

PROSPERITY EQUALITY AND
SUSTAINABILITY CONFERENCE

FISCAL POLICY INCIDENCE AND POVERTY REDUCTION: EVIDENCE FROM TUNISIA

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Overview



- Context
- Project Description
- Objective
- Methodology
- Data
- Results
- Timeline

Context

- Five years after the revolution, political transition coincided with great economic recession which results into fiscal imbalances (fiscal deficit went from 1% of GDP to 6.8% of GDP)
- Government is shortened by limited budget and multiplying social demand \Rightarrow they call different stakeholders to sacrifice.
- Workers Union requests that sacrifices should be equally supported and should not impact poor.

Context



- Economic Transition in Tunisia calls for urgent reforms in order to respond to economic and social demand
- Need to assess the Tunisian fiscal framework in order to address a comprehensive fiscal reform.

Fiscal Incidence Literature focusing on Tunisia

- AfDB-INS-CRES, June 2013 analyzes transfers (reduces poverty from 16.5% to 15.5%) and subsidies (poor receives only 9.2%)
- World Bank, November 2013 show that only 13% of energy Subsidies go to the first quintile
- Those studies focus only on part of the expenditure side and do not include the revenue side.

Project Description

□ Objective

- ▣ Fiscal Incidence Analysis is a micro-simulation based framework to comprehensively assess the tax/benefit system in developing countries (including direct transfers, indirect subsidies and indirect and direct taxes and in-kind benefits in the form of free education and health care)

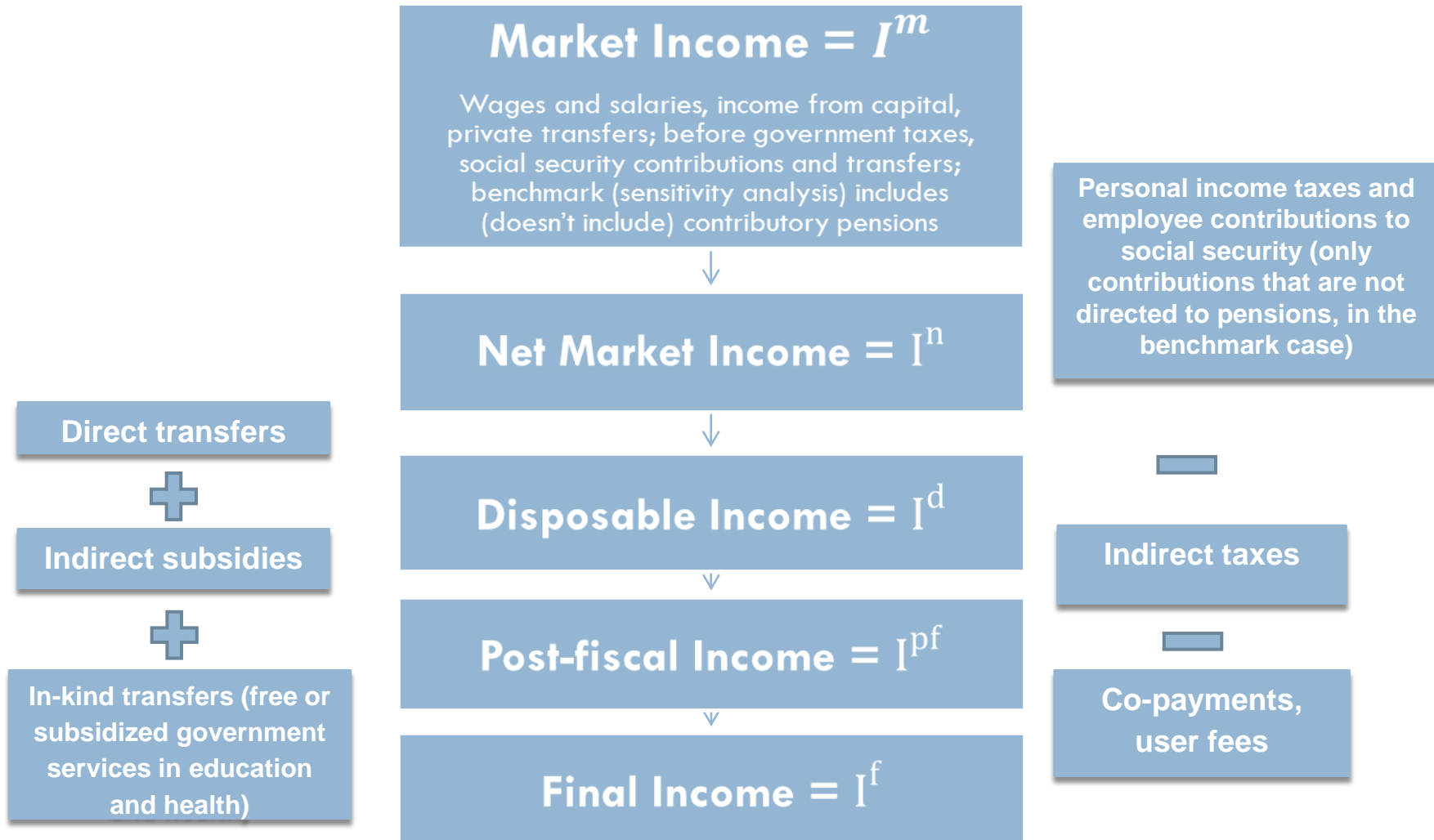
Project Description

- It addresses the following two questions :
 - ▣ How much redistribution and poverty reduction is being accomplished in Tunisia through social spending, subsidies and taxes ?
 - ▣ How progressive are revenue collection and government spending ?

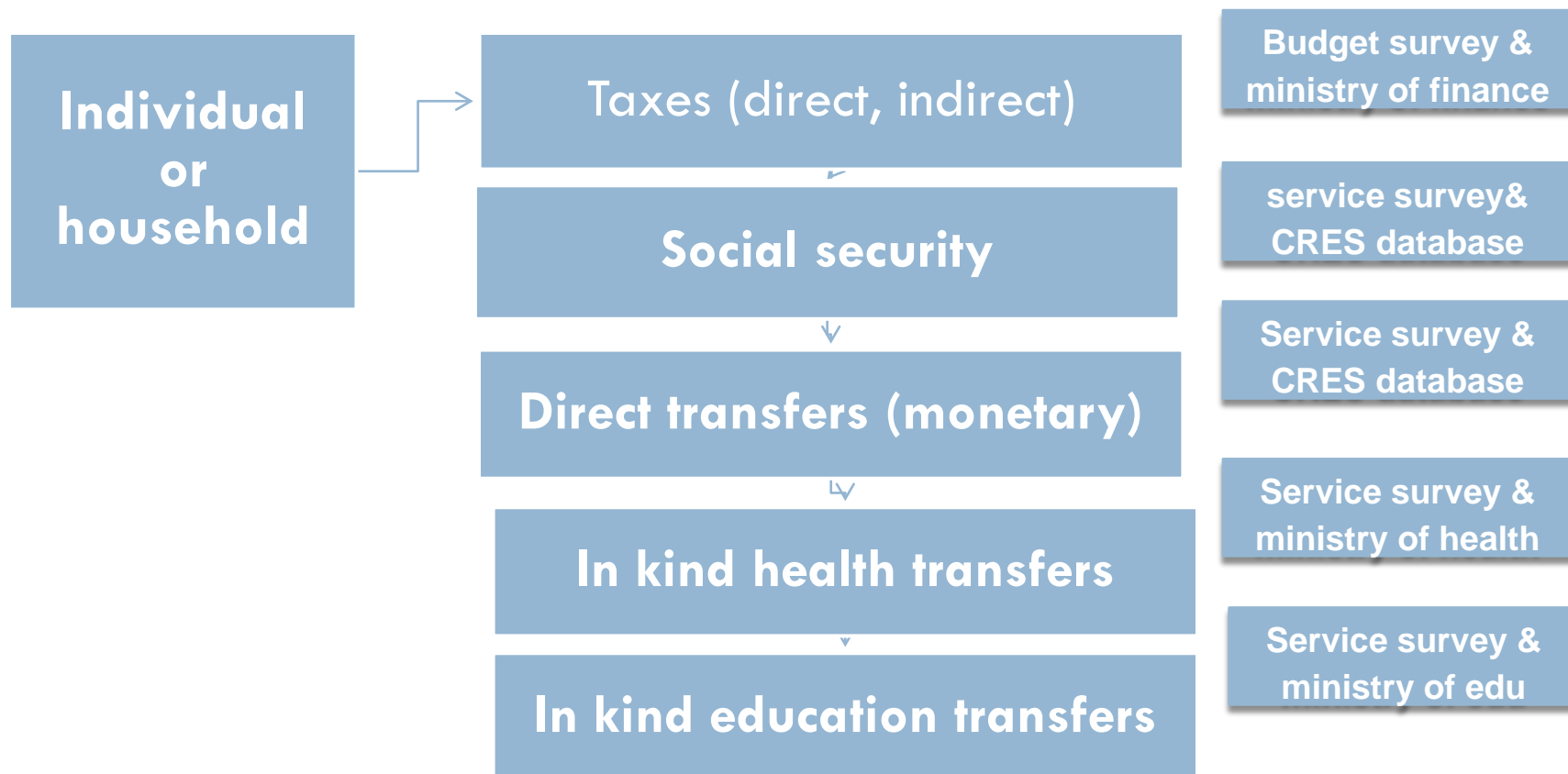
Procedure/Methodology

- The methodology is developed by University of Tulane, USA : Commitment to Equity Assessment (CEQ)
- A handbook and Master Workbook template have been shared showing a step by step how to apply the Fiscal incidence analysis at the individual level
- <http://www.commitmentoequity.org/>

Procedure/Methodology



Procedure/Methodology/Data



Data

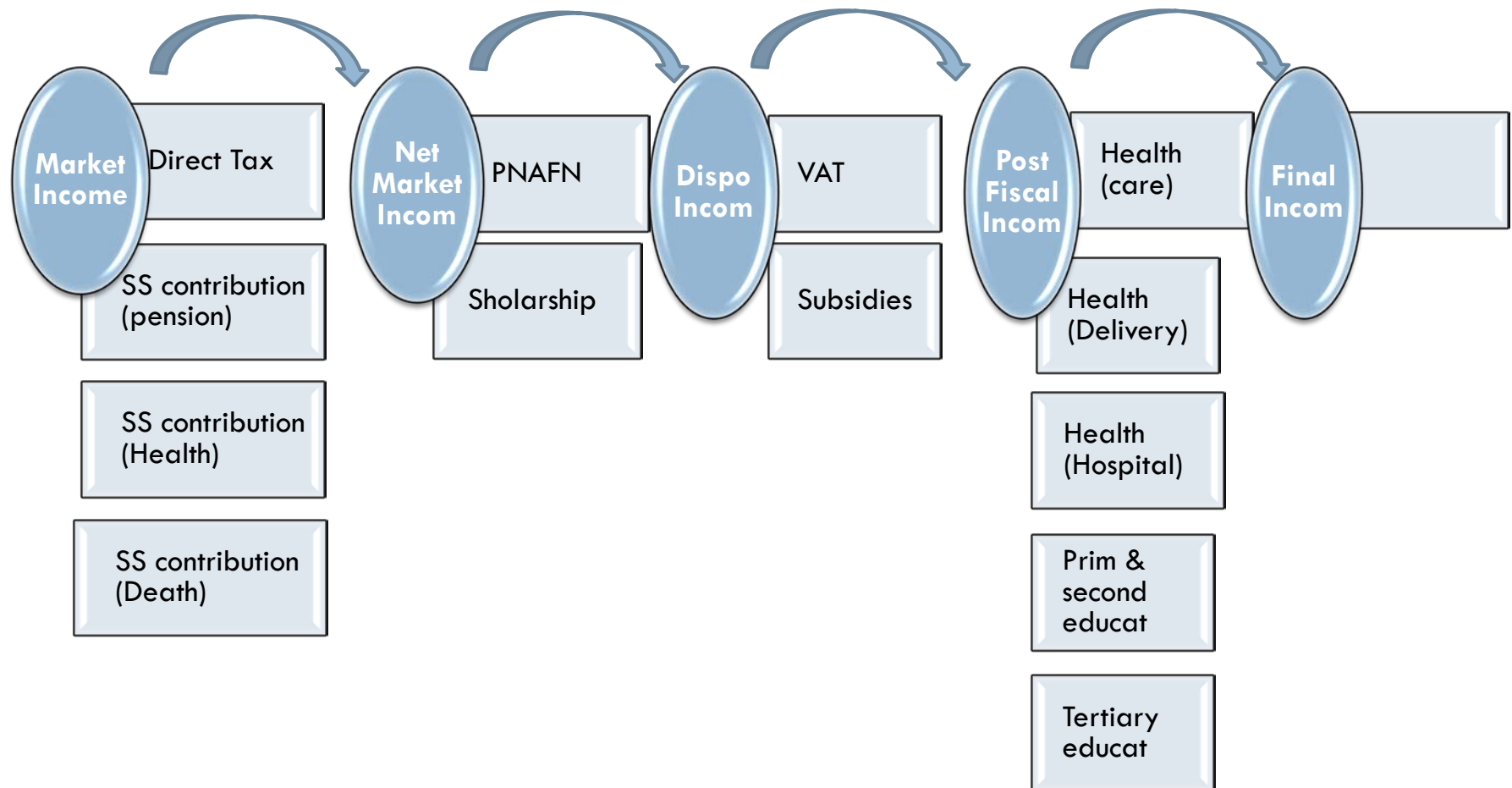
1. Prepare the preliminary merged data file

- We merged two files:
- Household Consumption (by product) with 11 282 households
- Services questionnaire(education, Health and social protection) with 24110 individuals
- The merged file contains 23 930 individuals

Transfers

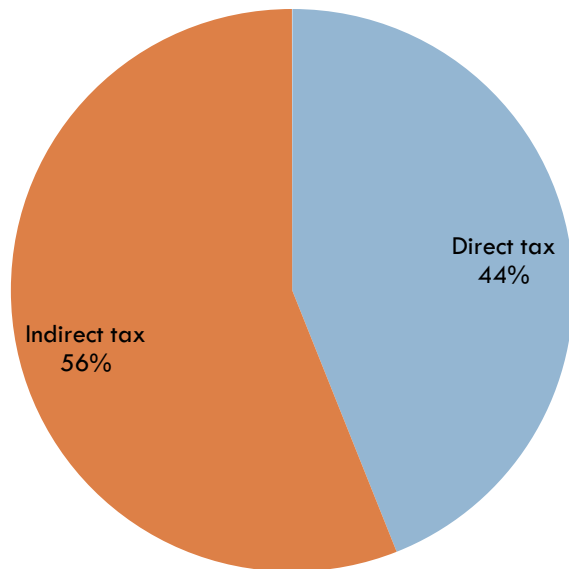
- Social Assistance = programmes des transferts monétaires et carte de soins du Ministère des Affaires sociales.
- Other social services = Scholarship program and residence program of Ministry of high education.
- Energy subsidies, primary product, and transport.
- Health (total) = health et CNAM.
- Education = all levels.

Different Revenue concepts for Tunisia



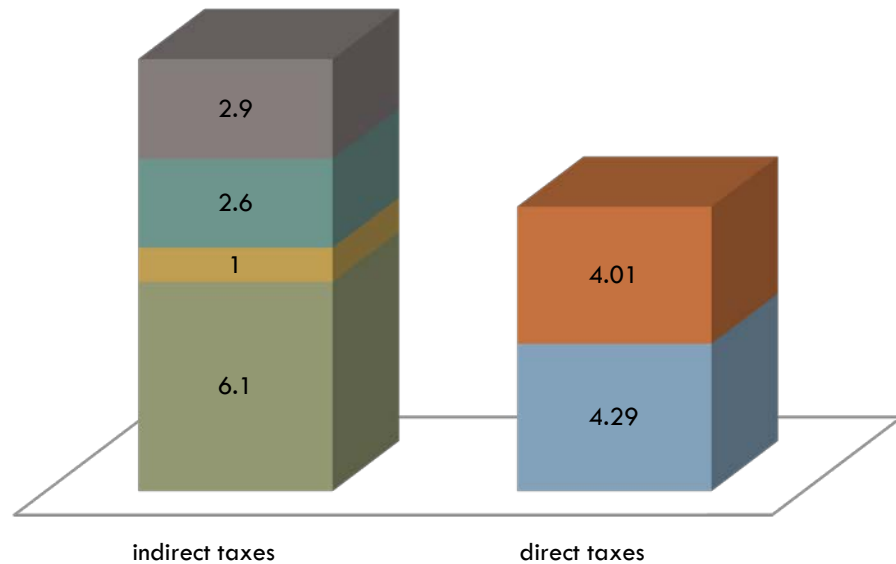
Stylized Facts

Tax revenue



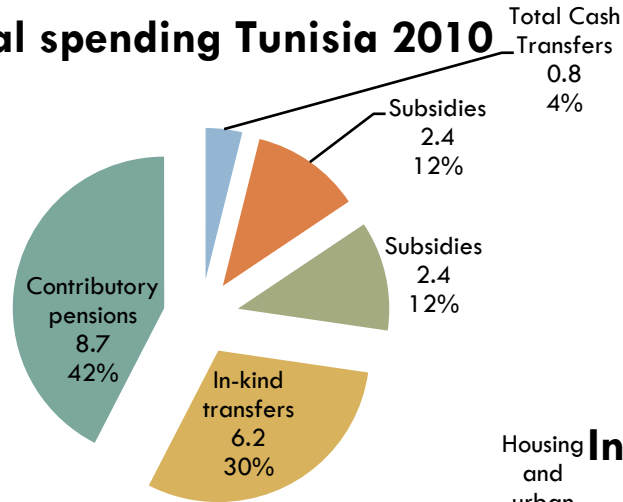
Direct and indirect taxes % GDP 2014

- Personal income tax
- Corporate income tax
- VAT
- Customs taxes
- Consumption duties
- Others indirect taxes

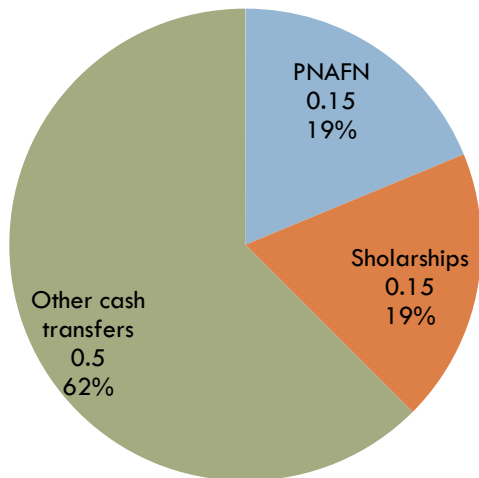


Stylized Facts: expenditure side....

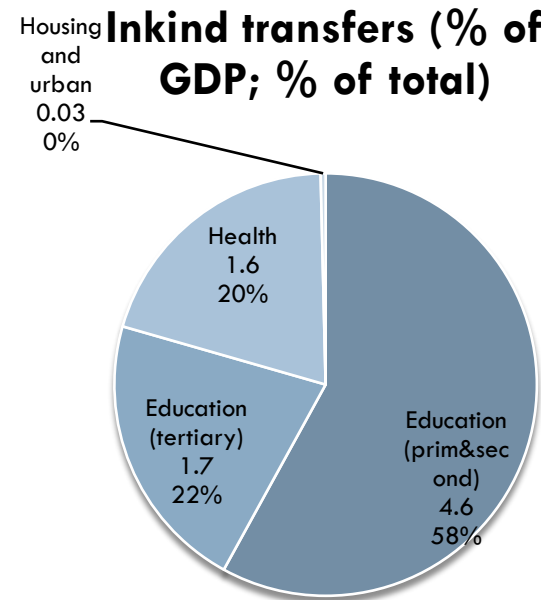
Social spending Tunisia 2010



Total cash transfers (% of GDP; % of total)



In-kind transfers (% of GDP; % of total)



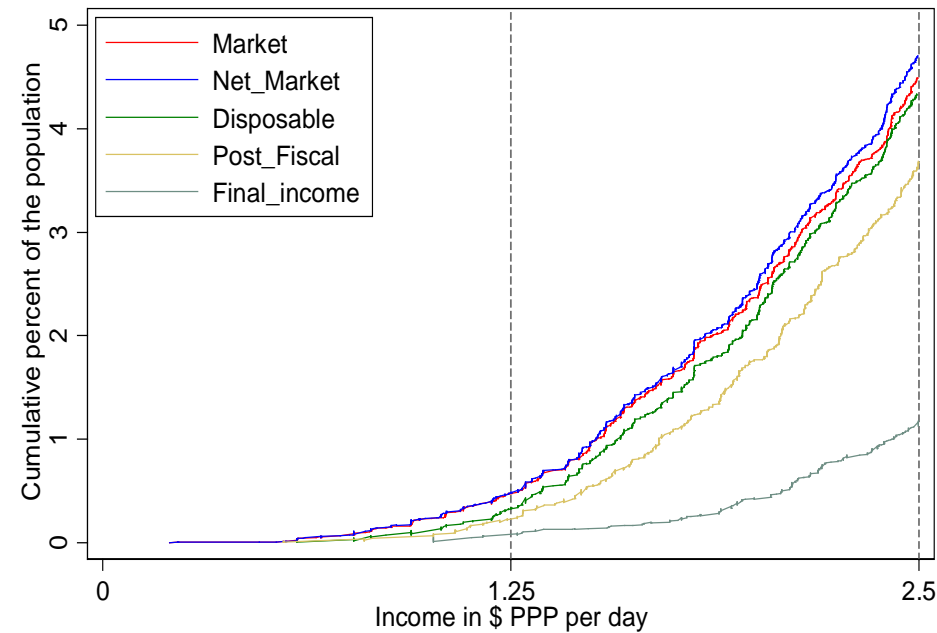
Incidence Results and Indicators

- ☑ Cumulative Distribution Functions of Income
- ☑ Lorenz Curve
- ☑ Concentration Coefficients and Budget Shares for Social Spending and by Program
- ☑ Head account index and poverty Gap
- ☑ Fiscal Incidence Curves and Fiscal Mobility Profiles by Deciles
- ☑ Coverage and Leakages by Program
- ☑ Fiscal Mobility Matrices

Main results: Cumulative Distribution Function of Income (Tunisia vs Brazil)

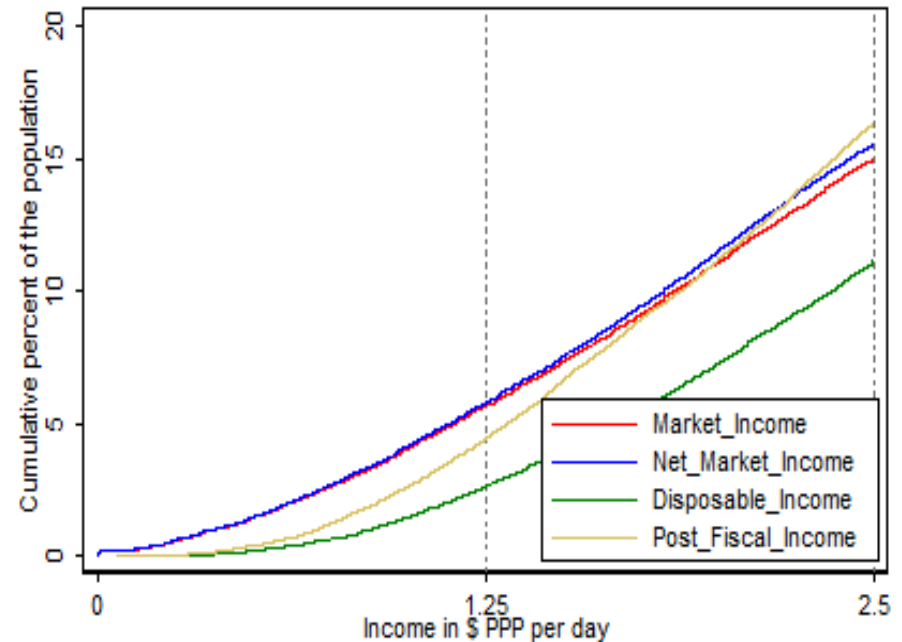
Cumulative Distribution Functions of Income

Tunisia



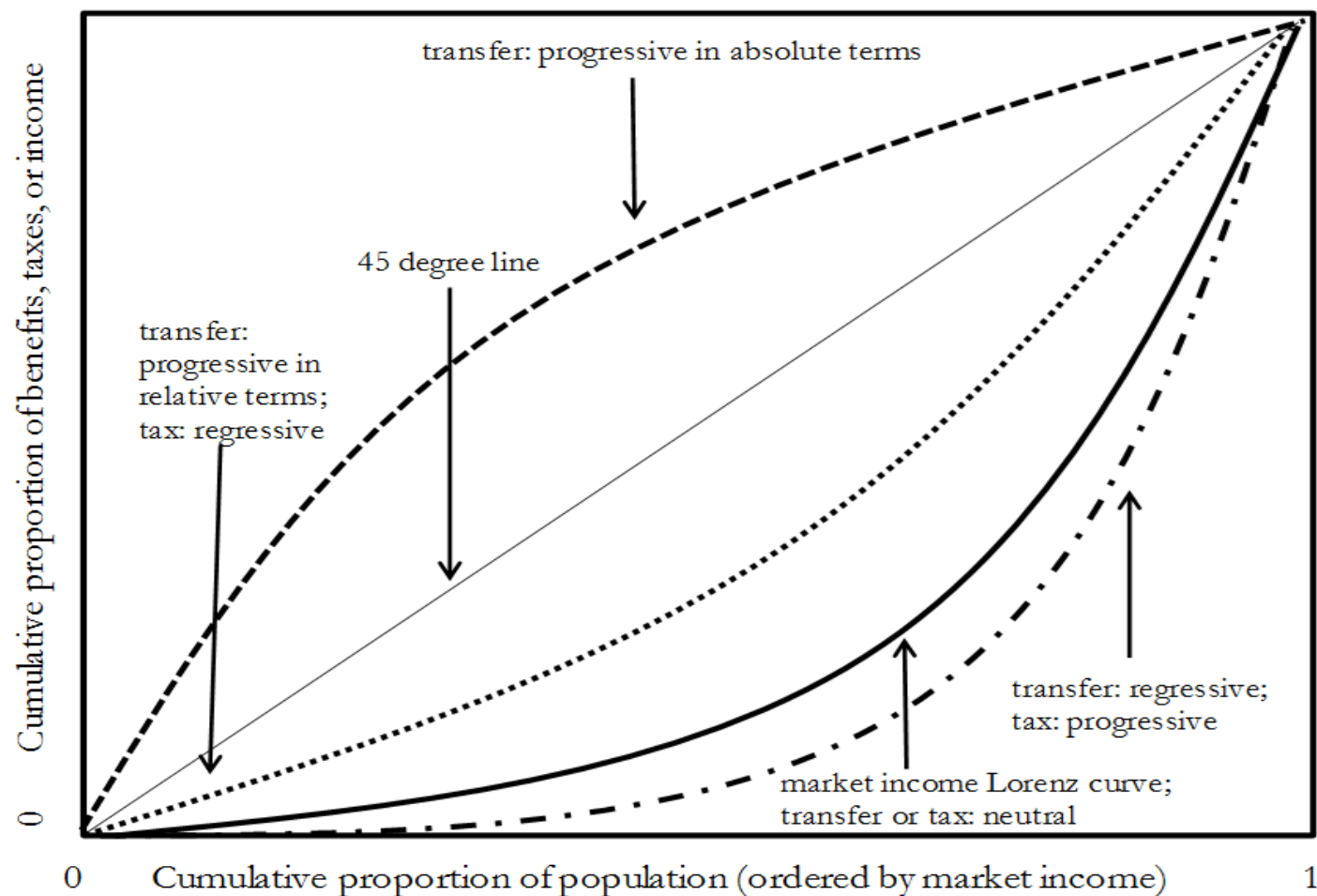
Cumulative Distribution of Income

Brazil 2009 National: Benchmark



For low income population (\$0-2.5 per day), compensation and transfers are made more through indirect channels than direct channels.

Progressivity vs Regressivity of Social Programs (Lorenz Curve)



Lorenz Curve (Progressivity vs Regressivity)

- A transfer or tax is defined as progressive (regressive) if it results in a less (more) unequal distribution than that of market income

- In the case of Tunisia :

Regressive :

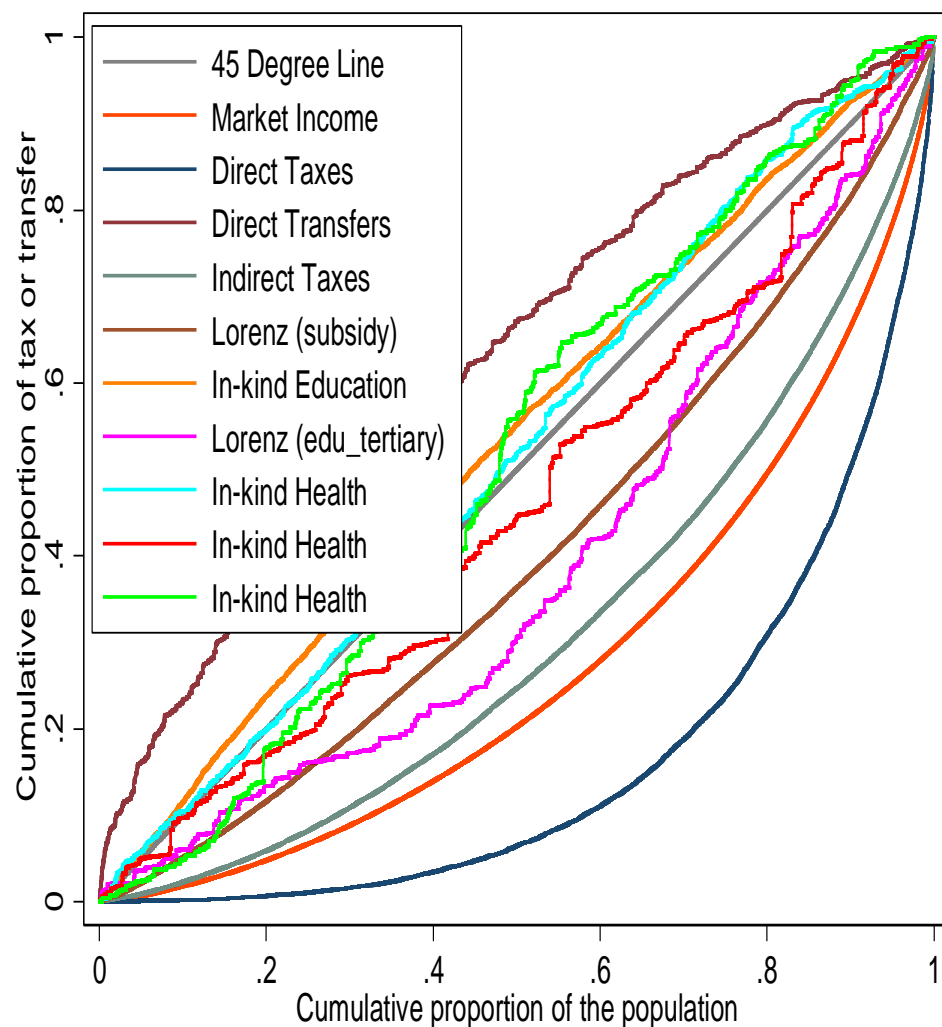
- Indirect taxes

Progressive -Absolute:

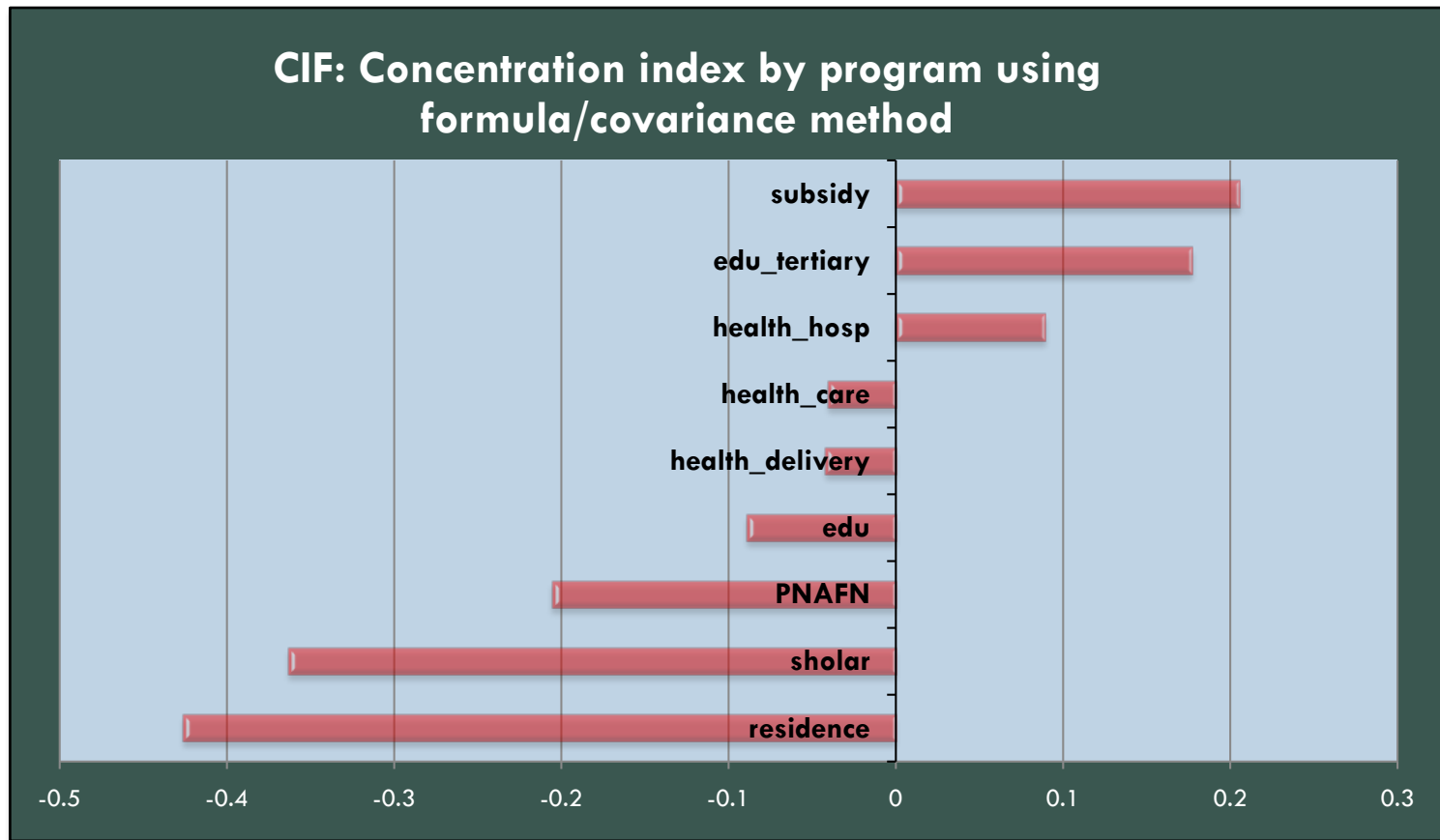
- Direct Taxes
- Direct transfers
- Prim and second education
- Delivery care
- Primary care

Progressive -relatively

- Subsidies
- Tertiary education
- Hospital care



Concentration by program



Tertiary education and subsidies are the most unequal programs.

Main results: Inequality (Tunisia vs Brazil)

	Market Income	Net Market Income	Disposable Income	Post-fiscal Income	Final Income	Final Income
<i>Country Name: Tunisia</i>						
Gini	0,4504	0,4037	0,3972	0,3812	0,3499	
% change wrt market income		-4,67%	-5,32%	-6,91%	-10,04%	
Significance (p-value)		0	0	0	0	
% change wrt net market income			-0,0065	-0,0224	-0,0536	
Significance (p-value)			0	0	0	
Effectiveness indicator (<i>national accounts</i>)	--	--	2,20	--	0,63	
Effectiveness indicator (<i>household survey</i>)	--	--	1,22	--	0,30	

	Market Income	Net Market Income	Disposable Income	Post-fiscal Income	Final Income*	Final Income
<i>Country Name</i>						
Gini	0,600	0,594	0,541	0,543	0,446	0,434
% change wrt market income	--	-1,0%	-9,8%	-9,4%	-25,7%	-27,7%
Significance (p-value)		0,007	0,000	0,000	0,000	0,000
% change wrt net market income		--	-8,9%	-8,5%	-25,0%	-26,9%
Significance (p-value)			0,000	0,000	0,000	0,000
Effectiveness indicator (<i>national accounts</i>)	--	--	0,67	--	1,05	--
Effectiveness indicator (<i>household survey</i>)	--	--	0,47	--	0,65	--

Poverty

<i>Country Name: Tunisia</i>	Market Income	Net Market Income	Disposable Income	Post-fiscal Income
Headcount index (pov national)	0,1269	0,1458	0,1314	0,13
% change wrt market income		1,89%	0,45%	0,13%
Headcount index (\$4,00	0,1426	0,1613	0,1489	0,15
% change wrt market income		1,87%	0,63%	0,40%
Headcount index (\$2,50)	0,0522	0,0569	0,0461	0,0376
% change wrt market income		0,47%	-0,61%	-1,45%
Headcount index (\$1,25)	0,0078	0,0083	0,0034	0,0024
% change wrt market income		0,04%	-0,45%	-0,55%

When moving from Market income to disposable income poverty increases for population close to national poverty line. That means that tax and social securities contributions increase impoverishment to population. However the direct transfers is not likely to cover the deficit.

Incidence by decile: High inequality...

Market Income Deciles	Direct Taxes	Contributions	Direct Taxes and Contributions to SS	Net Market Income	Flagship CCT	Other Direct Transfers	All Direct Transfers	Disposable Income	Indirect Subsidies	Indirect Taxes	Net Indirect Taxes	Post-fiscal Income	In-kind Education	In-kind Health	Housing and Urban	Final Income
1	-0.8%	-0.9%	-1.7%	-1.7%	3.3%	2.9%	6.2%	4.5%	23.6%	-15.3%	8.3%	12.8%	55.6%	18.4%	0.3%	87.2%
2	-1.5%	-2.0%	-3.6%	-3.6%	1.4%	1.6%	3.0%	-0.5%	17.8%	-14.6%	3.2%	2.7%	39.7%	6.4%	0.2%	49.0%
3	-1.7%	-2.3%	-4.0%	-4.0%	0.8%	1.1%	2.0%	-2.0%	15.8%	-15.6%	0.2%	-1.8%	25.1%	5.0%	0.0%	28.4%
4	-3.4%	-3.8%	-7.2%	-7.2%	0.6%	1.0%	1.6%	-5.5%	13.8%	-15.1%	-1.3%	-6.8%	20.6%	5.2%	0.1%	19.1%
5	-4.2%	-4.7%	-8.9%	-8.9%	0.5%	0.7%	1.2%	-7.7%	12.0%	-15.4%	-3.4%	-11.1%	16.5%	5.8%	0.1%	11.3%
6	-5.0%	-5.6%	-10.6%	-10.6%	0.4%	0.6%	0.9%	-9.6%	10.6%	-15.1%	-4.5%	-14.1%	15.4%	3.8%	0.0%	5.1%
7	-6.1%	-6.5%	-12.6%	-12.6%	0.3%	0.5%	0.8%	-11.8%	10.1%	-13.6%	-3.5%	-15.4%	13.5%	3.7%	0.1%	1.8%
8	-7.7%	-7.4%	-15.2%	-15.2%	0.2%	0.3%	0.4%	-14.7%	8.7%	-13.8%	-5.1%	-19.8%	10.2%	1.7%	0.0%	-7.9%
9	-9.2%	-7.6%	-16.8%	-16.8%	0.1%	0.1%	0.3%	-16.5%	7.4%	-13.2%	-5.8%	-22.4%	6.8%	2.0%	0.0%	-13.5%
10	-11.8%	-8.4%	-20.2%	-20.2%	0.1%	0.1%	0.2%	-20.0%	5.1%	-11.8%	-6.7%	-26.6%	3.5%	1.0%	0.0%	-22.2%
Total population	-7.8%	-6.6%	-14.5%	-14.5%	0.3%	0.4%	0.8%	-13.7%	9.0%	-13.5%	-4.4%	-18.1%	11.7%	3.0%	0.0%	-3.4%

- In-kind transfers are quite re-distributive.
- The poorest decile receives transfers the equivalent of 104% of its market income.
- individuals become net payers to the fiscal system after direct taxes and transfers from the second decile onwards .
- When in-kind transfers are included net payers start at high income

Concentration shares...

Quantile of market income	Sum (market income)	Sum(Direct Taxes)	Sum(social contrib)	All Direct Transfers	Sum(Indirect Subsidies)	Sum(Indirect Taxes)	Net Indirect Taxes	Sum (Inkind transf)	All Taxes (Direct and Indirect)
1	1,77%	0,17%	0,28%	23,39%	5,14%	2,29%	-3,49%	10,69%	1,13%
2	3,02%	0,51%	0,87%	14,91%	6,47%	3,61%	-2,19%	10,56%	1,91%
3	4,05%	0,92%	1,51%	7,86%	7,56%	4,99%	-0,20%	8,96%	2,76%
4	5,12%	1,87%	2,66%	12,61%	8,48%	6,21%	1,63%	8,78%	3,83%
5	6,29%	2,98%	4,29%	8,31%	8,71%	7,61%	5,39%	10,56%	5,07%
6	7,67%	4,59%	6,53%	8,54%	9,49%	8,84%	7,52%	9,82%	6,51%
7	9,45%	7,78%	9,55%	8,42%	10,56%	9,72%	8,02%	10,55%	8,66%
8	12,24%	12,06%	13,77%	5,85%	11,73%	12,48%	13,99%	10,12%	12,25%
9	16,98%	19,43%	19,41%	5,27%	13,43%	16,46%	22,61%	10,47%	18,09%
10	33,40%	49,69%	41,12%	4,85%	18,43%	27,78%	46,72%	9,49%	39,80%
Total	100,00%	100,00%	100,00%	100,00%	100,00%	100,00%	100,00%	100,00%	100,00%

- 50% of Direct taxes and 42% of Social contribution are paid by the last decile while earning only 34% of wealth.
- 53% of subsidies benefit to the 40% the most rich population.
- Inkind transfers are almost equally distributed between rich and poor.
- All transfers in net are almost equally distributed between all deciles.

Main results: effectiveness indicators (Tunisia)

<i>Beckman (1979) and immervoll et al. (2009) effectiveness indicators</i>		
	Benchmark case Brazil	Benchmark case Tunisia
<i>\$4,00 per day</i>		
Vertical Expenditure Efficiency (1)	0.274354	0.360889
Poverty Reduction Efficiency (2)	0.34778	0.285749
Spillover index (3)	0.18519	0.257765
Poverty Gap Efficiency (4)	0.284296	0.151436

- (1) direct transfers reaching the poor
- (2) The percentage of transfers that cannot reduce poverty
- (3) The percentage of transfers that reduce poverty
- (4) Poverty reduction

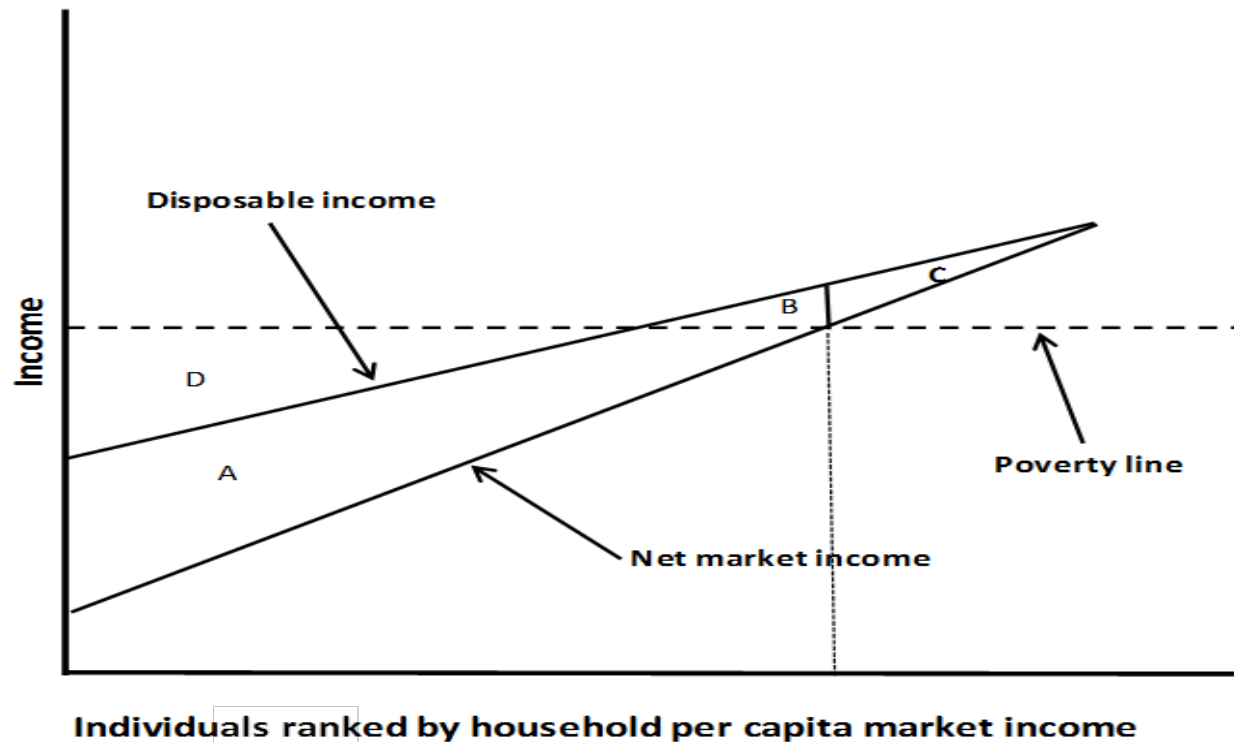
Main results: effectiveness indicators (Tunisia)

Vertical expenditure efficiency = $(A+B)/(A+B+C)$

Spillover index = $B/(A+B)$

Poverty reduction efficiency = $A/(A+B+C)$.

Poverty gap efficiency = $A/(A+D)$.



Fiscal Mobility Matrix: Average loss of losers

Market Income groups	Post-Fiscal Income groups							Horizontal sum	Percent of Population	Average market income by market income group
	$y < 1.25$	$1.25 \leq y < 2.50$	$2.50 \leq y < 4.00$	$4.00 \leq y < 10.00$	$10.00 \leq y < 50.00$	$50.00 \leq y$				
$y < 1.25$	25,44%	44,56%	30,00%	0,00%	0,00%	0,00%	100,00%	0,83%	240358,00	
$1.25 \leq y < 2.50$	0,46%	62,48%	33,09%	3,96%	0,00%	0,00%	100,00%	4,68%	490535,00	
$2.50 \leq y < 4.00$	0,18%	4,57%	77,07%	18,19%	0,00%	0,00%	100,00%	9,86%	819559,00	
$4.00 \leq y < 10.00$	0,00%	0,11%	5,94%	92,84%	1,10%	0,00%	100,00%	39,69%	1681654,00	
$10.00 \leq y < 50.00$	0,00%	0,00%	0,00%	27,86%	72,14%	0,00%	100,00%	42,80%	5041699,00	
$50.00 \leq y$	0,00%	0,00%	0,00%	0,00%	73,83%	26,17%	100,00%	2,14%	18874834,00	

Low Income groups

Middle & high income class

- The Middle and high income class has been affected by serious impoverishment compared to other categories.
- Enrichment of low income groups.

Conclusions

Fiscal Reform become a priority to reduce inequality..

- Review subsidies policy in particular Energy subsidies because it does not concern poor.
- Compensate middle class by reducing tax pressure. At least for 20% to 15%.
- Review the direct transfers program (PNAFN) to tackle both hospital care inequality and reduce poverty.
- Review the Scholarship program to tackle inequality in high education



Thank you