, but remain fairly low. Consideration of widowhood is important because it appears to be a trigger for both increases in rates of co-residence with adult children and reductions of

participation in income-generating work (Connelly and Maurer-Fazio 2016; Maurer-Fazio et al. 2015). In rural China, even those over age 70 work substantial numbers of hours at farm tasks, housework, and care work, especially when spouses live together on their own, that is, not co-residing with any offspring (Connelly and Maurer-Fazio 2016).

We also consider three categories of work time: care work, housework, and income-generating work.[1] The latter includes farm work, off-farm wage work, and non-agricultural self-employment. We add care work and housework together to form the category of unpaid work, which we often use to set up comparisons with time spent in income-generating work. Finally, we add all three types of work together to form the category of total work time. We expect time use to vary substantially by gender and consequently separate our analyses of men and women's time use.

Overall, our findings reinforce those of other scholars in this field – time use in rural China is both gendered and age differentiated. Large gender gaps in total work time exist for all but the oldest household members. Young women's total work time is 3.6 hours greater than young men's. Similarly, the gender gap in prime-age women's total daily work time is 2.2 hours per day, while that of mature women is 2.1 hours per day. In most cases, work time is inversely related to household size. Exceptions to this generalization occur for households with larger numbers of very young or very old household members. Prime-age men and women work the greatest number of hours per day. Mature women's time use is the most variable and the most affected by the presence of young children and/or elders and by the absence of household members due to migration.

Our data and analysis allow us to observe differences in time use among individuals of Muslim ethnic groups, non-Muslim ethnic groups, and the Han majority. We find that in comparison to prime-age individuals, mature men and women of Muslim ethnicity reduce their total work time more than their counterparts in the non-Muslim and Han ethnic groups. Furthermore, and similar to the findings of Ding et al. (2016), we find that women in our ethnic Muslim category are less likely than the women in our other two ethnic categories to spend time in income-generating endeavors.

Our results reveal the importance of considering the intersectionality of household composition, gender, age, and ethnicity when analyzing rural time use in contemporary China. They demonstrate the importance of distinguishing between Muslim minorities and non-Muslim minorities in comparison to the Han majority. Women in the 46–70 age group vary

most in their time-use patterns and serve as time-use shock absorbers for the household. They work more or less depending on their extended household's demands for care time, housework time, and income.

2   CHINESE CONTEXT AND LITERATURE REVIEW

According to China's 2010 Census of the Population, China is home to an extraordinarily large ethnic minority population. We use the term ethnic minority here to refer to the entire body of 55 national minorities that, along with the Han majority, make up the 56 ethnic groups officially recognized in China.[2] China's ethnic minority population totals 112 million in number (8.4% of China's total population). The government classifies 10 of the 55 ethnic minority groups, with a combined population exceeding 23 million, as Muslim with respect to religion.[3] The two largest of these groups, the Hui and the Uighurs, each have populations slightly above 10 million.

2.1   *China's Gendered Labor Market – Urban and Rural, Pre- and Post-economic Reform*

In traditional China, households' division of labor was strongly gendered and perhaps best characterized as a female-inside/male-outside patriarchal dichotomy. Fitting roles for women were envisioned as those that sustained the family and took place inside the household. Suitable roles for men were envisioned as those that provided for the family by means of work outside of the household. After the founding of the People's Republic of China, the Communist Party promoted women's labor force participation, as a form of liberation and means of attaining equality. Labor force participation increased dramatically and the dual-earner household became the new norm for Chinese families. Women, however, continued to provide the vast majority of unpaid domestic and care work.

In the late 1970s and early 1980s as China entered an extended period of economic reform, female labor force participation was very high in international comparison and women's working lifetime labor force attachment was extremely strong. However, these levels of attachment and participation occurred within a state system of labor allocation that was the very antithesis of a free market system and embodied a great deal of inefficiency and redundancy. Workers were unable to exercise occupational or locational preferences and managers had to passively accept the

workers allocated to them by the labor bureaus. The wage system was designed to provide nearly egalitarian earnings rather than to promote productivity or to provide incentives to workers. Chinese workers, men and women, received nearly equal pay regardless of their efforts, productivity, or performance (Maurer-Fazio and Hughes 2002).

As Cook and Dong (2011) describe, the pre-reform urban labor system provided women (as well as men), at least those in the then predominant state sector, not only with secure lifetime employment, but also a whole range of social services and benefits, which included, but were not limited to: maternity leave, childcare, healthcare, and pensions. So, even though care provision for children, the elderly, and the disabled was considered women's responsibility, the institutions in place minimized the penalties women suffered due to their dual roles as caregivers and labor market participants. Because workers were assigned to their work units for life and because pay was determined by administrative wage scales and not linked to performance, women typically suffered neither reduced wages nor job losses due to conflicts between their jobs and their caregiving responsibilities (Cook and Dong 2011).

When economic reform was initiated in urban areas in the mid-1980s, a new generation of profit-motivated managers demanded more flexible and more efficient labor market institutions. Although change was introduced gradually, the tentative and initial steps toward labor market liberalization yielded profound changes in China's labor system. On the workers' side, workers gained the right to choose where and for whom they would work. And on the managers' side, at least in the nascent private sector, managers gained the right to determine the size and composition of their work forces. A strong movement toward decentralized, productivity-determined remuneration arose: workers' earnings became tied to their own productivity, while managers' compensation became linked to the profitability of their enterprises (Maurer-Fazio and Hughes 2002).

In the pre-reform period, China's rural residents were simply not allowed to exercise choice over their types of employment. They were organized into production teams, brigades, and communes. The production teams managed the land and labor under their control. Team members did not earn money, but rather work points. The value of their accumulated points was determined at the end of the year when the teams distributed earnings in cash and kind. As in urban China at the time, the link between effort and reward in the rural work environment was weak. The combined effects of the household registration (*hukou*)

system and the state's compulsory purchasing of agricultural output kept rural residents dependent on their teams for income and food. Migration to urban areas was proscribed. Echoing urban enterprise manager's lack of choice over the size and constitution of their workforces, village production team leaders had virtually no choice over their teams' constituents. Agricultural workers were matched to their employers (their teams) by their geographic location rather than by choice (Maurer-Fazio 1995).

In rural China, rapid change to employment structures and arrangements began with the implementation of the household responsibility system (HRS) in the late 1970s and early 1980s. The HRS allowed rural residents to contract land and practice family farming. These newly entrepreneurial farm households economized on labor and freed millions of rural Chinese to seek other types of employment. According to Lu (1994), by the end of 1993, more than a fifth of China's labor force was employed by rural-based township and village enterprises. Further institutional change in the form of the loosening of restrictions on migration allowed large numbers of rural residents to seek work in urban areas.

As summarized earlier, it is clear that over the course of economic reform, Chinese workers, both urban and rural, experienced considerable change in their work environments. A great deal of research has been done to see how these changes have affected women, relative to men, in terms of earnings, labor force participation, lay-offs, unemployment spells, and other labor market factors (see, e.g., Appleton et al. 2002; Maurer-Fazio et al. 2011; Dong et al. 2006; Du and Dong 2009; Giles et al. 2006; Hughes and Maurer-Fazio 2002; Maurer-Fazio and Hughes 2002; Maurer-Fazio 2006; Maurer Fazio et al. 2007, 2010). Taken together, the results of these studies demonstrate a general decline in women's labor market positions/status relative to men's. Much less is known about how the profound changes to the labor allocation system have affected women as care providers and how care provision is affecting well-being.

2.2   Changes in the Social Provision of Services

Cook and Dong (2011) argue that concomitant with economic reform, profound transformations occurred in China's social and demographic systems and consequently much of the caregiving responsibility shouldered largely by the state in the socialist period (1949–1976) returned to the household. Social reproduction and unpaid care work form the dual focus of their analysis. They document how the new economic

environment, in which managers are judged/rewarded according to their contributions to enterprise profitability, makes managers disinclined to accommodate employees' need for the time and/or flexibility to carry out their roles as caregivers. These changes put employees with caregiving responsibilities at risk for lost pay and even job loss. The dismantling of enterprise-provided childcare and the reductions in provisions for maternity leave have further compounded the consequences of the emphasis on enterprise profitability in terms of shifting care responsibilities back to the family. Cook and Dong investigate how these and other institutional changes related to caregiving influence women's labor market outcomes and how the consequences of work–family tensions affect the well-being of caregivers (typically women) and their families.

In the post-reform period, labor market policies aimed at making the economy more efficient have ignored women's roles as caregivers and thus exacted penalties on their rewards as labor markets participants (Cook and Dong 2011). Two particular changes with regard to childcare have had profound effects. First, in the post-reform period the focus of publicly provided child care changed toward providing early childhood education and away from its previous role of providing support to working women. Second, both the government and employers reduced their provision of daycare (Zhu and Wang 2005; Liu et al. 2008).

These changes in the focus and provision of daycare have profound implications for the tension between Chinese women's traditional roles as care providers and their roles as income earners. As Maurer-Fazio et al. (2011) document, based on the data of the 2000 Population Census of China, the presence of preschool-aged children in a household decreases the participation in market work of prime-age urban women (those with urban resident *hukou*) by 6.6 percentage points. They find that the negative effect of young children in the household on women's labor force participation is substantially larger, at 30.4 percentage points, for rural migrant women currently living in urban areas. They also find that the presence in the household of parents or parents-in-law facilitates prime-age women's likelihood of participating in the labor market and that the positive effect of co-residing parents (and parents-in-law) is much larger for rural-to-urban migrant women than for their non-migrant counterparts. The employment enabling effects of co-resident grandparents are echoed in the findings of Chen et al. (2011) and Chang et al. (2011a).

Liu et al. (2010) concentrate on the other end of the age spectrum with regard to the effects on prime-age women's labor force participation and

labor supply of having parents and parents-in-law in need of care. Their findings reveal substantial differences in urban labor market outcomes between women caring for parents and those caring for parents-in-law. These differences are most likely related to traditional family norms in which women leave their natal families upon marriage and join their husband's families, often co-residing with parents-in-law. Liu et al. report that while caring for parents does not appear to affect daughters' employment status or work hours, caring for parents-in-law has a statistically significant, sizable, negative effect on daughters'-in-law probability of employment and hours of paid work. They also note that female care providers often face competing care demands from their own young children and elderly family members in need of care.

Migrant women in urban areas, who have very limited access to social services, face terribly difficult choices with respect to paid work and childcare (Cook and Dong 2011; Maurer-Fazio et al. 2011). Many leave their children behind in the rural areas in the care of grandparents. Those who lack parents to provide childcare often withdraw from paid work or work in informal settings with irregular hours or resort to self-employment. Connelly et al. (2012) report that many migrant mothers return to their rural homes when their children begin school. The grandmothers providing care for left-behind preschool children are typically less educated than their daughters and are not considered as good maternal substitutes when it comes to helping the children with their schoolwork.

In the rural sending areas, the effects of children on parents' off-farm work and migration decisions for rural households vary by the age of the children. Although Zhao (1999) finds that preschool children have no effect on parents' migration decisions, she finds they decrease their parents' participation in local off-farm work. In a study based on more recent data, Qiao et al. (2015) also find that preschool-age children have no effect on their parents' decisions to migrate or to work off farm. However, Chang et al. (2011b) report that the presence of preschool-age children decreases the number of hours spent on wage employment for both parents. They note that this decrease is larger for mothers than fathers. Qiao et al. (2015) find that children who are old enough to be in school increase their parents' likelihood of participation in local off-farm work, while decreasing their probability of migration.

Grandparents appear to make important contributions to parents' work and migration decisions. Chen et al. (2011) report that grandparent-provided childcare has increased substantially, in both urban and rural

China, in the post-reform period. Their finding is echoed, for urban areas, in the work of Du et al. 2016. These studies generally interpret grandparent-provided care as the outcome of family decisions to ease mothers' care work to enable them to pursue income-earning opportunities – thereby improving the household's well-being. Chang et al. (2011a) find that preschool children increase the number of hours spent on housework and care work by both elderly men and elderly women – confirming the role of grandparents in childcare. Connelly et al. (2012) argue that grandparents' participation in childcare reduces the constraints on migration decisions of rural mothers. Qiao et al. (2015) also suggest that the readiness and availability of grandparents to care for their preschool-age grandchildren helps explain why the presence of such children appears to have no effect on younger adults' migration and employment decisions.

To date, there have been only a few studies that focus on how ethnic identity affects rural individuals' participation in off-farm employment and labor migration. In general, ethnic minority status tends to reduce the probability of rural-to-urban migration, although a couple of ethnic groups are observed to have higher probabilities of migration than does the majority Han population (Gustafsson and Yang 2015; Howell et al. 2015; Howell and Fan 2011). Connelly and Maurer-Fazio (2015) find, for China's rural elders, that ethnic minority status is one of the strongest predictors of labor force participation (along with age, disability, and widowhood). Gaining a clear understanding of how gender and ethnicity intersect with regard to rural women's time-use and labor outcomes is of critical importance.

Ding et al. (2016) analyze data drawn from the same survey that we employ later in this chapter, a survey conducted in rural areas of central and western China with significant ethnic minority populations. They find that in line with traditional gender role expectations, children generally decrease women's likelihood of working off farm, but increase men's probability of doing so. They compare their findings for members of the Han majority to those of Muslim and non-Muslim ethnic groups. Focusing on the effects of preschool children, it appears, the gender gap in the choice of type of employment is wider for Muslim parents than non-Muslim minority and Han parents.

Two relatively recent papers focus specifically on women's time use in rural China. In the first, Chang et al. (2011b) explore the effects of economic development on gender gaps in time use and the feminization

of labor. They consider four aspects of development: income growth, structural change in output and employment, urbanization and migration, and infrastructure improvement. They focus on the effects of development on the rural, non-migrant population and are particularly interested in how age and marital status affect outcome. They divide their sample into three age groups: 15–25, 26–55, and 56 and older. They report profound household composition effects and evidence of gendered intergenerational substitution effects. For example, while the presence in the household of a woman in the 56 and older group allows a reduction in total work time (farm, off farm, and domestic) of women in the household who are between the ages of 15 and 55, there is no equivalent effect on women's work for the presence of a man in the household in the 56 and older group. They report that although economic development has an absolute positive effect on married women, the benefits for women are low relative to those for men. Thus, there is a widening of the time-use gender gap in off-farm employment that advantages men over women in terms of earnings potential which may then exacerbate unequal power relations within the family.

   In a second paper, Chang et al. (2011a) focus more explicitly on the effects of out-migration on the time use of those left behind in the rural areas – particularly for left-behind elders and school-age children. They define "elderly" very loosely as those over age 50 and consider the age group of 7–14 for the children of their analysis. They focus on time spent in off-farm, farm, and domestic work spheres. They find a noticeable effect of the out-migration of family members in terms of increased work hours on those left behind. These effects are strongly gendered – the increase in work time is larger for older women and girls than for older men and boys. While older men in households with at least one migrant work on average an extra 180 hours per year in off-farm work and an extra 110 hours per year at farm work and an extra 0.16 hours per day at domestic tasks (compared to those in households with no migrants), older women in such households work 190 and 200 hours more per year, respectively, in off-farm and farm work and 0.26 more hours per day at domestic tasks. The authors report that married women (age 20–50) whose husbands have migrated also work more hours per year at farm work and off-farm work than their counterparts whose husbands have not migrated, but note that the extra-work effect is quite small for this group. Based on their work,

it appears that the elderly are bearing much of the work burden arising from the migration of household members.

A recent paper by Dong and An (2014) examines gender patterns in paid work, unpaid work, and non-work activities for women and men in rural and urban China based on a 2008 time-use survey. They report that the total work time of women in China's rural areas exceeds that of men by 7 hours per week and that urban women work 10.5 hours more per week than urban men. Women are working fewer hours for pay and many more hours in unpaid, care-providing activities. Overall, they have much less time for non-work activities. Dong and An argue that women's provision of unpaid care work takes up their time and uses their energy and therefore limits the time women have to participate in paid labor markets. It also reduces the time they have available for self-care, training, or other forms of human capital investment, and socialization and relaxation.

Qi and Dong (2016) also employ the 2008 China Time Use Survey to examine how unpaid care work contributes to differences in earnings among women and men who are engaged in paid non-agricultural employment. They find that while time spent in unpaid work affects earnings for both women and men, it affects women's earnings more negatively than men's. This is particularly unfortunate as unpaid care work contributes substantially to well-being. Dong and An (2014) estimate that the aggregate value of unpaid care work is between 25% and 30% of China's GDP and that women carry out 70% of it. Thus, care providers and care provision should not be overlooked in policy. Qi and Dong (2016) also investigate how the presence of children and elderly in need of care affect time allocated to both paid and unpaid work. They find that the presence in the household of a child (less than 15 years of age) reduces women and men's time in paid work by 1.4 and 2.3 hours per week, respectively, and increases their time in unpaid care work by 7.3 and 4.3 hours per week, respectively. Their estimates for elder care are of similar sign and significance, but even larger in magnitude with reductions in paid work of 4.5 and 7.0 hours per week and increases in unpaid care work of 7.3 and 9.7 hours per week for women and men, respectively. The presence of potential helpers, that is, other adult household members between the ages of 21 and 64, increases the time spent in paid work (by 0.68 and 0.56 hours per week for women and men, respectively) and reduces the amount of time spent in unpaid care work (by 1.62 and 1.20 hours per week for women and men, respectively).

Our analysis contributes to this nascent literature on time use in rural China in several ways. First, mature adults in rural China have increased their labor force participation rate substantially over the last 30 years, especially mature women (Hughes et al. 2007; Connelly et al. 2014). Given the active labor market roles of many of these mature adults, we think that it is important to differentiate them from older adults who are more likely to have transitioned from being workers to those in need of care. Thus, unlike the studies reviewed earlier, we specifically separate our sample's older individuals into two groups: mature adults (46–70) and older adults (71 and above). Second, by using a new data set collected in 2012 which privileges locations with large ethnic minority populations we are able to consider how cultural differences, proxied by minority group membership, interact with household composition, age, and gender in the determination of time use in rural China. The 2011 Chinese Household Ethnicity Survey (CHES) allows us to differentiate among individual ethnic groups instead of, as is commonly done, grouping them together into a single "non-Han" identity. Given the large differences found between Muslim minority groups, non-Muslim minority groups and the Han in both our previous work with this data set and in the work of Ding et al. (2016), we use the same trichotomy in the analysis that follows. The next section provides more details on the CHES data.

3   DATA, VARIABLE DEFINITIONS, AND DESCRIPTIVE STATISTICS

Our analysis employs data from the 2011 CHES, which collected information on close to 15,000 urban and rural households in seven provinces and provincial-level autonomous regions: Inner Mongolia, Hunan, Ningxia, Guangxi, Guizhou, Qinghai, and Xinjiang. The sample frame was based on the urban and rural household registries of the relevant provincial Bureaus of Statistics. Project leaders devised a sampling strategy for the included rural and urban areas that ensured a representative sample that included households of the major ethnic groups of each region and also took into consideration geographical conditions and location-based differences in economic and social development. This paper is based on the rural sample, which in total includes over 30,000 individuals of more than 7,000 households of hundreds of villages located across 81 counties.

More specifically, our analytical sample consists of the women and men of the rural survey who are over the age of 15 and present in the household. That is, we exclude migrants. Furthermore, given our focus on time use, we only retain observations if the survey respondent unambiguously addressed the survey instrument's time-use questions. That is, we exclude individuals who left all time-use categories (other than income-generating time use) blank. These restrictions, along with the additional requirement that we imposed that each observation/individual had no missing values for any variable included in our multivariate models, yield a sample of rural residents that consists of 905 young women, 694 young men, 3,045 prime-age women, 2,054 prime-age men, 2,943 mature women, 2,410 mature men, 303 older women, and 280 older men. The data set's information on time use, the focus of this paper, refers to respondents' use of time in the week prior to the day on which they were surveyed. Respondents were asked to recall their time use in each category for a typical/average day in the previous week.

Table 1 presents sample means for a set of individual and household characteristics. In terms of individual attributes, we see that educational attainment has increased over time such that those in the younger age groups have greater shares of their constituents in the higher attainment categories. Gender differences in educational attainment are clearly present. These differences, with men's educational attainment levels exceeding women's, are much more pronounced for the older age groups than for the younger ones. As expected, disability rates increase with age.

As discussed earlier, the CHES data are not representative of rural China as a whole. Rather, the data privilege those areas in central and western China with large minority populations. This aspect of the survey design becomes evident with the proportions of the analytic sample that are members of ethnic minority groups. The youngest age group in the sample is approximately split in thirds among Muslim minority, non-Muslim minority, and the Han majority. In successively older groups, the proportion Muslim falls, which could be due to higher (relatively recent) fertility of the Muslim population and/or lower (past) life expectancy of members of the Muslim groups.

In addition, Table 1 presents two key aspects of household composition: evidence of recent migration and fertility. Migration is clearly a large part of rural life. More than a third of the youngest women and almost half of the older women live in households missing at least one member due to migration. One half of the older men also live in households who are

Table 1 Selected means of the analytic sample

	Women				Men			
	Young	Prime-age	Mature	Older	Young	Prime-age	Mature	Older
Mean age	20.2	36.2	55.2	77.0	19.7	36.5	56.0	75.7
Schooling: (percent)								
Did not finish primary school	4.3	14.5	33.2	82.8	1.2	4.2	11.5	47.5
Finished primary school	16.8	37.2	42.5	15.2	7.9	27.3	39.9	39.3
Finished middle school	51.2	41.5	20.1	1.3	57.9	54.2	37.6	10.7
Attended high school or higher	27.7	6.7	4.2	0.7	33.0	14.3	11.0	2.5
Disabled (percent)	2.2	3.1	7.3	10.9	1.2	3.0	6.5	16.8
Ethnic group (percent)								
Muslim minority	33.7	22.7	15.1	14.2	33.6	23.4	17.9	24.3
Non-Muslim minority	37.5	39.6	43.0	56.4	36.3	38.6	41.7	47.9
Han	28.8	37.7	42.0	29.4	30.1	38.0	40.4	27.9
Household composition: (percent)								
Have migrant in household	37.0	36.3	48.8	47.5	26.7	24.5	49.6	44.6
Have child (age 0–5) in household	36.5	30.2	26.9	19.1	15.9	30.8	23.9	25.7
Number of observations	905	3,045	2,943	303	694	2,054	2,410	2,80

missing one or more members who have migrated. Given that men are more likely than women to be migrants, it is not surprising that fewer of the younger men in our sample live in a household that is missing a member due to migration. But even so, approximately one quarter of the two younger groups of men live in households with family members who are out migrants.

Second, we observe that substantial shares of the individuals of each age group, male and female, live in households with preschool-age children. The shares are highest for the two youngest women's age groups where, as might be expected, more than a third of women live in a household with a preschool child. Notably, and importantly for our consideration of the mature and older age groups, about one quarter of the mature and older men and women co-reside with very young children. The lowest rate of co-residence with young children occurs for older women. Some of these women are sufficiently old that even their grandchildren are adults. Still, close to 20% of older women co-reside with a preschool child.

In Tables 2–4, we present mean hours of work per day for the eight age/sex groups of interest. In Table 2, daily hours spent in total work, income-generating work, and unpaid work are compared across two types of households: those with and without young children (age 0–5). Table 3 presents the same time-use categories and allows comparison across households with and without migrant members. Table 4 similarly divides each age/sex group into those who are members of Muslim ethnic minority groups, those who are members of non-Muslim ethnic minority groups, and those who are Han. In each of these tables, reading from the bottom up, the categories of housework and care work sum to the category of unpaid work. Unpaid work stands in contrast to our category of income-generating work, which includes both farm work and off-farm work. Income-generating work and unpaid work sum to total work, which is presented as the first row of mean hours per day in each of these tables.

The time intensity of young children becomes quite evident in Table 2, as do large differences, related to young children, in time use between men and women and across age groups. Hours of total work double for young women and increase by 50% for young men when there is a young child in the household. Notably, while total work hours increase substantially (with the presence of young children in the household) for women of all other age groups, this is not the case for men of other age groups.

Table 2 Time use – hours per day by the presence of young child in household, sex, and age

Age group of HH Member	Women		Men		Average hours gap women−men	
	No baby in HH	Baby in HH	No baby in HH	Baby in HH	No baby in HH	Baby in HH
Total work						
Young	4.6	10	4.1	6.4	0.6	3.6
Prime-age	8.9	10.9	7.9	8.3	0.9	2.6
Mature	8	9.3	7.2	7.1	0.8	2.1
Older	2.8	3.1	3.4	3.5	−0.6	−0.4
Income-generating work						
Young	2.5	3.2	2.9	4.1	−0.4	−0.9
Prime-age	4.8	4.3	5.7	5.6	−0.9	−1.3
Mature	4.3	3.6	5	4.5	−0.7	−0.9
Older	1	0.4	1.8	1.2	−0.8	−0.8
Unpaid work						
Young	2.2	6.8	1.2	2.3	1	4.5
Prime-age	4	6.6	2.2	2.7	1.8	3.9
Mature	3.7	5.7	2.2	2.6	1.5	3.1
Older	1.8	2.7	1.6	2.3	0.2	0.4
Care Work						
Young	0.3	4	0.1	1	0.2	3
Prime-age	0.6	3.5	0.3	1.1	0.3	2.5
Mature	0.4	2.9	0.3	1.2	0.2	1.7
Older	0.2	1.5	0.2	1.5	0	0
Housework						
Young	1.9	2.8	1.1	1.3	0.8	1.5
Prime-age	3.5	3.1	2	1.7	1.5	1.4
Mature	3.3	2.8	2	1.4	1.3	1.3
Older	1.6	1.2	1.5	0.8	0.2	0.4

Total work is the sum of income-generating work and unpaid work. Unpaid work is the sum of care work and housework

We note that the increase in work time comes from extra hours spent in providing care and, while time spent in income-generating work and housework both tend to decrease, the increase in care work far outweighs the declines in time spent in these other two categories of work. The largest increases in care work occur for the men and women in the younger age categories, those most likely to be the parents of the young children. However, it is also clear that grandmothers provide substantial amounts of care – the care work of mature women increases by 2.5 hours a day with

Table 3 Mean hours of work per day by age, sex & whether household membership includes one or more migrants

Age group of HH member	Women		Men		Average hours gap (women −men)	
	No migrant in HH	Migrant in HH	No migrant in HH	Migrant in HH	No migrant in HH	Migrant in HH
Total work						
Young	6.3	6.8	4.5	4.1	1.8	2.7
Prime-age	9.7	9.2	8.1	8.0	1.6	1.1
Mature	7.7	8.8	6.7	7.7	1.0	1.2
Older	3.1	3.0	3.4	3.8	−0.4	−0.8
Income-generating work						
Young	2.7	2.9	3.0	3.0	−0.4	−0.1
Prime-age	4.7	4.8	5.7	5.9	−0.9	−1.2
Mature	3.6	4.6	4.4	5.4	−0.8	−0.9
Older	0.9	1.1	1.7	1.8	−0.8	−0.7
Unpaid work						
Young	3.7	4.0	1.5	1.1	2.2	2.9
Prime-age	5.0	4.4	2.4	2.1	2.6	2.3
Mature	4.2	4.3	2.3	2.3	1.8	2.0
Older	2.2	1.9	1.7	2.0	0.5	−0.1
Care work						
Young	1.4	1.9	0.3	0.2	1.1	1.7
Prime-age	1.6	1.1	0.6	0.3	1.1	0.9
Mature	1.0	1.1	0.5	0.5	0.5	0.7
Older	0.6	0.3	0.6	0.6	0.0	−0.2
Housework						
Young	2.3	2.1	1.2	0.9	1.1	1.2
Prime-age	3.4	3.3	1.9	1.9	1.5	1.4
Mature	3.2	3.2	1.9	1.8	1.3	1.3
Older	1.6	1.6	1.2	1.4	0.4	0.2
Number in sample					Total	
Young	570	335	509	185	1,599	
Prime-age	1,940	1,105	1,551	503	5,099	
Mature	1,506	1,437	1,215	1,195	5,353	
Older	159	144	155	125	583	
Total	4,175	3,021	3,430	2,008	12,634	

the presence of a young child in the household. Mature men, older women, and older men who co-reside with young children also each provide more than an additional hour per day, on average, of care work relative to their counterparts who do not co-reside with young children.

Table 4 Mean hours of work per day by sex, age category, and minority status

	Women			Men			Mean hours gap (women − men)		
	Muslim minority	Non-Muslim minority	Han	Muslim minority	Non-Muslim minority	Han	Muslim minority	Non-Muslim minority	Han
	Total work								
Young	7.4	6.6	5.4	5.1	4.1	4.1	2.3	2.6	1.3
Prime-age	9.4	9.7	9.4	6.9	8.5	8.4	2.5	1.2	1.0
Mature	6.9	8.9	8.1	5.0	8.0	7.4	1.9	0.9	0.7
Older	1.7	3.8	2.2	1.6	4.8	3.2	0.0	-1.0	-1.0
	Income-generating work								
Young	2.8	3.1	2.2	3.4	2.9	2.8	-0.6	0.2	-0.6
Prime-age	3.9	5.3	4.6	4.8	6.2	5.8	-0.9	-0.9	-1.2
Mature	2.2	4.9	3.9	3.3	5.6	4.9	-1.2	-0.7	-1.0
Older	0.2	1.4	0.6	0.5	2.7	1.1	-0.3	-1.3	-0.6
	Unpaid work								
Young	4.6	3.5	3.2	1.8	1.1	1.3	2.9	2.4	1.9
Prime-age	5.6	4.4	4.7	2.1	2.4	2.5	3.5	2.1	2.2
Mature	4.7	4.1	4.2	1.7	2.4	2.4	3.1	1.6	1.8
Older	1.5	2.4	1.6	1.1	2.1	2.1	0.4	0.3	-0.5
	Care work								
Young	2.0	1.4	1.4	0.4	0.2	0.2	1.6	1.2	1.2

Prime-age	2.0	1.2	1.4	0.6	0.4	0.5	1.4	0.8	0.8
Mature	1.5	1.1	0.9	0.4	0.5	0.4	1.2	0.5	0.5
Older	0.5	0.5	0.4	0.2	0.8	0.6	0.4	-0.3	-0.2
Housework									
Young	2.7	2.1	1.8	1.4	0.9	1.1	1.3	1.2	0.7
Prime-age	3.6	3.2	3.4	1.5	1.9	2.0	2.1	1.3	1.4
Mature	3.2	3.0	3.3	1.3	1.9	2.0	1.9	1.1	1.3
Older	0.9	1.9	1.3	0.9	1.3	1.5	0.0	0.6	-0.3
Number of observations in sample by age/ethnicity group							Number of obs. by age group		
Young	305	339	261	233	252	209	1,599		
Prime-age	691	1,205	1,149	481	793	780	5,099		
Mature	444	1,264	1,235	432	1,004	974	5,353		
Older	43	171	89	68	134	78	583		
Totals	1,483	2,979	2,734	1,214	2,183	2,041	12,634		

It is not at all surprising that the amount of care work carried out by someone in the household increases with the presence of a young child. However, it is not a given that total unpaid work will increase or especially that total work will increase. The level of unpaid work could be maintained if housework declines to compensate the increase in care work. And, while hours spent at housework decline, for all groups other than young women, the hours spent in housework decline by much smaller amounts than the increases in care work. Similarly, hours of total work could be maintained in the presence of young children if hours of income-generating work or housework decline in a compensatory fashion. We observe a slight decline in hours of income-generating work for the older two age groups, but not enough to prevent total work from increasing. Notably, young men and women's time spent in income-generating work is greater in households with young children present than in those without young children. This may be an artifact attributable to the parents being at the higher end of the age category and less likely to be in school. Alternatively, it might be attributable to an increased demand for income that comes with children, which could translate into an increase in hours worked. In the multivariate analysis presented in the later text, we control for actual age within age group to help distinguish between these competing hypotheses.

The final two columns of Table 2 reveal the gaps in hours of work between men and women by age and presence/absence of young children. For example, young women who live in households without young children report 0.6 extra hours of total work a day in comparison to young men in similar households, while young women in households with young children report 3.3 extra hours of total work in comparison to young men in similar households.

When we consider gender gaps in time use for women and men up to age 70 who reside in households with at least one young child, we observe that women spend from 2.2 to 3.3 hours more time per day working than do their male counterparts of similar age. We note that men in these households with young children spend approximately one hour more per day than do women in income-generating activities, but that women spend 3.1–4.5 hours more per day that men in unpaid work. Women in households with young children spend more time than their male counterparts in both housework and care work, but, as might be expected, the gender gap is larger for care work than for housework. Gender gaps in hours of each type of work are smaller in households without small children.

We next analyze the time spent in various types of work by men and women according to whether their households include members who were migrants for most of the previous year. Table 3 reveals that the factors related to the migration of household members that tend to increase work hours and the factors that tend to decrease work hours effectively cancel each other out, such that, total work hours of those with and without migrant household members are quite similar. We note one exception to this generalization in that hours of work are greater by about an hour a day for mature men and mature women in households with migrants than for those in households with no members who are missing/away due to migration. We observe no equivalent increase in workloads for either men or women in our young and prime-age groups. We note too that the increase in work for mature adults in households with migrants takes form of increased time spent in income-generating activities –most likely, but not exclusively, extra farm work. As discussed earlier, Chang et al. (2011a) found strong gendered effects of out-migration on the workloads of those left behind. Specifically, they report that left-behind older women and girls increase their work more than older men and boys when family members migrate. We find no such gendered effects in Table 3, and consider the question again, in the later text, in a multivariate context.

As discussed earlier, only a few previous studies have focused on differences in labor market behaviors and outcomes across China's rural minority populations. Ding et al. (2016) find lower rates of off-farm employment for Muslim minority women, especially those with young children, while Connelly and Maurer-Fazio (2015) find lower rates of income-generating work among mature and older Muslim women. Table 4 paints a similar picture when one considers the average daily hours of income-generating work of prime-age, mature, and older women. For these three groups of women, average daily hours of income-generating work are higher for Han women than for their female Muslim minority counterparts. Among prime-age women, Han women work 0.7 hours a day more in income-generating activities than do women of Muslim minority ethnic groups, for mature women the gap is 1.7 hours and for older women it is 0.4 hours. The difference is reversed for women in the youngest category – young Han women spend 2.2 hours a day in income-generating work, while Muslim minority women spend 2.8 hours. The reversal of the pattern for the youngest age groups is likely the result of young Muslim women being less likely to attend high school and less

likely to migrate than their Han counterparts. Since they are not in school and less likely to be migrating, more of their time is devoted to rural work hours. We note too that time spent in income-generating activities declines somewhat more rapidly with age for Muslim women and men than for others. See, for example, the differences in mean total work hours and mean income-generating hours of work between prime-age and mature women and between prime-age and mature men of Muslim ethnicity compared to these differences for the Han.

It is interesting to note that non-Muslim minority women spend even more time in income-generating activities than do Han women. This is true for men as well, which accords with the findings of Connelly and Maurer-Fazio (2015). The lower income-generating hours of Muslim women are complemented by higher hours of unpaid work, both care work and housework, such that total hours worked by prime-age women are identical for Muslim minority and Han women. Younger Muslim and non-Muslim minority women work 2 and 1.2 hours more per day, respectively, than Han women, again evidence that schooling is probably a large part of the explanation.

The final columns of Table 4 present gender gaps in hours of work by age group and minority status. We note the gender gaps in hours worked are generally greater for Muslim ethnic groups than for non-Muslim minorities or Han. Young, prime-age, and mature Muslim women carry out 2.3, 2.5, and 1.9 more hours per day of total work than their male counterparts. They work somewhat fewer hours in income-generating endeavors than their male counterparts, but substantially more in unpaid endeavors with the extra time spread fairly evenly across both care work and housework. We note, however, that there is also a substantial gender gap in total work for the young non-Muslim minorities. This may be attributable to gender differences in duration of schooling for young non-Muslim minority men and women.

4   A MULTIVARIATE MODEL OF DAILY TIME USE

Tables 2–4 reveal substantial differences in time-use behavior by age group, gender, and aspects of household composition and ethnic identity. But the one-factor-at-a-time approach of these tables (perhaps more accurately dubbed a three-factors-at-a-time approach) is a source of concern as other household characteristics correlated with the presence of young children, the absence of some household members because of migration, and ethnic

minority status may be driving some of the differences and masking other potential differences. For example, we know that minority households are bigger because of their higher rates of fertility, higher rates of co-residence with elders, and fewer out-migrants. These differences may affect the mean values of work hours. We resolve these concerns by carrying out a multivariate analysis, which controls for many aspects of household composition and minority status while simultaneously controlling for other individual, household, and village-level characteristics that are likely to affect decisions about time use and time demand. We employ an OLS model and cluster errors at the village level to account for the sample design in which a number of households per village were selected.

Because of our focus on gender, age, and minority identity and the intersectionality of these characteristics, we employ more detailed age categories than most studies. Children are divided between preschool – that is, those under 6 years of age, and school-aged – those aged 6–15 to account for differences in their needs for parental and other caregivers' time. The younger group requires more and, effectively, constant supervision, while the older group requires help with schoolwork and only sporadic care. Connelly et al. (2012) find that migrating mothers often return home when their children start school, which provides indirect evidence that grandparents' caregiving time is viewed as a less than perfect substitute for parents' time once children enter school. As discussed earlier, we divide the adult household members (other than the respondent) into the four age groups as defined earlier: young adults (16–24), prime-age adults (25–45), mature adults (46–70), and older adults (71 plus).

In addition to counting and controlling for the number of other household members by sex/age category, we also include the number of household members who are away from the household due to migration. We control for their sex/age categories, though we use wider age ranges per category (and fewer age groups) due to the substantial decline in migration with age. In our regression model, we include the number of young men and young women in the household who are migrants as well as the number of other adult men and other adult women in the household who are migrants. We refer to this latter age group as "prime-age plus."

We include the number of disabled persons in the household (other than the respondent) and separately control for whether or not the respondent is disabled. Disability status, age, education, and minority status are the four individual-level variables included in our specification. Village-level variables include the distance to the nearest bus or train

station, per capita arable land in the village, per capita level of income, the share of the village labor force who migrate for work, the presence of a village kindergarten and, separately, the presence of a village elementary school.[4] We include these village-level variables as these factors might affect time use in terms of access to off-farm jobs, provision of alternative care for children and in other broad ways.

In our multivariate model, we regress hours of time use on all individual, household, and village-level variables for each sex/age group of respondents. Thus, we have eight regressions by age and sex for each of five uses of time – 40 separate regressions. Instead of presenting the full regression results here (they are available upon request), we have created thematic tables of selected coefficients. In Table 5, we consider the effects on respondents' time use of the presence of household members in need of care (or at least potentially in need of care in terms of the oldest age group). In Table 6, we consider the effects of the migration of household members. In Table 7, we consider the effect of ethnic minority status. In Tables 8a and 8b, we consider the effects of the presence of other adults in the household on respondents' time use. One can think of Tables 5, 6, and 7 as the multivariate equivalents of Tables 2, 3, and 4, respectively.

4.1   *Presence of Household Members in Need of Care*

There is no doubt that children age 0–5 need care most of the day. Although older children can be left on their own for periods of time and also can carry out limited tasks such as helping with income-generating farm work, care work for younger children, and housework, they are generally net demanders of care. Similarly, older adults could be both in need of care and providers of care. We thus include older adults in the household in Table 5 in two ways: as a control in the analysis of others' time use (table rows) and as an age group whose time use we investigate (table columns).

Because our analysis is based on an OLS model, we interpret the coefficients presented in Table 5 (and Tables 6–8a and b as well) as the marginal effect of an additional household member on the mean hours per day spent in particular activities. So, for example, an additional preschooler in the household, will, on average, increase the total work time of both young adult and prime-age women by 1.8 hours per day, mature women by 1.2 hours per day, and has no statistically significant effect on older women's total work time. On the men's side, only prime-age men's total

Table 5 Selected OLS regression coefficients of the effects of the numbers of children and elders in the household on hours of work/day

	Young women	Prime-age women	Mature women	Older women	Young men	Prime-age men	Mature men	Older men
Total work								
Num. of children age 0–5	1.771***	1.843***	1.165***	0.381	0.294	0.622***	0.274	0.651
Num. of children age 6–15	-0.005	0.292***	-0.186	-0.063	0.443	-0.089	-0.225	-0.158
Num. of older women in HH	0.499	0.731**	0.677*	NA	-0.374	0.573	0.343	0.921
Num. of older men in HH	-0.138	0.833***	0.495	1.538***	0.942	0.228	-0.045	-4.401***
Income-generating work								
Num. of children age 0–5	-0.260	-0.146	-0.228**	-0.504**	-0.266	0.185	-0.093	-0.402
Num. of children age 6–15	0.142	0.209**	-0.164*	-0.189	0.485*	-0.063	-0.154	-0.081
Num. of older women in HH	0.078	0.235	0.214	NA	-0.328	0.216	-0.031	1.016**
Num. of older men in HH	-0.467	0.424*	-0.029	1.082***	0.785	-0.043	-0.355	-2.833**
Unpaid work								
Num. of children age 0–5	2.031***	1.988***	1.393***	0.884*	0.56*	0.436***	0.366***	1.052***
Num. of children age 6–15	-0.146	0.083	-0.022	0.125	-0.042	-0.026	-0.071	-0.077
Num. of older women in HH	0.422	0.497**	0.463	NA	-0.046	0.356	0.373	-0.095
Num. of older men in HH	0.329	0.408*	0.524**	0.455	0.156	0.271	0.310	-1.568*
Care work								
Num. of children age 0–5	1.841***	1.964***	1.663***	0.889***	0.529**	0.636***	0.638***	1.321***
Num. of children age 6–15	0.009	0.012	0.168**	0.110	0.032	0.097**	0.084*	0.115
Num. of older women in HH	0.409	0.632***	0.526***	NA	-0.006	0.198	0.565***	-0.209
Num. of older men in HH	0.492	0.216	0.617***	0.174	0.044	0.341**	0.417**	-0.501
Housework								
Num. of children age 0–5	0.191	0.024	-0.270***	-0.005	0.030	-0.199**	-0.271***	-0.269
Num. of children age 6–15	-0.155	0.070	-0.190***	0.015	-0.074	-0.123	-0.155*	-0.192
Num. of older women in HH	0.013	-0.135	-0.063	NA	-0.041	0.158	-0.192	0.114
Num. of older men in HH	-0.163	0.193	-0.093	0.282	0.112	-0.070	-0.107	-1.067

* $p<0.1$; ** $p<0.05$; *** $p<0.01$

Table 6 Selected OLS regression coefficients of the effects of the numbers of migrants by age and gender on hours of work/day

	Young women	Prime-age women	Mature women	Older women	Young men	Prime-age men	Mature men	Older men
Total work								
Num. of f young adult migrants	-0.156	0.119	0.058	-0.486*	0.588	-0.412*	-0.009	-0.171
Num. of m young adult migrants	1.008***	0.021	0.167	-0.445	-0.282	-0.054	0.198	0.255
Num. of f prime-age+ migrants	0.651	-0.960	0.648**	0.482	-0.241	0.190	0.535*	0.805
Num. of m prime-age+ migrants	-0.045	-0.173	0.655***	-0.095	-0.455	-0.335	0.168	-0.802
Income-generating work								
Num. of f young adult migrants	0.176	0.332**	0.263**	-0.046	0.457	-0.148	0.261*	-0.358
Num. of m young adult migrants	0.323	0.082	0.268*	-0.116	-0.235	-0.123	0.283*	0.132
Num. of f prime-age+ migrants	0.330	-0.141	0.122	0.97**	-0.336	0.466	0.301	0.341
Num. of m prime-age+ migrants	0.081	0.008	0.482***	-0.175	-0.376	0.230	0.361**	-0.033
Unpaid work								
Num. of f young adult migrants	-0.331	-0.213	-0.205	-0.440**	0.131	-0.264*	-0.270**	0.187
Num. of m young adult migrants	0.686**	-0.061	-0.102	-0.329	-0.047	0.069	-0.086	0.123
Num. of f prime-age+ migrants	0.320	-0.819	0.526**	-0.488	0.095	-0.276	0.233	0.464
Num. of m prime-age+ migrants	-0.127	-0.182	0.173	0.080	-0.079	-0.565***	-0.193*	-0.769**
Care work								
Num. of f young adult migrants	-0.178	-0.201*	0.022	-0.223***	0.287	-0.077	-0.054	-0.023
Num. of m young adult migrants	0.623***	-0.107	-0.108	-0.159	-0.131	-0.003	-0.014	-0.080
Num. of f prime-age+ migrants	-0.517	-0.780*	0.384***	-0.016	-0.055	-0.276**	0.090	-0.044
Num. of m prime-age+ migrants	-0.030	-0.104	-0.011	-0.088	-0.150	-0.310***	-0.127*	-0.127
Housework								
Num. of f young adult migrants	-0.154	-0.012	-0.227**	-0.216	-0.155	-0.187	-0.216**	0.210
Num. of m young adult migrants	0.062	0.046	0.006	-0.171	0.084	0.073	-0.071	0.203
Num. of f prime-age+ migrants	0.838	-0.039	0.143	-0.473	0.150	0.000	0.143	0.508
Num. of m prime-age+ migrants	-0.097	-0.078	0.184*	0.168	0.071	-0.255	-0.066	-0.642**

In this table, "f" designates female and "m" designates male. * $p<0.1$; ** $p<0.05$; *** $p<0.01$

Table 7 Selected OLS regression coefficients of the effects of minority ethnicity on hours of work/day

Relative to Han as base case	Young women	Prime-age women	Mature women	Older women	Young men	Prime-age men	Mature men	Older men
Total work								
Muslim minority	1.263***	-0.031	-0.906***	-0.933	0.187	-1.078**	-1.549***	-1.089*
Non-Muslim minority	0.819*	0.622**	0.662**	0.987***	-0.423	0.581	0.655*	1.385**
Income-generating work								
Muslim minority	0.617*	-0.507*	-1.205***	-0.221	0.080	-0.677*	-0.921***	-0.296
Non-Muslim minority	0.722**	0.935***	1.029***	0.465	-0.041	0.551**	0.619**	1.456***
Unpaid work								
Muslim minority	0.646**	0.476**	0.298	-0.712	0.107	-0.401	-0.628**	-0.793
Non-Muslim minority	0.097	-0.313	-0.367*	0.522	-0.381**	0.030	0.036	-0.070
Care work								
Muslim minority	-0.004	0.093	0.085	-0.293	0.016	-0.157	-0.131	-0.667***
Non-Muslim minority	-0.098	-0.275**	-0.147	-0.028	0.017	-0.073	0.071	0.167
Housework								
Muslim minority	0.651***	0.383**	0.213	-0.419	0.09	-0.244	-0.498**	-0.126
Non-Muslim minority	0.195	-0.038	-0.220	0.55*	-0.398**	0.103	-0.035	-0.238

* $p<0.1$; ** $p<0.05$; *** $p<0.01$

work time increases (by 0.6 hours a day) with the presence of a preschooler in the household. Looking down the women's columns, we find that the increase in total hours of work for women of all ages comes from large increases in care work without much reduction in other types of time use. Only mature women reduce their housework and income-generating work when faced with a preschooler in the household. Older women also increase their care work by almost an hour a day and reduce their income-generating work (think farm work) by half an hour a day.

Since older family members can be both in need of care and caregivers, Table 5 provides some insights into which role dominates. The presence of older men and women in a household increases both the unpaid work and income-generating work of prime-age women, leading to a statistically significant increase in total work hours of about three quarters of an hour per day. The presence of older men and women has a similar effect on the time use of mature women. Older women's total work time increases with the presence of an older man (typically her husband); older men's total time increases but by a lesser amount with the presence of an older women in the household (typically his wife).

There is no evidence to support the idea that school-age children carry out a significant enough amount of work so as to reduce the time burden of any of their household's adults. In the regressions on time spent in housework, the negative signs of the coefficients on the presence of children for both mature women and mature men seem to have more to do with mature women and men's substantial increase in caregiving time than in the substitution of school-age children's time for their own. This is evident with the similarity of the effects of young children and school-age children on the mature men and women's daily housework time. It is also clear that the time devoted to the care of school-age children is much less than that devoted to the care of young children. An additional school-age child in the household increases the caregiving time of mature women by 0.2 hours a day, of mature men by 0.9 hours a day, and of prime-age men by 0.1 hours a day. Compare these numbers to the effects of a preschool child on the increase in caregiving time for the same groups of adults: an increase of 1.7 hours for mature women, 0.6 hours for mature men, and 0.6 hours for prime-age men.

4.2   *Minority Status*

As introduced earlier, Table 6 illustrates the role that absent household members play on the time use of rural Chinese adults by age/sex groups.

Table 6 reveals interesting and complex patterns of time use in response to migration for men and women. The time use of young men who remain at home is unaffected by the migration of other family members. The time use of young women is affected only by the migration of young men. In such cases, their total work time increases by 1 hour a day, two-third of which comes from increases in care work. The group most affected by migration of family members is mature women. Mature women increase their income-generating work when a young adult migrates and increase their care work when a prime-age plus member of their household migrates. Mature men also increase their income-generating work when young adults migrate. These findings are consistent with Chang et al. (2011a) who find that older household members take up the slack in farming and childcare when younger household members migrate. However, the magnitude of these effects in Table 6 is smaller than those in Chang et al. (2011a). Migration of a family member increases income-generating work by about one-third of an hour per day and total work even less for most of the age/sex groups of remaining household members. This may be because prime-age men and women are effectively working as much time as they can per day and/or because the absence of family members might also reduce time demands. Note, for example, that the absence of a young woman in the household reduces the care time of prime-age women – perhaps because the young women delay having children until they are somewhat older or because, in an increasing number of cases, they take their children with them.

Table 7 presents coefficients on individuals' ethnic minority status. From previous work with these data, we know that most households are consti-tuted with individuals of the same, rather than mixed, ethnicity. We can thus think of the individual's ethnic minority status as representing the ethnicity of all household members. Table 4 provides some evidence that Muslim women spent more time in unpaid work and less time in income-generating work than Han women, a pattern that did not hold for non-Muslim minority women. However, we were concerned about the veracity of these apparent findings because of large differences in household composition by ethnicity found in studies based on the same data. Table 7 deals with this potential problem by providing the marginal effects of minority status, controlling for household composition as well as individual and village-level characteristics. Each of the effects revealed in Table 7 should be read as a comparison to the effects for the Han of the same age/sex group.

While we find that the generalization that Muslim women spend less time in income-generating activities than the Han holds true for both

prime-age and mature women, we note it is also the case for prime-age and mature Muslim men in comparison to Han men. Table 7 shows that Muslim prime-age women spend half an hour less on income-generating work per day than do Han prime-age women and mature Muslim women spend 1.2 hours a day less than do Han mature women. Similarly, Muslim prime-age men spend 0.7 hours a day less than Han men on income-generating work and mature Muslim men spend 0.9 hours a day less than mature Han men. Thus, this phenomenon appears to be less a gender issue and more about the Muslim community's views on aging, greater incidences of co-residence, differences in off-farm labor market opportunities and discrimination, and/or differences arising from the geographic location of Muslim communities and the crops they produce.

Table 7 also reveals that significant differences exist between the time use of non-Muslim minorities and the Han with non-Muslim minority men and women spending more hours on income-generating activities and prime-age and mature women spending somewhat less time in unpaid work. The stark differences between the coefficients for Muslim and non-Muslim minority prime-age and mature women and to a lesser extent men, provide evidence (typically missing from studies with smaller numbers of minority respondents) that analyses that posit a simple minority and Han distinction/dichotomy are not generally appropriate for rural China.

4.3   Presence of Other Household Adults

Tables 8a and 8b provide detailed information about the role that household composition (assumed throughout this analysis to be exogenous) plays in time-use decisions.[5] Positive numbers in Tables 8a and 8b indicate that the presence of an adult in a certain age/sex category other than the respondent increases work time, while a negative number indicates that the presence of that other adult acts as a substitute to the respondent's time, reducing work time presumably by being the one to do the work instead.

For adult male respondents, the presence of another adult mainly acts as a substitute, but for women, especially mature women, unpaid and income-generating time both increase with the presence of a prime-age or mature man. Let us consider carefully the marginal effects of other adults on mature women's time. Somewhat surprisingly, most of the statistically significant effects show up in terms of mature women's income-generating work time (Table 8a). This time category appears to be the most variable or perhaps the most discretionary. Having additional

Table 8 (a)   Selected OLS regression coefficients of the effects of other working-age household members on hours of work/day in total, income-generating, and unpaid work

	Young women	Prime-age women	Mature women	Older women	Young men	Prime-age men	Mature men	Older men
Total work								
Num. of young f in HH	−1.173***	−0.630***	−0.558***	0.431	0.216	−0.127	−0.955***	−0.966
Num. of young m in HH	0.651**	−0.168	−0.401**	−0.635	−0.058	−0.761***	−0.366	−0.374
Num. of prime-age f in HH	−1.311***	−0.395	−1.017***	−0.819	−0.308	−0.588**	−0.468*	−0.326
Num. of prime-age m in HH	0.120	0.222	0.510***	0.071	−0.720	−0.367	0.141	−0.248
Num. of mature f in HH	0.038	−0.164	−1.959**	−1.482**	0.069	−0.399	−0.803***	0.639
Num. of mature m in HH	−0.800**	−0.021	0.770***	0.794	−0.465	−0.540	−1.983*	−1.050
Income-generating work								
Num. of young f in HH	−0.562***	−0.242	−0.363**	0.177	−0.118	−0.256	−0.571***	−0.246
Num. of young m in HH	0.101	−0.105	−0.199	−0.191	−0.52	−0.643***	−0.166	−0.087
Num. of prime-age f in HH	0.330	0.266	−0.692***	−0.035	−0.174	−0.232	−0.366**	0.129

Table 8 (a)   (continued)

	Young women	Prime-age women	Mature women	Older women	Young men	Prime-age men	Mature men	Older men
Num. of prime-age m in HH	0.147	0.307	0.269*	-0.066	-0.318	0.389	0.173	-0.082
Num. of mature f in HH	0.554*	-0.090	-1.983***	0.036	0.137	-0.063	-0.104	0.929**
Num. of mature m in HH	0.156	0.091	0.654***	-0.055	0.048	-0.445	-2.160***	-0.692
Unpaid work								
Num. of young f in HH	-0.611***	-0.387***	-0.195	0.255	0.334	0.129	-0.385***	-0.720
Num. of young m in HH	0.550**	-0.063	-0.202	-0.444	0.463	-0.118	-0.200	-0.287
Num. of prime-age f in HH	-1.640***	-0.661*	-0.325*	-0.784*	-0.133	-0.357*	-0.102	-0.454
Num. of prime-age m in HH	-0.027	-0.085	0.241*	0.137	-0.402	-0.755***	-0.032	-0.166
Num. of mature f in HH	-0.516	-0.073	0.023	-1.518***	-0.068	-0.336*	-0.699***	-0.289
Num. of mature m in HH	-0.956***	-0.113	0.117	0.849	-0.513	-0.095	0.177	-0.358

In the above table, "f" designates female and "m" designates male. * p<0.1; ** p<0.05; *** p<0.01

Table 8 (b) Selected OLS regression coefficients of the effects of other working-age household members on hours of work/day in care work and housework

	Young women	Prime-age women	Mature women	Older women	Young men	Prime-age men	Mature men	Older men
Care work								
Num. of young f in HH	-0.396***	-0.254***	-0.030	-0.167	0.184	0.043	-0.126**	-0.246
Num. of young m in HH	0.336**	-0.183**	-0.135*	-0.306**	0.236	0.080	-0.047	-0.294
Num. of prime-age f in HH	-1.188***	-0.62***	-0.002	0.171	-0.119	-0.089	-0.010	-0.126
Num. of prime-age m in HH	0.079	-0.080	0.060	-0.065	-0.064	-0.291**	0.007	0.110
Num. of mature f in HH	-0.384	0.233*	0.085	-0.189	-0.083	0.035	-0.112	0.131
Num. of mature m in HH	-0.188	-0.110	-0.008	0.027	-0.067	-0.023	0.528	-0.113
Housework								
Num. of young f in HH	-0.216	-0.133	-0.165	0.421	0.150	0.087	-0.259**	-0.474
Num. of young m in HH	0.214	0.120	-0.067	-0.138	0.226	-0.198	-0.152	0.007
Num. of prime-age f in HH	-0.453	-0.041	-0.323**	-0.955**	-0.015	-0.267	-0.092	-0.329
Num. of prime-age m in HH	-0.106	-0.005	0.181	0.201	-0.338*	-0.464**	-0.039	-0.275
Num. of mature f in HH	-0.132	-0.306**	-0.062	-1.329***	0.014	-0.372**	-0.587***	-0.420
Num. of mature m in HH	-0.768***	-0.003	0.125	0.822	-0.446*	-0.072	-0.351	-0.245

In the above table, "f" designates female and "m" designates male. * $p<0.1$; ** $p<0.05$; *** $p<0.01$

adult women in the household of any age reduces mature women's income-generating time, but having additional men who are prime age or mature increases their income-generating time. Thus, while women act as substitutes for one another, having men around may increase the amount of overall effort put into farming, thus creating work both for the men, but also for all family members. Mature women's unpaid work time also increases in the presence of prime-age men (often their sons), while the presence of a prime-age woman (most likely a daughter-in-law) reduces a mature women's unpaid work time via a reduction of housework time (See Table 8a for unpaid work, Table 8b for its constituents). In the other direction, having a mature woman in the household, symmetrically reduces prime-age women's housework time, but increases prime-age women's time spent in care work, leaving unpaid work time and total time essentially unchanged. Prime-age women's care time is reduced by the presence of other prime-age women, young women, and young men. The young women and men may be parents of young children making some of the prime-age women grandmothers.

Mature men's time use is also highly susceptible to household composition, but in their case all the effects are negative. Having younger people around, both men and women, reduces the income-generating work of mature men. Having a mature woman in the household reduces mature men's unpaid work time realized through a reduction in housework time.

5   CONCLUSIONS

The above analysis of the CHES data both confirms the previous research on rural China, which finds large differences by age, migration status of household members, and gender in the time use of those remaining in the rural areas and expands our ability to explore the intersectionality of household composition, gender, age, and ethnicity. We analyze the time use of eight age/gender groups of adults in terms of care work, housework, and income-generating work. In our analysis, care work and housework sum to unpaid work which, when added to income – generating work, yields total work. Thus, we analyze eight age/gender groups across five categories of work.

We find large differences in the total work time of men and women when young children are present in their households. Women do between one and two hours a day more total work than men. Young children add time spent in care work to everyone in the household, but add three times more caregiving time to women than men. Housework and

income-generating work decline in the presence of young children, but not enough to counter the increase in care work.

Having household members who are older than 70 years of age also adds time to the care work of prime-age women, mature women, and mature men. However, the increase in caregiving time spent in the presence of elders is much less than the increase in the presence of preschool children. Having more adults between the ages 16 and 70 in the household typically reduces respondents' work time except when it comes to the effects of the presence of prime-age and mature men on mature women's time. The presence of such men increases the time mature women spend in income-generating activities and in unpaid work and, subsequently, their total work time.

That more adults in the household typically reduce respondent's work time, led us to expect that the absence of household members, who are away from home because of migration, would typically increase work time. While we find this to be the case, surprisingly, the biggest effects are found in the category of income-generating work and not, as we had anticipated, in care work. The group most affected by the migration of a household member is that of mature women. Their care work increases with the migration of other household women who are prime-age plus. Their income-generating work increases with the migration of any household member and their total work time increases by more than half an hour a day when prime-age or older men or women migrate.

The CHES data allow us to distinguish between Muslim and non-Muslim ethnic minorities and to compare their time use to that of Han respondents. The biggest differences occur in time spent in income-generating activities with the two middle-age groups of Muslim men and women spending less time on this activity than their Han counterparts. Additionally, we find that work hours decline with age more rapidly for Muslim men and women than for the Han. Non-Muslim minority groups spend more hours in income-generating work and more hours at work overall than the Han – yielding quite large differences between Muslim and non-Muslim minority groups in their time-use behavior.

As with any data source, we are limited in the generalizations we can make. In the case of the CHES data employed here, we note that some of the differences we observe may be attributable to the geography of minority populations in China. Muslim minorities often live in different areas than the non-Muslim minorities. The results reported in Table 7 control a number of observable village-level characteristics, but we expect that many differences remain unobservable to researchers. As we compare our results

to other studies of rural China, we also note that the gender/age structure of rural-to-urban migration has changed rapidly such that patterns from 10 years ago are quite different from those today. The average age of migrants is increasing, the dominance of men as migrants is declining, and more people are taking their children along. Even the types of jobs migrants do have changed – the share of service jobs has increased relative to the share of manufacturing jobs. At the same time, the education levels of young people have improved. Also the destinations of migration have changed with people often migrating farther from home than in the past. All of these changes mean that studies done with older data may yield different results in terms of uses of work time compared to data collected more recently. Finally, each of the studies reviewed earlier uses slightly different age categories, which affects the comparability of results. We believe the age categories we have chosen make the most sense for the CHES data. We urge readers to exercise caution in comparing results from different studies across time, space, and age categories.

Notes

1. Kimmel and Connelly (2007) argue that both theoretically and empirically child caregiving and housework should be kept separate in models of time-use allocation of US mothers of children under the age of 13.
2. In contrast to many jurisdictions where individuals self-identify as being a member of an ethnic minority, in China, minority nationality status is assigned at birth, recorded on official identity documents, and, in almost all cases, fixed throughout one's life (Maurer-Fazio and Hasmath 2015).
3. The official count of the Muslim population includes as Muslim virtually all members of Muslim-designated ethnic groups (MacKerras 2005), regardless of their actual religious practice.
4. We also estimate another version of our model with three additional household-level variables: net household income, household arable land, and house size. The results generated by this expanded model are quite similar to the regressions reported here.
5. While we have explored the issue of the exogeneity of household composition in other research projects employing Chinese rural data and found evidence that the co-residence decision of elders is interrelated with the presence of household children, income, minority group membership, and widowhood (Connelly and Maurer-Fazio 2015; Maurer-Fazio et al. 2015), we feel comfortable considering daily time-use decisions as being *ex post* with respect to co-residency decisions.

REFERENCES

Appelton, Simon, John Knight, Lina Song, and Qingjie Xia (2002). Labour retrenchment in china: Determinants and consequences. *China Economic Review*, 13, 252–275.

Chang, Hongqin, Xiao-yuan Dong, and Fiona MacPhail (2011a). Labor migration and time use patterns of the left-behind children and elderly in rural China. *World Development*, 39(12), 2199–2210.

Chang, Hongqin, Fiona MacPhail, and Xiao-yuan Dong (2011b). The feminization of labor and the time-use gender gap in rural China. *Feminist Economics*, 17(4), 93–124.

Chen, Feinian, Guangya Liu, and Christine A. Mair (2011). Intergenerational ties in context: Grandparents caring for grandchildren in China. *Social Forces*, 90(2), 571–594.

Connelly, Rachel, and Margaret Maurer-Fazio (2015). Cultural and ethnic differences in the transitions from work to "retirement" of rural elders in China's minority regions. IZA Working Paper 9343.

Connelly, Rachel, and Margaret Maurer-Fazio (2016). Left behind, at risk, and vulnerable elders in rural China. *Chinese Economic Review*, 37, 140–153.

Connelly, Rachel, Ken Roberts, and Zhenzhen Zheng (2012). The role that children's education plays in the migration decisions of Chinese rural women. *Journal of Contemporary China*, 21(73), 93–111.

Connelly, Rachel, Margaret Maurer-Fazio, and Dandan Zhang (2014). Labor force participation of Chinese's population aged 50 or older from 1982 to 2000: What role does coresidency play? IZA Discussion Paper 8068.

Connelly, Rachel, Michael Iannotti, Margaret Maurer-Fazio, and Dandan Zhang (2015). Coresidency, ethnicity, and happiness of China's rural elders. *Eurasian Geography and Economics*, 56(1), 1–19.

Cook, Sarah, and Xiao-Yuan Dong (2011). Harsh choices: Chinese women's paid work and unpaid care responsibilities under economic reform. *Development and Change*, 42(4), 947–965.

Ding, Sai, Xiao-Yuan Dong, and Margaret Maurer-Fazio (2016). How do preschool and/or school-age children affect parents' likelihood of migration and off-farm work in rural china's minority regions? IZA Discussion Paper 10073.

Dong, Xiao-Yuan, and An Xinli (2014). Gender patterns and value of unpaid care work: Findings from China's first large-scale time use survey. *Review of Income and Wealth*, 61(3), 540–560.

Dong, Xiao-Yuan, Louis Putterman, and Bulent Unel (2006). Privatization and firm performance: a comparison between rural and urban enterprises in China. *Journal of Comparative Economics*, 34(3), 608–633.

Du, Fenglian, and Xiao-Yuan Dong (2009). Why do women have longer durations of unemployment than men in post-restructuring urban China? *Cambridge Journal of Economics*, 33(2), 233–252.

Du, Fenglian, Xiao-Yuan Dong, and Yinyu Zhang (2016). The impact of grandparental child care on female labor force participation in urban China. Unpublished Conference Paper.

Giles, John, Albert Park, and Fang Cai (2006). How has economic restructuring affected China's urban workers?. *The China Quarterly*, 185 (March), 65–91.

Gustafsson, Björn, and Xiuna Yang (2015). Are China's ethnic minorities less likely to move? *Eurasian Geography and Economics*, 56(1), 44–69.

Howell, Anthony, and Fan, C. Cindy (2011). Migration and inequality in Xinjiang: A survey of Han and Uyghur migrants in Urumqi. *Eurasian Geography and Economics*, 52(1), 119–139.

Howell, Anthony, Bjorn Gustasson, and Sai Ding (2015). Investigating the patterns and determinants of Han and ethnic minority household migration in China. Manuscript.

Hughes, James, and Margaret Maurer-Fazio (2002). Effects of marriage, education, and occupation on the female/male wage gap in China. *Pacific Economic Review*, 7(1), 137–156.

Kimmel, Jean, and Rachel Connelly (2007). Mothers' time choices: Caregiving, leisure, home production, and paid work. *Journal of Human Resources*, 42(3), 643–681.

Liu, Bohong, Zhang Yongying, and Li Yani (2008). *Reconciling Work and Family: Issues and Policies in China*. Asia: ILO.

Liu, Lan, Xiao-Yuan Dong, and Xiaoying Zheng (2010). Parental care and married women's labor supply in urban China. *Feminist Economics*, 16(3), 169–192.

Lu, Hongyong (1994). Booming economy reshapes labor. *China Business Daily*, October 23–29.

MacKerras, Colin (2005). Some issues of ethnic and religious identity among China's Islamic peoples. *Asian Ethnicity*, 6(1), 3–18.

Maurer-Fazio, Margaret, and Reza Hasmath (2015). The contemporary ethnic minority in China: An introduction. *Eurasian Geography and Economics*, 56(1), 1–7.

Maurer-Fazio, Margaret, and James Hughes (2002). The effects of market liberalization on the relative earnings of Chinese women. *Journal of Comparative Economics*, 30(4), 709–731.

Maurer-Fazio, Margaret (1995). Labor reform in China: Crossing the river by feeling the stones. *Comparative Economic Studies*, 37(4), 111–123.

Maurer-Fazio, Margaret (2006). In books one finds a house of gold: Tthe role of education in labor market outcomes in urban China. T*he Journal of Contemporary China*, 15(47), 215–231.

Maurer-Fazio, Margaret, James Hughes, and Dandan Zhang (2007). An ocean formed from one hundred rivers: The effects of ethnicity, gender, marriage, and location on labor force participation in urban China. *Feminist Economics*, 13(3–4), 125–153.

Maurer-Fazio, Margaret, James Hughes, and Dandan Zhang (2010). A comparison of reform-era labor force participation rates of China's ethnic minorities and Han majority. *International Journal of Manpower*, 31(2), 138–162.

Maurer-Fazio, Margaret, Rachel Connelly, Lan Chen, and Lixin Tang (2011). Childcare, eldercare, and labor force participation of married women in urban China: 1982–2000. *Journal of Human Resources*, 46(2), 261–294.

Qi, Liangshu, and Xiao-yuan Dong (2016). Unpaid care work's interference with paid work and the gender earnings gap in China. *Feminist Economics*, 22(2), 143–167.

Qiao, Fangbin, Scott Rozelle, Linxiu Zhang, Yi Yao, and Jian Zhang (2015). Impact of childcare and eldercare on off-farm activities in rural China. *China and World Economy*, 23(2), 100–120.

Zhao, Yaohui (1999). Labor migration and earnings differences: The case of rural China. *Economic Development and Cultural Change*, 47, 767–782.

Zhu, Jiaxiong, and Wang Christine (2005). Contemporary early childhood education and research in China. In Bernard Spodek and Olivia Saracho (Eds.), *International Perspective on Research in Early Childhood Education* (pp. 55–78). Greenwich, CT, U.S.: Information Age Publishing.

Margaret Maurer-Fazio is the Betty Doran Stangle Professor of Applied Economics at Bates College and a Research Fellow at the Institute of Labor Economics (IZA). She has served on the editorial boards of *The China Economic Review, The Journal of Contemporary China*, and *Eurasia Geography and Economics* and on the advisory board of the Chinese Women Economists Network. Her research focuses on a broad array of labor market issues in China.

Rachel Connelly is the Bion R. Cram Professor of Economics at Bowdoin College, a Research Fellow at the Institute of Labor Economics (IZA), and an Associate Editor of *Feminist Economics*. Her research focuses on the economics of mothers' employment and child care. Her recent work examines the time use of mothers and fathers in the US and the relationship between family structure, age, migration and women's time use in China.

Gendered Patterns of Time Use over the Life Cycle in Turkey

*Ebru Kongar and Emel Memi*ş

1   INTRODUCTION

With only 31.5% of women in the labor force compared to 71.6% of men, Turkey has one of the largest gender gaps in labor force participation globally (Turkish Statistical Institute [TSI] 2016a). Despite being one of the most industrialized countries in the Middle East and North Africa (MENA) region, female labor force participation rate in Turkey has actually declined by about 3 percentage points between 1988 and 2015 (OECD 2016). This decline is in sharp contrast to the increase in women's labor force participation that accompanied industrialization in many countries in the global South since the late 1970s. Moreover, of employed

E. Kongar (✉)
Department of Economics, Dickinson College, Carlisle, PA, USA
e-mail: kongare@dickinson.edu

E. Memiş
Department of Economics, Ankara University, Ankara, Turkey
e-mail: emel.memis@gmail.com

women, 28.4% are unpaid family workers, mainly in agriculture, compared to only 4.7% of employed men (TSI 2016a).

Feminist scholars, who investigate these gender disparities in Turkey's labor markets, identify the persistence of patriarchal norms and traditional gender roles as an important determinant of women's "non-participation" in the labor market (Özar and Günlük-Şenesen 1998). Women's role as wives and mothers has been institutionalized within the macroeconomic policy and societal context in the post-1980 period, and has been increasingly emphasized by the religious conservatist party which has been in power since the early-2000s (İlkkaracan 2012). Married women and mothers are considerably less likely to be in the labor force than their single and childless counterparts, while the opposite holds for married men and fathers (Dayıoğlu and Kırdar 2010). Within the household, it is well known that while men take on the breadwinner role, women shoulder the bulk of the housework and care work. However, a more exact examination of the gender division of unpaid labor and how it varies across key stages of the life cycle has not been possible until the release of the first nationally representative time-use survey data in 2006. In this chapter, using data from this dataset, we explore, among married and co-habiting couples, the gender disparities in paid work (market labor), unpaid work (family labor), and leisure, over the life course. The life cycle approach allows us to analyze the gender division of paid and unpaid labor across a series of socially defined events (e.g., parenthood) and roles (e.g., wife/husband, mother/father) over time. Our methodology is similar to Anxo et al. (2011) who explore from a comparative perspective, the gender disparities in time use across the life cycle in France, Italy, Sweden, and the US. Their study contributes to our understanding of the impact on gender disparities in time use of societal and institutional context, welfare regime, and gender norms. Our study aims to contribute to the literature on gendered patterns of time use from a life-course perspective by providing evidence from Turkey. In the rest of this chapter, we first present a brief overview of the institutional context in Turkey with a focus on the gendered welfare regime and the rise of the religious conservatist party since 2002. We then review the relevant gender and time-use literature and introduce the empirical framework for our analysis. Our main findings show large gender disparities in time use at each life stage. As expected, parenthood exacerbates these inequalities. While we do not conduct an explicit cross-country analysis, our findings show notable differences in gendered patterns of time use across the life cycle in Turkey, compared to

previous findings in the literature for Italy, Sweden, France, and the US. However, cross-country similarities emerge as well, particularly between Italy, the US, and Turkey, pointing to shared challenges toward gender equity in time use in different institutional contexts.

2   INSTITUTIONAL CONTEXT IN TURKEY: AN OVERVIEW

In a recent email exchange, Şemsa Özar coined the term "corporatist-neoliberal a la Turca" to describe the welfare regime in Turkey, a description we find very accurate (Ş. Özar, personal communication, August 25, 2016). It is corporatist in Esping-Anderson's (1990) sense as it is shaped by the "church" and influenced by a strong commitment to preservation of traditional family values (p. 112).[1] It is neoliberal in the sense that after the 1980 military coup, the state facilitated trade and capital liberalization, deregulation of economic activity, and privatization of state-owned enterprises. The industrialization strategy shifted away from import substitution to export orientation, and the post-1980 period has been characterized by erosion of the redistributive welfare state and by cuts in public spending. In the 1990s and 2000s, the structural adjustment programs implemented as a result of the International Monetary Fund (IMF) agreements further facilitated privatization and cuts in public spending. The "a la Turca" part points out the differences between the Turkish welfare regime and the Southern European type, especially in the post-1980 period. The similarities between the two regimes include centrality of the family in the welfare regime and a highly fragmented and hierarchical corporatist system of health and pension benefits to formally employed heads of household (Buğra and Keyder 2006). However, as argued by Buğra and Yakut-Cakar (2010), the patterns of social policy and female employment in Turkey and in the Southern European welfare regimes diverged in the post-1980 period as the Southern European welfare regimes, but not Turkey, prioritized social inclusion and reduction of inequalities, reflecting the influence of the European Union. The reforms in Turkey on the other hand, reflected the influence of the IMF and the World Bank within the context of continued neoliberal economic restructuring in Turkey (Buğra and Yakut-Cakar 2010). For instance, microfinance, a policy instrument, preferred by these international institutions, is emphasized as the key to poverty reduction without challenging the broader inequalities in gender relations or ideologies (Benería 1999; Moghadam 1998a). More

recently, the Justice and Development Party (Adalet ve Kalkınma Partisi in Turkish, AKP hereafter), a party that self-identifies as moderate Islamist and has been in power since the general elections in 2002, has advocated for microfinance as the key to poverty reduction, along with mobilization of charitable contributions by "good Muslims," which are directed to the poor through municipalities that act as "brokers in charity" (Buğra and Keyder 2006, p. 224). Under the rule of AKP, other social assistance policies, such as increased public expenditure on health and education, have been formulated in terms of social aid (Altan-Olcay 2014; Öniş 2012).

The neoliberal macroeconomic context in the post-1980 period and the welfare regime outlined earlier are gendered and had gendered outcomes. For instance, some studies have found a positive relationship between the shift to export orientation and female share in employment in manufacturing, however, this was primarily through the use of flexible labor, and married women and mothers were more likely to have found employment in the informal sector working from home through subcontracting arrangements (Berik and Cagatay 1990; Ozar and Gunluk-Senesen 1998; Ozler 2000). Moreover, women's share in total employment declined, as the growth of female employment in manufacturing was not large enough to offset the decline in women's share in agricultural employment (İlkkaracan 2012).

Since 2002, the AKP government has emphasized family as the pillar of the welfare regime, and their policies reflect the centrality of the family in welfare provision. President Recep Tayyip Erdoğan, the founder of AKP, has stressed the role of women as mothers frequently, most recently in 2016, as he declared, "[a] woman who refuses motherhood by saying, 'I work,' is, in fact, denying her womanhood" (Tuysuz 2016). Within this context, the progress toward gender equality in the legal frameworks, such as the new Civil Code that came into effect in 2002, remains on paper (Kongar 2016) and other policies such as the work–family reconciliation policies that we discuss in the later text reflect this traditional view of gender roles, which discourages women from entering paid employment. On the other hand, social security benefits are limited to those in formal employment, therefore primarily men, given that less than half of women workers are in formal employment in Turkey. Women workers, who are unpaid family workers or are employed without being registered with any social security institution, are either excluded by this system or are eligible for social security only as dependents of their male relatives (İlkkaracan 2012; Özar and Yakut-Çakar 2013).

As emphasized by Orloff (1993), analysis of a welfare regime through a feminist lens requires examination of social organization of caring and domestic labor and gender differences in access to paid work, primarily whether, and the extent to which, married women and mothers are assured employment (p. 322). For mothers, work–family reconciliation policies, in particular, public provision of affordable and good-quality childcare services, access to paid parental leave and flexible working hours, are likely to increase labor force participation and attachment. These policies also foster gender equality in the division of paid and unpaid work. Gender asymmetries in these policies, on the other hand, for instance, parental leave just for mothers, not for fathers, are built on patriarchal and heteronormative assumptions about women's role as caregivers and, exacerbate gender inequalities in paid and unpaid work. Paid maternity/parental leave policies in Turkey are gender asymmetric. Specifically, women in formal employment are entitled to 16 weeks of paid maternity leave and an additional 72 weeks of unpaid leave, while prior to 2015 revisions to labor law, there was no parental leave and only public employees were entitled to (10 days of paid and 24 months of unpaid) paternity leave (Turkish Labor Law 2013a).[2] Another problem pointed out in the feminist economic literature with the paid maternity leave policy in Turkey is that it covers only women in formal employment, who, as mentioned earlier, constitute less than half of the female workforce in Turkey (İlkkaracan 2012; Özar and Yakut-Cakar 2013).

Like the maternity/parental leave policy, childcare policy in Turkey is consistent with the emphasis on the role of women as mothers. Specifically, the only public provision of childcare services for children under the age of 6 is for 5-year-olds and only since 2006, when kindergarten classes of public schools started for children between the ages of 5 and 6 (İlkkaracan 2012). Only a few other policies, all of which target employed mothers, aim to address the work–family conflict. First, according to the Turkish labor law, a nursing female employee is entitled to one and a half hours per workday to breastfeed her child under the age of 1 (Turkish Labor Law 2013b). Second, in the private sector, workplaces with 100–150 women employees are required to have a nursing room within close proximity to the workplace (Ibid.). And finally, workplaces with more than 150 women employees are required to provide a childcare center (Ibid.). However, these workplace regulations are not enforced; therefore, it is not surprising that only 21% of the 100 largest employers in Turkey provided some form of childcare facility in 2009 (Zahidi and

Ibarra 2010). Consequently, only a small number of families benefit from childcare centers provided by the employer, and according to a 2013 Hacettepe University Institute of Population Studies (HUIPS) Survey, about 40% of employed women with at least one child under the age of 6, rely on unpaid work of women relatives (mother-in-law, mother, female children) for primary care of their child(ren) while they are at work – a number relatively unchanged since the previous survey conducted in 2008 (HUIPS 2013, p. 183; HUIPS 2008, p. 119). About 30% of employed women take their child(ren) to work with them, while only 11.9% of women in 2008, and 20.9% in 2013, used some form of childcare service (Ibid.). Not surprisingly, the share of mothers who use childcare services increases considerably with household wealth: one-third of mothers in the wealthiest, 20% of households in 2008 and 43% of them in 2013, used some form of childcare service, compared to about only 1% of mothers in households at the bottom 20% of the wealth distribution in 2008 and 2013 (Ibid.). Mothers who reside in urban areas, and more educated mothers, are also more likely to use some form of childcare service compared to their respective counterparts (Ibid.).

The same surveys also provide insight into the causes of low female labor force participation in Turkey. Specifically, *ever-married* women, who were employed at some point in the past, were asked why they were not employed in the 12-month period prior to the survey in 2008 and in 2013. Having childcare responsibilities is the most commonly cited reason in both years, followed by identifying as a housewife (Hacettepe University Institute of Population Studies [HUIPS] 2008, p. 190, 2013, p. 181). Until 2002, a married woman was required to have her husband's permission to be able to work outside the home. While the new Civil Code that came into effect in 2002 eliminated this requirement, the third most commonly cited reason for not being employed is "not being allowed to work by spouse or family" (Ibid.). These survey results support other findings in the literature that lack of affordable and good-quality childcare services, coupled with traditional gender roles in an institutional context that is built on the assumption of women's role as caregivers, remains one of the main determinants of low female labor force participation in Turkey. There is, however, considerable variation in the women's experiences by demographic characteristics. For instance, not surprisingly, the proportion of women who cite childcare responsibilities as a reason for not being employed is higher among women between the ages of 20 and 34 than their younger and older counterparts. Also, as expected, a larger share

of women in rural areas and in low-income households cites "being a house-wife" as a reason for not being employed, compared to their counterparts.

Women's unpaid care responsibilities also include adult care including care of the elderly. Turkey has a relatively young population with an old-age dependency ratio that is less than half of the OECD average (11% compared to 23.6, in 2013) (Organisation for Economic Co-operation and Development [OECD] 2016). Like child care, there is defamilization of elderly care in Turkey. However, there are not enough facilities, and certainly not enough of them that are affordable. Specifically, public elderly care facilities require a co-pay that is nearly twice as much as the annual income of a minimum wage earner, and together with private facilities, which are even less affordable, have the capacity to serve only 3.3 per 10,000 of the elderly in Turkey (Carkoglu and Kafescioglu 2014, p. 247). In terms of leave policy regarding care of ill or injured family members, only public employees are entitled to unpaid family medical leave up to 6 months (Bakırcı 2010). Further public provisions are provided for elder care for low-income families. Reinforcing women's role as caretakers, in 2006, the conservative AKP government enacted a cash transfer policy conditional on taking care of a disabled or ill family member in low-income households (İlkkaracan 2013). This program, initiated with funds from the World Bank, is a perfect example of preferred policy instruments in a neoliberal economic context, which builds on existing gender norms or ideologies, rather than challenging them.

The gender inequitable policies governing work-life balance in Turkey and other state policies reinforce what Moghadam (2003) has dubbed "the patriarchal gender contract" which she defines as "the implicit and often explicit agreement that men are the breadwinners and are responsible for financially maintaining wives, children, and elderly parents, and that women are wives, homemakers, mothers, and caregivers" (Moghadam 2003: 41). The gender gap in unpaid work is observed in all regions around the globe, but is largest in MENA, primarily because men in MENA perform considerably less unpaid work, on average, than in other regions, but also because women in MENA perform slightly more unpaid work than their counterparts in other regions (Ferrant et al. 2014). Turkey stands out even among a number of countries in the MENA region in terms of the time women spend in unpaid work activities. In particular, analysis of time use in a number of countries in the MENA region shows that women in Turkey spend the longest time in these activities (Charmes 2015). However, Turkey also has one of the lowest gender gaps in unpaid

work in the region, that is, men in Turkey also spend more time in unpaid work activities compared to their counterparts in other countries in the MENA region, and Turkey also has one of the lowest gender gaps in paid work as well (Charmes 2015). In Turkey, President Erdogan, on more than one occasion (as Prime Minister, and later as the President), encouraged families to have at least three children and more recently declared that "no Muslim family" should use birth control or family planning (Hurriyet Daily News 2013; BBC 2016). Yet, while the fertility rate of 2.1 in Turkey (2005/2010) exceeds that in any EU country, it remains comparable to the regional average for Latin America and the Caribbean, and some other relatively low fertility Muslim-majority countries such as Bangladesh and Iran (Eurostat 2016; UNDP 2015, World Bank n.d.a.).

In Turkey, the mean age at first marriage is 23.9 years for women, considerably lower than Southern European countries, and similar to Eastern European countries (TSI 2016b; Eurostat 2016). The mean age at first marriage for men is 27 years. There are considerable gender differences in educational attainment. For instance, 9.2% of women, compared to only 1.8% of men are illiterate, and a larger share of men is high school graduates and college graduates, compared to women (Turkish Statistical Institute [TSI] 2016b). The gender gap in education is closely linked to the gender employment gap. Women with a tertiary education are more than twice as likely to participate in the labor force than women with less than an upper secondary education (Turkish Statistical Institute [TSI] 2016b). The gender disparity in labor force participation narrows with the level of education, from 29.7 percentage points between women and men with less than an upper secondary education, to 9.4 percentage points between women and men with a tertiary education.[3] These statistics have led a number of scholars to argue that the key to increasing women's employment in Turkey is to improve their human capital, namely, educational attainment and labor market experience (Başlevent and Onaran 2003; Dayıoğlu and Kırdar 2010). However, other scholars have emphasized the role played by other supply-side factors that point to institutional constraints such as lack of affordable good-quality childcare services, as well as demand-side factors in explaining women's underrepresentation in labor markets. At the macroeconomic level, for instance, feminist economists have argued that the export-led growth strategy pursued by Turkey in the post-1980 period has not generated enough employment opportunities for women in urban labor markets, and traditional gender roles and patriarchal norms have been institutionalized as "binding constraints on

women's labor supply," a phenomenon observed in other patriarchal economies in the global South (İlkkaracan 2012, p. 3; Braunstein 2014).

Moreover, given the availability of cheap male labor, gender discrimination in labor markets continues (Eyüboğlu et al. 2000). Qualitative analyses of women's labor force participation in Turkey also find that while some less-educated women in low-income households perceive labor market engagement as a means to increased autonomy and personal fulfillment, others choose not to enter paid employment in the face of "poor working conditions offered under market liberalization" (İlkkaracan 2012, p. 30). These findings, also observed in other countries with similar labor market conditions for women, underline the importance of demand-side policies in labor markets to increase women's labor force participation (Bahramitash and Olmsted 2014). Specifically, enforcement of anti-discrimination legislation, a labor market that generates good jobs, especially for women, and gender equitable work–family reconciliation policies are necessary to increase women's participation in the labor market in Turkey. It is within this context that we explore gender differences in time use across the life cycle.

3   FEMINIST LITERATURE ON GENDER DISPARITIES IN TIME USE

Gender analyses of time use across the life cycle identify the impact of different life events and roles on gender differences in time use, and comparative studies highlight the important role of the institutional context in these analyses. Among the determinants of gender differences in time use across the life course is parenthood, which tends to be associated with longer paid work hours for men, but shorter paid work hours for women (Anxo et al. 2007; Connelly and Kimmel 2010). For employed women, parenthood might also increase the total work burden, a phenomenon commonly known as "the second shift" or "double day" for women (Hochschild and Machung 1989).

Evidence from several European economies and the US shows considerable gender differences in time use over the life cycle. For instance, although parenthood tends to be associated with an increase in the time men allocate to paid work, but the opposite holds for women there is considerable variation in gender disparities in time use across countries (Anxo et al. 2011; Drobnič et al. 1999). For instance, using longitudinal

data to explore how women's employment varies with childbirth in Germany, Sweden, and Great Britain, Gustafsson et al. (1996) find that women in Sweden are more likely to be employed after childbirth than their counterparts in Germany and Great Britain. National differences in gender disparities in time use reflect the differences in "family policy regimes," that is, work–family reconciliation policies and the tax and benefits system (Gustafsson et al. 1996). Welfare regime, in particular, whether the state provides support to families with children and targets public sector employment, also affects whether women participate in paid work after entering parenthood. Anxo et al. (2011) explore the gender differences in time use over the life cycle in France, Italy, Sweden, and the US and find large gender differences in time use at each life stage in all of these countries. However, gender disparities in market and nonmarket labor are smallest in Sweden, a social democratic welfare regime, which the authors argue is more conducive to mothers' labor force participation, compared to both Great Britain – a liberal welfare regime, and Germany – a conservative-corporatist welfare regime.

In a number of economies in the global South, time-use studies and qualitative analyses have established that women's work is primarily unpaid, while men predominate in paid work activities (Benería 2003; Benería et al. 2015).[4] Women's concentration in unpaid work activities is associated with higher poverty rates for women than men, measured in terms of both income and time poverty (Antonopoulos and Hirway 2009; Bittman and Folbre 2004; Elson and Cagatay 2000; Floro 1995; Kızılırmak and Memis 2009).

The gender and macroeconomics literature has also generated evidence of the gendered outcomes of macroeconomic policies such as implementation of structural adjustment programs in the global South. Fiscal austerity, in particular, cuts in publicly provided education and health services increases women's unpaid work burden as the primary caretakers of children, the elderly, and the sick (Antonopoulos and Memis 2010; Elson 1993; Seguino 2010). In times of economic crises, women's unpaid labor acts as an invisible safety net, providing the means of survival particularly for low-income households. For instance, women's unpaid work burden increased in Turkey during the 2007–2008 Recession (Kaya Bahçe and Memiş 2013). Women's *paid* work burden may also increase during economic crises, as women enter the workforce to compensate for loss of household income due to spousal job loss (Rubery 2013). For instance, the 2001 economic crisis in Turkey led to an increase in women's labor

force participation rate (Kızılırmak 2008). Increased paid work burden, without a compensating decline in women's unpaid work burden will increase women's total (paid and unpaid) work burden, leading to the "double shift" for women.

Empirical examination of the gendered outcomes of macroeconomic phenomena and policies, as well as other gender disparities in time use, is now possible thanks to time-use surveys, conducted in some developed countries since 1960 and, in most developing economies by the end of the 1990s (Hirway 2009). Turkey is an exception, as the first and only nationally representative time-use survey was conducted only recently, in 2006. Since then, the survey was conducted again in 2014–2015. However, the 2014–2015 data had not yet been released by the time of our study. Prior to the nationally representative 2006 survey, a pilot time-use survey was conducted in eight provinces in 1996.[5] Using data from this pilot survey, several studies have accounted for women's unpaid work. For instance, Kasnakoğlu et al. (1996) estimated the value of women's household production and found that it accounts for 15% of household income in middle-income households. In low-income households, women's contribution to household production is as high as 50% of the household income (Kasnakoğlu and Dayıoğlu 2002; Kasnakoğlu et al. 1996). Kasnakoğlu and Dayıoğlu (2002) also use data from the 1996 pilot survey and, using alternative methods to remunerate household production, find that women's household production corresponds to 31–40% of the household income, and men's household production corresponds to 10–18% of the total household income. More recently, using data from the 2006 time-use survey, İlkkaracan and Gündüz (2009) estimate that women contribute 79–89% of the total household production. Also exploring the 2006 data through a gender lens, Memiş et al. (2011) explored the gender inequalities in paid and unpaid work over the life cycle and found large gender disparities in both paid and unpaid work, regardless of marital status, parenthood status, and rural/urban residence. They dubbed the persistence of the traditional gender division of labor across different demographics, "housewifization" of women in Turkey (Memiş et al. 2011). In this chapter, using data from the same data set, we explore the gender disparities in time use over the life course. Our study differs from Memiş et al. (2011) in that we construct stylized household typologies, and include in our analysis the age of household children, which in the Turkish context of limited public provisioning of childcare services coupled with gender-asymmetric work-life reconciliation

policies discussed earlier, is an important determinant of gender differences in paid and unpaid work time. In incorporating the age of household children in our analysis, we aim to provide a more complete picture of employment profiles and other forms of time use, which could inform social and economic policies governing work–life balance, social assistance programs, and labor market policies in Turkey. That our methodology is similar to Anxo et al. (2011) allows a rough comparison of our findings for Turkey to earlier findings in the literature for other countries, specifically Italy, Sweden, France, and the US.

4   DATA AND METHODOLOGY

The 2006 time-use survey data were collected through interviews and daily time diaries. Household members provide data for a weekday and a weekend day, where they record their daily activities in 10-minute intervals for 24 hours of a day. All members of the household keep their diary on the same day. Each day of the week is equally represented, and survey weights enable nationally representative results. Daily activities are classified according to the Eurostat (2000) activity codes. If the respondent is involved in more than one activity simultaneously, one of these activities is identified as the primary activity and the data show the time spent in this primary activity in 24 hours. The data on secondary activities are not made available by TSI. Therefore, we examine the time spent in primary activities.

   To proxy the gender division of labor among married and co-habiting women and men, we limit our sample to married and co-habiting women and men who are at least 15 years old. In our sample, there are 5,372 married and co-habiting women and men in 2,686 households. We present the labor force status of women and men in the 2006 data and in our sample in Table 1. In the survey, 23% of women and 69% of men are employed, and 1% of women and 5% of men are unemployed.[6] More than half (59%) of women identify as a housewife. In our sample of married and co-habiting couples, the share of women who identify as a housewife is even higher, 70%, probably reflecting the impact of marriage on women's participation in the labor force.

   Table 2 presents the distribution of employed women and men across types of employment. In the survey, 62% of the employed women and 49% of the employed men are either self-employed, daily wageworkers, or unpaid family workers. In our sample of married and co-habiting

Table 1 Labor force status by gender (%)

	Full sample			Married or co-habiting couples		
	Men	Women	Total	Men	Women	Total
Employed	69	23	45	78	20	49
Unemployed	5	1	3	2	0	1
Student	7	6	7	0	0	0
Retired	13	3	8	16	3	10
Elderly and disabled	3	5	4	2	2	2
Housewives	0	59	31	0	74	37
Other	3	2	2	1	0	1
	100	100	100	100	100	100
Number of observations	5,154	5,739	10,893	2,686	2,686	5,372

Source: Authors' calculations from the 2006 time-use survey

couples, 62% of the employed women and 40% of men are either self-employed, daily wageworkers, or unpaid family workers. Self-employed, daily wageworkers, and unpaid family workers are likely to be outside the social security system. Accordingly, while we use "paid work" and "market work" interchangeably throughout the chapter, market hours do not necessarily generate any income.

Table 2 Distribution of employed women and men by type of employment (%)

	Full sample			Married or co-habiting couples		
	Men	Women	Total	Men	Women	Total
Regular wage workers	48	41	46	51	38	49
Causal workers	12	7	11	11	8	10
Employer	7	1	5	9	1	7
Self employed	27	12	23	29	13	25
Unpaid family worker	6	39	15	0	40	8
Number of observations	3,499	1,358	4,857	2,053	542	2,595

Source: Authors' calculations from the 2006 time-use survey

386   E. KONGAR AND E. MEMIŞ

We define paid work as the time spent in market work and related activities such as travel time, breaks at work, and job search activities. We cannot distinguish between paid work hours and the time spent in job search, because the data on detailed paid work activities are not available. We define unpaid work as the sum of housework and care work. Housework includes food preparation, dishwashing, cleaning, laundry, ironing, gardening, repairing, shopping, and other activities related to home production or maintenance. Care work includes all activities related to caring for household members. We calculate it as the sum of the time spent in child caregiving and adult care. Personal care encompasses sleep and other personal care activities. Education is any time spent in an educational activity. Leisure includes socializing, entertainment, sports, hobbies and games.

For the life-course analysis, we use a variant of the household typologies by Anxo et al. (2011) that reflect main transitions through the life course. In our study, these include union formation (couples of childbearing age who do not have children), different stages of parenthood, mid-life empty nest, and retirement. Table 3 presents these typologies and the distribution of women and men across them. Our reference group in the empirical analysis we present in the next section is younger couples without children where the woman in the sample is younger than age 46.

Table 3 Sample by household types (%)

In sample	
1: Younger couples (woman under age 46), without children	1
2: Couple with youngest children (mean age of children, under 6 years)	13
3: Couple with young children (mean age of children, 6–15 years)	25
4: Couple with teenage children (mean age of children, 16–25 years)	15
5: Mid-life "empty nest" couples without resident children, (woman age 45–59)	3
6: Older retired couples without resident children (both spouses age 60 years or older)	2
Not in sample	
Couple households not covered in above couple groups	10
Extended family households	18
Extended other family households	10
Other (Single or people people living together no relation)	2
Total	100

Weighted shares in sample using survey weights
Source: Authors' calculations from the 2006 time-use survey

Throughout the study, we refer to this group as younger couples without children. Like Anxo et al. (2011), our approach is based on a cross-sectional, rather than longitudinal, time-use survey. While we aim to identify patterns of gender division of paid and unpaid work over our stylized life course, we recognize the possibility that the variation across the life stages might at least, in part, reflect cohort effects.

5   EMPLOYMENT PROFILES ACROSS THE LIFE CYCLE

We begin with an examination of the employment profiles of married women and men across the life cycle, which are shown in Fig. 1. As expected, men's employment profile over the life cycle follows an inverted-U shape, that is, men's employment rate reaches a high point when men transition into fatherhood, and declines afterward, reaching a low point during the retirement phase. Women's employment profile is quite different than men's. For women, transition into parenthood is associated with a considerably (10 percentage point) lower employment rate. As household children grow up, employment rate for mothers increases, until they transition into the empty-nest stage. In Turkey, the official age to be eligible for a pension is 58 for women and 60 for men, and until 2010, an
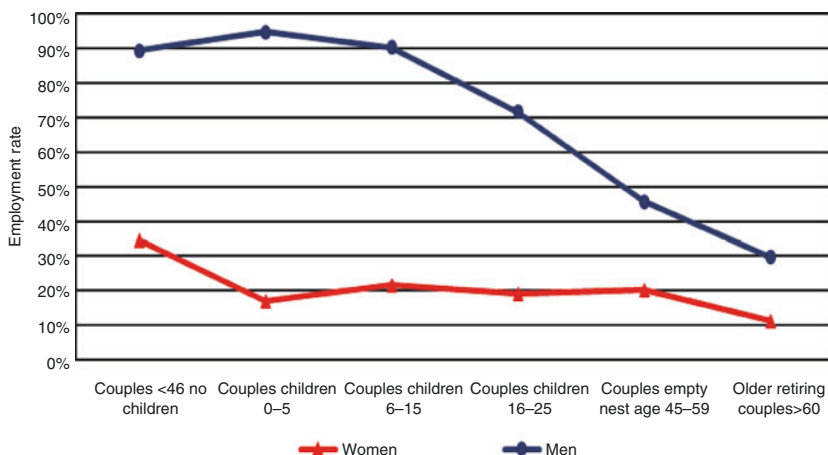
Fig. 1   Profile of employment rates over the life course by gender

Source: Authors' calculations from the 2006 time use survey

individual could retire as early as 45 due to an alternative eligibility condi-
tion of having worked for 25 years. Low employment rates for both women
and men during the empty nest stage may reflect the ability to retire at a
relatively young age due to this alternative eligibility condition.

That the male breadwinner model predominates in Turkey is reflected in
the large gender employment gap at each life stage. The gap is largest at 78
percentage points among parents of younger children, which is not surpris-
ing, given the gender-asymmetric parental leave policy in Turkey, combined
with very limited affordable and good-quality childcare services and even
more limited public provision of child care for pre-school age children. As
household children grow up, the gender employment gap narrows.
However, even among couples without children, there is a substantial, 55
percentage point employment gap, reflecting a traditional gender division of
labor even in the absence of children. The empty nest stage is associated with
a narrower gender gap in employment, primarily due to lower employment
rate for men at this stage. The gender gap in employment is even narrower
during the retirement phase, but is still 19 percentage points, possibly
because women become eligible for a pension at a younger age than men.

The observed gendered employment profiles across our stylized life
course might, in part, reflect differences in individual and household
characteristics. Controlling for these differences, we estimate the employ-
ment rates of women and men using a probit model. Specifically, we include
control variables for educational attainment, household income, the number
of rooms in the house, rural/urban residence, and day of the week to which
the time diary refers. Education is a strong determinant of labor force
participation, especially for women in Turkey. We capture differences in
educational attainment with dummy variables for the highest degree attained
(primary school, middle school, high school, university, with no schooling
being the omitted category). The number of rooms in the house is a
determinant of the time spent on housework. Therefore, we control for
the number of rooms in the household with dummy variables (2, 3, 4, 5, or
more rooms, with 1 room being the omitted category). Higher household
income allows for purchases of market substitutes for home produced
goods and services, including childcare services. We control for the house-
hold income with dummy variables (10 income brackets, with a household
income of 300 TL/month or less being the omitted category).[7] Rural/
urban residence captures the rural/urban differences in women's labor
force participation and employment opportunities for women. We control
for urban residence. Finally, we control for weekend diaries.

Table 4   The impact of changes in household typologies on employment rate by gender

Household life-course typologies Reference: couple <46 of age, no children	Women	Men
Couple children 0–5	–0.551***	0.412**
	(0.138)	(0.166)
Couple children 6–15	–0.301**	0.0402
	(0.132)	(0.154)
Couple children 16–25	–0.416***	–0.762***
	(0.143)	(0.155)
Couple empty nest age 45–59	–0.489***	–1.474***
	(0.157)	(0.165)
Older retiring couples age > 60	–0.729***	–1.735***
	(0.178)	(0.173)
Number of observations	2,686	2,686
Pseudo R^2	0.1266	0.2522

We control for the following individual and household-level variables: highest educational degree attained (primary school, middle school, high school, university, with no schooling being the omitted category), number of rooms in the residence (2, 3, 4, 5 or more, with 1 room being the omitted category), household income (301–450 TL; 451–600 TL; 601–750 TL; 751–1000 TL; 1001–1250 TL; 1251–1750 TL; 1751–2500 TL; 2501–4000 TL; > 4001 TL, with 300TL/month or less being the omitted category), respondent lives in an urban area, and diary day is a weekend. Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

The results of our estimation are presented in Table 4.[8] We calculate the predicted employment rates for women and men at each life stage with these controls and present them in Table 5. In both tables, the control group is couples without children. Our estimations confirm that transition

Table 5   Predicted values of employment rate by gender and household typologies (%)

	Women	Men
Couple <46 of age, no children	30	91
Couple, children age 0–5	14	96
Couple, children age 6–15	20	92
Couple, children age16–25	17	72
Couple, empty nest age 45–59	16	45
Older retiring couples, age > 60	10	35

We predict the employment rates for women and men at each life stage by setting each control variable equal to their mean values. See Notes to Table 4 for a list of the control variables

into parenthood is associated with a lower employment rate for women, compared to women without children, of 16 percentage points. The presence of school-age children has less of a negative impact on women's employment rate (10 percentage points), compared to the presence of pre-school age children. Women's employment rate is increasingly lower at later stages across our stylized life course, reaching a low point of 10% during the retirement phase. Men's employment rate increases by 5 percentage points with transition into parenthood. The employment rate of fathers of school-age children is not statistically significantly different than that of their younger counterparts without children. Men's employment rate declines significantly at each stage after that, reaching a low point of 35% during the retirement phase.

Paid work hours of *employed* women and men on an average day exhibit similar patterns to women's and men's employment rates across the life cycle (Fig. 2). However, employed men work the longest hours when they do not have children, and their paid work hours are increasingly lower at each stage after that, reaching a low point during the retirement phase. Employed women engage in market work the longest number of hours before they have children, and transition to motherhood is associated with approximately two-hour shorter paid work hours for women. Compared to mothers of pre-school age children as well as mothers without
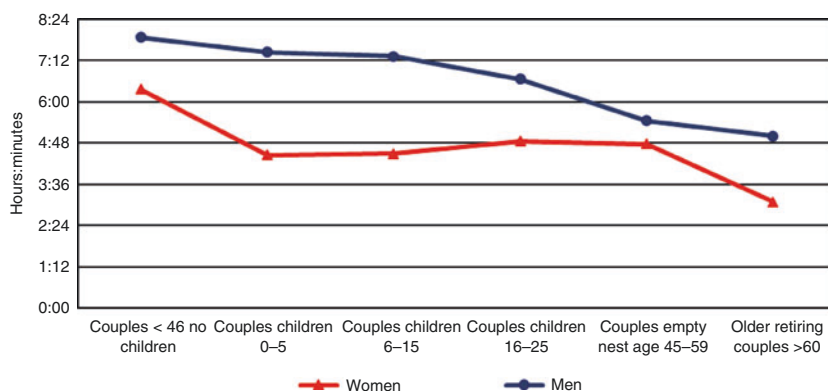
Fig. 2 Daily paid work hours of employed women and men (hours and minutes/day)

Source: Authors' calculations from the 2006 time-use survey

co-resident children during the empty nest phase, employed mothers of older children have longer paid work hours. Like their male counterparts, employed women's paid work hours are shortest during the retirement phase, as expected. Employed men work longer hours than employed women at each life stage, but the difference is largest (3 hours) among parents of pre-school age children. The gap is narrower among parents of older children and also during the empty-nest stage. During the retirement stage, the gender difference in paid work hours is larger, compared to the empty nest stage, possibly reflecting the gender difference in retirement age in Turkey.

To control for the effects individual and household characteristics, we estimate hours of paid work equations for employed women and men using a generalized Tobit model, with the same control variables discussed earlier. The results of our estimation are presented in Table 6. The control group is couples without children. Compared to employed women without children, mothers of pre-school age children have significantly shorter paid work hours, possibly due to the effect of maternity leave and transition into part-time work. The coefficients are negative

Table 6 Multivariate Tobit regression on daily minutes of paid work (marginal effects evaluated at sample mean) by gender

Household life-course typologies Reference: couple< 46 of age, no children	Women	Men
Couple, children age 0–5	–123.2**	–34.27*
	(52.78)	(20.63)
Couple, children age 6–15	–61.17	–37.78*
	(49.04)	(19.82)
Couple, children age 16–25	–65.29	–81.48***
	(50.23)	(22.29)
Couple, empty nest age 45–59	–18.66	–118.4***
	(53.96)	(28.34)
Older retiring couples, age >60	–74.05	–135.2***
	(64.25)	(35.14)
Number of observations	542	2,053
LR	61.23	194.32
Pseudo-R^2	0.0098	0.0075
Censored observations	116	212

Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ See Notes to Table 4 for a list of the control variables

but insignificant on all other stylized life stages, that is, for employed mothers, the negative effect of children on paid work hours disappears as children grow up. Like their female counterparts, compared to men without children, fathers of pre-school age children have fewer paid work hours. However, employed men's paid work time continues to become shorter as they progress through the stages of our stylized life course, unlike employed women.

6   GENDER AND UNPAID WORK OVER THE LIFE CYCLE

To examine gender differences in the unpaid work burden, we present the time married and co-habiting women and men spend on unpaid work across the life cycle in Fig. 3. Young mothers of pre-school age children spend 2 hours and 45 minutes more in unpaid work activities than young women without children. Women's unpaid work burden declines as children age: mothers of younger children spend 1 hour and 22 minutes less than mothers of pre-school age children in unpaid work activities, and mothers of teenagers spend about an hour less than mothers of younger children in unpaid work activities, as their childcare time declines. In fact,
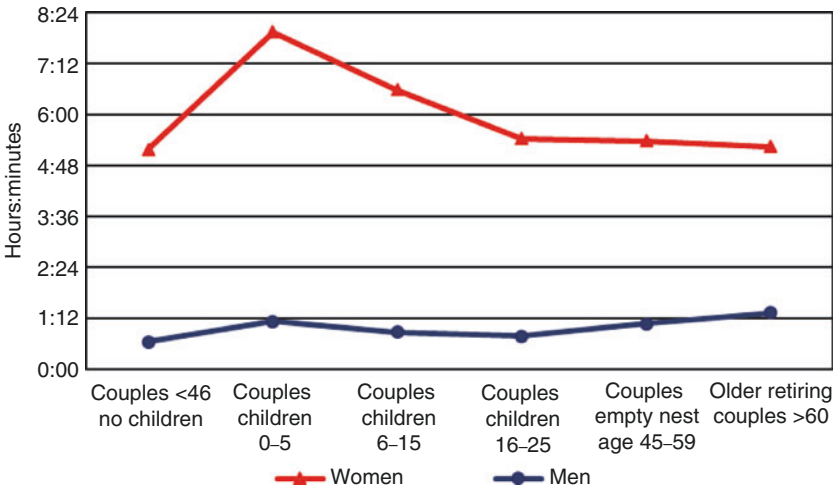
Fig. 3   Daily unpaid work hours by gender (hours and minutes/day)

Source: Authors' calculations from the 2006 time use survey

mothers of teenage children spend about as much time as their childless counterparts in unpaid work activities. Women's unpaid work time remains relatively unchanged in later stages in life, specifically during the empty-nest phase and when women transition into retirement. Compared to women, men's unpaid work burden over the life course is relatively flat, that is, men's unpaid work time varies by at most a half hour across different life stages. Nevertheless, fatherhood is associated with slightly higher unpaid work burden, compared to men without children. Like women, men's unpaid work gradually declines as children age. However, during the mid-life empty-nest stage, men spend more time in unpaid work activities compared to fathers of teenage children, and men's unpaid work time reaches a high point during the retirement phase. The gender disparity in unpaid work and the gender gap in paid work mirror each other; women spend about 4 hours more time in unpaid work activities than men at each life stage. The gender difference in unpaid work is largest among parents of younger children, nearly seven hours (6 hours and 49 minutes). However, even women without children spend four and a half hours more in unpaid work activities than their male counterparts. The gender gap in unpaid work time narrows slightly as children grow up, mainly because the time women spend in child caregiving activities declines at these later stages (Table 7).

Table 7 shows the daily time women and men spend in housework, child caregiving, and other activities.[9] We see that transition into parenthood intensifies the gendered patterns of time use, primarily because women spend considerably more time than men in child caregiving activities. However, women also increase their housework time more than men, when they transition into parenthood. After this initial increase, the time women spend on housework remains relatively unchanged in later stages of our stylized life cycle. Compared to mothers, fathers spend considerably less time in housework activities across the life course, only increasing their housework time during the mid-life empty-nest stage when, men are less likely to be in the labor force compared to their fathers of teenage children, possibly reflecting eligibility for pension at a relatively young age.[10]

We estimate the unpaid work hours of women and men, controlling for individual and household characteristics discussed earlier in the chapter.[11] Our estimations, presented in Table 8, confirm that parents of youngest children spend significantly more time on unpaid work compared to their counterparts without children. Using some elementary calculations,

Table 7 Daily hours of time use by gender and household typology (hours:minutes/day)

Household typology	Women						Men					
	1	2	3	4	5	6	1	2	3	4	5	6
Time-use category												
Personal care	11:28	10:36	10:52	11:14	11:09	11:12	11:13	10:48	10:59	11:19	11:21	11:20
Paid work	1:46	0:30	0:56	0:49	1:00	0:33	5:46	5:51	5:32	4:04	2:34	1:14
Education	0:02	0:00	0:01	0:02	0:00	0:00	0:03	0:01	0:00	0:01	0:00	0:00
Unpaid work	5:11	7:57	6:35	5:26	5:23	5:15	0:39	1:08	0:53	0:47	1:05	1:20
Housework	4:43	5:23	5:31	5:10	5:09	5:02	0:32	0:36	0:37	0:39	0:57	1:18
Care work	0:28	2:34	1:03	0:16	0:13	0:13	0:06	0:32	0:16	0:08	0:08	0:02
Total work	6:57	8:27	7:31	6:15	6:23	5:48	6:25	6:59	6:25	4:51	3:39	2:34
Volunteer activities	0:28	0:29	0:44	0:56	1:23	1:47	0:24	0:26	0:33	0:42	1:15	1:11
Leisure	4:04	3:31	3:51	4:28	4:08	4:27	4:07	3:51	4:13	5:21	5:52	7:15
Socializing & entertainment	1:39	1:43	1:53	2:04	2:04	2:23	1:21	1:30	1:38	1:55	2:29	3:04
Sports	0:07	0:02	0:02	0:03	0:04	0:03	0:11	0:05	0:06	0:09	0:05	0:22
Hobbies & games	0:05	0:02	0:01	0:02	0:01	0:02	0:20	0:15	0:16	0:26	0:18	0:19
Communication	2:13	1:44	1:55	2:19	1:59	1:59	2:15	2:01	2:13	2:51	3:00	3:30
Travel & other	0:55	0:51	0:54	1:00	0:52	0:42	1:44	1:48	1:44	1:42	1:47	1:36
Free time	4:34	4:00	4:36	5:26	5:31	6:14	4:34	4:18	4:46	6:04	7:07	8:26

Source: Authors' calculations from the 2006 time-use survey

Table 8 Multivariate Tobit regression on daily minutes of unpaid work (marginal effects evaluated at sample mean) by gender

Household life-course typologies Reference: couple <46 of age, no children	Women	Men
Couple, children age 0–5	155.7***	53.69***
	(15.67)	(13.16)
Couple, children age 6–15	64.97***	34.25***
	(15.32)	(12.97)
Couple, children age 16–25	14.85	27.42**
	(16.24)	(13.77)
Couple, empty nest age 45–59	4.778	60.80***
	(17.22)	(14.92)
Older retiring couples, age > 60	–23.45	75.19***
	(17.45)	(16.61)
Number of observations	2,686	2,686
LR	419.52	98.98
Pseudo-R^2	0.0119	0.0048
Censored observations	14	1,176

Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$
See Notes to Table 4 for a list of the control variables

we convert the estimated coefficient into hours, and find that, compared to women without children, mothers of pre-school age children spend about two and a half hours more per day in unpaid work activities.[12] Fathers of pre-school age children spend a half hour more in unpaid work activities than men without children. Women with young children (between the ages of 6–15) spend an hour more in unpaid work activities than women without children. Confirming our findings earlier, in later stages of our stylized life course, the time women spend in unpaid work is not statistically significantly different compared to younger women without children. In other words, after children grow up to be teenagers, women's unpaid work burden seems to go back to its pre-parenthood level. Our findings for fathers are also confirmed. Fathers of older children spend less time in unpaid work, compared to fathers of pre-school age children. Compared to men without children, during the empty-nest and retirement stages, men spend more time in unpaid work activities. A closer look at the types of housework men do during these later stages in life shows that men increase the time they spend in yardwork, shopping, and house maintenance.[13]

7   TOTAL WORK AND LEISURE OVER THE LIFE CYCLE

To assess the total work burden of women and men and the time they spend in leisure activities, we present the time spent in these two aggregate time-use categories in Table 5. Women's and men's time in leisure activities across the life cycle are also shown in Fig. 4. Transition into parenthood is associated with a heavier total work burden for both women and men, compared to their counterparts without children. Women's and men's total work burden is increasingly lower in later stages across our stylized life course. However, the variation in the total work burden across the life course is more pronounced for women compared to men, including the effect of parenthood. Women have a heavier total work burden than men at each life stage. Controlling for individual and household characteristics, we use a Tobit model to estimate the total work burden of women and men. Our findings reported in Table 9 show that the mothers of pre-school age children work one hour and a half more, and mothers of younger children work approximately a half hour more, compared to women without children. Women who are in the later stages of life have a relatively lower work burden compared to their younger counterparts without children, and women's total work burden reaches a low point during the retirement phase. The presence of pre-school age children in the household is associated with a 40-minute longer total work time for fathers, relative to younger men without children. Teenage
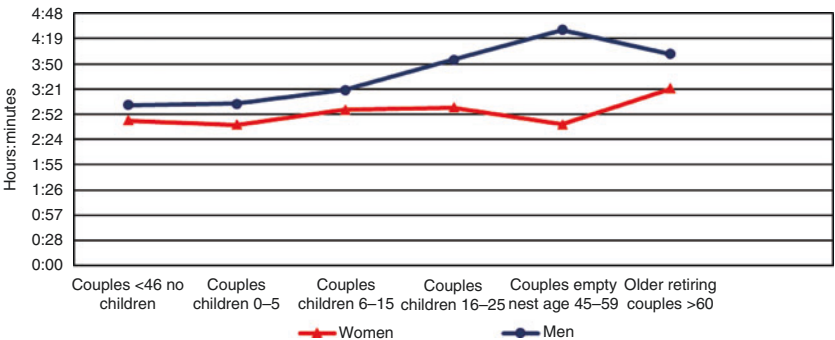
Fig. 4 Time spent in leisure activities per day, by gender (hours and minutes/day)

Source: Authors' calculations from the 2006 time-use survey

Table 9 Multivariate Tobit regression on daily minutes of total (paid and unpaid) work (marginal effects evaluated at sample mean) by gender

Household life-course typologies Reference: couple<46 of age, no children	Women	Men
Couple, children age 0–5	86.96***	44.86**
	(14.72)	(18.30)
Couple, children age 6–15	28.76**	–5.869
	(14.48)	(18.01)
Couple, children age 16–25	–42.70***	–107.2***
	(15.28)	(19.63)
Couple, empty nest age 45–59	–37.03**	–198.4***
	(16.26)	(21.73)
Older retiring couples > 60	–93.32***	–245.5***
	(16.92)	(24.77)
Number of observations	2,686	2,686
LR	738.87	1145.78
Pseudo-R^2	0.0104	0.0166
Censored observations	14	297

Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$
See Notes to Table 4 for a list of the control variables

children in the household is associated with fewer work hours for both mothers and fathers, possibly, in part, because teenage children require less primary child caregiving and may even share the unpaid work burden within the household. Compared to their younger counterparts without children, men in later stages across the life-course work considerably shorter hours. During the retirement phase, the difference is slightly more than three and a half hours.

We calculate the "free time" available to women and men, using Bianchi and Wight's (2010) definition as the residual time after deducting the time spent on paid work, unpaid work, and personal care. Women's and men's free time follow a similar pattern to their leisure time. The time women and men spend in personal care (mainly sleep) over the life course varies less than their leisure time. Young parents, however, spend less time in personal care activities than their childless counterparts. Both women and men slightly increase their personal care time as children grow up. Compared to childless couples, mothers of pre-school age children spend about 50 minutes less in personal care activities, while fathers of young children spend about 25 minutes less.

Women's heavier total work burden is reflected in the gender disparity in leisure time, rather than personal care time, where the gender difference is small (Table 7, Fig. 4). Women and men spend relatively equal time in leisure activities when they do not have children. The difference becomes visible when they become parents, reflecting a larger increase in women's total work burden. At later stages in life, the leisure gap widens, reflecting the combination of a decline in men's paid work hours and a relatively unchanged housework burden for women. We estimate the time women and men spend in leisure activities using an ordinary least squares model since we expect all women and men to have spent some time in leisure activities. Our estimates show that compared to younger women without children, mothers of pre-school age children spend less time in leisure activities (Table 10). The negative impact on leisure time of children disappears when children reach school age, and the effect of children becomes positive as children become teenagers, possibly as child caregiving during this stage takes the form of secondary child care during leisure activities, and also as teenagers shoulder some of the unpaid work burden.

Table 10   Multivariate OLS estimates of leisure time by gender

Household life-course typologies Reference: couple<46 of age, no children	(1) Women	(2) Men
Couple, children 0–5	–21.39*	–3.385
	(12.10)	(12.75)
Couple, children 6–15	14.25	20.15
	(12.12)	(12.45)
Couple, children 16–25	36.67***	102.1***
	(12.89)	(14.24)
Couple, empty nest age 45–59	20.18	142.7***
	(13.94)	(15.93)
Older retiring couples > 60	38.93***	153.9***
	(14.86)	(16.92)
Number of observations	2,686	2,686
R^2	0.040	0.137

Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$
See Notes to Table 4 for a list of the control variables

8   Discussion and Concluding Remarks

In this chapter, we construct stylized household typologies across life cycle, to examine how different roles and events across the life cycle affect gendered patterns of time use among married and co-habiting couples in Turkey. Our results show that the male breadwinner norm predominates among married and co-habiting couples. Transition into parenthood is associated with even more specialization between married and co-habiting women and men: among parents of pre-school age children, the gender employment gap is as high as 78 percentage points. Compared to previous findings in the literature for Italy, France, the US, and Sweden, the effect of parenthood on the gender employment gap is considerably larger in Turkey, although the negative impact on the gender employment gap of transition into parenthood is observed in all of these countries (Anxo et al. 2011). The smallest effect is in Sweden and France, and the largest effects are observed in Italy and the US, where the gender employment gap widens to around 40 percentage points (Anxo et al. 2011, p. 172).

While direct comparisons are not possible due to differences in the time periods studied as well as the samples, at least in terms of the larger impact of parenthood on gender employment gap, Turkey is more similar to Italy and the US, rather than Sweden or France. Work-life reconciliation policies, possibly explain these similarities. For instance, like Turkey, public spending on child care in the US is one of the lowest among OECD countries and there are limited good-quality affordable market substitutes. The absence of paid parental leave unless provided by the employer in the US, and the gender-asymmetric paid maternity leave policy in Turkey, while very different, are likely to have similar outcomes in terms of specialization among married parents. In the case of Turkey, expanding the length of recently available paid parental leave would at least potentially increase mothers' labor force participation. Public provision of good-quality affordable childcare services for children younger than six is also likely to increase women's labor force participation. On the demand-side of labor markets, the current gender-asymmetric parental leave policy creates a clear disincentive to hire women employees. While gender disparities in education also contribute to gender disparities in labor market outcomes, we find a significant negative effect of parenthood on women's employment rate after controlling for education, while the opposite holds for men. Revisions to Labor Law that came into effect in 2016 makes provisions for working mothers with young children to work part-time as

contract workers, and remain in part-time employment until the child reaches school age (Turkish Labor Law 2016). While any parent regardless of gender is eligible for part-time work, in practice, without a challenge to existing gender norms, this policy is unlikely to have a significant impact on traditional gender division of labor in Turkey.

Our findings show that a relatively equal work burden in early stages of a couple's life becomes less equal in later stages, primarily due to a combination of a larger decline in men's paid work hours and a relative increase in women's housework burden in the later stages of our stylized life course.

Given that the 2006 time-use data are collected for all household members, future research that examines within household division of paid and unpaid labor would further contribute to our understanding of gendered patterns of time use in Turkey. When the 2014 data become available, it will be possible to examine the changes in the gendered patterns of time use between 2006 and 2014. This comparison with attention to the policy context would contribute to our understanding of the gendered outcomes for time use of a decade of conservative policies of the AKP government.

NOTES

1. Esping-Andersen's (1990) welfare state typology that categorizes 18 Organization of Economic Cooperation and Development (OECD) countries into three ideal welfare regimes of liberal, conservative (corporatist-statist/corporativist), and social democratic. The key distinction between these three regimes is the relative roles of the state, the family, and the market in welfare provision. Since the publication of Esping-Andersen's, his welfare system has been widely criticized and modified, including by feminist scholars, who have incorporated gender division of paid and unpaid labor into the typology (Orloff 1993; Özar and Yakut-Cakar 2013).
2. In 2015, fathers of newborn children (adoptive parents) became entitled to 5 (3) days of paid paternity leave and, parents of disabled or chronically ill children became entitled to 10 days of paid leave.
3. Authors' calculations from TSI data.
4. See Berik et al. (2015) for a review of these studies.
5. Ankara, Antalya, Erzurum, Eskişehir, Gaziantep, İstanbul, İzmir and Trabzon.
6. These numbers are consistent with the statistics from the household labor survey, the official source for employment indicators in Turkey (TSI 2016b).

7. The income brackets in Turkish Liras (TL) and are as follows: <300 TL, 301–450 TL, 451–600 TL, 601–750 TL, 751–1000 TL, 1001–1250 TL, 1251–1750 TL, 1751–2500 TL, 2501–4000 TL, > 4001 TL. In the 2006 time-use survey, it is not possible to isolate women's earnings. We treat household income as a predetermined variable that is assumed to have little or no influence on the current time allocation decisions.

8. For brevity, we present the results only for our stylized household typologies for this and other estimations throughout the paper. Full regression results are available from the authors upon request.

9. The time spent in unpaid work activities excludes any time spent in unpaid work for an income-generating family enterprise.

10. These results are available from the authors upon request.

11. We control for educational attainment, household income, the number of rooms in the house, rural/urban residence, and day of the week.

12. We calculate the two and a half hour difference in the unpaid work time of mothers of youngest children, as follows: We first calculate the scale factor as the ratio of the number of uncensored observations to the total number of observations for the women sample, that is, of the 2,686 women in the sample, only 8 do not perform any unpaid work on an average day. The scale factor is the proportion of non-zero respondents in the sample. Accordingly, the scale factor for women can be calculated as the ratio of women who have spent some time in unpaid work activities to the total number of women in the sample, which is equal to 0.997. We multiply this scale factor with the coefficient presented in Table 7 for women with the youngest children, and find that, they spend 2 hours and 37 minutes more than women without children. The scale factor is equal to 0.56 for the men in the sample. Through the calculations above, we find that fathers of youngest children spend a half hour more in unpaid work activities than men without children.

13. These results are available from the authors upon request.

References

Altan-Olcay, Özlem (2014). Entrepreneurial subjectivities and gendered complexities: Neoliberal citizenship in Turkey. *Feminist Economics*, 20(4), 445–469.

Antonopoulos, Rania, and Indira Hirway (2009). Unpaid work and the economy. In Rania Antonopoulos and Indira Hirway (Eds.), *Unpaid Work and the Economy: Gender, Time-Use and Poverty in Developing Countries* (pp. 1–21). UK: Palgrave Macmillan.

Antonopoulos, Rania, and Emel Memis (2010). Time and poverty from a developing country perspective. Working Paper No. 600. http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.172.3320. Accessed 10 January 2016.

Anxo, Dominique, Lennart Flood, Letizia Mencarini, Ariane Pailhé, Anne Solaz, and Maria L. Tanturri (2007). Time allocation between work and family over the life-cycle: A comparative gender analysis of Italy, France, Sweden and the United States. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1049381. Accessed 10 January 2016.

Anxo, Dominique, Letizia Mencarini, Ariane Pailhé, Anne Solaz, Maria L. Tanturri, and Lennart Flood (2011). Gender differences in time use over the life course in France, Italy, Sweden, and the US. *Feminist Economics*, 17(3), 159–195.

Bahçe, Kaya, A. Seçil, and Emel Memiş (2013). Estimating the impact of the 2008–09 economic crisis on work time in Turkey. *Feminist Economics*, 19(3), 181–207.

Bahramitash, Roksana, and Jennifer C. Olmsted (2014). Choice and constraint in paid work: Women from low-income households in Tehran. *Feminist Economics*, 20(4), 260–280.

Bakirci, Kadriye (2010). Gender equality in employment in Turkish legislation with comparisons to EU and international law. *Journal of Workplace Rights*, 15(1), 3–25.

Bank, World. n.d.a. DataBankz http://databank.worldbank.org/data/. 9 March 2016

Başlevent, Cem, and Özlem Onaran (2003). Are married women in Turkey more likely to become added or discouraged workers?. *Labour*, 17(3), 439–458.

BBC. 2016. Turkey's Erdogan warns Muslims against birth control. http://www.bbc.com/news/world-europe-36413097. 10 January 2016.

Beneria, Lourdes (1999). Globalization, gender and the Davos Man. *Feminist Economics*, 5(3), 61–83.

Beneria, Lourdes (2003). Economic rationality and globalization: A feminist perspective. In Marianne A. Ferber and Julie A. Nelson (Eds.), *Feminist Economics Today: Beyond Economic Man* (pp. 115–133). Chicago: The University of Chicago Press.

Benería, Lourdes, Günseli Berik, and Maria Floro (2015). *Gender, Development and Globalization: Economics as if All People Mattered*. London and New York: Routledge.

Berik, Günseli, and Nilüfer Çağatay (1990). Transition to export-led growth in Turkey: Is there a feminization of employment?. *Review of Radical Political Economics*, 22(1), 115–134.

Bianchi, Suzanne M., and Vanessa R. Wight (2010). The long reach of the job: Employment and time for family life. In Kathleen Christensen and Barbara Schneider (Eds.), *Workplace Flexibility: Realigning 20th-century Jobs for a 21st-century Workforce Workers* (pp. 17–42). Ithaca, NY: Cornell University Press.

Bittman, Michael, and Nancy Folbre (2004). *Family Time: The Social Organization of Care*. New York: Routledge.

Braunstein, Elissa (2014). Patriarchy versus Islam: Gender and religion in economic growth. *Feminist Economics*, 20(4), 58–86.

Buğra, Ayşe, and Çağlar Keyder (2006). The Turkish welfare regime in transformation. *Journal of European Social Policy*, 16(3), 211–228.

Buğra, Ayşe, and Burcu Yakut-Cakar (2010). Structural change, the social policy environment and female employment in Turkey. *Development and Change*, 41(3), 517–538.

Çarkoğlu, Aslı, and Nilüfer Kafescioğlu (2014). For whose sake is it anyway? Evaluation of explicit family policies in Turkey. In Mihaela Robila (Ed.), *Handbook of Family Policies Across the Globe* (pp. 239–255). New York: Springer.

Charmes, Jacques (2015). Time use across the world: Findings of a world compilation of time use surveys. Background Paper. 2015 Human Development Report Office. http://hdr.undp.org/sites/default/files/charmes_hdr_2015_final.pdf. Accessed 30 October 2016.

Connelly, Rachel, and Jean Kimmel (2010). *The Time Use of Mothers in the United States at the Beginning of the 21st Century*. Kalamazoo, MI: W.E. Upjohn Institute.

Dayıoğlu, Meltem, and Murat Kırdar (2010). Determinants of women's labor force participation in Turkey [Türkiye'de kadınların işgücüne katılımında belirleyici etkenler ve eğilimler]. *DPT ve Dünya Bankası Refah ve Sosyal Politika Analitik Çalışma Programı, Çalışma Raporu, no.*, 5, 1–82.

Drobnič, Sonja, Hans-Peter Blossfeld, and Götz Rohwer (1999). Dynamics of women's employment patterns over the family life course: A comparison of the United States and Germany. *Journal of Marriage and the Family*, 61(1), 133–146.

Elson, Diane (1993). Gender-aware analysis and development economics. *Journal of International Development*, 5(2), 237–247.

Elson, Diane, and Nilufer Cagatay (2000). The social content of macroeconomic policies. *World Development*, 28(7), 1347–1364.

Esping-Andersen, Gøsta. (1990). *The Three Worlds of Welfare State*. New York: Free Press.

Eurostat (2000). Guidelines on harmonised European time use surveys. http://ec.europa.eu/eurostat/documents/3859598/5884753/KS-CC-04-007-EN.PDF/03057369-0bfe-47d5-b584-be0868d65f29?version=1.0. Accessed 10 March 2016.

Eurostat (2016). Fertility Indicators. http://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do. Accessed 10 March 2016.

Eyüboğlu, Ayşe, Şemsa Özar, and Hülya Tufan Tanrıöver (2000). *Socioeconomic and Cultural Dimensions of Urban Women's Challenges in Labor Force Participation. [Kentlerde kadınların iş yaşamına katılım sorunlarının sosyoekonomik ve kültürel boyutları].* Ankara: TC Başbakanlık Kadının Statüsü ve Sorunları Genel Müdürlüğü.

Ferrant, Gaëlle, Luca Maria Pesando, and Keiko Nowacka (2014). Unpaid care work: The missing link in the analysis of gender gaps in labour outcomes. Centro de Desarrollo de La OCDE 5. http://www.oecd.org/dev/development-gender/unpaid_care_work.pdf. Accessed 3 March 2016.

Floro, Maria Sagrario (1995). Women's well-being, poverty, and work intensity. *Feminist Economics*, 1(3), 1–25.

Gustafsson, Siv S., Cécile M.M.P. Wetzels, Jan D. Vlasblom, and Shirley Dex (1996). Women's labor force transitions in connection with childbirth: A panel data comparison between Germany, Sweden and Great Britain. *Journal of Population Economics*, 9(3), 223–246.

Hacettepe University Institute of Population Studies [HUIPS] (2008). *Population and Health Survey.* Ankara: Hacettepe University Institute of Population Studies.

Hacettepe University Institute of Population Studies [HUIPS] (2013). *Population and Health Survey.* Ankara: Hacettepe University Institute of Population Studies.

Hirway, Indira (2009). Understanding poverty: Insights emerging from time use of the poor. In Rania Antonopoulos and Indira Hirway (Eds.), *Unpaid Work and the Economy: Gender, Time-Use and Poverty in Developing Countries* (pp. 22–57). UK: Palgrave Macmillan.

Hochschild, Arlie R. and Anne Machung (1989). *The Second Shift: Working Parents and the Revolution at Home.* New York: Viking.

Hurriyet Daily News (2013). Turkish PM Erdoğan reiterates his call for three children. http://www.hurriyetdailynews.com/turkish-pm-erdogan-reiterates-his-call-for-three-children.aspx?pageID=238&nid=38235.

İlkkaracan, İpek (2012). Why so few women in the labor market in Turkey?. *Feminist Economics*, 18(1), 1–37.

İlkkaracan, İpek (2013). The purple economy: A call for a new economic order beyond the green. In Ulrike Rohr (Eds.), *Sustainable Economy and Green Growth: Who Cares* (pp. 32–37). Berlin, Germany: genanet.

İlkkaracan, İpek, and Umut Gündüz (2009). Time-use, the value of non-market production and its interactions with the market sector: The case of Turkey. GDRI DREEM Working Paper. France: GDRI DREEM.

Kasnakoğlu, Zehra, Meltem Dayıoğlu, and Erkan Erdil (1996). Time use and estimation of value of household production. Working Paper 07. METU Economic Research Center Working Papers.

Kasnakoğlu, Zehra, and Meltem Dayıoğlu (2002). *Measuring the Value of Home Production in Turkey.* Ankara: New Developments in National Accounts, 73–97.

Kızılırmak, Burça (2008). Labor market participation decisions of married women: evidence from Turkey. In Ashwini Deshpande (Ed.), *Globalization and Development: A Handbook of New Perspective* (pp. 176–184). London: Oxford University Press.

Kızılırmak, Burça, and Emel Memiş (2009). The unequal burden of poverty on time use. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1452851.

Kongar, Emre (2016). The Conflict in AKP's Rhetoric and Action: Women's Rights and Freedom of Press *[AKP'nin Söylem ve Eylem Çelişkisi: Kadın Hakları ve Basın Özgürlüğü].* Cumhuriyet, November 1. Available at http://www.cumhuriyet.com.tr/koseyazisi/299092/AKP__8217_nin_Soylem_ve_Eylem_Celiskisi__Kadin_Haklari_ve_Basin_Ozgurlugu.html#. Accessed 1 November 2016.

Memiş, Emel, Umut Öneş, and Burça A. Kızılırmak (2011). Housewifisation of women: contextualising gendered patterns of paid and unpaid work." Gender and Society in Turkey: The Impact of Neoliberal Policies, Political Islam and EU Accession. IB Tairus.

Moghadam, Valentine M. (1998a). Feminisms and development. *Gender & History*, 10(3), 590–597.

Moghadam, Valentine M. (1998b). The feminization of poverty in international perspective. *The Brown Journal of World Affairs*, 5(2), 225–249.

Moghadam, Valentine M. (2003). *Modernizing Women: Gender and Social Change in the Middle East*. Boulder and London: Lynne Rienner Publishers.

Öniş, Ziya (2012). The triumph of conservative globalism: The political economy of the AKP era. *Turkish Studies*, 13(2), 135–152.

Organisation for Economic Co-operation and Development [OECD] (2016). OECD Employment Outlook 2016. OECD Publishing. http://www.oecd-ilibrary.org/employment/oecd-employment-outlook-2016_empl_outlook-2016-en. 10 February 2016.

Orloff, Ann Shola (1993). Gender and the social rights of citizenship: State policies and gender relations in comparative research. *American Sociological Review*, 58(3), 303–328.

Özar, Semsa, and Gulay Gunluk-Senesen (1998). Determinants of female (non-) participation in the urban labour force in Turkey. *METU Studies in Development*, 25(2), 311–328.

Özar, Şemsa, and Burcu Yakut-Cakar (2013). Unfolding the invisibility of women without men in the case of Turkey. *Women's Studies International Forum*, 41, 24–34.

Özler, Şule (2000). Export orientation and female share of employment: Evidence from Turkey. *World Development*, 28(7), 1239–1248.

Rubery, Jill (2013). From "women and recession" to "women and austerity": A framework for analysis. In Maria Karamessini and Jill Rubery (Eds.), *Women and Austerity: The Economic Crisis and the Future for Gender Equality* (pp. 17–36). London: Routledge.

Seguino, Stephanie (2010). Gender, distribution, and balance of payments constrained growth in developing countries. *Review of Political Economy*, 22(3), 373–404.

Turkish Labor Law (2013a). New types of parental leave in Turkish labor law. http://turkishlaborlaw.com/news/legal-news/323-new-types-of-parental-levae-in-turkish-labor-law. Accessed 18 January 2016.

Turkish Labor Law (2013b). Breastfeeding break. http://turkishlaborlaw.com/news/business-in-turkey/338-breastfeeding-break.

Turkish Labor Law (2016). Flexible working after child birth and adoption in Turkey. http://turkishlaborlaw.com/news/business-in-turkey/367-flexible-working-after-childbirth-and-adoption-in-turkey.

Turkish Statistical Institute [TSI] (2016a). Labor Force Statistics. http://www.turkstat.gov.tr/PreIstatistikTablo.do?istab_id=2262.

Turkish Statistical Institute [TSI] (2016b). Women in Statistics. http://www.turkstat.gov.tr/PreHaberBultenleri.do?id=21519

Tuysuz, Gul (2016). 7 times Turkish President 'mansplained' womanhood. *CNN*, June 9. http://www.cnn.com/2016/06/09/europe/erdogan-turkeymansplained-womanhood/.

United Nations Development Programme [UNDP] (2015). 2015 Human Development Report. New York: UNDP.

Zahidi, Saadia, and Herminia Ibarra (2010). *The corporate gender gap report 2010*. Geneva, Switzerland: World Economic Forum.

Ebru Kongar is Associate Professor of Economics at Dickinson College. Her research focuses on the gendered time-use and labor market outcomes of macro-economic developments, such as deindustrialization, offshoring and the Great Recession in the U.S. economy. She is a research associate at Levy Economics Institute of Bard College and an Associate Editor of *Feminist Economics*.

Emel Memiş is Associate Professor, Department of Economics, Ankara University, Turkey and a research associate at Levy Economics Institute of Bard College who works on women's labor and employment issues in Turkey and time poverty issues around the world. She received her Ph.D. in economics from the University of Utah.

Environmental Chores, Household Time Use, and Gender in Rural Tanzania

Deborah S. DeGraff, Deborah Levison
and Esther W. Dungumaro

1   INTRODUCTION

Many households in poor regions of the world devote a substantial amount of time to environmental chores – fetching water and gathering fuel – to meet their daily needs, yet this issue has received little attention in the time-use literature which has tended to focus on time-use

D.S. DeGraff (✉)
Bowdoin College, Brunswick, ME, USA
e-mail: ddegraff@bowdoin.edu

D. Levison
Humphrey School of Public Affairs, University of Minnesota, Minneapolis, MN, USA
e-mail: dlevison@umn.edu

E.W. Dungumaro
Institute of Development Studies, University of Dar es Salaam, Dar es Salaam, Tanzania
e-mail: edungumaro@udsm.ac.tz

decision-making in developed countries. Environmental chores are an example of what Nelson (2017), in Chapter 10 of this volume, and Folbre (2006) describes as indirect care work, that is, work that supports the household or selected members of the household, but is not direct caring. Collecting wood and fetching water are difficult, time-intensive tasks done for the benefit of all household members. It is fundamentally important to the well-being of the household. However, such work can be expected to have consequences for the individual doing the work in terms of time away from school, play, income-generating work, or other household tasks (even direct caring for young children or elders).

Anecdotal and limited empirical evidence suggests that this work is highly gendered; women and children are often primarily responsible for this essential but largely unrecognized work (e.g., Biran et al. 2004). In this analysis, we observe the same, and document gender differences between boys and girls as well. These gendered differences in time spent on environmental chores by children can contribute to gendered differences in time for schooling and time for play. For women, these highly gendered environmental chores are on top of already heavy time burdens of agricultural tasks, caring tasks and other tasks that impact the health and safety of themselves and family members. With time being one of the few resources available to poor households, gaining a better understanding of the allocation of time to environmental chores can contribute importantly to enhancing well-being and to reducing inequalities, both between and within households.

Environmental chores are also especially worth highlighting because they can so significantly be impacted by investments in local infrastructure such as community water taps, water purification technology, and the delivery of alternative fuels and more efficient means of burning fuel for cooking and heating. Investment in community infrastructure of this type is also likely to reduce pressure on the natural environment.

After reviewing what is known about differences in time allocation by gender in such settings and the heavy use of children's time in meeting these fundamental household needs, we provide an analysis of new data from Tanzania. Using data collected in 2011 for a sample of households from two villages in rural northern Tanzania, this chapter documents households' overall use of these environmental goods, and describes the division of this labor among household members and how this varies by key characteristics. It focuses particular attention on the contributions to this work of women and of children aged 10–17, and examines in what ways children's roles differ by gender.

2   Background and Tanzanian Context

Water is essential for human life regardless of economic position, and wood for cooking is almost equally important in poorer regions of the world, including much of sub-Saharan Africa. In such regions, the demand for firewood and water tend to increase with population growth and as economic aspirations begin to rise. Within such a context, the natural environment substantially impacts individual and societal well-being. Established literatures exist that explore many important dimensions of and relationships with environmental conditions in poor countries – for example, biodiversity and conservation of species, climate change, and sustainable agriculture – to name a few. However, less attention has been focused on how individuals are affected by environmental conditions in general and, in particular, on the implications for household time allocation and especially gendered differences in time use. While there is a growing economics literature on the paid work activities of women and children in developing countries, domestic chores are often ignored (Edmonds 2007). Further, even when domestic chores are included in such studies, rarely is time devoted to environmental chores considered or singled out in the data in an identifiable way.

A few economics studies examine the effects of environmental conditions on time spent doing environmental chores, primarily for adults. In the context of rural Nepal, Cooke (1998) considers the allocation of time to collecting environmental goods that are inputs to production processes such as preparing meals. She is particularly interested in how the degradation of the environment impacts household time use. She argues that as the environment is degraded, the efficiency of environmental chores declines, thereby increasing the shadow price per "unit" of an environmental good. This would negatively impact the amount of the environmental good used, but its effect on total time allocated to environmental good collection is theoretically ambiguous. Further, these predicted outcomes are likely to differ in magnitude between men and women due to differences in productivity, as well as in norms and preferences. Her empirical results show decreased consumption in the face of increasing shadow prices, but the demand for environmental goods is relatively price inelastic owing to their importance in meeting basic needs and the lack of close substitutes. Consistent with this finding, her estimated results suggest that time allocated to environmental chores increases in response to

worsening environmental conditions, and that this increased time burden falls more heavily on women than on men.

Boone et al. (2011) model the impact of distance to water source in Madagascar on time allocated to fetching water, while controlling for household choice of water source. They document that, on average, women and girls allocate more time to fetching water than do men and boys in Madagascar. As with Cooke, greater distance translates into a higher shadow price per unit of environmental good. Their model results indicate that the distance to water source increases the time allocated to fetching water at the individual level for adults but not for children, and that the effect is stronger for men than for women.

Studies grounded in other disciplines such as sociology, anthropology, and human ecology also contribute to our understanding of these issues. For example, using a case studies approach, Awumbila and Momsen (1995) explore relationships between time use, gender, and environmental conditions in the dry zones of several developing countries from different regions of the world. They focus on the collection of forest products and document the greater role of women than men in these activities, as well as the greater impact of environmental degradation on women's time use. In addition, they emphasize that government initiatives can exacerbate women's burden in this realm, for example, when construction of a dam results in greater distances to travel in search of firewood. Biran et al. (2004) consider time allocation of women and girls in the collection of firewood in several rural communities in Malawi and Tanzania, with a particular focus on whether infants accompany their mothers on wood collection trips and the degree to which girls' assistance reduces women's firewood collection. Based on descriptive quantitative and qualitative evidence, they find that women with a daughter old enough to help out (starting about 5 years old for Maasai in Tanzania and 10 years for Malawaian girls) spend substantially less time on this task. They also find large economies of scale in Malawi: households with more people consume substantially less firewood per capita. This did not hold for the Tanzania case, but the authors suggest that methodological reasons could account for that.

Relevant economics studies that focus primarily on children mostly explore relationships between individual children's engagement in environmental chores and various measures of schooling outcomes. Expectations for children to engage in environmental chores could negatively impact school attendance, study time and, ultimately, the ability to

learn and progress through school, though there could be benefits as well, such as an increased sense of responsibility and value, or from learning by doing. Rogers (2014) uses panel data for Tanzania to analyze the effect of time collecting wood on years of schooling. She estimates that adding an hour to firewood collection trips reduces completed education by 1/5 of a year, though the model does not take into account who does the chore. Similarly, Koolwal and Van De Walle (2013) estimate associations between distance to water source and school enrollment in rural areas of nine developing countries, but do not examine who does the chore. They find evidence of a positive association between better water access and school enrollment for both boys and girls in several but not all countries, as well as a decrease in women's time in unpaid work. Even less direct evidence for Tanzania comes from Lihwa et al. (2015). They find negative associations between both school attendance and exam performance and a multi-dimensional indicator of remoteness that includes children's perceptions of distance to the closest water source.

Three economics studies estimate models specifically examining children's work in environmental chores and its implications for their schooling, in Malawi (Nankhuni and Findeis 2004), Kenya (Ndiritu and Nyangena 2011), and Ethiopia (Gebru and Bezu 2014). Each study endeavors to address the possible joint determination of environmental chores and schooling behaviors using instrumental variables approaches. They all find some evidence of a negative effect of hours of environmental chores on school participation, although, in general, any such effects are small except at very high hours. Finally, using the same survey data as in this chapter along with focus group discussions with children, Levison et al. (2017) present descriptive evidence with respect to children's engagement in environmental chores and various measures of schooling. They find some evidence of negative associations, but it is neither strong nor universal.

Tanzanian context. Tanzania is no exception to the environmental conditions outlined above. It has one of the highest population growth rates in the world, at about 2.9%, and is heavily dependent on wood and water resources for meeting basic needs. Firewood is widely used for cooking in all regions of the country except in highly urbanized Dar-es-Salaam. Charcoal (made using wood) is the second most common energy source for cooking, heavily used by urban households, but much less so by rural households. Access to water varies substantially in Tanzania, by location, season and socio-economic status. In rural areas, water piped

into the home is largely non-existent; at best, some villages have drilled wells and pumps. The increasing size of the population in Tanzania, along with a high incidence of poverty, lack of infrastructure, and moderate economic growth in recent years, are increasing the pressure on the country's natural resources (Falkenmark and Widstrand 1992; United Republic of Tanzania 2009).

The two study villages are subject to these same concerns and conditions. They are located in rural Kondoa District of the Dodoma region, in the semi-arid northeast of the mainland. Weather conditions are dry much of the year; rainfall and groundwater are not sufficient to support the growth of dense timber forest. Population growth and household size are comparable to national averages (United Republic of Tanzania 2012). The main economic activities in the area are agriculture and pastoralism, mostly for households' own consumption. Some households supplement their incomes with charcoal production and brick firing, both time-use activities being primarily the purview of men, and both activities that require substantial amounts of wood. The region's weather conditions and economic activities also place considerable pressure on water supplies. In this area, households typically gather firewood once or twice a week, while fetching water must be done almost daily. In one of the study sites, a number of community wells with taps were available at the time of the study and, as reported in the later text, were heavily used. The other village we study did not have water taps or pumps, and during the dry season obtained much of its water by digging holes in the dry bed of a river and waiting for water to seep in.

Although it is well understood that in rural Tanzania, as in many other poor regions of the world, women and children are largely responsible for collecting wood and fetching water, documentation of their time in environmental chores is lacking. We now have the means to provide empirical evidence about these activities for two villages in rural Tanzania. While we can speculate about causal pathways to some extent, the data are too limited in scope and sample size to estimate statistical models of the determinants of these behaviors. Nonetheless, by quantifying and highlighting the importance of these activities, and by providing evidence regarding differences by gender in time allocated to these activities among both adults and children, we hope to encourage other researchers to explore this topic more fully.

3   TANZANIAN CASE STUDY

The information used in this case study comes from a survey we implemented in Kondoa District, Tanzania, in 2011.[1] To determine our sample, we began with a survey that had been implemented in a large number of villages in northern Tanzania in 2010 by the Whole Village Project (WVP).[2] We used the WVP data to select a sample of households to revisit in two villages, which we refer to as Village K and Village M (anonymized), that we chose purposively because of differences in access to water and firewood. Village M had several community water taps, while Village K had none. We worked with the WVP field team to identify previously interviewed households in these villages that included children of the appropriate ages, and to re-interview them. Given our interest in the roles of children in the work of environmental chores, we selected the mother (or female guardian) of the children as the primary respondent owing to their greater knowledge than male adults on this topic. In addition to standard household demographic and socio-economic information, mothers were asked summary questions regarding the household's collection of water and firewood, as well as detailed questions about their own participation in environmental chores and that of individual children between the ages of 10 and 17. Because of IRB concerns about vulnerable populations, we did not focus on children younger than 10 in detail even though they may do a lot of chores, including environmental chores (Reynolds 1991).

In addition to asking detailed questions of mothers about the environmental chores of children 10–17, we also interviewed the children themselves in light of evidence of differences with respect to information about children across type of respondent (Dammert and Galdo 2013). We used parallel modules with comparable questions asked of the mothers about children 10–17 (proxy respondents), and asked of the individual children directly. A fuller discussion of this approach along with a comparison of responses across mother and child can be found in Levison et al. (2017). In brief, while children often report greater engagement in environmental chores than their mothers report for them, in aggregate the differences across respondents are not large and the patterns in the data are highly consistent regardless of which response is used. Here we report both sets of results and note where they yield different conclusions. The sample sizes for the 2011 survey are 57 households (and mothers/female guardians) and 114 children ages 10–17. Given our sample design, not only did each

interviewed household include an adult female respondent, it also included at least one child 10–17, with most households (about 75%) having either one or two children ages 10–17.

The field research was conducted in August, well into the dry season, which generally stretches from June through October.[3] Questions on participation in and time spent on environmental chores focus mainly on the seven days prior to the interview. Because of seasonality in water availability, our data are not representative of the entire year.

We construct a variety of measures, both at the household and individual levels, to describe household time allocation to environmental chores. Household-level measures are valuable for understanding the overall implications of meeting these basic needs for household time use, and for determining patterns in this work across age and gender categories of household members. Individual-level measures translate these aggregate patterns within households to more fully explore differences in time allocation to environmental chores. For the household as a whole, we are able to measure for the reference week: (1) whether *any* member of each of a set of age-based groups (e.g., children 10–17) participated in wood collection or water fetching; (2) within-household environmental chore participation rates for collecting wood and fetching water among children 10–17 (and among children 10–17 plus their mothers / guardians); (3) total time allocated to environmental chores by all children 10–17 (and by all children 10–17 plus their mothers / guardians), aggregated from the individual data; and (4) rough estimates of the total amount of wood collected by all household members and, aggregated from the individual data, the total liters of water collected by children 10–17 and their mothers. Collecting wood tends to be a group activity, whereas fetching water is sometimes done individually and, regardless, water is typically carried individually. Thus, we measure the amount of wood collected at the household level and the amount of water fetched at the individual level.[4] We derive each of these descriptive measures for the total sample, and also separately by village due to differences across villages in environmental conditions and water infrastructure. We also conduct the analysis by whether the household reports being headed by a male or female and by mother's level of education, in an effort to capture possible differences across households in the position of women.[5]

At the individual level, we are limited to examination of children 10–17 and their mothers. For each of these two samples, we derive the following measures for the reference week: (1) liters of water fetched[6]; (2)

participation rates in wood collection and water fetching; (3) the distribution for how many types of environmental chores in which respondents participated (no chores, one type of chore or both chores); and (4) the amount of time allocated to each environmental chore and in total, among participants. The measures of time allocated to environmental chores are derived from a series of questions about number of chore trips taken during the week, and usual amount of time (recorded in minutes) for a round trip for each chore during this time of year.[7] All measures are derived for their respective total samples and separately by the characteristics mentioned above. In addition for the sample of children 10–17, we analyze these measures separately by gender and by age group (10–14 vs. 15–17 years old) in order to uncover any systematic inequalities in environmental chore work among children.

4 Environmental Chores at the Household Level

We first present various measures of engagement in environmental chores for the household as a whole, to gain insight into the overall importance of these activities and children's involvement in them. They also offer a rough initial sense of the gendered nature of this work, which we explore more fully in the individual-level results.

4.1 Amounts of Environmental Goods

All households in our sample participated at least to some extent in environmental chores during the reference week, with all households fetching water and nearly all households collecting wood. On average, the sample households collected slightly less than three bundles of wood during the week, including those that did not collect any, and slightly more than three bundles among those that collected some. This corresponds to an average of roughly 75 kilos of wood collected during the week. With respect to the amount of water, given how we gathered this information, we do not know the total liters fetched by the household during the week but, rather, the total fetched by children 10–17 and their mother. Some water was also fetched by younger children. Men seldom fetch water except (we speculate) under unusual circumstances such as illness of their wives. The sum for all children 10–17 in a household averages to about 200 liters (195.5–219.2 liters) and to nearly 400 liters for all children 10–17 plus their mothers/guardians (372.7–396.4 liters).

4.2   Participation by Age Group

Table 1 provides estimates of the percentage of households in which *at least one member* of the respective age group participated in each environmental chore during the reference week. We define four age groups: children 0–9, children 10–17, all adults 18+ and other adults 18+. The difference between the latter two groups is that the woman respondent is included in the "all" group but not in the "other" group. Given our sampling methodology, all households include at least one person in the *children 10–17* group and in the *all adults 18+* group, but some households do not include any individuals in the *children 0–9* group or the *other adults 18+* group.[8] In these instances, the reported percentages for those groups are calculated using only households including such members.

These summary measures provide the first evidence of the importance of children's and women's work in environmental chores. Somewhat more than half of all households report that children in the 0–9 and 10–17 age groups participated in collecting wood in the past week (53.1% for 0–9; 50.9–56.1% for 10–17). In contrast, only 14.3% of households report that any other adults 18+ engaged in this activity. Given this low percentage, and the fact that some members of this group are women, we interpret this result as evidence of very low participation in wood collection on the part of male adults. The large difference in estimates between *other adults* and *all adults 18+* is due to the high participation rates of the women respondents in wood collection. We discuss their participation in environmental chores in detail in the section focused on individual results.

The estimates for wood collection are highly similar across villages for children 0–9 and other adults, but differ substantially for children 10–17. Households in Village K are approximately twice as likely as households in Village M to have deployed children 10–17 to collect wood during the week. The results by headship status suggest that female-headed households are more likely to have at least some children engaged in wood collection, and are less likely to have this work done by other adults, due in part to the presence of fewer such adults in these households. Similarly, households in which the female respondent has a lower level of education are characterized by less reliance on other adults to collect wood and greater reliance on children 10–17, but not younger children.

The corresponding results for fetching water further illustrate the importance of the work of children 10–17 in environmental chores as nearly all sample households (89.5–98.2%) report that at least one child of

Table 1 Percentage of households with at least one member of an age group who collects wood and who fetches water, by selected characteristics

	Total	Village K	Village M	Male head	Female head	Mom, low education	Mom, more education
Percent collecting wood:							
Children 0–9	53.1	54.2	52.0	51.3	60.0	50.0	54.5
Children 10–17 (child response)	56.1	78.5	34.5	55.8	57.1	66.7	50.0
Children 10–17 (mom response)	50.9	67.9	34.5	46.5	64.3	52.4	50.0
All adults 18+	78.9	85.7	72.4	79.1	78.6	81.0	77.8
Other adults 18+	14.3	16.0	12.5	16.3	0.0	5.8	18.8
Percent fetching water:							
Children 0–9	34.0	52.0	16.0	38.5	18.2	47.1	27.3
Children 10–17 (child response)	98.2	100.0	96.6	97.7	100.0	95.2	100.0
Children 10–17 (mom response)	89.5	96.4	82.8	90.7	85.7	85.7	91.7
All adults 18+	94.7	96.4	93.1	97.7	85.7	90.5	97.2
Other adults 18+	20.4	20.0	20.8	20.9	16.7	23.5	18.8
Sample size	57	28	29	43	14	21	36

Notes: The statistics for children 0–9 and other adults 18+ are based only on the households that include individuals in these groups. "All adults 18+" includes the Female Respondent (mom); "Other adults 18+" does not. Reference period is past seven days.

this age fetched water during the reference week. The much lower percentage for children 0–9 (34%), both in comparison to older children and to their participation in wood collection, is likely due to the need for individuals to be strong enough to carry heavy water vessels. In contrast, for wood collection, small children can gather sticks to add to the bundle which then will be carried by a stronger person or more than one person. We again see the much lesser importance of other adults in environmental chores, with only about one-fifth of households reporting that any such individuals fetched water during the week (with a similarly pronounced difference as for wood between *other adults* and *all adults 18+* reflecting the role of mothers). While the participation of other adults is similarly low in both villages, the results suggest greater reliance on children, especially young children, in Village K than in Village M. Participation rates by any member of each demographic group are generally similar across headship status and mother's education, with the exception of children 0–9, who are more likely to have fetched water in male-headed households or if their mothers have less schooling. These situations are often associated with less authority within the household for women, which could impact children's roles.

4.3   Household-level Participation Rates

Next we consider *within-household* participation rates in environmental chores during the reference week, that is, the percentage of individuals in any given household who participated in environmental chores. These measures are derived from the more detailed individual-level data and, consequently, are available only for children 10–17, and for the expanded group of these children plus their mother/female guardian. Table 2 reports household participation rates for wood collection of nearly 40% (37.5–39.6%) for children 10–17, and of about 50% (50.8–52.4%) when mothers are added to the group. Within-household participation rates for water fetching by these groups are even higher (78.9–80.7% for 10–17; 83.2–84.3% for 10–17 plus mothers), reflecting the need to fetch water almost daily. These results again highlight the important role played by children 10–17 in meeting the basic needs of households. Combining the two activities, in more than 80% of the sample households (80.7–83.0%) did at least one child 10–17 participate in at least one environmental chore during the reference week.

Table 2 Percentage of a household's children 10–17, or mothers plus children 10–17, who do environmental chores, by selected characteristics

	Total	Village K	Village M	Male head	Female head	Mom, low education	Mom, more education
Percent collecting wood:							
Children 10–17 (child response)	39.6	54.6	25.0	38.5	42.9	51.4	32.6
Children 10–17 (mom response)	37.5	50.2	25.3	31.6	56.0	42.4	34.7
Mom + Children 10–17 (child response)	52.4	62.9	42.2	52.6	51.8	60.7	47.5
Mom + Children 10–17 (mom response)	50.8	60.8	41.1	48.4	58.3	53.6	49.2
Percent fetching water:							
Children 10–17 (child response)	80.7	81.8	79.6	77.1	91.7	79.4	81.5
Children 10–17 (mom response)	78.9	85.9	72.1	77.4	83.3	77.6	79.6
Mom + Children 10–17 (child response)	84.3	85.7	82.9	82.8	88.7	82.5	85.3
Mom + Children 10–17 (mom response)	83.2	88.3	78.3	83.6	82.1	81.0	84.5
Sample size	57	28	29	43	14	21	36

Notes: Rates for Children 10–17 are based on a denominator of number of children ages 10–17.
Rates for Mom + Children 10–17 are based on a denominator of (1 + number of children ages 10–17).
Reference period is past seven days.

All of the within-household participation rates, and especially those for wood collection, are higher in Village K than in Village M, at least in part reflecting the more difficult natural resource conditions in the former village. The results also clearly indicate higher participation rates in both environmental chores for children 10–17 in female-headed households relative to their counterparts in male-headed households. Similarly, we see higher participation rates in wood collection for children 10–17 whose mothers have less education compared to those whose mothers have more education. In contrast, rates for fetching water do not differ meaningfully by mother's education. Taken together, these results suggest that children in households with less human capital may be relied upon more heavily to complete environmental chores.

Household time allocation to environmental chores. Next we consider the amount of time allocated to collecting wood and fetching water during the reference week by all children 10–17 combined and their mothers. These measures, of course, under-estimate total household time spent on environmental chores as they do not include the time of any children 0–9 or other adults who participated. Table 3 shows that the total time spent on environmental chores during the week, on average, by all children 10–17 within a household is about 13 hours (13.3–13.4 hours), almost two hours per day. Adding in the time allocated to these chores by the mother doubles the household average to nearly four hours per day. Roughly two-thirds of these estimated values consist of time allocated to fetching water.

The differences in household time estimates by village more clearly reflect the implications of a more stressed natural environment and varying water infrastructure, but they also illustrate the role of opportunity costs. In Village K, estimates for household wood collection time are roughly twice (or more) those of Village M, while for water fetching there is roughly a threefold difference across villages in each of the household time estimates. Indeed, in Village K, nearly 40 hours, on average, were devoted to these environmental chores during the week through the combined efforts of children 10–17 and the women respondents. In Village M, nearly 90% of households made use of nearby community water taps during the reference week for at least some of their water; in contrast, no households in Village K had access to a water tap. Most Village K households relied primarily on "surface" water (92.9%), with much of such water being brought to the surface by digging, as described previously.

Table 3 Total hours spent on environmental chores by all children 10–17 in a household, and by mothers plus all children 10–17, by selected characteristics

	Total	Village K	Village M	Male head	Female head	Mom, low education	Mom, more education
Hours spent collecting wood:							
Children 10–17 (child response)	5.2	7.8	2.6	5.8	3.3	5.7	4.8
Children 10–17 (mom response)	4.2	6.4	2.1	4.3	4.1	3.8	4.5
Mom + children 10–17 (child response)	9.8	13.0	6.7	10.7	7.0	11.6	8.8
Mom + children 10–17 (mom response)	8.9	11.7	6.2	9.2	7.8	9.7	8.4
Hours spent fetching water:							
Children 10–17 (child response)	8.3	12.7	4.1	9.0	6.1	10.7	6.9
Children 10–17 (mom response)	9.1	14.5	3.8	9.5	7.7	9.6	8.8
Mom + children 10–17 (child response)	16.8	25.4	8.5	16.8	16.9	22.1	13.8
Mom + children 10–17 (mom response)	17.6	27.3	8.3	17.3	18.5	21.0	15.7
Hours on both wood & water:							
Children 10–17 (child response)	13.4	20.4	6.7	14.8	9.4	16.4	11.7
Children 10–17 (mom response)	13.3	20.9	5.9	13.8	11.8	13.3	13.3
Mom + children 10–17 (child response)	26.7	38.4	15.3	27.6	23.9	33.7	22.5
Mom + children 10–17 (mom response)	26.5	38.9	14.5	26.6	26.3	30.7	24.1
Sample size	57	28	29	43	14	21	36

Notes: Total household time for Children 10–17 or Mom + children 10–17 can be zero. The zero values are included in the average across households. Reference period is past seven days.

Given that the time and amount data for water are measured both for children 10–17 and the female respondent, we are able to derive "efficiency" measures of liters of water per hour spent fetching. To derive an approximation of a household-level measure of liters per hour, we calculated the following: (total liters fetched by all children 10–17 plus their mothers) divided by (total time allocated to fetching water by the same household members). This measure further emphasizes the important role of water infrastructure. In Village K, this water efficiency measure is about 20 liters/hour (17.1–20.9 liters/hour), whereas in Village M it is more than four times as large (73.2–90.8 liters/hour).

Looking at the other covariates, we see similar time estimates across headship status, with female-headed households perhaps allocating somewhat less time to these activities, on average. This result is likely, in part, attributable to smaller household size among female-headed households both reducing the demand for environmental goods, while also similarly reducing the number of people to perform such chores. Lower levels of education of the female respondent are generally associated with more household time allocated to environmental chores, particularly for water and with the woman's time included.

It is also important to note that most of the water in our sample villages is not safe for drinking without first being treated in some way. Thirty-three of the 57 households report treating their drinking water, with all but one of these relying on boiling for purification. While such preventive measures undoubtedly reduce gastrointestinal illness and contribute to better health, they also increase the amount of time devoted to meeting household water needs while simultaneously increasing the demand for firewood.[9] Interestingly, many more households in Village M than in Village K treat their drinking water (82.8% vs. 32.1%). This is likely partly the result of the lesser time needed to obtain environmental goods in Village M, in essence, reducing the marginal opportunity cost of allocating time to water treatment. Also, education levels among adults are somewhat higher on average in Village M than in Village K, perhaps contributing to a better understanding of the importance of water purification.

In reference to household time devoted to wood collection, it is important to note that 12 of our sample households reported sometimes using a cart for wood collection during the past year, though only two did so during the reference week. Eleven of these households reported collecting one to five cartloads during the year.[10] Most households did not own a cart suitable for carrying loads of wood, but some occasionally rented one.

In comparison to the much more common approach of carrying bundles of wood by hand or on one's head, use of a cart allows for the collection of larger pieces of wood and greater amounts in total on a single trip, and perhaps also for traversing a longer distance to reach better wood supplies. In our sample, in households that sometimes used a cart for collecting wood (even though most did not do so during the reference week) the female respondent (but not children 10–17) devoted less time, on average, to collecting bundles of wood during the week than in other households. This suggests these households are able to keep stockpiles of wood that they supplement with relatively small, weekly amounts of wood collection (average household bundles in the week were smaller also), resulting in a more efficient use of time overall. The question of why this approach is not more widely utilized – that is, whether it would also be more efficient for other households but is not used due to the cost of a cart or, alternatively, it would not be more efficient owing to differences in household or terrain characteristics – is one we cannot answer given our data.

5   ENVIRONMENTAL CHORES AT THE INDIVIDUAL LEVEL

We now turn to measures of engagement in environmental chores at the individual level, for children 10–17 and for the mothers/female guardians of these children.

Liters of water. As explained previously, at the individual level we have information on amounts collected for water only. Table 4 provides average liters fetched during the reference week for each individual child 10–17 and their mothers, alternatively including and excluding those who did not participate. Reinforcing the results at the household level, the table makes clear the large amounts of water fetched by these individuals. Of those who fetched any water, the average per child 10–17 is at least 125 liters in the week (125.2–143.6 liters), and the average for mothers is nearly 200 liters. These values are all larger in male-headed households than in female-headed households and, for children, are larger in households where the mother has less education. These amounts are also larger in Village M than in Village K for children 10–17 (by about 25–40 liters), with less of a difference in the same direction for mothers. As with the finding on water treatment, we observe that households in Village M, where the opportunity cost of fetching water was lower due to the relative proximity and ease of use of community water taps, used more water. This

Table 4 Average liters of water fetched by individual children 10–17 and their mothers, by selected characteristics

	Total	Village K	Village M	Male head	Female head	Mom, low education	Mom, more education	Boys	Girls	Age 10–14	Age 15–17
Liters of water (all):											
Children 10–17 (child)	97.8	88.1	108.5	100.9	86.0	129.9	82.3	89.9	104.1	98.2	96.8
Children 10–17 (mom)	109.6	102.4	117.7	116.2	85.0	115.6	106.8	86.1	128.7	96.8	139.9
Mom	177.2	174.6	179.7	190.5	136.4	161.4	186.4	NA	NA	NA	NA
Liters of water (if > 0):											
Children 10–17 (child)	125.2	112.4	139.5	133.5	98.3	165.7	105.7	134.9	119.3	120.8	137.1
Children 10–17 (mom)	143.6	125.3	167.2	149.4	120.0	158.4	137.0	129.1	152.9	121.0	206.7
Mom	194.2	188.1	200.4	204.8	159.2	188.3	197.4	NA	NA	NA	NA
Sample size	114	60	54	90	24	37	77	51	63	80	34

Notes: Results including zero are averaged across all individuals; results omitting zero are averaged across participants only.
Reference period is past seven days.
Sample sizes are for the children. Sample sizes for mothers are the same as for the household in Tables 1–3.
The designations (child) and (mom) indicate the respondent for questions about children.

likely translates into higher standards of cleanliness and different cooking techniques that benefit households.

Turning to characteristics of children and again focusing on averages for participants, we see conflicting but interesting results regarding whether boys or girls fetched more liters of water depending on whether the respondent was the child or the mother. Boys report more liters carried (134.9) than girls report (119.3), but mothers report that girls fetched more (152.9) than boys (129.1).[11] Regardless, the amounts in all cases are sizeable, ranging from a low of 119.3 liters (girls, child respondent) to 152.9 liters (girls, proxy respondent). As expected, owing to their greater strength, children 15–17 who participated are reported to have fetched more water in the week than did children 10–14, according to both child and proxy responses (though the difference is much greater using proxy responses).

Individual-level participation rates. Table 5 presents individual participation rates for children 10–17 and their mothers in each environmental chore separately, and for both chores combined in the form of a distribution across no chores, one type of chore, or both chores. Consistent with the household-level results, participation in water fetching during the week is much more common than participation in wood collection. For example, among individual children 10–17, participation rates for water are roughly double those for wood (76.3–78.1% vs. 36.8–39.5%). We also see greater participation among women in water fetching than in wood collection, though both participation rates are very high and greater than the corresponding rates for children 10–17. In particular, the participation rate for water fetching is close to universal among mothers (91.2%). In addition, only about one-fifth of children 10–17 did not participate in either environmental chore during the week (18.4–21.9%), and almost no mothers (1.8%) did neither chore. A substantial majority of mothers (68.4%) participated in both chores during the week, as did a sizeable percentage of children 10–17 (31.6–39.5%).

Consistent with results at the household level, individual children in Village K are much more likely than in Village M to have collected wood during the week (more than twice so), with a similar but less pronounced pattern for mothers. This results in a more than 3:1 ratio of participation rates for mothers relative to children 10–17 in Village M, and less than a 2:1 ratio in Village K. In contrast, participation in water fetching during the week is comparable across villages for both children and mothers, and there is much less difference between the rates for mothers and children.

Table 5 Percentage of individual children 10–17 and their mothers who do environmental chores, by selected characteristics

	Total	Village K	Village M	Male head	Female head	Mom, low education	Mom, more education	Boys	Girls	Age 10–14	Age 15–17
Percent collecting wood:											
Children 10–17 (child response)	39.5	53.3	24.1	40.0	37.5	51.4	33.8	29.4	47.6	47.5	20.6
Children 10–17 (mom response)	36.8	51.7	20.4	34.4	45.8	35.1	37.7	23.5	47.6	40.0	29.4
Mom	75.4	82.1	69.0	76.7	71.4	76.2	75.0	NA	NA	NA	NA
Percent fetching water:											
Children 10–17 (child response)	78.1	78.3	77.8	75.6	87.5	78.4	77.9	66.7	87.3	81.3	70.6
Children 10–17 (mom response)	76.3	81.7	70.4	77.8	70.8	73.0	77.9	66.7	84.1	80.0	67.6
Mom	91.2	92.9	89.7	93.0	85.7	85.7	94.4	NA	NA	NA	NA
Percent doing neither, one, or both chores:											
Children 10–17 (child response)											
neither	21.9	21.7	22.2	24.4	12.5	21.6	22.1	33.3	12.7	18.8	29.4
one	38.6	25.0	53.7	35.6	50.0	27.0	44.2	37.3	39.7	33.8	50.0
both	39.5	53.3	24.1	40.0	37.5	51.4	33.8	29.4	47.6	47.5	20.6
Children 10–17 (mom response)											
neither	18.4	10.0	27.8	18.9	16.7	24.3	15.6	29.4	9.5	16.3	23.5
one	50.0	46.7	53.7	50.0	50.0	43.2	53.2	51.0	49.2	47.5	55.9
both	31.6	43.3	18.5	31.1	33.3	32.4	31.2	19.6	41.3	36.3	20.6
Mom											
neither	1.8	0.0	3.5	2.3	0.0	0.0	2.8	NA	NA	NA	NA
one	29.8	25.0	34.5	25.6	42.9	38.1	25.0	NA	NA	NA	NA
both	68.4	75.0	62.1	72.1	57.1	61.9	72.2	NA	NA	NA	NA
Sample size	114	60	54	90	24	37	77	51	63	80	34

Notes: Reference period is past seven days.
Sample sizes are for the children. Sample sizes for mothers are the same as for the household in Tables 1–3.

Looking at the number of environmental chores, we see that children 10–17 are much more likely (more than twice so) to have participated in both chores in Village K than in Village M. Mothers, too, are somewhat more likely to have done both chores in Village K, and all of those mothers participated in at least one environmental chore during the week.

Differences in individual environmental chore participation rates by headship status are relatively small and there is no clear pattern to their direction. With respect to number of environmental chores, women and children 10–17 in female-headed households are somewhat less likely than in male-headed households to have participated in neither chore, while mothers in female-headed households are also less likely to have done both chores. These patterns are consistent with a smaller labor supply in general in female-headed households, and in particular the lack of a male head to specialize in other work that instead must be done by the female respondent. We also do not see sizeable differences in participation rates by mother's level of education, with the exception of in the direct responses of children who report higher participation in wood collection if the mother has less education. Such children, again according to their own responses, are also more likely to have done both chores during the week, whereas mothers with less education are less likely to have done both environmental chores.

Table 5 also makes clear that girls 10–17 are more likely than boys to engage in environmental chores. For either environmental chore, girls' participation rates are approximately 20 percentage points higher than for boys. Also notable are the very high rates of participation in fetching water for girls during the week (84.1–87.3%), approaching that of their mothers (91.2%). Girls are also much less likely (9.5–12.7%) than boys (29.4–33.3%) to have done neither chore, and are much more likely to have participated in both chores (41.3–47.6% vs. 19.6–29.4%). Similar though somewhat less pronounced patterns are evident with respect to age of the child, with younger children (10–14) being more involved in environmental chores than older children (15–17). These patterns taken together could be reflective of emerging specialization in time use, with boys and older children engaging more heavily in other activities.

Individual time allocation to environmental chores. Table 6 presents average time devoted to environmental chores during the reference week for children 10–17 and mothers who participated in these chores. Consistent with the household-level results, we see clear evidence of a substantial amount of time devoted to this work by both children and

Table 6 Average hours spent on environmental chores by individual children 10–17 and their mothers, by selected characteristics

	Total	Village K	Village M	Male Head	Female Head	Mom, low education	Mom, more education	Boys	Girls	Age 10–14	Age 15–17
Hours spent collecting wood:											
Children 10–17 (child response)	6.5	6.8	5.9	6.9	5.1	6.3	6.7	6.9	6.3	6.5	6.7
Children 10–17 (mom response)	5.7	5.8	5.5	5.9	5.2	6.1	5.6	6.3	5.5	5.7	5.9
Mom	6.2	6.4	6.0	6.5	5.2	7.8	5.3	NA	NA	NA	NA
Hours spent fetching water:											
Children 10–17 (child response)	5.3	7.6	2.8	5.7	4.1	7.7	4.2	5.1	5.5	6.0	3.4
Children 10–17 (mom response)	6.0	8.3	2.9	5.9	6.4	7.4	5.3	5.1	6.5	6.5	4.4
Mom	9.4	13.7	5.0	8.4	12.6	13.4	7.3	NA	NA	NA	NA
Hours on both wood & water:											
Children 10–17 (child response)	8.6	12.2	4.6	9.3	6.3	11.9	7.0	8.1	8.9	9.8	5.3
Children 10–17 (mom response)	8.2	10.9	4.4	8.1	8.3	10.0	7.4	6.9	8.9	8.9	6.2
Mom	13.5	18.0	8.9	13.1	14.5	17.3	11.1	NA	NA	NA	NA
Sample size	114	60	54	90	24	37	77	51	63	80	34

Notes: Table includes hours only for those with positive (non-zero) time in environmental chores.
"Hours on both wood & water" includes those who do both chores and those who do only one chore. If they only do one chore, then by definition the time for the chore they do not do equals zero.
Reference period is past seven days.
Sample sizes are for the children. Sample sizes for mothers are the same as for the household in Tables 1–3.

women. Individual children 10–17 and their mothers who participated each spent, on average, about 6 hours on wood collection during the week (5.7–6.5 hours for children; 6.2 hours for mothers). Children devoted a similar amount of time to fetching water, while mothers devoted somewhat more time to this chore (5.3–6.0 hours for children; 9.4 hours for mothers). This yields a total of about 8 hours spent on these environmental chores, on average, for children 10–17, and 13 hours for mothers. While perhaps obvious, it is nonetheless worth mentioning that all of these time values would be very close to zero in industrialized countries (albeit, typically, with payment of some form required for formal sector provision of water and energy resources).

The implications of differing environmental conditions are, again, evident in the time results by village. Individuals in Village K spent slightly more time collecting wood, on average, than in Village M, and much more time fetching water. Children 10–17 in Village K allocated about 8 hours to fetching water during the week (7.6–8.3 hours), while those in Village M allocated fewer than 3 hours (2.8–2.9 hours). Similarly, mothers spent more than twice as much time on this chore in Village K (13.7 vs. 5 hours). Water efficiency measures at the individual level further emphasize these patterns. For children 10–17 in Village K who fetched water during the reference week, the average efficiency measure is about 25 liters/ hour (23.4–26.7 liters/ hour). In contrast, this measure is nearly five times larger in Village M (119.7–139.3 liters/ hour). The difference across villages in estimated water efficiency is even slightly more pronounced for mothers (19.6 vs. 106.9 liters/ hour). These striking differences in the time required to meet households' water needs are driven at least in part, and perhaps largely, by differences across villages in water infrastructure, with Village M benefitting from the availability of water taps.

The individual environmental chore time results by headship status and mother's education are also consistent with the household-level results. There are not large differences nor clear patterns by headship status in time devoted to such chores during the reference week. With respect to education, individuals from households where the mother has fewer years of schooling generally spent more time on environmental chores, especially fetching water. Combining time devoted to both chores, children of less educated mothers spent roughly three to five more hours on these chores, on average, while their mothers spent about six more hours on this work. These patterns may reflect differences by education in knowledge related

to environmental chores and/or opportunity costs of time which result in greater efficiency in completing these chores in households with more highly educated women.

Among children 10–17 who participated in environmental chores during the reference week, differences in average time allocation by gender are not large, with boys devoting more time than girls to wood collection, and the opposite for fetching water and overall chore time. The differences are somewhat more pronounced using the proxy responses than with the children's direct reports. Thus, the primary source of gender differences in children's work in environmental chores stems from differential rates of participation, and much less so from the degree of engagement among participants.

With respect to the age of children who participated, there is no meaningful difference between the younger and older group in time devoted to wood collection, but children 10–14 spent more time on average fetching water and on environmental chores combined than did children 15–17. These time patterns by age may, in part, reflect the nature of the tasks and the associated opportunity costs of time. Wood collection tends to be done in groups and only once or twice per week, whereas water fetching can be done individually, but must be done much more frequently. Thus, the participation of older children in wood collection likely involves both greater benefit and smaller opportunity cost in comparison to fetching water.

6   CONCLUSION

Using 2011 data collected in two villages in rural Tanzania, this study adds to what we know across the developing world about gendered time use on tasks that meet the basic needs of households. These data document the substantial demand on household time to meet basic needs for water and fuel wood with, on average in the week, about six hours per child 10–17 and per mother allocated to fetching water, and another six hours per child 10–17 and nine hours per mother collecting wood. The data further provide evidence that in Tanzania as in other countries that have been studied around the world, effort spent on environmental chores is highly gendered and also age based, with women, girls, and younger children bearing the greatest part of the burden. As seems to be universally true, the more disadvantaged – in this case, those in households with female heads and less-educated mothers – spend more of their time on necessities of life. These realities

have important implications for household and individual well-being, as the time burdens of such essential chores, along with the sometimes arduous nature of the work, take away time and energy from other activities. These burdens could potentially be lessened and inequalities mitigated with investment in infrastructure, as demonstrated by comparing the two villages in this study. The village with drilled wells had dramatically higher levels of efficiency in meeting household water needs, and less time spent on these chores overall.

The implications of the patterns documented here are worthy of greater attention. To explore these issues more fully, it would be highly valuable to collect data with both greater sample size and scope. At minimum, the data should include for all household members the type of detailed information on environmental chores presented here for children 10–17 and their mothers, as well as detailed information on alternative uses of time. Building on the results of this case study, we encourage further research on the intersection of environmental chores, time use, and gender.

Notes

1. The study was approved by the University of Minnesota IRB and the Tanzania Commission for Science and Technology (COSTECH), the organization responsible for issuing permits for in-country data collection and research.
2. The WVP data are available via the Minnesota Population Center.
3. The end of dry season, just before the rains begin, is the driest time of year.
4. Estimates of the total amount of wood collected by the household during the week are derived from questions to the mother about how many bundles of wood in total were collected, standardized upon a reference headload of wood depicted in a photo.
5. The sample of women is clustered at 0 and 4 years of schooling, with few respondents reporting education levels between 0 and 4 or greater than 4 years. Accordingly, we define a dichotomous measure of mother's schooling that distinguishes between fewer than 4 years (low education) vs. 4 or more years (more education).
6. Estimates of the liters of water fetched by each respondent in the week are derived from questions about the number of days fetched, the number of trips per day, and the amount fetched per trip. The amount fetched per trip was estimated by having respondents show the interviewer the water vessel(s) they used; the interviewer then assigned liter values based on visual approximation, a method in which they had been trained.

7. The resulting distributions displayed a very small number of extremely high outliers. Accordingly, guided by the distributions and our general knowledge of these activities, for children 10–17 we top-coded water fetching minutes for the week to a maximum of 1,000 (16.7 hours), and wood gathering minutes to a maximum of 600 (10 hours). We used somewhat higher top-coding thresholds for women (1,680 minutes or 28 hours for water; 1,200 minutes or 20 hours for wood) because of a few values that exceeded the child maxima, but were considered credible because the demographic compositions of the relevant households were consistent with there being a very heavy reliance on the woman of observation for meeting these needs.

8. Seven households include no children 0–9 and eight include no other adults 18+. Only one household includes no individuals in either group.

9. Our data do not include information on the amount of time devoted to water purification.

10. One household reported collecting 48 cartloads during the year. This household head identified its primary occupation as builder, whereas most identify agriculture as the primary occupation (though may also engage to a lesser extent in some type of wood "enterprise" such as selling/bartering wood or making bricks or charcoal). Our data do not distinguish between wood collected for direct consumption and wood used to generate income or act as currency.

11. In Reynolds' (1991) careful time-use study in Zimbabwe, mothers kept strict control over girls' time while allowing boys more flexibility to evade chores and play. If that is true in this case, then we should depend more on the proxy responses than on those of the children.

References

Awumbila, Mariama, and Janet Henshall Momsen (1995). Gender and the Environment: Women's Time Use as a Measure of Environmental Change. *Global Environmental Change*, 5(4), 337–346.

Biran, Adam, Joanne Abbot, and Ruth Mace (2004). Families and Firewood: A Comparative Analysis of the Costs and Benefits of Children in Firewood Collection and Use in Two Rural Communities in Sub-Saharan Africa. *Human Ecology*, 32(1), 1–25.

Boone, Christopher, Peter Glick, and David E. Sahn (2011). Household Water Supply Choice and Time Allocated to Water Collection: Evidence from Madagascar. *Journal of Development Studies*, 47(12), 1826–1850.

Cooke, Priscilla A. (1998). Intrahousehold Labor Allocation Responses to Environmental Good Scarcity: A Case Study from the Hills of Nepal. *Economic Development and Cultural Change*, 46(4), 807–830.

Dammert, Ana C., and Jose Galdo (2013). Child Labor Variation by Type of Respondent: Evidence from a Large-scale Study. *World Development*, 51, 207–220.

Edmonds, Eric V. (2007). Child Labor. *Handbook of Development Economics*, 4, 3607–3709.

Falkenmark, Malin, and Carl Widstrand (1992). Population and Water Resources: A Delicate Balance. *Population Bulletin*, 47(3), 1–36.

Folbre, Nancy (2006). Measuring Care: Gender, Empowerment and the Care Economy. *Journal of Human Development*, 7(2), 183–199.

Gebru, Bahre, and Sosina Bezu (2014). Environmental Resources Collection: Implications for Children's Schooling in Tigray, Northern Ethiopia. *Environment and Development Economics*, 19(2), 182–200.

Koolwal, Gayatri, and Dominique Van De Walle (2013). Access to Water, Women's Work, and Child Outcomes. *Economic Development and Cultural Change*, 61(2), 369–405.

Levison, Deborah, Deborah S. DeGraff, and Esther W. Dungumaro (2017). Implications of Environmental Chores for Schooling: Children's Time Fetching Water and Firewood in Tanzania. *European Journal of Development Research*, forthcoming.

Lihwa, Flavian, Christopher Johnstone, Matthew Thomas, and Brooke Krause (2015). How Near is Your School? Informing NGO Programming Through Children's Perceptions of Distance. Manuscript.

Nankhuni, Flora J., and Jill L. Findeis (2004). Natural Resource-collection Work and Children's Schooling in Malawi. *Agricultural Economics*, 31(2–3), 123–134.

Ndiritu, Simon Wagura, and Wilfred Nyangena (2011). Environmental Goods Collection and Children's Schooling: Evidence from Kenya. *Regional Environmental Change*, 11(3), 531–542.

Nelson, Julie (2017). The Challenge of Indirect Care: A Comment on Folbre's "Measuring Care". In Chapter 10 of this volume.

Reynolds, Pamela (1991). *Dance Civet Cat: Child Labour in the Zambezi Valley*. Athens: Ohio University Press.

Rogers, Martha (2014). Forest Access and Human Capital Accumulation. In Environment and Development: Essays on the Link between Household Welfare and the Environment in Developing Countries, Ph.D. Dissertation, University of Minnesota.

United Republic of Tanzania (2009). *Poverty and Human Development Report*. Dar-es-Salaam: MKUKUTA Secretariat, Poverty Eradication Division, Ministry of Planning, Economy and Empowerment.

United Republic of Tanzania (2012). *Population and Housing Census*. Dar-es-Salaam: Tanzania National Bureau of Statistics.

Deborah S. DeGraff is Professor of Economics at Bowdoin College. She holds a Ph.D. in Economics from the University of Michigan. Her research focuses on household decisions and outcomes, primarily in developing countries, regarding children's work and schooling, women's labor force participation and time use, and the economic well-being of older persons.

Deborah Levison researches the intersections between children's labor force work, chores, schooling, and child/youth well-being, mainly in low-income countries. A professor at the Humphrey School of Public Affairs, University of Minnesota, she is an economist and demographer who trained at the University of Michigan and Yale University.

Esther W. Dungumaro is Associate Professor of Demography at the Institute of Development Studies, University of Dar es Salaam, Tanzania. As a demographer, she researches on environmental issues in relation to population; fertility and reproductive health; and families and households. She has conducted research in Tanzania and other parts of Africa.

Gender Divisions in the Real Time of the Elderly in South Africa

Dorrit Posel and Erofili Grapsa

1 INTRODUCTION

There have been a number of significant changes in the socio-economic landscape of South Africa since the transition to democracy in 1993. Perhaps one of the most noteworthy, in the economic and social policy arena, has been the dramatic expansion of the social grant system.[1] Of these social grants, the social pension (or old age grant) is one of the largest. In 1993, when the post-apartheid government extended the social pension to all means-eligible elderly South Africans, the value of the grant

D. Posel (✉)
School of Economic and Business Science, University of the Witwatersrand, Johannesburg, South Africa
e-mail: Dorrit.Posel@wits.ac.za

E. Grapsa
Institute for Social and Economic Research, Rhodes University, Grahamstown, South Africa
e-mail: erwfili@gmail.com

was approximately twice that of median per capita income in African households (Case and Deaton 1998).

Most of the elderly in South Africa do not live alone and many live in extended or multi-generational households (Case and Deaton 1998; Grapsa and Posel 2016). With persistently high unemployment rates and high rates of adult mortality related to HIV/AIDS, the receipt of the social pension has meant that the elderly are often the primary providers of support in their household, rather than economic dependents. A sizeable body of literature on the elderly in post-apartheid South Africa has therefore focused on the reach of the social pension and how living with a pension recipient affects the outcomes and behavior of co-resident children and adults (cf. Duflo 2003; Hamoudi and Thomas 2005; Edmonds 2006). Studies highlight the role particularly of grandmothers as the financial and physical caregivers of grandchildren and of adult children who are ill.

In this chapter, we analyze time use data, collected in a nationally representative time-use survey, to explore more comprehensively the roles played by elderly women in South African households, and to compare their time allocations with those of elderly men. We investigate whether a traditional gender division of labor, identified in time use studies of working-age adults in South Africa (cf. Charmes 2006; Guryan et al. 2008; Wittenberg 2009), persists also among the elderly, and whether there is evidence in the time use data of elderly women as the providers of physical care in their households.

We first describe gender differences using a mean added (or total) time approach, the approach most commonly adopted in time use studies. However, our main methodological objective is to augment this approach by applying sequence and cluster analysis methods that allow us to analyze the real time of the elderly. We use these methods to create clusters of similar time use behavior among elderly women and among elderly men, based not only on the average amount of total time that they allocate to different activities but also on the combination of activities that they undertake during a 24-hour day, and on the timing and ordering of these activities. We then compare these clusters, both between and among elderly women and men, and we investigate whether membership in a particular cluster of time use behavior varies according to the characteristics of the elderly, including the receipt of a social pension and the composition of the elderly's household.

In the next section, we review the South African context and in Section 3, we discuss the data and the methods which we apply in our analysis, including the sequence and cluster methods. In Sections 4–7, we present our empirical results and in Section 8, we conclude with a summary and discussion of our main findings.

2   SOUTH AFRICAN CONTEXT

Households in South Africa tend to be far more complex than households in developed countries, and many South Africans live in multi-generational households with permeable boundaries (cf. Spiegel 1986; Posel et al. 2006; Amoateng et al. 2007). This complexity and fluidity in household structure is explained partly by the African tradition of family formation, which is not based on the conjugal unit, but on a consanguineal and specifically patrilineal system of descent (Russell 2003). South Africa also has a long tradition of circular labor migration, enforced during the apartheid period, as a means of controlling the permanent settlement of Africans[2] in (White) urban areas. Although restrictions on African urbanization have been lifted in the post-apartheid period, African men, and increasingly African women, continue to migrate to urban areas to find employment, leaving their children behind in the care of other family members (Posel 2010; Reed 2013; Camlin et al. 2014). Employment insecurity and high rates of unemployment help to explain this persistence of individual, rather than family, migration (Posel and Marx 2013).

Living arrangements in households also respond to changes in access to resources, and kin relations have been very important in helping to absorb the negative consequences of high (often HIV related) mortality rates and stubbornly high unemployment rates (Edmonds et al. 2005; Hosegood et al. 2007; Klasen and Woolard 2009). In the absence of state support expressly for the unemployed, for example, there is evidence that the unemployed attach themselves to households in which income, from employment or social grants, is received (Klasen and Woolard 2009).

One of the largest social grants, which was extended to all eligible South Africans in the post-apartheid period, is the social pension, a means-tested, and non-contributory grant paid out of general revenue. In the post-apartheid period, the age eligibility for women to receive the social pension has always been 60 years, but the grant was initially paid to men at 65 years. This age threshold has been progressively lowered during the 2000s until 2010, when the age thresholds for women and men were the same. The

majority of the elderly in South Africa receive the social pension, most of whom are African (Budlender and Lund 2011), and as we show later, pension receipt remains higher among elderly women than men.

In developed countries, receipt of a pension has been found to increase the likelihood that the elderly live alone or independently of other family members (cf. Costa 1997, 1999; Engelhardt et al. 2002). In South Africa, however, social pension receipt has been associated with an increase in the number of young women and children in the pensioner's household, and a decrease in the number of older prime-age women (aged 30–39) (Edmonds et al. 2005; Ranchhod and Wittenberg 2016). These changes in household formation are explained partly by the role of the social pension in facilitating labor migration. In particular, studies have found that working-age African women are significantly more likely to migrate to find employment if they originate from households in which elderly women are pension recipients, perhaps because this grant income relieves income constraints to migration and enables grandmothers to support children who are "left behind" (Posel et al. 2006; Ardington et al. 2009).

A number of econometric studies using household survey data have found a positive relationship between receipt of the social pension and child outcomes – children who live with pensioners are better nourished, healthier, and more likely to attend school (cf. Duflo 2003; Eric 2006; Case and Menedez 2007). More qualitative research points also to the role of grandmothers as the physical caregivers of children whose mothers are absent from the household for reasons of migration, or because of mortality (cf. Schatz and Ogunmefun 2007; Bohman et al. 2009; Mathis 2011).

Time use data provide the opportunity to explore more comprehensively the roles played by elderly women in South African households, and to compare their time use behavior with that of elderly men, about whom little has been written. South Africa is among only a handful of countries in Africa that have introduced dedicated time-use surveys. To date, two of these surveys have been conducted, in 2000 and 2010, both of which are nationally representative. Studies which analyze these data describe large differences in the average time allocations of women and men, consistent with a traditional gender division of labor. On average, women spend over 2 hours more per day on domestic and care activities, while men spend over an hour more on production work (Budlender et al. 2001; Charmes 2006; Statistics South Africa 2013).

Until now, research using the two national time diary surveys has not focused on the time use behavior of the elderly specifically. However, in a

recent paper, Ranchhod and Wittenberg (2016) use both the 2000 and 2010 data to explore how time allocations among Africans change with the receipt of the social pension. The focus of their study is on time use among prime-aged (25–50-year-old) adults who co-reside with pensioners, but they also consider whether time allocations differ after reaching pension age. They find that, on average, when prime-aged adults live with the elderly, they spend significantly less time in paid employment, but women spend more time on household maintenance and men on mass media use. At pension age, mean time allocated to paid work declines, although there is some increase in informal production among men, while time spent on personal care also increases. However, their research finds no evidence of a change at pension age, in the time allocated to child caregiving, even among women.

Studies which analyze time use data typically calculate the average amount of time that individuals spend on a particular activity during the day, and they then explore the correlates of these mean time allocations using descriptive or econometric methods. While we engage in this type of adding up exercise, we also analyze the real-time trajectories of the elderly – not only how much time they spend on a particular activity, but also when this activity occurs and what series of activities are undertaken over the course of the day. This latter strategy allows us to explore gender differences in time use behavior across more dimensions than time duration, including the structure and rhythm of daily activities. [3]

3   DATA AND METHODS

We analyze data collected in the 2010 South African Time Use Survey (TUS), a nationally representative survey (Statistics South Africa 2010), which sampled 39,018 individuals of whom 5,078 (13%) were older than 59 years (our study's age cut-off for the elderly).[4] We use the sampling weights provided to adjust for the probability of inclusion in the sample and for survey non-response.

The time diary was completed for the 24 hours before the survey (from 4 a.m. of the morning before the interview to 4 a.m. of the interview day). Activities were recorded in half hour slots, where a maximum of three activities could be reported per slot as either sequential or simultaneous activities. These activities were then post-coded by Statistics South Africa (StatsSA), using a classification system adapted from the System of National Accounts (SNA) for a developing country context (Budlender et al. 2001).

Ten types of activities were identified across three broad categories: SNA production, non-SNA production, and non-productive activities. We retain this classification system but identify only eight distinct activity types, as we grouped the three SNA production activities (formal employment, informal employment and home-based production, and primary production) into a single category of "production work". We keep the three distinct activity types for non-SNA production (household maintenance, community service, and care of persons) and the four non-productive activities (personal care, learning, mass media use, and social or cultural activities).

There are no missing data for the timeslots of the elderly, yielding a total of 243,744 half hour periods. Of these, only 21,188 (or 8.7%) include multiple activities, the majority of which (66.7%) are sequential. The inclusion of these multiple activities makes little difference to the mean time allocations of the elderly across activity types, or to the gender differences in these allocations (Grapsa and Posel 2016), and given the computational requirements of our empirical methods, we focus the analysis on the first activity reported per time slot.

In Section 4, we first describe the characteristics of elderly women and men in South Africa, and then present their mean total time allocations and participation rates by activity type and gender. The mean total time is calculated by averaging the total amount of time that elderly individuals spend on a particular activity, while the participation rate identifies the proportion of the elderly who performed an activity at any point over the 24-hour day.

Although these descriptive measures are useful, they do not exploit all the information captured in the time diaries, about when activities are undertaken and the ways in which activities are ordered during the day. Because time allocations are averaged for each activity type, we also cannot easily compare the elderly according to the combination of activities which characterize their day.

In Section 5, we probe gender divisions in time use behavior by analyzing the real time of the elderly. We consider the series of activities which each elderly person undertakes during the day as a sequence of states with 48 points (representing the total number of timeslots over 24 hours). For example, a possible sequence for an elderly individual could be personal care (6) – household maintenance (15) – personal care (2) – household maintenance (4) – mass media activities (5) – personal care (18), with the number in brackets capturing the number of half hour slots over which the activity is reported. We then analyze the 5,078 sequences for the elderly using optimal matching (OM) and cluster analysis.

OM methods were developed in the sciences, but they have since been applied to the social sciences to explore school-to-work transitions and life trajectories (cf. Abbott and Forrest 1986; Halpin and Chan 1998; Abbot and Tsay 2000; McVicar and Anyadike-Danes 2002), and in a handful of studies, to analyze time diaries (Lesnard 2004, 2008, 2010; Vrotsou et al. 2014).

OM provides a measure of the similarity (or distance) between sequences, by calculating the minimum number of operations that would be needed to transform one sequence into another. These operations include the replacement or insertion/deletion of sequence states (see also Grapsa and Posel 2016).

The OM distance measures are used in our cluster analysis to identify similar pairs of activity sequences among women and separately among men. We apply agglomerative hierarchical clustering to construct a hierarchy of clusters (Kaufman and Rousseeuw 2008), where the clustering algorithm begins by assigning each sequence its own cluster. It then finds the pair of sequences that are the most similar (based on the OM distance) and merges these into one cluster. In order to obtain the updated distance between the newly merged cluster and the remaining observations (or clusters), Ward's method (Ward 1963) is employed at subsequent steps. Each cluster is represented by its mean or centroid, and the distance between clusters is measured by the change in the error sum of squares[5] (SSE) that occurs after merging two clusters. Ward's method seeks to minimize the sum of squared distances of points from their cluster centers (see also Grapsa and Posel 2016).

We conduct this cluster analysis separately for the samples of elderly women and men, i.e., we compare activity sequences among elderly women and generate clusters that distinguish the time use behavior of elderly women, and then we repeat the process for elderly men. For each sample, our analysis produced five distinct clusters, which are compared and discussed in Section 5.

In Sections 6 and 7, we investigate the characteristics of the elderly by cluster and gender. We first explore the correlates of cluster membership using multinomial regressions,[6] which are estimated separately for elderly women and elderly men (Section 6). As possible covariates, we consider a range of individual characteristics (age, race, marital status, education, and the receipt of a social or a private pension) and household characteristics (whether a domestic helper is employed, and the composition, location, and wealth of the household). Household wealth is measured using quintiles of

an asset index, constructed using principal components analysis of a range of assets (such as household ownership of a car, television, computer, washing machine, and dishwasher) and the type of dwelling (formal or informal housing). We also included binary variables which capture whether the time diary was completed during the week or over the weekend, and whether respondents considered the surveyed 24-hour period a typical day.

In the final empirical section, we describe subjective evaluations of time use during the day (was there too much to do, not enough to do or a comfortable amount to do), and whether these evaluations vary across the clusters and between elderly women and men (Section 7).

4   DESCRIPTIVE CHARACTERISTICS AND MEAN TIME ALLOCATIONS OF THE ELDERLY

As in most countries, life expectancy in South Africa is higher among women than men (Bor et al. 2015). As Table 1 shows therefore, the majority of those 60 years or older are women (almost 58%) and a larger share of elderly women than men is older than 74 years. Elderly women are far less likely than elderly men to be currently (rather than previously) married: only 32% of elderly women in South Africa were currently married in 2010, compared with 72% of elderly men, which is the result of both women's longevity and the fact that women tend to marry men older than themselves.

The majority of the elderly in South Africa receives a social pension,[7] and this receipt is significantly higher among elderly women, 70% of whom reported receipt in 2010, compared with 56% of elderly men. This difference may partly reflect prior gender differences in the age threshold for social pension receipt, and a lag in elderly men applying for the pension at age 60. In addition, the social pension is means-tested, and with lower levels of education and lower employment rates among women particularly in formal employment, they are less likely than elderly men to receive a private pension or to live in richer households. However, elderly women, on average, also live in larger households that include significantly more male adults of working age and children.

The mean daily time allocations of the elderly are described in Table 2, which also reports the activity participation rate (the proportion of the elderly who engaged in a particular activity type during the day). On average, both elderly women and men spend almost 15 hours a day on personal care (which includes eating, personal hygiene, health care, and

Table 1 Characteristics of elderly women and men, South Africa (n = 5078)

	Female	Male
	% (SE)	% (SE)
60–68 years	54.70 (1.28)	57.82 (1.82)
69–74 years	22.45 (1.04)	23.58 (1.73)
>74 years	22.85 (1.10)	18.60 (1.32)
African	63.76 (1.34)	61.40 (1.88)
Colored	8.98 (0.63)	8.71 (0.80)
Indian/Asian	3.77 (0.52)	4.13 (0.66)
White	23.49 (1.34)	25.75 (1.92)
Currently married	32.05 (1.24)**	71.71 (1.58)
Previously married	59.90 (1.27)**	21.85 (1.34)
Never married	8.05 (0.58)	6.44 (1.06)
Less than grade 12	81.63 (1.22)	76.11 (1.60)
Grade 12	9.26 (0.80)**	13.24 (1.15)
Tertiary education	9.11 (1.05)	10.65 (1.32)
Social pension	70.18 (1.32)**	56.01 (1.87)
Private pension	11.27 (1.13)	15.16 (1.82)
Average number of female adults (16–59 years)	0.87 (0.03)	0.96 (0.04)
Average number of male adults (16–59 years)	0.86 (0.03)**	0.76 (0.04)
Average number of preschool children (0–5 years)	0.45 (0.02)**	0.33 (0.02)
Average number of school-age children (6–15 years)	0.81 (0.03)**	0.63 (0.04)
Employs domestic help	10.19 (0.85)	12.04 (1.05)
Urban	61.04 (1.17)	62.87 (1.65)
Rural	38.96 (1.17)	37.13 (1.65)
Asset quintile (1)	18.10 (0.88)	16.12 (1.18)
Asset quintile (2)	16.91 (0.83)	15.23 (1.08)
Asset quintile (3)	18.43 (0.89)	16.21 (1.27)
Asset quintile (4)	20.84 (1.01)	22.32 (1.39)
Asset quintile (5)	25.71 (1.34)	30.12 (1.90)
Typical day	11.23 (0.82)	9.79 (1.50)
Total population by gender	57.54 (1.08)	42.46 (1.08)

Source: TUS 2010
The data are weighted. The elderly are aged 60 years and older. There are 12 missing observations for education. Asterisks indicate that the percentages or means by gender are significantly different at the 5% level

sleeping). However, there are clear differences by gender in the average time allocations across the other activity types. The modal activity type among elderly women, aside from personal care, is household maintenance (which includes housework and household shopping), which is performed by 85% of elderly women and accounts for more than 3 hours

Table 2 Mean total time by activity among the elderly in South Africa

	Mean total time		Activity participation rate	
	Women	Men	Women	Men
Work	61.7**	130.6	0.29**	0.39
	(3.50)	(8.36)	(0.01)	(0.02)
Household maintenance	203.8**	111.5	0.85**	0.64
	(4.33)	(4.37)	(0.01)	(0.02)
Care of persons	12.8	9.7	0.12**	0.04
	(1.33)	(6.32)	(0.01)	(0.02)
Community service	5.8	5.5	0.04	0.04
	(0.96)	(0.97)	(0.00)	(0.00)
Personal care	886.0	884.9	1.00	1.00
	(5.41)	(7.69)		
Mass media	132.8**	156.6	0.70	0.72
	(3.48)	(5.51)	(0.01)	(0.02)
Learning	2.8	2.2	0.04	0.05
	(0.88)	(0.42)	(0.01)	(0.01)
Social/cultural	134.5	139.0	0.64	0.66
	(3.96)	(6.22)	(0.01)	(0.02)

Source: TUS 2010
The data are weighted using population weights. Standard errors are in parentheses. The sample is restricted to all men and women aged 60 years and older. Mean added time is calculated by allocating the full 30-minute timeslot to the first activity reported. Participation rates are calculated as the proportion of the elderly who reported spending any time on the particular activity. Asterisks indicate that the means or proportions by gender are significantly different at the 5% level

of their average daily time use. In contrast, only 64% of elderly men reported spending any time on household maintenance, with an average time allocation of 112 minutes.

A much larger share of elderly women also spends time on the care of others (12% compared with 4% of men), although the mean time allocations are very low, and the mean time difference by gender is not significant. Elderly men are significantly more likely than elderly women to have engaged in production work during the day (39% compared with 29% of women) and on average, they spend over an hour more on this work than elderly women, and approximately 30 minutes more on mass media activities (such as watching television, listening to the radio, reading, or using the internet).

A descriptive analysis of the mean time allocations and activity participation rates of elderly women and men therefore identifies a gender division of

labor, particularly in household work and production work. Further differences in the time allocations of elderly women and men are revealed in the cluster analysis, which allows us to compare the elderly not only according to whether they performed a particular activity and the average amount of time allocated to that activity, but according to the combination or sequence of activities undertaken during the day and the timing of these activities.

5   CLUSTERS OF REAL-TIME TRAJECTORIES AMONG ELDERLY WOMEN AND MEN

The cluster analysis, conducted separately for the samples of elderly women and elderly men, produced five clusters of activity distributions for each sample. These clusters are illustrated in Fig. 1 for elderly women,
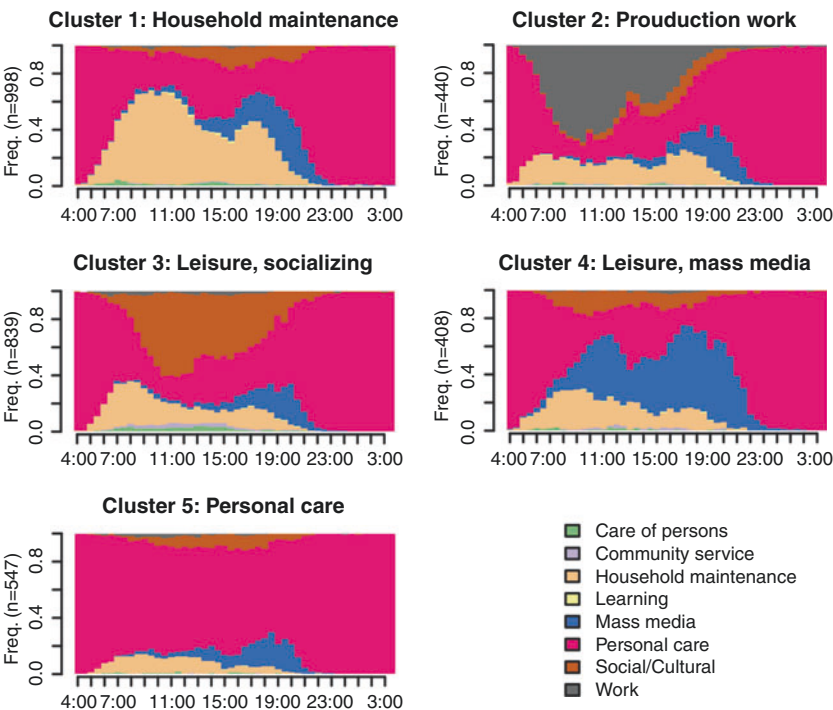
Fig. 1   Activity distribution graphs by cluster: Elderly women
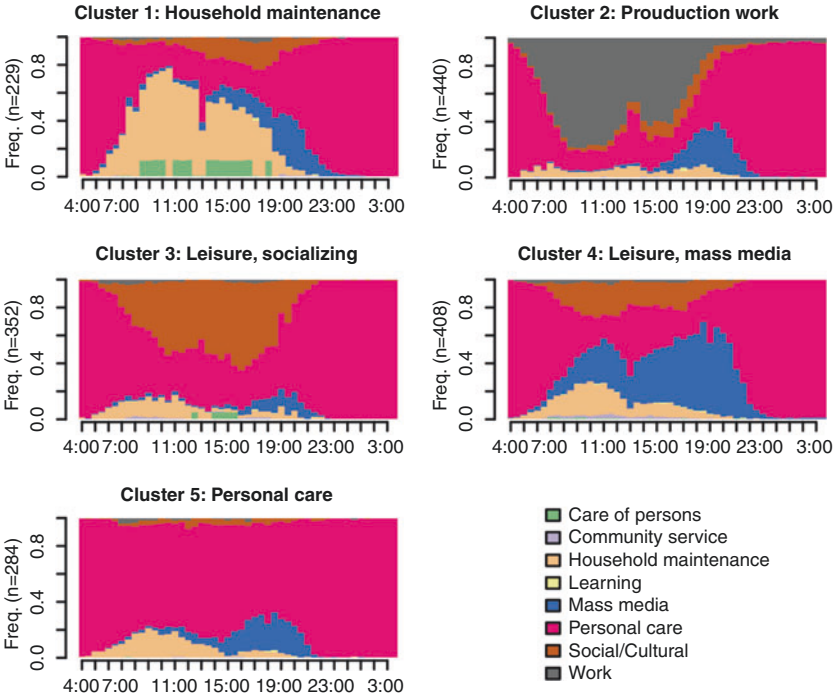
Fig. 2 Activity distribution graphs by cluster: Elderly men

and in Fig. 2 for elderly men. The figures present the activity distribution graphs for each cluster, constructed by calculating the proportion of elderly women or men who perform a specific activity at the start of each 30-minute time period. In Tables 3 and 4, we report the mean total time spent on each activity type, by elderly women and men in each of the five clusters.

The clusters are broadly similar by gender, in terms of the dominant activities undertaken during the day, and we therefore use the same cluster names for women and men. But as we discuss below, the size of some of the clusters differs considerably between elderly women and men, and there are other differences in the timing and extent of activities undertaken.

There are also certain features that are common across all, or many, of the clusters. In particular, mass media activities peak in the evening

Table 3   Mean total minutes in each activity type by cluster, elderly women

	Cluster 1 Household maintenance	Cluster 2 Production work	Cluster 3 Leisure, socializing	Cluster 4 Leisure, mass media	Cluster 5 Personal care
Care of persons	16.3	7.4	19.5	7.9	4.9
	(2.47)	(1.61)	(3.85)	(2.36)	(1.14)
Community service	2.0	1.8	15.0	6.8	0.4
	(0.48)	(0.84)	(3.19)	(2.89)	(0.22)
Household maintenance	382.6	152.3	144.5	151.2	72.8
	(5.60)	(7.23)	(5.26)	(9.19)	(5.19)
Learning	5.8	3.4	1.0	2.1	0.4
	(2.92)	(1.18)	(0.26)	(0.51)	(0.13)
Mass media	129.5	86.2	75.1	359.6	80.5
	(5.33)	(7.06)	(3.47)	(8.18)	(6.65)
Personal care	822.7	779.4	848.6	814.6	1212.7
	(5.92)	(9.95)	(6.90)	(12.76)	(7.82)
Social/cultural	72.1	59.7	317.5	88.9	55.4
	(5.05)	(5.04)	(7.56)	(6.31)	(5.12)
Work	9.1	349.8	18.8	9.0	13.0
	(0.95)	(10.40)	(2.19)	(2.43)	(2.51)
Percentage of elderly women	28.9	14.5	26.3	13.9	16.4
	(0.17)	(0.13)	(0.16)	(0.13)	(0.14)

Source: TUS 2010
The percentages are weighted using population weights. Standard errors are in parentheses. The sample is restricted to all women aged 60 years and older

between 7 p.m. and 8 p.m., for both elderly women and men in all the clusters, coinciding with the airing of popular television shows in South Africa. Moreover, in many of the clusters, but particularly in the clusters of elderly men, personal care activities during the day peak at around 1 p.m., or lunchtime.

Cluster 1 is the largest cluster among women, accounting for 29% of all elderly women, but it is the smallest cluster among men, comprising only 13% of all elderly men. In this cluster, household work dominates waking hours for both women and men, although elderly women in this cluster spend more time on average on household maintenance than the elderly men in this cluster (a daily average of 386 minutes compared with 346 minutes for men). Elderly women also start the day with household work earlier than men – by 7 a.m. approximately half of the women in this

Table 4   Mean minutes in each activity type by cluster, elderly men

	Cluster 1 Household maintenance	Cluster 2 Production work	Cluster 3 Leisure, socializing	Cluster 4 Leisure, mass media	Cluster 5 Personal care
Care of persons	54.5	0.3	8.2	4.2	0.4
	(44.61)	(0.16)	(6.83)	(1.35)	(0.27)
Community service	1.7	2.1	5.4	12.2	1.5
	(1.19)	(0.74)	(1.71)	(2.99)	(0.70)
Household maintenance	346.3	50.2	69.8	103.9	83.1
	(25.01)	(5.37)	(8.91)	(6.08)	(8.75)
Learning	2.5	2.0	1.0	3.3	1.3
	(1.03)	(0.82)	(0.46)	(1.08)	(0.61)
Mass media	117.9	88.2	44.5	329.3	100.5
	(15.01)	(6.00)	(4.49)	(6.82)	(9.68)
Personal care	815.1	752.0	929.5	830.2	1214.0
	(12.36)	(11.44)	(14.32)	(8.52)	(14.46)
Social/cultural	87.7	65.1	365.7	139.3	29.5
	(12.20)	(6.10)	(16.56)	(7.31)	(3.26)
Work	14.3	480.2	15.9	17.6	9.8
	(3.33)	(13.83)	(3.00)	(4.15)	(2.15)
Percentage of elderly men	12.5	24.8	18.2	29.4	15.1
	(0.22)	(0.22)	(0.21)	(0.17)	(0.22)

Source: TUS 2010
The percentages are weighted using population weights. Standard errors are in parentheses. The sample is restricted to all men aged 60 years and older

cluster are engaged in household maintenance, compared with less than 40% of men. Moreover, whereas there is a clear lunch break for elderly men (with a spike in personal care activities), this break is less evident among elderly women, whose time is likely spent preparing and clearing up from lunch. Rather, a break in household maintenance among women appears at around 3 p.m.

In cluster 2, production work is the dominant non-personal care activity for both elderly women and men, with a lunch break around 1 p.m. Far more elderly men than women are in this cluster type (25% of men compared with 15% of women) and the average time spent working is also considerably higher for men (480 minutes) than women (350 minutes). The elderly are more likely to engage in production work in the morning than in the afternoon, but this difference is particularly

pronounced among elderly women. Elderly women in this cluster spend significantly more time on household maintenance (152 minutes) than elderly men (50 minutes).

The main non-personal care activities undertaken by the elderly in cluster 3 are social or cultural (such as socializing, sports, and participating in religious or cultural activities), accounting for 366 minutes of average time spent by elderly women and 318 minutes by elderly men. In addition to differences in total time spent in these activities, there are also differences by gender in the timing of these activities. Elderly women are more likely to spend time on social or cultural activities in the mid-morning, with a peak between 11 a.m. and 1 p.m., while the time spent by elderly men peaks in the mid-afternoon, around 3:30 p.m. Elderly women in this cluster also spend more significantly time than elderly men on household maintenance (145 minutes on average compared with 70 minutes among men), and particularly in the morning (between 7 and 8:30am). In contrast, elderly men allocate more time to personal care (930 minutes on average, compared with 850 minutes among elderly women). Far more elderly women than men are in this cluster type (26% of women compared with 18% of men).

Cluster 4 is the largest cluster among elderly men (accounting for 29% of all elderly men) but the smallest cluster among elderly women (accounting for only 14% of elderly women). In this cluster, the dominant non-personal care activity undertaken during the day involves the use of mass media. Mass media activities peak in the evening, but in contrast to the other clusters, there is also another (although smaller) peak in the mid-morning. Both elderly women and men spend more than 5 hours on average per day on mass media activities, although women spend 30 minutes more on average than men. Apart from cluster 1, this is the cluster in which elderly men devote the most amount time to household maintenance (104 minutes on average per day). However, elderly women still spend more time on average than elderly men on household work (151 minutes), while elderly men spend more time than women on social or cultural activities (139 minutes on average, compared with 89 minutes among elderly women).

In cluster 5, which accounts for 16% of elderly women and 15% of elderly men, the dominant activity throughout the day involves personal care. Approximately 20 hours on average are allocated to personal care activities by both elderly women and men in this cluster. The most common non-personal care activity involves the use of mass media,

which accounts for 81 and 101 minutes of average time use among elderly women and men, respectively.

6   THE CORRELATES OF CLUSTER MEMBERSHIP

The five clusters were created by considering only daily time use behavior. To identify which individual and household-level characteristics of the elderly are associated with cluster membership, we next estimated multinomial regressions among elderly women (with the marginal effects reported in Table 5) and among elderly men (Table 6).

Table 5 The likelihood of cluster membership among elderly South African women, marginal effects from multinomial logit regression

	Cluster 1 Household maintenance	Cluster 2 Production work	Cluster 3 Leisure, socializing	Cluster 4 Leisure, mass media	Cluster 5 Personal care
69–74 years	−0.094***	−0.053**	−0.021	0.087***	0.080***
	(0.025)	(0.019)	(0.026)	(0.021)	(0.022)
>74 years	−0.118***	−0.075***	−0.037	0.082***	0.148***
	(0.028)	(0.020)	(0.027)	(0.024)	(0.024)
Colored	−0.013	−0.030	0.023	0.065*	-0.045
	(0.038)	(0.031)	(0.040)	(0.027)	(0.027)
Indian/Asian	−0.049	−0.039	0.092	0.063	−0.066
	(0.052)	(0.048)	(0.071)	(0.045)	(0.038)
White	−0.031	0.042	−0.063	0.027	0.025
	(0.044)	(0.048)	(0.044)	(0.032)	(0.051)
Previously married	−0.035	0.018	0.008	−0.004	0.012
	(0.025)	(0.019)	(0.026)	(0.019)	(0.022)
Never married	−0.012	0.003	−0.014	0.045	−0.023
	(0.037)	(0.028)	(0.036)	(0.035)	(0.031)
Grade 12 education	−0.109*	0.007	0.021	0.109**	−0.028
	(0.043)	(0.039)	(0.054)	(0.039)	(0.052)
Tertiary education	−0.059	0.033	0.014	0.056	−0.044
	(0.048)	(0.045)	(0.060)	(0.042)	(0.047)
Social pension	0.110***	−0.238***	0.029	0.004	0.095***
	(0.029)	(0.029)	(0.029)	(0.024)	(0.025)
Private pension	0.140*	−0.140***	0.028	−0.015	−0.013
	(0.062)	(0.016)	(0.060)	(0.029)	(0.049)

Table 5   (continued)

	Cluster 1 Household maintenance	Cluster 2 Production work	Cluster 3 Leisure, socializing	Cluster 4 Leisure, mass media	Cluster 5 Personal care
Number: female adults (16–59)	−0.102***	0.002	0.032**	0.037***	0.032***
	(0.015)	(0.009)	(0.012)	(0.010)	(0.009)
Number: male adults (16–59)	−0.019	0.016	0.001	−0.003	0.006
	(0.013)	(0.010)	(0.012)	(0.009)	(0.009)
Number: children 0–5 years	0.006	0.020*	−0.016	−0.006	−0.004
	(0.018)	(0.010)	(0.016)	(0.013)	(0.011)
Number: children 6–15 years	−0.003	−0.002	0.021*	−0.007	−0.009
	(0.011)	(0.007)	(0.010)	(0.009)	(0.008)
Employs domestic help	−0.140***	−0.048	0.082	0.023	0.083
	(0.040)	(0.028)	(0.053)	(0.029)	(0.044)
Urban	0.082***	−0.133***	−0.060*	0.103***	0.008
	(0.023)	(0.024)	(0.027)	(0.017)	(0.021)
Asset quintile (2)	0.038	−0.027	−0.024	0.070**	−0.056*
	(0.028)	(0.026)	(0.033)	(0.025)	(0.026)
Asset quintile (3)	0.065*	−0.081**	−0.021	0.108***	−0.070**
	(0.028)	(0.025)	(0.034)	(0.025)	(0.027)
Asset quintile (4)	0.118***	−0.100**	−0.067	0.130***	−0.081**
	(0.033)	(0.033)	(0.039)	(0.024)	(0.030)
Asset quintile (5)	0.156***	−0.081	−0.094	0.079**	−0.061
	(0.047)	(0.044)	(0.049)	(0.028)	(0.042)
Saturday	−0.051	−0.033	0.112*	0.023	−0.051
	(0.043)	(0.030)	(0.046)	(0.041)	(0.031)
Sunday	−0.107***	−0.067***	0.221***	−0.033	−0.014
	(0.031)	(0.019)	(0.031)	(0.020)	(0.025)
Non-typical day	−0.065*	−0.096***	0.002	0.002	0.157***
	(0.030)	(0.017)	(0.030)	(0.027)	(0.037)
Observations			3225		

Source: TUS 2010

The data are weighted using population weights. Standard errors are in parenthesis. The omitted categories are: aged 60–68; African; currently married; less than grade 12 education; no social pension receipt; no private pension receipt; urban area of residence; in the first asset quintile, weekday; and typical day. Standard errors are in parentheses. The marginal effects are calculated as a change in the probability for a one unit change in the continuous variables and for a discrete change in the dummy variables
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Of the individual characteristics of the elderly, age is an important correlate of cluster membership, and particularly among elderly women, who are significantly less likely to specialize in household production

Table 6   The likelihood of cluster membership among elderly South African men, marginal effects from multinomial logit regression

	Cluster 1 Household maintenance	Cluster 2 Production work	Cluster 3 Leisure, socializing	Cluster 4 Leisure, mass media	Cluster 5 Personal care
69–74 years	0.021	−0.039	0.004	−0.019	0.034
	(0.026)	(0.028)	(0.032)	(0.032)	(0.026)
>74 years	−0.048	−0.090**	−0.024	0.080*	0.082**
	(0.026)	(0.031)	(0.031)	(0.038)	(0.029)
Colored	0.029	−0.074	−0.073*	0.103*	0.014
	(0.041)	(0.038)	(0.034)	(0.045)	(0.036)
Indian/Asian	−0.065*	−0.014	−0.027	0.081	0.025
	(0.031)	(0.068)	(0.060)	(0.067)	(0.075)
White	0.051	0.017	−0.068	−0.048	0.048
	(0.048)	(0.050)	(0.050)	(0.044)	(0.064)
Previously married	−0.003	−0.064*	0.016	0.012	0.039
	(0.023)	(0.028)	(0.026)	(0.033)	(0.024)
Never married	−0.022	−0.025	0.069	−0.147**	0.124*
	(0.039)	(0.051)	(0.083)	(0.049)	(0.049)
Grade 12 education	−0.060	0.004	0.044	0.051	−0.040
	(0.031)	(0.043)	(0.053)	(0.045)	(0.044)
Tertiary education	−0.092**	−0.024	0.078	0.060	−0.022
	(0.031)	(0.052)	(0.088)	(0.063)	(0.064)
Social pension	0.020	−0.301***	0.052	0.125***	0.105***
	(0.028)	(0.030)	(0.029)	(0.033)	(0.026)
Private pension	0.050	−0.278***	0.153*	0.173**	−0.099**
	(0.039)	(0.020)	(0.073)	(0.055)	(0.034)
Number: female adults (16–59)	−0.021	−0.004	−0.009	−0.002	0.037***
	(0.012)	(0.014)	(0.014)	(0.017)	(0.011)
Number: male adults (16–59)	−0.014	0.031*	0.031	−0.028	−0.019
	(0.013)	(0.015)	(0.017)	(0.017)	(0.013)
Number: children 0–5 yrs	−0.035	0.029	0.012	0.030	−0.037*
	(0.023)	(0.018)	(0.019)	(0.023)	(0.017)
Number: children 6–15 yrs	−0.002	0.014	0.001	−0.023	0.010
	(0.011)	(0.012)	(0.012)	(0.017)	(0.010)
Employs domestic help	−0.018	0.013	0.015	0.009	−0.018
	(0.030)	(0.042)	(0.053)	(0.044)	(0.037)
Urban	−0.017	−0.135***	0.023	0.137***	−0.009
	(0.026)	(0.027)	(0.027)	(0.030)	(0.026)
Asset quintile (2)	−0.023	−0.086*	−0.108*	0.159***	0.058
	(0.026)	(0.039)	(0.047)	(0.039)	(0.032)
Asset quintile (3)	0.020	−0.047	−0.178***	0.187***	0.018
	(0.031)	(0.046)	(0.050)	(0.037)	(0.030)

Table 6 (continued)

	Cluster 1 Household maintenance	Cluster 2 Production work	Cluster 3 Leisure, socializing	Cluster 4 Leisure, mass media	Cluster 5 Personal care
Asset quintile (4)	0.071[*]	–0.117[**]	–0.203[***]	0.235[***]	0.014
	(0.033)	(0.045)	(0.055)	(0.036)	(0.035)
Asset quintile (5)	0.069	–0.075	–0.249[***]	0.281[***]	–0.026
	(0.050)	(0.058)	(0.056)	(0.048)	(0.050)
Saturday	0.017	–0.088	0.069	0.032	–0.030
	(0.050)	(0.050)	(0.050)	(0.057)	(0.038)
Sunday	–0.094[***]	–0.137[***]	0.161[***]	0.087[*]	–0.017
	(0.018)	(0.033)	(0.044)	(0.039)	(0.027)
Non-typical day	0.015	–0.130[***]	0.045	–0.112[**]	0.182[***]
	(0.052)	(0.033)	(0.040)	(0.043)	(0.041)
Observations			1841		

Source: TUS 2010
The data are weighted using population weights. Standard errors are in parenthesis. The omitted categories are: aged 60–68; African; currently married; less than grade 12 education; no social pension receipt; no private pension receipt; urban area of residence; in the first asset quintile, weekday; and typical day. Standard errors are in parentheses. The marginal effects are calculated as a change in the probability for a one unit change in the continuous variables and for a discrete change in the dummy variables
[*] $p < 0.05$, [**] $p < 0.01$, [***] $p < 0.001$

(cluster 1) or production work (cluster 2) as they get older, and more likely to engage in leisure activities involving mass media and personal care (clusters 4 and 5).

Individual receipt of a pension is also a significant correlate of time use behavior. Consistent with other research on pension receipt among the elderly in South Africa (Ranchhod 2006), both elderly women and men who receive a pension are less likely to specialize in production work. However, whereas male pension receipt is associated with more time spent on mass media activities (cluster 4), female pension receipt is associated with more time allocated to household maintenance (cluster 1).

The positive relationship between pension receipt and cluster 1 membership among elderly women may partly reflect the ways in which households in South Africa are often formed around pensions, as a reliable source of income in the context of high rates of unemployment, mortality, and labor migration among working-age adults. Compared with the elderly who do not receive social pensions, social pension recipients, and particularly women, live in significantly larger households, which include

more children and working-age adults.[8] Although the time use data suggest that elderly women devote little time to the physical care of others, including children, it is possible that the "care" which female pension recipients provide is subsumed within a broader range of household activities (including cooking, cleaning, and washing).

However, as the number of working-age women in the household increases, so the likelihood that elderly women spend most of the day on household maintenance is reduced (i.e., they are less likely to be in cluster 1), suggesting that household work remains gendered in more complex households, but that it is undertaken by younger women when they are present. Instead of household work, elderly women who live with more working-age women are more likely to spend their time on social or cultural activities (cluster 3), mass media (cluster 4), or personal care (cluster 5). The time allocations of elderly women are also significantly less likely to place them in cluster 1 if they live in households in which domestic help is employed.

South Africa is a country with high levels of inequality in access to resources (Leibbrandt et al. 2010), and despite large improvements in the post-apartheid period in access to services (including electricity and running water), sizeable differences still remain between urban and rural areas (Gradin 2013). The regressions show that the activity distributions of both elderly women and men differ significantly according to the wealth and location of the household in which they live. Compared with the elderly who live in households in the lowest asset quintile and in rural areas, those living in richer households and in urban areas are less likely to specialize in production work. They are also less likely to spend a sizeable part of their day on social or cultural activities, although this relationship is significant only among elderly men. Among both elderly women and men, the likelihood that mass media activities are dominant during the day is higher among richer households in urban areas (households which are more likely to have electricity and mass media devices), but women in these households are also more likely to spend their day on household maintenance (perhaps because there is a larger house to maintain).

Time allocations among the elderly vary significantly between weekdays and the weekend. Sunday, in particular, is a day of rest from both household and production work for both elderly women and men, and a day where the elderly are more likely to engage in social or cultural

activities, and among elderly men, in the use of mass media. If the elderly reported that their time diary covered a "non-typical" day, then they were also less likely to have engaged in work activities (and particularly production work) and more likely to have spent the day on personal care, suggesting that ill health may be a key reason for why their day was not typical.

7   Time Evaluations of the Day

After completing the time diaries, all respondents were asked to assess their time use during the day, according to three response options: "a comfortable amount of things to do", "too busy," or "not busy enough". There is little overall descriptive difference among the elderly in these assessments by gender. For both elderly women and men, and across all the clusters, the modal view of the day was that there was "a comfortable amount of things to do", an assessment provided by 60% of all elderly women and 58% of elderly men. However, there is some variation in time evaluations across the cluster types. The elderly who spent most of their day on personal care (cluster 5) were the least likely to provide a positive assessment of their time use and far more likely than the elderly in other clusters to report their day as "not busy enough", a view expressed by more men in this cluster (49%) than women (46%). The elderly who were the least likely to feel that their day had been too inactive, and the most likely to report feeling time pressure, were those who specialized in household work and production work (clusters 1 and 2, respectively). Nonetheless, if the elderly provided a negative evaluation of their daily activities, then they were far more likely to say that their day was not busy enough, rather than too busy: overall, 11% of both elderly women and men reported their day as too active, compared with 30% of elderly women, and 31% of elderly men who viewed their day as not sufficiently active. This pattern is consistent among both elderly women and men across all clusters, with one exception: almost one quarter of the elderly men in cluster 2 felt that their day had been too busy. These relatively low reports of time pressure among the elderly, and their variation by cluster, suggest that retirement affords many of the elderly (both women and men) control over their time, if not the opportunities to spend their time as they would like (Table 7).

Table 7   Evaluation of the overall day

	Too busy	*Comfort*	*Not busy enough*
Cluster		**Elderly women**	
1	13.78 (1.67)	64.41 (2.39)	21.81 (2.09)
2	16.70 (2.21)	66.39 (3.07)	16.91 (2.66)
3	11.92 (1.63)	55.20 (2.35)	32.89 (2.16)
4	2.38 (1.12)	64.30 (3.33)	33.32 (3.27)
5	3.86 (1.00)	50.33 (3.26)	45.80 (3.22)
Overall	*10.51 (0.77)*	*59.95 (3.26)*	*29.54 (1.16)*
		Elderly men	
1	12.73 (3.11)	64.94 (5.56)	22.33 (4.39)
2	23.79 (3.29)	59.41 (3.66)	16.79 (3.12)
3	10.83 (4.64)	54.16 (3.66)	35.01 (3.62)
4	3.48 (0.80)	62.65 (2.84)	33.87 (2.82)
5	2.99 (1.12)	48.35 (4.25)	48.66 (4.26)
Overall	*10.95 (1.32)*	*58.42 (1.78)*	*30.63 (1.60)*

Source: TUS 2010
The percentages are weighted using population weights. Standard errors are in parentheses

8   SUMMARY AND DISCUSSION

Time use data show that a traditional division of labor persists among elderly women and men in South Africa. Although they devote the same amount of time to personal care (approximately 15 hours in a day), elderly women, on average, spend 90 minutes more than elderly men on household maintenance, while elderly men spend 70 minutes more on production work. However, perhaps surprisingly in light of a literature that emphasizes grandmothers as the caregivers of children in South Africa, elderly women devote little dedicated time during the day to the physical care of others (less than 15 minutes on average), and although elderly women are more likely than elderly men to spend any time on caring activities, gender differences in mean time allocations are small.

In this study, we augmented this description of mean time allocations by analyzing the time of day and sequence in which activities take place. We modeled the daily time use of each elderly individual as a sequence of ordered activities, and we then used OM and clustering methods to identify clusters of similar sequences, first among elderly women, and then among elderly men. These methods group the elderly into clusters on the basis of their time use behavior only. We then used multinomial

regression analysis to investigate the characteristics of elderly women and men that are correlated with their membership in a specific cluster.

The cluster analysis produced five distinct clusters of real-time trajectories among elderly women, and five clusters among elderly men. The cluster types are very similar by gender in terms of the dominant activities undertaken. However, there are clear differences between elderly women and men in the size of these clusters, the timing of activities during the day, and the characteristics of elderly women and men by cluster, differences which complement the mean time description of a gender division of labor.

The largest cluster type among elderly women (accounting for almost 30% of elderly women) is the cluster where household maintenance dominates the day, but this is the smallest cluster among elderly men (less than 13% of whom are in this cluster). Elderly women, thus, are far more likely than men to "specialize"' in household production, but even in the other clusters in which household maintenance is not the modal activity (and non-personal care activities dominate the day), elderly women still devote more time on average to housework than elderly men. There is also clearer evidence of a lunch break (associated with a spike in personal care activities) in the clusters of elderly men than in those of elderly women, highlighting gender divisions in food preparation, cooking, and clearing up.

In contrast, a far larger share of elderly men than women (25% compared with 15%) are members of the cluster type where the elderly engage in production work, and elderly men in this cluster spend considerably more time working than elderly women (100 minutes more on average), largely because elderly women are more likely to work only in the morning (and do housework in the afternoon). However, the modal cluster type among elderly men (accounting for almost 30% of elderly men) is the cluster in which much of the day (over 5 hours on average) is spent on leisure, and specifically on mass media activities.

Many households in South Africa are not formed around a conjugal unit and a large proportion of the elderly lives with working-age adults or children, and often in multi-generational households. Marital status does not independently predict whether elderly women and men spend their time on household or production work. But time use patterns, particularly among elderly women, vary significantly according to the composition of their household. Elderly women are less likely to assume responsibility for household maintenance if they live with other non-elderly women (including their daughters and adult grandchildren), and they are more likely to

spend their time on leisure or personal care activities, suggesting that the division of labor in multi-generational households is bisected by both gender and age.

The majority of the elderly in South Africa receives a social pension. Consistent with other studies (Ranchhod 2006; Ranchhod and Wittenberg 2016), our analysis shows that pension recipients (both women and men) are less likely to spend their day on production work. Instead of working, the elderly are more likely to engage in leisure activities or personal care, but pension receipt among women also increases the likelihood that housework will dominate their day. One possible explanation for this relationship concerns the role of grandmothers as the caregivers of children (and the sick), identified in many studies. In our analysis, there is no evidence that time spent on caring labor is an important part of an elderly woman's day. However, it may be that the kind of caring labor that women provide is associated with activities related to household maintenance, for example, cooking, cleaning, and washing, rather than with dedicated childcare activities such as playing with, reading to, or bathing children.

Active aging has been identified as a key ingredient of successful aging, associated with higher levels of life satisfaction and good health among the elderly (Gauthier and Smeeding 2003). The large majority of the elderly in South Africa spends a significant share of their waking hours on active pursuits (involving not only physical but also mental effort, and social interaction). However, among both elderly women and men, there is one cluster where personal care activities dominate throughout the day. This cluster is slightly larger among women (16%) than among men (15%), at least partly because elderly women are typically older than elderly men. Among all the elderly, the women and men in this cluster are the most likely to provide a negative assessment of their day as not being busy enough. In all the other clusters, the modal evaluation of the day is positive, and where it is negative, then it is almost always because the day is not busy enough rather than too busy (evaluations which are likely to distinguish the elderly, who have more autonomy in time allocations, from working-age adults).

The sequence and clustering methods which we applied to the elderly in South Africa created a typology of time use behavior among the elderly, based not only on how much time the elderly allocate to different activities during the day, but also according to the timing and ordering of these

activities. This permits a more textured analysis both of differences between elderly women and men, in their time allocations, including in the structure and rhythm of their day, and of differences among elderly women and among elderly men. We believe that there is considerable potential to apply these modeling methods to other studies of time use behavior (including in the South African context, to a study of the real time of working-age adults).

NOTES

1. Total expenditure on social grants increased from under 2 percent of GDP at the start of the post-apartheid period in 1993, to 4.4 percent in 2009 (Leibbrandt et al. 2010). By June 2010, approximately 14.3 million South Africans received a social grant (SASSA 2010).
2. Four population (or race) groups are typically identified in South Africa (African, White, Indian, and Colored), with Africans comprising approximately 80% of the total population.
3. In a previous study, we identified clusters of time use behavior among the pooled sample of the elderly and we then compared the membership of elderly women and men in these clusters (Grapsa and Posel 2016). In this study, as we explain in the later text, we estimate the clusters separately by gender. Although our results are consistent with the previous study, estimating the clusters separately by gender provides more insight into differences between elderly women and men in the timing of activities during the day.
4. A three-stage process was used to select the sample, first on primary sampling units (PSU), then on households within each PSU, and finally on two individuals aged 10 years or older in the household. The sample excludes the elderly living in institutions.
5. SSE is the sum of the squared differences between each observation and its group mean. It can be used as a measure of variation within a cluster since if all observations within a cluster are identical, the SSE would be equal to zero. With Ward's method, after all potential cluster merges are considered, the one within which the observations are closest to the cluster mean is chosen.
6. Sequence and cluster analysis were done in R using package TraMiner and cluster (R Core Team 2014; Gabadinho et al. 2011; Maechler et al. 2014), while data cleaning and regression analysis were conducted using Stata.
7. In 2010, the value of the social pension was 1080 rands per month, which Woolard and Leibbrandt (2010) estimate at the time to be equivalent to PPP$250.

8. Among elderly women (men) in 2010, the average number of children and adults in the households of social pension recipients is 1.6 children (1.3 children) and 3.4 adults (3.3 adults), compared to 0.5 children (0.6 children) and 2.5 adults (3.1 adults) in households where elderly women (men) do not receive a social pension.

References

Abbot, Andrew, and John Forrest (1986). Optimal matching methods for historical sequences. *The Journal of Interdisciplinary History*, 16(3), 471–494.

Abbott, Andrew, and Angela Tsay (2000). Sequence analysis and optimal matching methods in sociology. *Sociological Methods and Research*, 29(1), 3–33.

Africa, South Statistics. (2013). *A survey of time use, 2010.* Pretoria: Statistics South Africa.

Amoateng, Acheampong, Tim Heaton, and Ishmael Kalule-Sabiti (2007). Living arrangements in South Africa. In Acheampong Amoateng and Tim Heaton (Eds.), *Families and households in post-apartheid South Africa: Socio-demographic perspectives* (pp. 43–59). Cape Town: HSRC Press.

Anne, Gauthier, and Timothy Smeeding (2003). Time use at older ages: Cross-national differences. *Research on Aging*, 25(3), 247–274.

Ardington, Cally, Anne Case, and Victoria Hosegood (2009). Labour supply responses to large social transfers: Longitudinal evidence from South Africa. *American Economic Journal: Applied Economics*, 1(1), 22–48.

Bohman, Doris, Neltjie Van Wyk, and Sirkka-Liisa Ekmanm (2009). Tradition in transition – intergenerational relations with focus on the aged and their family members in a South Africa context. *Scandinavian Journal of Caring Studies*, 23, 446–455.

Bor, Jacob, Sydney Rosen, Natsayi Chimbindi, Noah Haber, Kobus Herbst, Tinafo Mutevedzi et al. (2015). Mass HIV treatment and sex disparities in life expectancy: Demographic surveillance in rural South Africa. *PLOS Medicine*, 12(11), e1001905. doi: 10.1371/journal.pmed.1001905.

Budlender, Debbie, and Frances Lund (2011). South Africa: A legacy of family disruption. *Development and Change*, 42(4), 925–946.

Budlender, Debbie, Ntebaleng Chonokoane, and Yandiswa Mpetsheni (2001). *A survey of time use. How South African women and men spend their time.* Resource Document. Pretoria: Statistics South Africa.

Camlin, Carol, Rachel Snow, and Victoria Hosegood (2014). Gendered patterns of migration in rural South Africa. *Population, Space and Place*, 20, 528–551.

Case, Anne, and Angus Deaton (1998). Large cash transfers to the elderly in South Africa. *Economic Journal*, 108, 1330–1361.

Case, Anne, and Alicia Menedez (2007). Does money empower the elderly? evidence from the agincourt demographic surveillance unit. *Scandinavian Journal of Public Health*, 35(3), 157–164.

Charmes, Jacques (2006). A review of empirical evidence on time use in South Africa from UN-sponsored surveys. In Mark Blackden and Quentin Wodon (Eds.), *Gender, time use, and poverty in Sub-Saharan Africa* (pp. 39–72). Washington, DC: The World Bank.

Costa, Dora (1997). Displacing the family: Union army pensions and elderly living arrangements. *Journal of Political Economy*, 105(2), 1269–1292.

Costa, Dora (1999). A house of her own: Old age assistance and the living arrangements of older nonmarried women. *Journal of Public Economics*, 72(1), 39–59.

Duflo, Esther (2003). Grandmothers and granddaughters: Old age pensions and intrahousehold allocation in South Africa. *The World Bank Economic Review*, 17(1), 1–25.

Edmonds, Eric, Kristin Mammen, and Douglas Miller (2005). Rearranging the family? Income support and elderly living arrangements in a low income country. *Journal of Human Resources*, 40(1), 186–207.

Engelhardt, Gary, Jonathan Gruber, and Cynthia Perry (2002). Social security and elderly living arrangements. NBER Working Paper No. 8911. Cambridge: Massachusetts.

Eric, Edmonds (2006). Child labor and schooling responses to anticipated income in South Africa. *Journal of Development Economics*, 81(2), 386–414.

Gabadinho, Alexis, Gilbert Ritschard, Nicolas Séverin Mueller, and Matthias Studer (2011). Analyzing and visualizing state sequences in R with TraMineR. *Journal of Statistical Software*, 40(4), 1–37.

Gradin, Carlos (2013). Race, poverty and deprivation in South Africa. *Journal of African Economies*, 22(2), 187–238.

Grapsa, Erofili, and Dorrit Posel (2016). *Sequencing the real time of the elderly: Evidence from South Africa*. Forthcoming: Demographic Research.

Guryan, Jonathan, Erik Hurst, and Melissa Kearney (2008). Parental education and parental time with children. NBER Working Paper No. 13993. Cambridge: Massachusetts.

Halpin, Brendan, and Tak Wing Cban (1998). Class careers as sequences: An optimal matching analysis of work-life histories. *European Sociological Review*, 14(2), 111–130.

Hamoudi, Amar, and Duncan Thomas (2005). Pension income and the wellbeing of children and grandchildren: new evidence from South Africa. California Center for Population Research On Line Working Paper Series number 043-05. University of California, Los Angeles.

Hosegood, Victoria, Eleanor Preston-Whyte, Joanna Busaza, Moitse Sindile, and Ian Timaeus (2007). Revealing the full extent of households' experiences of HIV and AIDS in rural South Africa. *Social Science & Medicine*, 65(6), 1249–1259.

Kaufman, Leonard, and Peter J Rousseeuw (2008). *Finding groups in data: An introduction to cluster analysis*. New Jersey: John Wiley & Sons, Inc.

Klasen, Stephan, and Ingrid Woolard (2009). Surviving unemployment without state support: Unemployment and household formation in South Africa. *Journal of African Economies*, 18(1), 1–51.

Leibbrandt, Murray, Ingrid Woolard, Arden Finn, and Jonathan Argent (2010). Trends in the South African income distribution and poverty since the fall of apartheid. OECD Social, Employment and Migration Working Papers No. 101.

Lesnard, Laurent (2004). Schedules as sequences: A new method to analyze the use of time based on collective rhythm with an application to the work arrangements of French dual-earner couples. *Electronic International Journal of Time Use Research*, 1(1), 60–84.

Lesnard, Laurent (2008). Off-scheduling within dual-earner couples: An unequal and negative externality for family time. *American Journal of Sociology*, 114, 447–490.

Lesnard, Laurent (2010). Setting cost in optimal matching to uncover contemporaneous socio-temporal patterns. *Sociological Methods & Research*, 38(3), 389–419.

Maechler, Martin, Peter Rousseeuw, Anja Struyf, Mia Hubert, and Kurt Hornik (2014). cluster: Cluster Analysis Basics and Extensions. R package version 1.15.3.

Mathis, Sarah (2011). Disobedient daughters? changing women's roles in rural households in KwaZulu-Natal. *Journal of Southern African Studies*, 37(4), 831–848.

McVicar, Duncan, and Michael Anyadike-Danes (2002). Predicting successful and unsuccessful transitions from school to work by using sequence methods. *Journal of the Royal Statistical Society. Series A (Statistics in Society)*, 165(2), 317–334.

Posel, Dorrit (2010). Households and labour migration in post-apartheid South Africa. *Studies in Economics and Econometrics*, 34(3), 129–141.

Posel, Dorrit, and Colin Marx (2013). Circular migration: A view from destination households in two urban informal settlements in South Africa. *Journal of Development Studies*, 49(6), 819–831.

Posel, Dorrit, James Fairburn, and Frances Lund (2006). Labour migration and households: A reconsideration of the effects of the social pension on labour supply in South Africa. *Economic Modelling*, 23(4), 836–853.

R Core Team (2014). *R: A language and environment for statistical computing*. Vienna, Austria: R Foundation for Statistical Computing.

Ranchhod, Vimal (2006). The effect of the South African old age pension on labour supply of the elderly. *South African Journal of Economics*, 74(4), 724–744.

Ranchhod, Vimal, and Martin Wittenberg (2016). The social pension and time allocation in poor South African households. In Timothy Besley (Ed.), *Contemporary issues in development economics* (pp. 91–111). Hampshire, England: Palgrave Macmillan.

Reed, Holly (2013). Moving across boundaries: Migration in South Africa, 1950–2000. *Demography*, 50(1), 71–95.

Russell, Margo (2003). Understanding black households: The problem. *Social Dynamics*, 29(2), 5–47.

SASSA (2010). Statistical Report on Social Grants. Report no. 31, Pretoria.

Schatz, Enid, and Catherine Ogunmefun (2007). Caring and contributing: The role of older women in rural South African multi-generational households in the HIV/AIDS era. *World Development*, 35(8), 1390–1403.

Spiegel, Andrew (1986). The fluidity of household composition in Matatiele, Transkei: A methodological problem. *African Studies*, 45(1), 17–35.

Statistics South Africa (2010). Time Use Survey (TUS) 2010 [dataset]. Version 1. *Pretoria: Statistics South Africa* [producer], 2014. Cape Town: DataFirst [distributor], 2014.

Vrotsou, Katerina, Anders Ynnerman, and Matthew Cooper (2014). Are we what we do? Exploring group behaviour through user-defined event-sequence similarity. *Information Visualization*, 13(3), 232–247.

Ward Jr., Joe (1963). Hierarchical grouping to optimize an objective function. *Journal of the American Statistical Association*, 58(301), 236–244.

Wittenberg, Martin (2009). Lazy rotten sons? Relatedness, gender and the intra-household allocation of work and leisure in South Africa. Working Paper No 28. Cape Town: South Africa Labour and Development Research Unit, University of Cape Town.

Woolard, Ingrid, and Murray Leibbrandt (2010). The evolution and impact of unconditional cash transfers in South Africa. Working Paper No 51. Cape Town: South Africa Labour and Development Research Unit, University of Cape Town.

Dorrit (Dori) Posel is an economist who specializes in applied micro-economic research, exploring the interface between households and labor markets in South Africa. Dori is a distinguished professor of economics and the Helen Suzman Chair at the University of the Witwatersrand (Johannesburg).

Erofili Grapsa is a statistician and an expert in quantitative methods. She is currently an independent researcher as well as honorary research associate at the Institute of Social and Economic Research at Rhodes University, South Africa. She has a strong interest in statistics applied to health and development projects.

Is It Just Too Hard? Gender Time Symmetry in Market and Nonmarket Work and Subjective Time Pressure in Australia, Finland, and Korea

Lyn Craig, Judith E. Brown, Lyndall Strazdins and Jiweon Jun

1 INTRODUCTION

Gender equality in time spent in market work and in the unpaid domestic work of housework and family care is widely seen as desirable, potentially

L. Craig (✉)
School of Social and Political Sciences, University of Melbourne, Melbourne, Australia
e-mail: lyn.craig@unimelb.edu.au

J.E. Brown
Social Policy Research Centre, University of New South Wales, Kensington, NSW, Australia
e-mail: jude.brown@unsw.edu.au

L. Strazdins
National Centre for Epidemiology & Population Health, Australian National University, Canberra, Australia
e-mail: Lyndall.Strazdins@anu.edu.au

J. Jun
Department of Sociology, University of Oxford, Oxford, England
e-mail: jiweon.jun@sociology.ox.ac.uk

enhancing women's financial security and allowing men to participate more fully in family life (Plibersek 2008; Nedelsky 2016; Connell 2003). But is there a stress cost to couples sharing both forms of labor equally? As work and family demands have escalated over recent decades, time scarcity has become a pervasive feature of contemporary life (Jacobs and Gerson 2004). Feeling constantly rushed and harried – experiencing subjective time stress – can adversely affect well-being (Strazdins et al. 2011). Does gendered time equality, with men and women both juggling work and family demands, engender higher subjective time stress than gender specialization? The answer may vary cross-nationally, because some countries provide more policy support for work–family reconciliation, and have lower average work-weeks, making it easier for couples to manage more gender-equal shares of market and nonmarket work (Gornick and Meyers 2003).

2   BACKGROUND

When second-wave feminism began gaining ground in the mid-twentieth century, proponents expected that as women entered the paid workforce, there would be a complementary increase in men's domestic activities, and household labor would also become more equal (Young and Wilmott 1973; Bergmann 1986). "Generally, feminists look to a future in which women and men are equal in opportunity, in respect and in the burdens they carry" (Bergmann 1986). The expectation was that when women earned more, they would have more power in the family, so equality between husband and wife in domestic labor should be easier to achieve (Hartmann 1981; Bergmann 1986). The assumption arose partly from simple logic. One consequence of women's increasing time in market employment *should* be men's increasing domesticity (Oakley 1985). It was assumed that the family would act as a self-balancing system in which, if one member withdrew from certain types of labor, another would take over that labor. This was called the "adaptive partnership model" (Meissner et al. 1975) leading to "the symmetrical family" (Young and Wilmott 1973) with gender equality in both market and nonmarket work.

The symmetrical family is still a desired social goal. Many see gender equality in paid and unpaid work as prerequisite to women's financial security and men's involvement in family life (Plibersek 2008; Nedelsky 2016; Baxter et al. 2008; Connell 2003). A gender imbalance, whereby women interrupt their careers or work part time to care for children or

other family members, while most men are employed full time over the working lifetime, has potential negative effects on the welfare of both sexes (Anxo et al. 2007; HREOC 2007). Women are disadvantaged financially through gender pay gaps and lower lifetime earnings, and the pressure to be the main family provider, particularly if long hours are required, can be a source of stress and damage to men (Hill et al. 2004). Men and women doing similar amounts of both market and nonmarket work seem to offer a solution to these problems (Connell 2003; Nedelsky 2016).

Notwithstanding its appeal, the symmetrical family has not yet become the norm. Reasons are various, but may include that market work hours have gone up, and that rather than engendering a tradeoff between men and women, female employment has meant households do more work overall. In US families, for example, four decades ago, most fathers were the sole breadwinners, and on average, household time allocation to market work was just over 44 hours a week. By 2000, most US couples with children were dual-earners, devoting more than 80 hours a week to market employment (Strazdins et al. 2011; Jacobs and Gerson 2004). Over the same period, women's time in domestic work trended downward, but at a rate far short of the rise in their paid work time (Bianchi et al. 2000). There is some evidence that men's average paid work time trended down, but that, for those who are employed full time, work hours are higher (Pocock 2003; Robinson and Godbey 1997; Gershuny 2011; Kan et al. 2011). In Western countries, men's housework time increased slightly, and mothers' and fathers' child caregiving time has actually gone up (Sayer 2016; Craig et al. 2010; Sullivan 2011). Together these trends imply that, in couple households, total workloads – the time committed to employment and to the unpaid work of domestic labor and care by both partners together – have increased (Craig and Mullan 2009).

This may be a reason why symmetrical families remain relatively rare. If greater gendered time equality is accompanied by higher total household workloads, as implied by the trends noted earlier, it may not enhance well-being, and symmetry may just be too demanding and stressful for many couples to achieve. Escalating time pressures upon modern families are widely noted in both academic and popular discussions (see, e.g., Schulte 2014; Presser 2003; Mattingly and Sayer 2006; Bianchi and Milkie 2010; Edwards and Wajcman 2005), with employed parents of young children, especially, reporting extremely high levels of subjective time stress (Craig and Mullan 2009). If both partners are overworked, the stresses could be

magnified. Couples could be giving up joint family or couple leisure time or eating meals together, at cost to health, family well-being and relationship quality (Strazdins et al. 2011). Role convergence may bring more gender symmetry in the division of labor at the cost of higher time stress for both partners, making it too hard to manage. However, to date no research has explicitly examined whether gender-equal shares of market and nonmarket work are associated with higher subjective time pressure.

Indeed, surprisingly little is known about the incidence and profile of gender-equal sharers, and what spending equal time in market and nonmarket work might mean for men and for women. Missing from the literature is a picture of how the time allocation of men and women in gender-symmetrical couple households differs from that of men and women in gender-asymmetrical couple households. Thus, as a first step in this chapter, we compare total work hours, and its composition (market or nonmarket) by gender, in couples who have approximately equal shares of both types of work, with couples who do not. Knowledge of these patterns is prerequisite to understanding relationships between gendered time equality and feeling rushed and harried. This is because the literature suggests that market and nonmarket work relate to subjective time pressure in contrasting ways. That is, while higher overall workloads are likely to engender feelings of being rushed, how that work is proportionately comprised of market or nonmarket labor is likely to also matter.

It is certainly the case that market work matters to time stress. It is well established that longer employment hours cause people to feel more rushed, harried, and short of time (Beaujot and Andersen 2007; Mattingly and Sayer 2006; Craig and Baxter 2016; Hamermesh and Lee 2007; Kleiner 2014). Recent evidence also points to cross-spousal effects, finding long male paid work hours to be associated with higher subjective time stress, not only for the men who work them, but also for their spouse (Craig and Brown 2016). However, it is not so clear whether time spent in *nonmarket* work is related to subjective time pressure. Investigation has yielded mixed results. Australian research found more nonmarket work was negatively associated with time stress for both men and women (Craig and Brown 2016), the US research found no association for either gender (Mattingly and Sayer 2006), and research in Canada and Denmark has found weak positive associations, but only for women (Beaujot and Andersen 2007; Deding and Lausten 2011). The findings are inconclusive, but overall suggest a weaker link between nonmarket work and time stress than between market work and time stress.

The implication is that workloads that involve a higher proportion of unpaid work may be less stressful than those that involve a higher proportion of paid work, which raises the further possibility that relationships between gender symmetry and time stress differ by gender. If gender time symmetry involves more market work for women and less for men, and more nonmarket work for men and less for women, time stress in equal-sharing households could be higher for women and lower for men. It is, of course, also possible that more-equal shares of market and nonmarket work could engender similar levels of time stress for both men and women. Juggling paid and unpaid work may entail conflicting demands and responsibilities not present when there is greater specialization in one type of work (MacDonald et al. 2005), causing additional subjective time pressure for both men and women in egalitarian households.

Investigating relationships between subjective time pressure and gender a/symmetry in market and nonmarket work is a new contribution to the literature. To date, studies examining gender patterns in subjective time stress focus on how it relates to men's and women's absolute time in market and/or nonmarket work, not on how couples' total workloads are shared proportionately (Mattingly and Sayer 2006; Hamermesh and Lee 2007; see, e.g., Craig and Baxter 2016). Here, we take a different approach, and directly consider relationships between gendered time equity, defined as gender symmetry in both market and nonmarket work, and subjective time pressure.

Associations between time stress and gender symmetry may differ across countries, so our enquiry will be placed within a cross-national perspective. Both total time allocation to market and nonmarket work and the way they are divided within households are a result not only of individual and family choices but also of the normative, cultural, and policy environment (Gornick and Meyers 2003). Countries vary in work–family policies including support for care (paid parental leave, state services for child care, aged care services), and in regulation of paid work time (annual hours, daily work limits, vacation time, flexibility, higher hourly rates for non-standard work schedules) (Lewis 2009; Gornick and Meyers 2003; Crompton 2006). Such policies shape gender norms, reinforce workplace cultures, and, importantly, also influence the gender division of labor (Crompton 2006; Hook 2006, 2010; Sayer and Gornick 2012; Gershuny and Sullivan 2003; Craig and Mullan 2010). For example, measures such as regulated short working hours, affordable public child-care, or national mandated paid parental leave for mothers *and* fathers

facilitate gender symmetry in market and nonmarket work, whereas their absence promotes gender specialization (Gornick and Meyers 2003; Lewis 2009).

We speculate that having extensive policy supports for work–family reconciliation will also mean gender symmetry is *experienced* differently than in policy environments that leave such arrangements to families and individuals to organize privately. Specifically, we expect it to be more stressful if fewer supports are provided. In a further new contribution to the literature, this paper will investigate this possibility by exploring relationships between gendered time in/equity and subjective time stress in Australia, Finland, and Korea, three countries with differing institutional frameworks in relation to work-time regimes, work–family reconciliation, and gender equality.

3   COUNTRY CONTEXT

Comparative analyses draw on a body of literature that categorized countries into typologies according to how they draw on the key pillars of welfare: states, markets, and families (Esping-Andersen 2009; O'Connor et al. 1999). Comparative time-use analyses have shown important differences between social democratic (exemplified by Scandinavia), familialist (exemplified by Southern Europe) and liberal/market-oriented regimes (exemplified by the English-speaking countries) in employment hours, employment rates, non-standard work, women's workforce participation, and men's nonmarket work time (Crompton 2006; Hook 2006, 2010; Sayer and Gornick 2012). Families in market-oriented regimes such as Australia have been found to have higher combined total workloads, and wider gender gaps in paid and unpaid work than Northern European countries such as Finland (Craig and Mullan 2010; Gornick and Meyers 2003; Gershuny and Sullivan 2003). Previous cross-national research into family time allocation has rarely included Asian countries. North Asian countries have a reputation for very long full-time working hours, but also a strong tradition of relying on family to provide child and elder-care (Kwon 2005; Lee 2005; Ochiai 2009). They exhibit liberal/market-oriented features in paid work, and familialist features in unpaid work, so some argue that within welfare regime typologies they could be described as liberal-familialist (Kwon 2005; Lee 2005; Ochiai 2009).

This paper offers new insights into the interplay between family life and social context by examining whether and how subjective time pressure is related to gender shares of market and nonmarket work in Australia (market-oriented), Korea (liberal-familialist), and Finland (social democratic). Table 1 summarizes some of the institutional features of each country.

Tertiary education is broadly similar across the countries (Table 1). However, there are differences by gender. In Australia and Finland, a higher proportion of women than men has tertiary qualifications (40% versus 34% for Australia and 43% versus 31% for Finland). In Korea, a

Table 1 Features of institutional context in Australia, Korea, and Finland

	Australia	Korea	Finland
Tertiary education (aged 25–64) 2009 (%)[1]	37	39	37
Male employment rates aged 15–64 2009 (%)[2]	77.8	73.6	68.9
Female employment rates aged 15–64 2009 (%)[2]	66.3	52.2	67.9
Female part-time employment 2013 (%)[2]	38.1	16.2	16.7
Percentage of men who usually work 40+ hours 2011[2]	62	85	53.9
Public expenditure on formal childcare % GDP 2009[3]	0.6	0.7	1.1
Enrollment rates for formal childcare/early education 2008 (%)[4]			
Children 0–2 years	29	19	28
Children 3–5 years	55	83	73
Total fertility rates 2009 (%)[5]	2.0	1.2	1.9
Gender wage gap in median earnings of full time employees 2009[6]	16.4	38.6	19.7
Global Gender Gap Index 2009[7]	0.73	0.61	0.83

Time periods closest available match to the available Time Use Data

[1]Education at a Glance 2011 OECD indicators http://www.oecd.org/edu/Chapter1-TablesandCharts-IEAG2015web.xlsx

[2]OECD Family database. (http://www.oecd.org/els/soc/LMF_1_6_Gender_differences_in_employ ment_outcomes.xlsx) For Korea KOSIS (Korean statistical database) 2009 all women aged 15 and above

[3]OECD Family database (http://www.oecd.org/els/soc/PF3_1_Public_spending_on_childcare_and_ early_education_Dec2014.xls)

[4]OECD Family database (http://www.oecd.org/els/soc/PF3_2_Enrolment_childcare_preschool.xlsx)., Korea aged 3-5 2010

[5]OECD Family database (http://www.oecd.org/els/soc/SF_2_1_Fertility_rates.xlsx)

[6]OECD Family database (http://www.oecd.org/els/family/LMF_1_5_Gender_pay_gaps_for_full_ time_workers.xlsx) A 2010

[7]The Global Gender Gap Report. Geneva: World Economic Forum http://www3.weforum.org/docs/ WEF_GenderGap_Report_2009.pdf

higher proportion of men (44%) than women (34%) has a tertiary qualification.

Male employment rates are highest in Australia and lowest in Finland (see Table 1). Female employment rates are lowest in Korea (52%). Overall, female participation rates in Australia and Finland are similar at about 68%, but 38% of Australian women work part time, compared to about 16% in Korea and Finland. Nearly 85% of men in Korea work over 40 hours a week, substantially higher than men in Australia (62%) and Finland (53%). The reported averages imply that average male market work hours are lowest in Finland. They also show that gender gaps in workforce participation are substantial in all three countries, but they are least in Finland and most in Korea.

Affordable, accessible childcare is essential to underpin female workforce participation (Gornick and Meyers 2003). Finland spends more than 1% of their Gross Domestic Product (GDP) on formal childcare/early education, whereas Australia and Korea spend 0.6% and 0.7%, respectively. Compared to Australia and Finland, attendance rates for Korea are lowest for children aged 0–2 years, but highest for 3–5-year-olds, signaling that Korean children begin attending formal early education at age 3. Enrollment rates are consistently high in Finland for both age groups: 28% for 0–2 years and 73% for 3–5-year-olds. Attendance for 3–5-year-olds is, at 55%, lowest in Australia.

The countries differ in their fertility rates, with Australia (2%) and Finland (1.9%) at near replacement, and Korea very low at a below-replacement 1.2%. Low fertility rates are endemic throughout Asia, and have been attributed to gender inequities in market and nonmarket work, on the basis that women will forego motherhood if it is too costly in high time allocation to domestic work and in foregone earnings (De Laat and Sevilla Sanz 2004; McDonald 2006).

There is very large disparity in the gender wage gap for full-time workers across the countries, with Korea extremely high at 39 percentage points. The other countries are also substantial, with Finland (19.2) wider than Australia (16.4). The gap in Finland may reflect occupational segregation, which is quite marked in Scandinavian countries, where women are much more likely than men to work in care and social services (Orloff 2009). Korea also scores lowest on the Global Gender Gap Index, which covers a range from 0 meaning complete inequality to 1 meaning complete equality on a range of criteria including political representation, health outcomes, and financial well-being (see Hausmann et al. 2009 for details). Korea scores 0.61, compared to 0.83 for Finland, and 0.73 for Australia.

Taken together, these institutional features and social indicators suggest that of the three countries, Finland has the most extensive work–family supports and is the most progressive in promoting gender equality, Korea is the least progressive, and Australia falls in between. Also, male paid work hours are particularly long in Korea, intermediate in Australia, and least in Finland. We noted earlier that the literature suggests longer working hours engender more time stress and that we expect gender symmetry would not only be more common but also less stressful in countries that have public policy supports for work–family reconciliation. Given the country profiles in relation to these two factors, we expect that associations between time stress and gender symmetry will be particularly strong for women in Korea.

4   Research Focus

The central aim of this paper is to investigate whether gender symmetry in couples' market and nonmarket work relates to their subjective time pressure, and whether cross-national differences in workplace and social policy settings may be relevant to these relationships. Because this issue is new to the literature, we first conduct descriptive analyses to examine total household workloads (couples combined paid and unpaid work) and identify how prevalent gender-equal divisions of labor are in couple households in Australia, Korea, and Finland. We compare, by country, gender differences in household work composition by whether or not couples have gender-equal shares of market and nonmarket work. We show how average time in each type of work (market or nonmarket) varies from the norm for each gender, in each country, in households that achieve symmetry. Then, using logistic regression modeling, we examine in each country associations between time a/symmetry and subjective time pressure and whether these associations vary by gender.

5   Data and Method

5.1   Data

We used Time Use Surveys (TUS) of Australia (2006), Korea (2009), and Finland (2009) conducted by the national statistical agency of each country. Each contains representative samples of the respective

country populations. All the surveys collected information through a self-completed time diary covering weekdays and weekend days, although ratios of day type differ. The Australian and Korean TUS collected data over two consecutive days, while the Finnish TUS collected data for one weekday and one weekend day. In all three countries, multiple members of the sampled households participated so it was possible to derive individual and household level data and analyze the time of men and women living together. We drew a sample of 20–64-year-old men and women in couple-headed households with and without children, consisting of 1458 households and 2873 diaries from the Australian TUS, 4374 households and 8748 diaries from the Korean TUS, and 781 households and 1543 diaries from the Finnish TUS.

5.2   *Dependent Variables*

We calculated daily time spent by men and women, and by couples combined, in market and nonmarket work comprised of employment, child caregiving, housework, and related travel. To maximize cross-national comparability (Mullan and Craig 2009), we analyzed only primary activity. For detailed codes, see Table A.1.

Our key outcome variable is subjective time stress, which in each country was measured through a survey question. In the Australian TUS, the question read "how often do you feel rushed or pressed for time?" The response categories were "always", "often", "sometimes", "rarely", and "never". The Korean TUS asked "in daily life do you feel busy or pressed for time?" Response categories were "yes, always", "yes, sometimes", "not really", and "never". The Finnish TUS asked "how often do you feel rushed?" Response categories were "all the time", "from time to time", and "hardly ever". We dichotomize responses into a binary outcome variable that contrasts those who "always/all the time" or "often" feel time stressed with those who "sometimes/from time to time", "rarely/not really" or "never/hardly ever" do so. That the Australian TUS had five response categories while Korean and Finish TUS had fewer is an important point of difference, and means we can directly compare time stress only within, not between, countries. We use the terms "time stress", "subjective time pressure", and "feeling rushed or pressed for time" interchangeably.

5.3   *Analysis Plan and Independent Variables*

We began our analyses with a descriptive overview of key time use variables. To measure household gender shares, we first calculated men and women's paid work hours as a proportion of the total market work performed by the couple combined. Likewise, we calculated their unpaid work as the proportion of the total nonmarket work performed by the couple combined. We classified each diary day as being symmetrical or asymmetrical. Symmetry was defined as both the market work share and the nonmarket work share being more than or equal to 0.4 and less than or equal to 0.6. That is, as 50:50 plus or minus 10% on both forms of work. Preliminary investigation showed gender symmetry was more likely to occur on weekends, because they are days on which less work is performed overall. Therefore, our descriptive overview of time spent in market and nonmarket work and gender a/symmetry by country used simple linear models which controlled for day of the week.

We used logistic regression analyses to investigate how gender a/symmetry related to men and women's subjective time stress in each of the three countries. We stratified our analyses by country because of language and definition differences in the key time pressure question. Our key independent variables were gender, gender a/symmetry, and interactions between them.

The models controlled for factors that may have an independent relationship with time stress. We captured parenthood (Craig and Mullan 2009) by a series of dummy variables: no children (omitted), age of the youngest child is 0–4 years, 5–9 years, or 10–14 years. We also tested interactions between age of children and gender. We entered respondent's age (in years) because patterns in employment and nonmarket work vary over the life course (Baxter 2002; Hendricks and Cutler 2003). For Korea and Finland, age was provided as a continuous variable. In the Australian data, age was provided in 5-year bands and we take the midpoint of each to generate a continuous variable. We included education as a dummy defined as both partners have a college degree because human capital has been found to be related to both time use and subjective time pressure (Gershuny 2005; Hamermesh and Lee 2007). We controlled for the presence of three or more adults in the household to account for any additional workload or benefit that may be gained from having other adults in the house. We held constant the couple's total combined daily market and nonmarket work, so relationships between time stress and gender shares were assessed independently of overall amount of work.

6   RESULTS

Table 2 describes the sample and delineates country and gender differences in the independent variables.[1] It reveals some demographic contrasts in our sample. A lower percentage of households had no young children in Korea (43%) than in Australia (45%) and Finland (49%). This is inconsistent with the low fertility rate in Korea shown in Table 1, but likely results from our couple-only sample. Having adults other than the conjugal couple in the household is more common in Korea (41%) than Australia (31%) and Finland (30%). As expected, gender symmetry was most prevalent in Finland, where couples equally shared market and nonmarket work on 25% of diary days. Korean households were the most

Table 2   Descriptive statistics for Australia, Korea, and Finland for household and individual variables

	Australia		*Korea*		*Finland*	
Household variables						
Number of households	1458		4374		781	
	%		%		%	
Age of the youngest child						
No children	45.3		42.9		49.4	
Aged 0–4	26.1		19.9		22.3	
Aged 5–9	14.9		16.6		13.8	
Aged 10–14	13.7		20.7		14.5	
Both partners have college degree	21.9		15.4		16.1	
3+ adults in the house	30.8		40.9		30.1	
2+ children	34.6		31.7		29.1	
Gender symmetry in market and nonmarket work	18.3		5.5		25.2	
Person variables	**Men**	**Women**	**Men**	**Women**	**Men**	**Women**
High subjective time stress	61.7	65.0	35.2	30.5	22.0	20.0
Employment status						
Full-time	84.4	35.5	89.3	44.1	82.1	71.7
Part-time	7.3	40.1	5.0	11.6	3.5	12.5
Not in labor force	8.4	24.4	5.7	44.3	14.4	15.7
Age (mean (SD))	42.2 (9.4)	39.6 (8.7)	43.7 (8.2)	40.7 (7.6)	42.4 (9.9)	39.9 (9.1)

imbalanced with less than 6% of diary days classified as symmetrical, and Australia occupied the middle ground with 18%.

Table 2 also suggests that average reported time stress is much higher in Australia than the other countries. It is lowest in Finland. This could be a result of the coding differences discussed earlier and for this reason we place more reliance on within-country than between-country differences. Patterns in education and employment are consistent with those in Table 1.

6.1   Time Use by Gender and Country

To show how total household workload is constructed by gender and country, the average weekly market and nonmarket work of men and of women is presented in Table 3. Men in Korea average more weekly market work (48.4 hours) than men in Australia (42.4 hours) or Finland (28.8 hours).[2] Australian women's average weekly paid work (19.8 hours) was statistically lower than Korea (22.1 hours) and Finland (24.1 hours), but did not differ statistically between the latter two countries. Korean men spend much less time per week in nonmarket work (6.5 hours), than Australian (20 hours) or Finnish men (19.3 hours). The difference between Korea and each of the other countries is significant, but there was no significant difference between Australia and Finland. There were also significant differences in women's weekly nonmarket work among Australia (41.6 hours), Korea (35.6 hours), and Finland (29.0 hours).

Total weekly workloads were significantly lower in Korea (112.9 hours) and Finland (101.5 hours) than in Australia (123.8 hours). They were significantly lower in Finland than in Korea. Korean men's long market work hours were offset by their short nonmarket work hours. Australian households had the highest weekly workloads of the three countries due to men's fairly high paid work and nonmarket work combined with comparatively high nonmarket work for women. Low weekly total workloads in Finland were driven by the short male employment hours, and moderate female nonmarket work hours noted earlier.

Fig. 1 illustrates what these patterns mean for the gender division of labor within each country. The extent that the bar is above the zero line signifies that men do more than women, and the extent to which the bar is below the zero line signifies that men do less than women. Gender gaps in market and nonmarket work were statistically significant in all the countries, but varied in magnitude. For Korea, the gender difference was comprised of 26.3 hours market work (48.4–22.1) and 29.1 hours

Table 3 Mean hours per week spent in market and nonmarket work by men and women in Australia, Korea, and Finland

Diary variables	Australia		Korea		Finland	
Number of diaries	2873		8748		1543	
	Mean (SD)		Mean (SD)		Mean (SD)	
Total household work	123.8 (43.6)		112.9(41.5)[a]		101.5 (48.5)[b,c]	
	Men	**Women**	**Men**	**Women**	**Men**	**Women**
Market work	42.2	19.8	48.4[a]	22.1[a]	28.8[b,c]	24.1[c]
	(34.4)	(28.1)	(31.1)	(28.7)	(33.3)	(29.8)
Nonmarket work	20.0	41.6	6.4[a]	35.6[a]	19.3[b]	29.0[b]
	(19.1)	(24.7)	(10.4)	(20.8)	(16.9)	(20.2)

[a]Significant difference between Australia and Korea ($p < 0.01$)
[b]Significant difference between Korea and Finland ($p < 0.01$)
[c]Significant difference between Australia and Finland ($p < 0.01$)
Time metric modeled is hours per week. This was done to maintain consistency across all descriptive statistics and because the day type is not of important in and of itself. Using fitted values from the simple linear regression, synthetic weekly averages were calculated by summing the weekday estimate multiplied by five with the weekend day estimate multiplied by two.
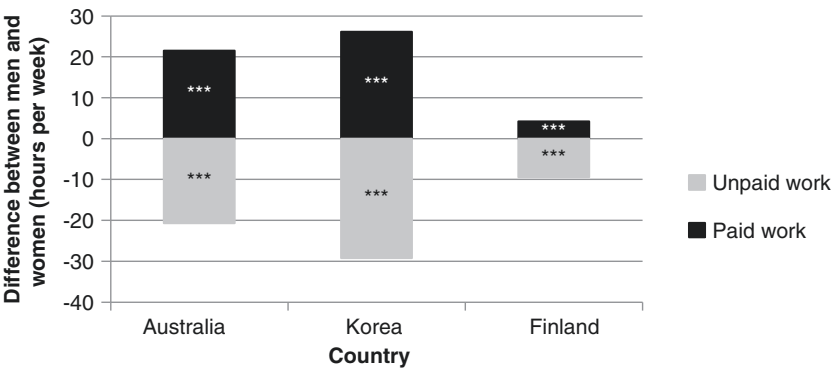
Fig. 1 Differences in mean market and nonmarket work by men compared to women in Australia, Korea, and Finland

Note: The extent that the bar is above the zero line signifies that men do more than women, and the extent to which the bar is below the zero line signifies that men do less than women. *** $p < 0.001$ for differences for men compared to women

nonmarket work (35.6–6.5). This is larger than in Australia, where the gap
is 22.4 hours per week (42.4–19.8) market work, and 21.6 hours per week
(41.6–20.0) nonmarket work. It is much larger than in Finland where the
gender difference is 4.7 hours per week (28.8–24.1) market work and 9.7
hours per week (29.0–19.3) nonmarket work. Thus, overall gaps between
men and women were largest for Korea and smallest for Finland, consistent
with the finding above that gender symmetry was most prevalent in Finland
and least prevalent in Korea, with Australia occupying the middle ground.

6.2   *Time Use by Gender and Country and A/Symmetry*

To consider differences in combined household workload, and for men and
women separately, by household a/symmetry, we ran simple linear models
controlling for day of the week. Results are presented in Table A.2. Within
all three countries there were no significant differences in total workloads by
gender a/symmetry. Thus, the cross-country differences in total workload
noted earlier, with Australia the longest, Finland the shortest, and Korea in
the middle, pertained in both symmetrical and non-symmetrical house-
holds. However, with regard to how total work was proportionately com-
prised of market and nonmarket work in each type of household, there were
substantial country differences.

In Australia, symmetrical households spent 14 fewer hours per week in
market work and 11 more hours per week in nonmarket work than
asymmetrical households. These differences are statistically significant.
Similarly, in Finland, couples' combined weekly market work was signifi-
cantly lower (14 hours) and their nonmarket work significantly higher
(13 hours) in symmetrical, rather than non-symmetrical, households. That
is, gender symmetry entailed more nonmarket and less market work at a
household level in both Australia and Finland. In Korea, this was not the
case. There, combined market work was statistically the same in both
household types, whereas combined nonmarket work was higher
(5 hours) in gender symmetrical households.[3]

There were also country differences in whether the time contrasts
between symmetrical and non-symmetrical households were driven by
men or by women. These differences are illustrated in Fig. 2. The extent
that the bar is above the zero line signifies that more work was done in
symmetrical than non-symmetrical households, and the extent to which
the bar is below the zero line signifies that less work was done in symme-
trical than non-symmetrical households.
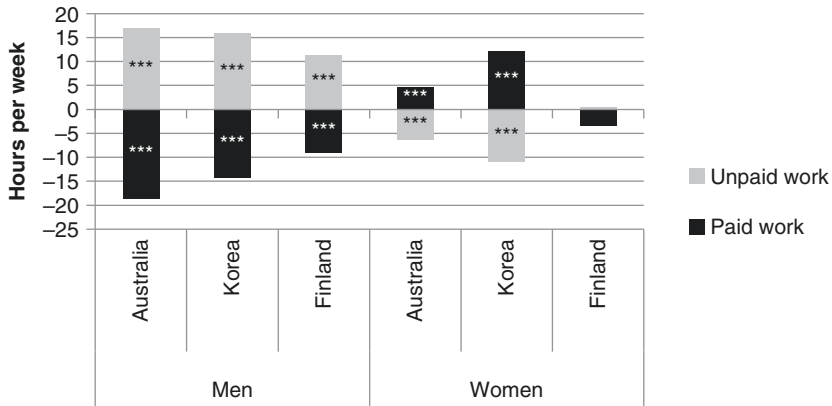
Fig. 2 Differences in average market and nonmarket work by symmetrical compared to non-symmetrical households for men and women in Australia, Korea, and Finland

Notes: The extent that the bar is above the zero line signifies that more work is done in symmetrical households compared to non-symmetrical households, and the extent to which the bar is below the zero line signifies that less work is done in symmetrical households compared to non-symmetrical households.

*** signifies that differences between symmetrical and non-symmetrical households were significantly different at $p < 0.001$

Results indicate that it is men's time, rather than women's, that differs most by a/symmetry. Australian, Korean, and Finnish men all averaged significantly less market work and more nonmarket work in symmetrical than in non-symmetrical households. The amounts differed by country. Australian men in symmetrical households did 18.6 hours a week less market work and 17 hours a week more nonmarket work, whereas Finnish men did 9 fewer hours market work and 11.3 hours more nonmarket work. Korean men in symmetrical households did 14 fewer hours of market work and 15.8 more hours of nonmarket work than men in non-symmetrical households. It is worth noting that even in symmetrical households, Korean men average comparatively long employment hours (36.3 weekly hours, compared to 27.3 for Australian men and 22.1 for Finnish men) and these differences were statistically significant.

In Australia and Korea, women in symmetrical households spent significantly more time in market work and less time in nonmarket work than those in non-symmetrical households, but the quantum of

difference was much smaller than for men. For Australia, the difference by a/symmetry was 4.7 hours market work, and 6.4 hours nonmarket work. In Korea, the difference was more substantial at 12.3 hours more market work, and 11 hours less nonmarket work. For Finnish women, there was no statistical difference between symmetrical and non-symmetrical households in either market or nonmarket work.

We now turn to logistic regression analysis to test whether, within each country, gender a/symmetry is associated with higher odds of time stress, and whether associations differ by gender.

6.3 *Multivariate Analyses*

We modeled the association between gender, work a/symmetry, and time stress separately by country. As the interaction gender by a/symmetry was included in the model, the main effect for a/symmetry was for men, and the main effect for women was for those in asymmetrical households. The interaction term captured the effect for women in symmetrical households.

Table 4 shows that in Australia, men from symmetrical households reported 23% $[100(0.77-1)]$ lower odds of being time stressed than men from asymmetrical households. In symmetrical households, women reported 57% $[100(1.57-1)]$ higher odds of time stress than men. Supplementary analyses directly comparing Australian women in symmetrical and non-symmetrical households with each other found there no significant difference in their odds of reporting time stress. Taken together, this means that in Australia, men in symmetrical households were less time stressed than those asymmetrical households, but women were equally time stressed in both household types.

We performed sensitivity analyses to investigate whether the definition of time stress affected the results for Australia. Using a more restricted definition of time stress ("always" rushed or pressed for time rather than "always or often" rushed or pressed for time), we found similar results as earlier, with one exception. The direction of association remained the same, but men's odds of reporting time stress did not differ statistically by a/symmetry ($p > 0.05$). The result for women held, with those in symmetrical households reporting 64% $[100(1.64-1)]$ greater odds of time stress than their male counterparts ($p < 0.05$).

In Korea, gender symmetry was positively associated with time stress for women. Those in symmetrical households reported 45% $[100(1.45-1)]$ higher odds of time stress than their male counterparts. However, in non-

Table 4   Odds Ratios for logistic regression models predicting time stress

	Australia	*Korea*	*Finland*
Female	0.87	0.74***	1.00
	(0.10)	(0.06)	(1.20)
Symmetric households	0.77*	1.25	0.86
	(0.09)	(0.17)	(0.14)
Female by symmetric households	1.57**	1.45*	1.17
	(0.24)	(0.25)	(0.29)
Total household work (hours per week)	1.06***	1.07***	1.04***
	(0.01)	(0.01)	(0.01)
Youngest child is aged 0–4	1.70**	1.41**	1.71*
	(0.29)	(0.18)	(0.44)
Youngest child is aged 5–9	1.76**	0.94*	2.00*
	(0.35)	(0.15)	(0.58)
Youngest child is aged 10–14	1.31	1.15	1.08
	(0.25)	(0.13)	(0.34)
Female by youngest aged 0–4	1.26	0.76	0.57
	(0.26)	(0.11)	(0.20)
Female by youngest aged 5–9	1.49	0.94	0.58
	(0.38)	(0.15)	(0.24)
Female by youngest aged 10–14	1.05	1.09	0.92
	(0.27)	(0.15)	(0.36)
Age	0.98***	0.98***	0.99
	(0.00)	(0.00)	(0.01)
Both partners have college degree	1.28*	1.50***	1.15
	(0.14)	(0.12)	(0.22)
Number of adults in household is 3+	1.38**	1.10	1.06
	(0.14)	(0.08)	(0.19)

Reference category: male, asymmetric households, no children, partners do not both have a college degree, 2 adults in household. Standard errors in parentheses
* $p<0.05$, ** $p<0.01$, *** $p<0.001$

symmetrical households, women had significantly lower time stress than men. These women reported 26% [100(0.74–1)] lower odds of time stress than their male counterparts. This is not surprising given the large difference in market work hours of men (51) and women (22) in asymmetrical households. Supplementary analyses showed that if the coding for gender was reversed such that women were the referent group, Korean women in symmetrical households reported 81% [100(1.81–1)] higher odds of time stress ($p < 0.001$) than Korean women in asymmetrical households.

It should be recalled that less than 6% of Korean households are gender-symmetrical, and that women's time allocation difference by

gender a/symmetry is the widest of the three countries. Korean women who share market and nonmarket work equally with their spouse are very unusual, and do much more paid work than their compatriots in non-symmetrical households. Korean men report no difference in time stress by a/symmetry. Again it should be noted that average market work hours for Korean men are high, even in gender-symmetrical households.

Finally, the logistic regressions revealed no significant associations between a/symmetry and time stress in Finland for either men or women. This may be due to the relatively small differences in gender time allocation between symmetrical and non-symmetrical households, or the low average total household work hours in Finland reducing time stress for all.

7   DISCUSSION AND CONCLUSION

Despite predictions of role convergence over the last half-century, "symmetrical families" in which men and women share equally in market and in nonmarket work have not become the statistical norm (Young and Wilmott 1973; Bergmann 1986; Fisher et al. 2007; Bianchi et al. 2000; Sullivan 2006). This paper explored the possibility that a contributing factor could be that gender time symmetry is accompanied by higher time stress, making it "just too hard" for most families to achieve. We conducted a three-country study, on the assumption that national social and economic policies and practices could exacerbate or ameliorate stress costs related to gender time symmetry. Our results suggest that this was the case.

The three countries chosen had contrasting institutional features and social policy frameworks (summarized in Table 1). Finland has the most extensive work–family supports and is the most progressive in promoting gender equality (Gornick and Meyers 2003; Gershuny and Sullivan 2003). Australia is a liberal country in which work–family policy measures are thin, male working hours are long and there is a high incidence of part-time work for women (Craig and Mullan 2010). Korea, which fits the welfare regime description liberal-familialist (Kwon 2005; Lee 2005; Ochiai 2009), has even fewer institutional supports for work–family reconciliation and very long male working hours. Against this backdrop, we found marked cross-national contrast in average couple work total hours, the incidence of time symmetry, and its association with time stress. These differences confirm that context does matter, and gives pointers to specific policy direction. In particular, our findings

suggest that shorter average national male employment hours may be prerequisite to stress-free gender time equality.

One indication is that, in Finland, gender symmetry did not involve higher subjective time stress for either gender. This may be because, as is to be expected for a social democratic country that promotes gender equality, symmetry was much more common there than in the other two countries and time variation between the two household types was not extreme. Symmetry was not universal, but, on average, Finnish men would need to only slightly alter their work composition to achieve it, and Finnish women would not need to change at all. They already average an almost equal balance between market and nonmarket work. But importantly, Finnish total household workloads were substantially shorter than in the other countries, and this was largely due to male market work hours being particularly low, even in non-symmetrical households. The implication of our results is that lower country average working hours create flexibility not only for men and women to share market and nonmarket work equally, but to do so without added time stress.

This possibility is further supported by our findings for Korea, where average male work hours are very high, and symmetry is very unusual. In non-symmetrical households, women devoted a high proportion of their time to nonmarket work and had significantly lower time stress than men. When symmetry did exist, it was accompanied by much more time stress for women, and no reduction in time stress for men. Of our three countries, Korean patterns correspond most closely to the idea that role convergence brings more gender symmetry in the division of labor at the cost of higher time stress. However, it is pertinent that symmetry was not associated with a higher overall (market and nonmarket) household workload within that country, but rather with an altered household work composition, such that a larger proportion of household work time was devoted to paid employment. In Korean symmetrical households, women were going against the norm in doing much more market work than the country average, and their partners also did a sizable amount of market work. Nonmarket work for both genders was low in world terms. The results suggest that where average paid work hours are highest and allow little time for maintaining the domestic sphere, there are stress costs associated with symmetry. They also suggest there is a stress cost in exercising individual agency and pursuing a gender equal work division in a country where it is unusual and not well supported by social and workplace policies.

Patterns in Australia also suggest that work composition matters to time stress, but gender outcomes differed. As in Finland, but in contrast to

Korea, symmetry in Australia involved a higher proportion of total household work being unpaid, rather than paid. This outcome was largely driven by men. The Australian norm of female part-time work hours meant symmetrical work arrangements involved men deviating markedly from average male employment patterns. Thus, for men, symmetry meant a big time allocation shift from the norm, with substantially more nonmarket work and less market work. This shift was associated with significantly less male time stress. As within the other two countries, we did not find that symmetrical households did more or less work in total, which implies that the stress benefit from symmetry came from the changed composition of men's work. Notably, in symmetrical Australian households women were more stressed than men, so the benefit their husbands enjoyed did not extend to them. This is likely because the women were themselves substituting market for nonmarket work. However, intriguingly, our supplementary analyses showed no stress difference between women in symmetrical and non-symmetrical households. This suggests that, like Korean women, Australian men experience lower time stress when they have a work composition which includes relatively more nonmarket work, but Australian women do not. This result may arise from gender differences in what type of nonmarket work is performed and to what standard. This possibility could be pursued in future research. It could also be because, on average, in Australian non-symmetrical households, men's work hours are long, which has been found to be positively associated not only with their own but also with their wife's, subjective time stress (Craig and Brown 2016).

This analysis is subject to a number of limitations. We cannot identify why couples adopt gender symmetry so, for example, do not know if it is a result of deliberate decision or couple negotiation, or due to ill health or job loss, perhaps in economic downturn (Bell and Blanchflower 2010; Karamessini and Rubery 2013). There may be selection bias, particularly in Korea and Australia. Our results are associations only, and with cross-sectional data cannot identify causal direction between time use and time pressure. Also, we cannot directly link the results to specific policies.

Nonetheless, there are implications from the cross-national patterns we identify including that achieving gender time equality without high and gendered stress costs is facilitated if average male paid work hours are not overly long. Shorter work-weeks are not a current policy focus in liberal or liberal-familialist countries, despite some experiencing under- or unemployment and consequent social inequality. Rather, "family friendly" measures including flexible hours and working from home, which shift work time or location, are widely suggested as solutions to

contemporary time pressures (Powell and Craig 2015; Halpern 2005). However, to date such measures are much more likely to be taken up by women than by men, adding to gender disparity in career progression and wealth accumulation (Lewis 2001; Whittock et al. 2002; Chalmers and Hill 2007). Goldin argues that the last remaining chapter in the "grand gender convergence" is allowing employees "temporal flexibility", but also points out that long full-time work hours are a major cause of the current inequality (Goldin 2014). Many caution that without employment time reduction, rescheduling work to times outside the standard working week potentially facilitates work intensification, work extension, work–family conflict, and higher time stress (Wajcman 2016; Kelliher and Anderson 2010; Shockley and Allen 2007; Slaughter 2012). On balance, it seems that shifting work time is likely to be less useful in lowering family time stress than reducing male employment hours. This might be thought likely to lower national economic productivity, but social democratic countries perform highly on such measures (OECD 2016), suggesting that a better time balance between work and family and a higher average incidence of symmetry is not inimical to economic well-being. Moreover, a low average incidence of symmetry may be inimical to *social* well-being. The results of this study suggest that in a policy framework in which it is rare, gendered time equality comes at the cost of higher time stress.

APPENDIX

Table A.1   Primary/main activity codes for Italy, Australia and Korea

	Australia	*Korea*	*Finland*
Market work	200-299	211-299, 2601, 2602, 821, 822	111-112 129 910
Childcare	500-599	511-523, 851, 5121-5292	381-389 938
Domestic/ purchasing	400-499 and 600-699	240, 411-499, 841, 3301, 4411-4532, 5301-5509, 6101-6109, 7801, 7802	300-371

Table A.2 Regression coefficients for time spent in market and nonmarket work by country

	Australia	Korea	Finland
Number of diaries	2873	8748	1543
Household market work			
Symmetrical household	−14.12 ***	−2.75	−13.58***
	(2.94)	(3.32)	(3.58)
Weekday	57.34***	47.75***	55.04***
	(2.04)	(1.21)	(2.22)
Constant	24.81***	38.87***	17.53***
	(1.50)	(0.93)	(1.77)
Household nonmarketmarket work			
Symmetrical household	11.08***	5.09*	12.63***
	(2.06)	(2.24)	(2.38)
Weekday	−13.41***	−6.20***	−5.52***
	(1.57)	(0.72)	(1.25)
Constant	68.26***	46.00***	48.88***
	(1.31)	(0.56)	(1.33)

(*continued*)

Table A.2 (continued)

	Australia		Korea		Finland	
	Men	Women	Men	Women	Men	Women
Individual market work						
Symmetrical household	−18.56***	4.70**	−14.30***	12.30***	−8.99***	−3.50
	(1.63)	(1.49)	(1.56)	(1.73)	(2.00)	(1.89)
Weekday	34.97***	21.21***	32.25***	15.59***	29.75***	24.95***
	(1.36)	(1.16)	(0.80)	(0.77)	(1.47)	(1.28)
Constant	20.84***	3.83***	27.57***	11.06***	9.81***	7.11***
	(1.08)	(0.76)	(0.67)	(0.50)	(1.20)	(0.97)
Individual nonmarketmarket work						
Symmetrical household	17.03***	−6.40***	15.81***	−11.00***	11.33***	0.47
	(1.05)	(1.18)	(0.98)	(1.19)	(1.21)	(1.34)
Weekday	−9.11***	−3.18**	−4.95***	−1.64**	−3.14***	−2.32**
	(0.84)	(1.08)	(0.29)	(0.57)	(0.80)	(0.81)
Constant	23.28***	45.04***	8.91***	37.25***	18.74***	30.58***
	(0.72)	(0.85)	(0.25)	(0.42)	(0.74)	(0.87)

* p<.05, ** p<.01, *** p<.001
Note: Standard errors in parentheses.

NOTES

1. All descriptive statistics and models were weighted to account for unequal distribution of days of the week, as appropriate. Standard errors were estimated using the Taylor linearization to take into account that the matched husbands and wives were clustered within households and diary days within individuals. Analyses were performed using Stata version 14.0.
2. Unless otherwise noted, all comparisons deemed significant were significant at $p < 0.001$.
3. Significant at $p < 0.05$.

REFERENCES

Anxo, Dominique, Colette Fagan, Inmaculada Cebrian, and Gloria Moreno (2007). Patterns of labour market integration in Europe – a life course perspective on time policies. *Socio-Economic Review*, 5(2), 233–260.

Baxter, Janeen, Belinda Hewitt, and Michele Haynes (2008). Life course transitions and housework: Marriage, parenthood, and time on housework. *Journal of Marriage and Family*, 70(2), 259–272.

Baxter (2002). Patterns of change and stability in the gender division of household labour in Australia, 1996-1997. *Journal of Sociology*, 38(4), 399–424.

Beaujot, Roderic, and Robert Andersen (2007). Time-crunch: Impact of time spent in paid and unpaid work, and its divisions in families. *Canadian Journal of Sociology*, 32, 295–315. doi: 10.2307/20460645.

Bell, David, and David Blanchflower (2010). UK unemployment in the great recession. *National Institute Economic Review*, 214(1), R3–R45. doi: 10.1177/0027950110389755.

Bergmann, Barbara (1986). *The Economic Emergence of Women*. New York: Basic Books, Inc.

Bianchi, Suzanne, and Melissa Milkie (2010). Work and family research in the first decade of the 21st century. *Journal of Marriage and Family*, 72(3), 705–725. doi: 10.1111/j.1741-3737.2010.00726.x.

Bianchi, Suzanne, Melissa Milkie, Liana Sayer, and John Robinson (2000). Is anyone doing the housework? Trends in the gender division of household labor. *Social Forces*, 79(1), 191–228. doi: 10.1093/sf/79.1.191.

Chalmers, Jenny, and Trish Hill (2007). Marginalising women in the labour market: "Wage scarring" effects of part-time work. *Australian Bulletin of Labour*, 33(2), 180–201.

Connell, Robert (2003). *The Role of Men and Boys in Achieving Gender Equality* (pp. 21–24). United Nations: Division for the Advancement of Women.

Craig, Lyn, and Janeen Baxter (2016). Domestic outsourcing, housework shares and subjective time pressure: Gender differences in the correlates of hiring help. *Social Indicators Research*, 125(1), 271–288. doi: 10.1007/s11205-014-083-1.

Craig, Lyn, and Judith Brown (2016). Feeling rushed: Gendered time quality, work hours, work schedules and spousal crossover. *Journal of Marriage and Family*. doi: online first 10.1111/jomf.12320.

Craig, Lyn, and Killian Mullan (2009). The policeman and the part-time sales assistant: Household labour supply, family time and subjective time pressure in Australia, 1997–2006. *Journal of Comparative Family Studies*, 40(4), 545–560.

Craig, Lyn, and Killian Mullan (2010). Parenthood, gender and work-family time in USA, Australia, Italy, France and Denmark. *Journal of Marriage and Family*, 72(5), 1344–1361.

Craig, Lyn, Killian Mullan, and Megan Blaxland (2010). Parenthood, policy and work-family time in Australia, 1992–2006. *Work, Employment and Society*, 24(1), 1–19. doi: 10.1177/0950017012437006.

Crompton, Rosemary (2006). *Employment and the Family. The Reconfiguration of Work and Family Life in Contemporary Societies*. Cambridge: Cambridge University Press.

De Laat, Joost, and Almudena Sevilla Sanz (2004). Working women, men's home time and lowest-low fertility in Europe. Department of Economics, Brown University.

Deding, Mette, and Mette Lausten (2011). Gendered time-crunch and work factors in Denmark. *Social Indicators Research*, 101, 249–253. doi: 10.1007/s11205-010-9643-2.

Edwards, Paul, and Judy Wajcman (2005). *The Politics of Working Life*. Oxford: Oxford University Press.

Esping-Andersen, Gøsta (2009). *The Incomplete Revolution: Adapting to Women's New Roles*. Cambridge: Polity Press.

Fisher, Kimberly, Muriel Egerton, Jonathan Gershuny, and John Robinson (2007). Gender convergence in the American Heritage Time Use Study (AHTUS). *Social Indicators Research*, 82(1), 1–33. doi: 10.1007/s11205-006-9017-y.

Gershuny, Jonathan (2005). Busyness as the badge of honor for the new super-ordinate working class. *Social Research*, 72(2), 287–314

Gershuny, Jonathan (2011). Increasing paid work time? A new puzzle for multi-national time-diary research. *Social Indicators Research*, 101, 207–213.

Gershuny, Jonathan, and Oriel Sullivan (2003). Time use, gender and public policy regimes. *Social Politics*, 10(2), 205–228.

Goldin, Claudia (2014). A grand gender convergence: Its last chapter. *The American Economic Review*, 104(4), 1091–1119. doi: 10.1257/aer.104.4.1091.

Gornick, Janet, and Marcia Meyers (2003). *Families that Work: Policies for Reconciling Parenthood and Employment*. New York: Russell Sage.

Halpern, Diane (2005). How time-flexible work policies can reduce stress, improve health, and save money. *Stress and Health*, 21(3), 157–168.

Hamermesh, Daniel, and Jungmin Lee (2007). Stressed out on four continents: Time crunch or yuppie kvetch? *The Review of Economics and Statistics*, 89(2), 374–383.

Hartmann, Heidi (1981). The unhappy marriage of marxism and feminism: Towards a more progressive union. In Lydia Sargent (Ed.), *Women and Revolution: A Discussion of the Unhappy Marriage of Marxism and Feminism* (pp. 1–41). Montreal: Black Rose Books Ltd.

Hausmann, Ricardo, Laura D. Tyson, and Saadia Zahidi (2009). The global gender gap report. In *Insight Report* (pp. 3–31). Geneva, Switzerland: World Economic Forum.

Hill, Jeffrey, Vjollca K. Märtinson, Maria Ferris, and Robin Zenger Baker (2004). Beyond the mommy track: The influence of new-concept part-time work for professional women on work and family. *Journal of Family and Economic Issues*, 25(1), 121–136.

Hendricks, Cutler (2003). Leisure and time use across the life course. *Handbook of Aging and the Social Sciences*, 3, 107–134

Hook, Jennifer (2006). Care in context: Men's unpaid work in 20 countries, 1965–2003. *American Sociological Review*, 71(4), 639–660.

Hook, Jennifer (2010). Gender inequality in the welfare wtate: Sex segregation in housework, 1965–2003. *American Journal of Sociology*, 115(5), 1480–1523.

HREOC (2007). *It's About Time: Women, Men, Work and Family*. Sydney: Human Rights and Equal Opportunity Commission.

Jacobs, Jerry, and Kathleen Gerson (2004). *The Time Divide: Work, Family, and Gender Inequality*. Cambridge, Massachusetts: Harvard University Press.

Kan, Man Yee, Oriel Sullivan, and Jonathan Gershuny (2011). Gender convergence in domestic work: Discerning the effects of interactional and institutional barriers from large-scale data. *Sociology*, 45, 234–251.

Karamessini, Maria, and Jill Rubery (Eds) (2013). *Women and Austerity: The Economic Crisis and the Future for Gender Equality*. USA and Canada: Routledge.

Kelliher, Clare, and Deirdre Anderson (2010). Doing more with less? Flexible working practices and the intensification of work. *Human Relations*, 63(1), 83–106.

Kleiner, Sibyl (2014). Subjective time pressure: General or domain specific? *Social Science Research*, 47(1), 108–120.

Kwon, Huck-Ju (Ed) (2005). *Transforming the Developmental Welfare States in East Asia*. New York: Palgrave Macmillan.

Lee, Eliza (2005). The politics of the welfare developmentalism in Hong Kong. In Huck-Ju Kwon (Ed.), *Transforming the Developmental Welfare States in East Asia* (pp. 118–139). New York: Palgrave Macmillan.

Lewis, Jane (2009). *Work-Family Balance, Gender and Policy*. Cheltenham, UK, Northhampton, MA, USA: Edward Elgar.

Lewis, Suzan (2001). Restructuring workplace cultures: The ultimate work-family challenge? *Women in Management Review*, 16(1), 21–29.

Meissner, Humphreys, Meis, S., and Scheu, W. (1975). No exit for wives: Sexual division of labour and the cumulation of household demands. *Canadian Review of Society and Anthropology*, 12(4), 424–439.

MacDonald, Martha, Shelley Phipps, and Lynn Lethbridge (2005). Taking its toll: The influence of paid and unpaid work on women's well-being. *Feminist Economics*, 11, 63–94. doi: 10.1080/1354570042000332597.

Mattingly, Marybeth, and Liana Sayer (2006). Under pressure: Gender differences in the relationship between free time and feeling rushed. *Journal of Marriage and the Family*, 68(1), 205–221.

McDonald, Peter (2006). Low fertility and the state: The efficacy of policy. *Population and Development Review*, 32(3), 485–510.

Mullan, Killian, and Lyn Craig (2009). Harmonising extended measures of parental childcare in the time-diaries of four countries: Proximity versus responsibility. *Electronic International Journal of Time Use Research*, 6(1), 48–72.

Nedelsky, Jennifer (2016). (Part)-time for all: Norms to transform the crisis of work and care. Working Paper.

O'Connor, Julia, Ann Orloff, and Sheila Shaver (1999). *States, Markets, Families*. Cambridge: Cambridge University Press.

Oakley (1985). *The Sociology of Housework*. Cambridge: Basil Blackwell.

Ochiai, Emiko (2009). Care diamonds and welfare regimes in East and South-East Asian societies: Bridging family and welfare sociology. *International Journal of Japanese Sociology*, 18, 60–78.

OECD (2016). *Level of GDP per capita and productivity*. Organisation for Economic Co-operation and Development 2015 [cited 6/8/16 2016]. Available from http://stats.oecd.org/Index.aspx?DataSetCode=PDB_LV.

Orloff, Ann (2009). Gendering the comparative analysis of welfare states: An unfinished agenda. *Sociological Theory*, 27(3), 317–343.

Plibersek, Tanya (2008). *Women and Men: A New Conversation about Equality*. Sydney: The Sydney Institute.

Pocock, Barbara (2003). *The Work/Life Collision*. Sydney: Federation Press.

Powell, Abigail, and Lyn Craig (2015). Gender differences in working at home and time use patterns: Evidence from Australia. *Work, Employment and Society*, 29(4), 571–589. doi: 10.1177/0950017014568140.

Presser, Harriet (2003). *Working in a 24/7 Economy: Challenges for American Families*. New York: Russell Sage Foundation.

Robinson, John P., and Geoffrey Godbey (1997). *Time For Life. The Surprising Ways Americans Use Their Time*. University Park: Pennsylvania State University Press.

Sayer, Liana (2016). Trends in women's and men's time use, 1965–2012: Back to the future? In Susan M. McHale, Valarie King, Jennifer Van Hook, and Alan Booth (Eds.), *Gender and Couple Relationships* (pp. 43–77). Geneva, Switzerland: Springer International Publishing.

Sayer, Liana, and Janet Gornick (2012). Cross-national variation in the influence of employment hours on child care time. *European Sociological Review*, 28(4), 421–442. doi: 10.1093/esr/jcr008.

Schulte, Brigid (2014). *Overwhelmed: How to Work, Love and Play when No One has the Time*. USA: Sarah Chriton Books.

Shockley, Kristen, and Tammy Allen (2007). When does flexibility help: Another look at the availability of flexible work arrangements and work – family conflict. *Journal of Vocational Behavior*, 71(3), 479–493.

Slaughter, Anne Marie (2012). Why women still can't have it all. *The Atlantic*, July/August. [cited 3/10/16. Available from http://www.theatlantic.com/magazine/archive/2012/07/why-women-still-cant-have-it-all/309020/.

Strazdins, Lyndall, Amy Griffin, Dorothy Broom, Cathy Banwell, Rosemary Korda, Jane Dixon, Francesco Paolucci, and John Glover (2011). Time scarcity: Another health inequality? *Environment and Planning*, 43, 545–559.

Sullivan, Oriel (2006). *Changing Gender Relations, Changing Families: Tracing the Pace of Change over Time, Gender Lens Series*. New York: Rowman & Littlefield.

Sullivan, Oriel (2011). An end to gender display through the performance of housework? A review and reassessment of the quantitative literature using insights from the qualitative literature. *Journal of Family Theory and Review*, 3(1), 1–13.

Wajcman, Judy (2016). *Pressed for Time: The Acceleration of Life in Digital Capitalism*. Chicago: The University of Chicago Press.

Whittock, Margaret, Edwards Christine, Susan McLaren, and Olive Robinson (2002). The tender trap: Gender, part-time nursing and the effects of "family-friendly" policies on career advancement. *Sociology of Health and Illness*, 24(3), 305–326.

Young, Michael, and Peter Wilmott (1973). *The Symmetrical Family: A Study of Work and Leisure in the London Region*. London: Routledge.

Lyn Craig is Australian Reasearch Council Future Fellow and Professor of Sociology and Social Policy at The University of Melbourne, Australia. Her research interests include family, gender, and time use, intersections between the family and the economy, and comparative family and social policy.

Judith E. Brown is Research Officer at the University of New South Wales, Australia. She specialises in applied social statistical analysis and has considerable expertise in time-use analysis. She has published the fields of social policy, sociology, psycho-oncology and health psychology.

Lyndall Strazdins is Professor at The Australian National University. Her research addresses contemporary predicaments of work and care and their health consequences. She has been developing theory on time as a social determinant of health, to understand the significance of time as a resource which structures power relations and gender inequality as well as peoples' capacity to be healthy.

Jiweon Jun is Research Associate at the Centre for Time Use Research (CTUR), University of Oxford, UK. Her research involves time use, work-life balance, and well-being. She is also a lecturer at the Graduate School of International Studies, Seoul National University, South Korea.

INDEX