Renewing expectations about Africa’s cities

Somik V. Lall*

Abstract: Built with great expectations to connect Africa with growing global trade in the nineteenth century, many of Africa’s cities today have economies that are predominantly local—not regional or global in their reach. At the same time, Africa’s cities are experiencing rapid population growth, with the urban population predicted to exceed 1 billion by 2040. Why have Africa’s urban economies not been able to keep pace with their burgeoning populations and get into the production of regionally and globally tradable goods and services? And what should policy-makers focus on to renew expectations about Africa’s cities? This paper makes the case that as long as African cities lack functioning land markets and regulations and early, coordinated infrastructure investments, they will remain local cities: closed to regional and global markets, trapped into producing only locally traded goods and services, and limited in their economic growth.

Keywords: city, urban form, connectivity, economic development, structural transformation

JEL classification: R11, R38, R52

I. Africa’s cities: dashed expectations

Many major cities in sub-Saharan Africa were founded with great expectations near the end of the nineteenth century to connect the continent to the expanding global economy. Consider Dar es Salaam, which derives its name from the Arab phrase, ‘Harbour for Peace’ (bandar-as-salâm). It was founded by Sultan Majid of Zanzibar who built a small settlement in 1865 on a spot along the Mrima coast with a natural harbour and nearby trading opportunities. The city of Nairobi owes its birth and growth to the Kenya Uganda Railway, which reached Nairobi in May 1899 en route to the present day Kisumu. On the western side of the continent, Abidjan was settled in 1898 with its development closely associated with the state-owned Abidjan–Niger Railway (RAN) connecting Niger to the sea. Further to the south, cities such as Durban grew with the sugar and food processing industry and with transport links to the burgeoning Witwatersrand.

*World Bank, e-mail: Slall1@worldbank.org

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Early investments in railroads, roads, and ports shaped how these African cities would evolve for the next century. In cities such as Dar es Salaam, skills were valued, encouraging investments in learning. Skilled ‘Swahili’ workers could earn 40 Pesa per day (64 Pesa = 1 Rupee), twice the 15–20 Pesa earned by their unskilled peers (Brennan and Burton, 2007, p. 28). Sizable public and private investment led to a housing boom: from 1949 to 1951 ‘nearly £1 million worth of residential homes were completed, £750,000 worth of commercial buildings and over £600,000 worth of industrial buildings’ (Brennan and Burton, 2007).

Today, however, the high hopes of nineteenth-century city founders have been dashed. African cities are in a low-development trap, their economies predominantly local—not regional or global in their reach (Lall et al., 2017). Compared with other developing cities, cities in Africa produce few goods and services for trade on regional and international markets (Figure 1). Such a production structure, dominated by locally consumed, or non-tradable, goods and services, can trap Africa’s cities into low economic growth, since producing for local markets limits returns to scale. The consumer base of one city, however large, is much smaller than a regional or global market. Specializing in non-tradables for local consumption leads to diminishing returns (both for technological reasons, and because prices are set locally and decline as supply increases).

Two reasons stand out in explaining why African urban economies have remained local.1 The first one, paradoxically, is natural resource development. Such development can create a high demand for non-tradable goods and services. As growth in the natural resource sector raises factor prices, this sector crowds out others—notably manufacturing. Countries that depend heavily on natural resource exports tend to sprout urban economies dominated by non-tradable services (‘consumption cities’) (Gollin et al., 2016).

The second reason relates to urban form: how cities are built and spatially organized. Most cities in high- and upper-middle-income market economies have economically dense and connected urban forms—measured in investments in transport infrastructure and residential, commercial, and industrial structures that support large clusters of employment and people in different parts of the city. Such urban form enhances efficiency by helping economize on commuting costs while supporting clusters of dense economic activity. Consider Singapore, where production worth $269m per square kilometre is generated around the city’s economic centre (World Bank, 2008) and the workers themselves often live farther away, connected to these economic centres with rapid and reliable, high-capacity transport. Further, dense and connected urban forms prevent urban costs from rising excessively with increased population growth.

However, evidence has been thin on the built environment African cities have taken. The implications of the form that cities take are large. If workers locate far from their jobs, they will face high costs getting to employment and employers may not attain the full benefits of proximity to each other. This paper focuses on the urban form that Africa’s cities are taking. The main finding is that in contrast with economically dense and connected urban forms visible in many middle-income cities, Africa’s cities are growing under a patchwork of constraints that hinder the drive toward dense concentrations of structures. Using satellite and GIS (geographic information system) data

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1 Other important factors include business regulation; the lack of access to finance; the peculiarity of Africa’s demographic transition; the absence of agricultural productivity gains; and, more generally, the macroeconomic context. These factors compound the risk that Africa’s cities will remain unwelcoming to investment—that their development will continue along paths that preclude their entry into higher-productivity tradable goods sectors.
covering a wide range of large, medium, and small cities across the region, the evidence suggests that cities in Africa today cannot be characterized as being economically dense, connected, and liveable. Instead, they are crowded, and disconnected, and therefore costly for households and firms. These high costs—related to their urban form—are keeping cities from growing their economies. Specifically, Africa’s cities are:

- **Crowded**, not economically dense—investments in infrastructure and industrial and commercial structures have not kept pace with the concentration of people, nor have investments in affordable formal housing; congestion and its costs are overwhelming the benefits of urban concentration.
Disconnected—cities have developed as collections of small and fragmented
neighbourhoods, lacking reliable transportation and limiting workers’ job oppor-
tunities while preventing firms from reaping scale and agglomeration benefits.

Costly—disconnected urban form with few investments in structures is imposing
high living costs on workers and households, resulting in indirect costs and other
constraints for firms: African cities are costly both to live in and to do business in.
A 1 per cent reduction in spatial fragmentation measured is associated with a 12
per cent reduction in urban costs, controlling for income levels and city popula-
tion (Lall et al., 2017).

The physically unstructured appearance of African cities, seen from the ground, reflects
underlying distortions in the functioning of key factor and product markets, and lack
of crucial infrastructure, housing, and commercial structures. Without either high eco-
nomic density or adequate connective infrastructure, Africa’s cities are falling short of
their potential: they cannot offer firms the cost efficiencies and job-matching advan-
tages that open a city’s doors to regional and global trade.

The centrality of policies addressing urban form is grounded in path dependence of urban
structures—once built, they are difficult to modify and can stay in place for more than
150 years (Hallegatte, 2009). In addition, infrastructure investment needs to be planned well
in advance; if a growing city lacks a comprehensive, forward-thinking plan to provide basic
infrastructure services—sewerage, drainage, electricity, clean water, and connectivity—it
will have to add them later. That means adding them inefficiently and at far greater cost,
and as afterthoughts and in response to piecemeal demand from individuals (Collier, 2016).

The rest of this paper is organized as follows. Section II describes the evolution of
the urban form in Africa’s cities; section III highlights key policy drivers shaping urban
form; section IV concludes.

II. Crowded, disconnected, and thus costly—Africa’s low urban development trap

Much of the analytic work and policy discourse on urban development revolves around
the extent to which places manage density—measured in the concentration of people,
public and private investment, and economic activity per unit of land. In fact, the link
between urbanization and economic growth is based on the propensity of non-agri-
culture activities—manufacturing and services—to concentrate in urban areas. Why?
Non-agriculture activities respond to the size and density of a settlement. As agricul-
ture is land intensive, there is limited scope for a large number of people to concentrate
in one settlement. Even though some degree of substitution between land and capital
as well as land and labour is possible, its scope is limited compared with manufactur-
ing and services. For manufacturing, capital can substitute land by building high-rise
buildings or by designing processes where use of land is minimized. Further, services
can be carried out in buildings of any size—further increasing the substitution of land
by capital. In addition, the presence of scale and agglomeration economies increases
likelihood of the spatial concentration and density of industry and services. All these
processes take as given that the urbanization of people goes hand in hand with the
urbanization of investment and economic activity.
(i) Crowded with people, not dense with investment or economic activity

However, in Africa the urbanization of people has not been accompanied by an urbanization of capital. Capital investment over the past four decades has remained relatively low in the region, at around 20 per cent of GDP. In contrast, urbanizing countries in East Asia—China, Japan, the Republic of Korea—stepped up capital investment during their periods of rapid urbanization. Between 1980 and 2011, China’s capital investment (infrastructure, housing, and office buildings) rose from 35 per cent of GDP to 48 per cent, while the urban share of its population rose from 18 to 52 per cent between 1978 and 2012. In East Asia as a whole, capital investment remained above 40 per cent of GDP at the end of this period.

Housing investment in Africa has also lagged behind that in other low-income and middle-income economies. Between 2001 and 2011, African low-income countries invested 4.9 per cent of GDP in housing, compared with 5.5 per cent elsewhere; and African middle-income countries invested 6.5 per cent of GDP in housing, compared with 9 per cent elsewhere (Dasgupta et al., 2014). These figures underline the fact that Africa is urbanizing while poor—indeed, strikingly poorer than other developing regions with similar urbanization levels. In 1968, when countries in the Middle East and North Africa region became 40 per cent urban, their per capita GDP was $1,800 (2005 constant dollars). And in 1994, when countries in the East Asia and Pacific region surpassed the same threshold, their per capita GDP was $3,600. By contrast, Africa, with 40 per cent urbanization, today has a per capita GDP of just $1,000.

Due to limited urbanization of capital, Africa’s cities feel crowded and not dense with economic activity, infrastructure, or housing and commercial structures. In fact, crowding increases exposure to communicable diseases. Inadequate drainage increases the risk of malaria, and lack of sanitation raises the risk of dengue (Sclar, et al., 2005). Lack of access to clean water is a leading cause of diarrhoea, which is responsible for an estimated 21 per cent of deaths among children under five in developing countries—2.5m deaths a year (J-PAL, 2012).

Evidence of crowding and low levels of capital investment also appears in the value of building stocks. Disaster risk profiles were developed for four African cities based on the economic value of building stock and its distribution across the city at 1 square kilometre resolution (Ishizawa and Gunasekera, 2016). The total economic value of buildings in Dar es Salaam is estimated at about $12 billion—about five times the city’s contribution to GDP. Even lower are the estimated values for Nairobi, Kenya ($9 billion); Addis Ababa, Ethiopia ($6 billion); and Kigali, Rwanda ($2 billion) (Ishizawa and Gunasekera, 2016). The value of urban building stocks is much lower in Africa than in Central America (Figure 2). The value per square kilometre in the four African cities studied ranges between $2.7m (in Kigali) and $15.6m (in Nairobi). In contrast, the range in Central America is $27.8–$90.4m. The results are similar when other measures of value are compared.

Supporting rising populations in African cities will require investments in buildings and complementary physical infrastructure: roads, drainage, street lighting, electricity, water, and sewerage, together with policing, waste disposal, and health care. In the absence of higher levels of capital investment at around Asian levels, the potential benefits of Africa’s cities are being overwhelmed by crime, disease, and squalor.
(ii) Disconnected neighbourhoods

Even as Africa’s cities are crowded with inhabitants—but not dense with capital—they are also physically fragmented and dispersed. They develop as collections of small, scattered neighbourhoods. Many municipal governments lack the ability to assemble large parcels of land that make it possible to provide major infrastructure services at low unit costs as well as support clusters of businesses and homes. In a recent study, Henderson and Nigmatulina (2016) use Landscan data to measure physical fragmentation of the urban form in 265 cities in 70 countries and find that controlling for total population and per capita GDP, African cities are 23 per cent more fragmented than

Asian and Latin American cities. Further, urban development is increasingly occurring as leapfrog patches where parcels of newly built land do not border on or overlap existing development, leading to high transportation costs and lower access to markets and other people in the city.

In Bamako and Maputo, such leapfrog patches account for more than 50 per cent of the change to the urban fabric over the period 2000–10. In many other cities this share approaches or exceeds 40 per cent (Figure 3). The patches often being small, their isolation from existing development undermines city governments’ efforts to provide the networked services that require scale economies—and that undergird urban productivity.

The prevalence of leapfrog land development is one pattern that makes urban commuting challenging in African cities; another is deficient transport infrastructure. African cities are allocating little land to roads. African cities devote less than 16 per cent of their land to roads; cities in developed countries usually allocate more than 20 per cent (Lall et al., 2017). Lower infrastructure provision, coupled with low affordability of motorized transportation, makes it difficult to access locations across the city. Low affordability increases the number of people who must walk; low road provision increases congestion and pollution. The deficiency of urban road infrastructure is made worse by its extreme concentration near the core of African cities, leaving outer areas disconnected. GIS-based analysis shows that in well-developed cities outside Africa, land allocated to roads declines only gradually as one looks out from the centre toward the periphery: an example is Paris (Figure 4). By contrast, Africa’s urban roads are disproportionately clustered near the centre. In Addis Ababa, Dar es Salaam, Kigali, and Nairobi, paved roads drop off so abruptly outside the downtown area that they nearly disappear.

Figure 3: ‘Leapfrog land development’ undermines economies of scale and agglomeration

Note: Leapfrog patches are defined as built-up areas that do not border or intersect with existing development. Source: Based on data in Baruah (2015).
(iii) Costly for people and businesses

Urban form has cost implications—both for people and for businesses. Harari (2014) analyses 400 Indian cities and finds that compact (non-fragmented) cities are associated with higher population density, higher welfare, and higher concentration of productive establishments. A one standard deviation deterioration in city form is associated with an 0.9 standard deviation decline in population density and a welfare loss equivalent to a 5 per cent reduction in income.

In Africa, fragmented urban forms are contributing to high living costs for workers and households. Africa’s higher urban living costs appear in rents, food prices, and prices for other goods and services. City dwellers pay around 35 per cent more for food in Africa than in low-income and middle-income countries elsewhere: a premium that looms larger given the high share of African household incomes that goes to food. Even higher differentials apply to urban housing (55 per cent higher in urban areas of African countries, relative to their income levels) and transport (42 per cent higher in African cities than cities elsewhere, including vehicle prices and transport services). Overall, urban households pay 20–31 per cent more for goods and services in African countries than in other developing countries (Nakamura et al., 2016). Partly driving high urban costs in Africa is their lack of dense spatial form and infrastructure connections (Figure 5). Higher spatial densities appear to reduce costs: for example, a 1 per cent reduction in spatial fragmentation measured is associated with a 12 per cent reduction in urban costs, controlling for income levels and city population.

The high cost of living affects not just households but also firms, which have to pay higher wages in cities where the cost of living is high. In addition, urban workers may need to be compensated for poorer living conditions in informal settlements with scarce amenities. Manufacturing firms in African cities end up paying higher nominal wages than urban firms in other countries at comparable development levels: unit labour costs are three times higher in Djibouti, Djibouti, than in Mumbai, India, and 20 per cent higher in Dar es Salaam, Tanzania, than in Dhaka, Bangladesh (Lall et al., 2017).
III. Springing Africa from its low urban development trap

An urban area that is difficult for commuters and firms because of a fragmented plan, lack of affordable transportation, and unexpectedly high labour costs might as well post a ‘closed for business’ sign. Potential investors and trading partners see the evidence of the physical and economic dysfunction that constrains public service provision, inhibits labour market pooling and matching, and prevents firms from reaping scale and agglomeration benefits. They stay away, fearing lack of return on their investment. This dynamic will keep Africa’s urban economies undercapitalized, making their development even more challenging than it otherwise would be.

City and country governments in Africa should recognize the problem for what it is: not simply one of underinvestment leading to low infrastructure, but one of the interdependence of many investment decisions. Business investment decisions depend on the presence of other businesses that are their customers and their suppliers, and on workplaces being reachable from residential areas. Investment in housing will occur if there is increasing demand, driven by rising incomes of workers, and if revenues from a growing city are available to finance infrastructure. These decisions are interrelated—and in all of them expectations are crucial. Investors’ low expectations become self-fulfilling, as failure to implement one project reduces the return to others, locking cities in a low development trap.

(i) Cities are ‘closed for business’

A firm’s business decision to produce internationally tradable goods and services will depend on its input costs. Among these input costs are urban costs: the added costs

Figure 5: A fragmented urban form is associated with higher urban costs

Note: The figure shows a residual-on-residual plot. The x-axis depicts the residuals from a regression of the Puga10 Index, log scale (based on Henderson and Nigmatulina (2016)) controlling for log GDP per capita, log population, a dummy for sub-Saharan Africa, and the percentage of urban population. The y-axis plots residuals of the adjusted price index, log scale (based on Nakamura et al., 2016), on the same controls. The lower the people within 10 kilometres of the average worker, the higher the price index.

Source: Author’s estimations using Nakamura et al. (2016) and Henderson and Nigmatulina (2016).
that workers face when living in a city. Urban costs include rent, commuting costs, and the high price of many goods. To attract workers, firms must raise wages to offset (or partially offset) these costs. Yet even as nominal wages climb to reflect high or rapidly rising urban costs, real wages remain low.

When urban costs drive nominal wages too high, firms will not be able to compete in the tradable sector and will produce only non-tradables. The non-tradable sector includes certain goods (beer and cement are examples), the construction trade, the retail trade, and many service-sector activities, including informal-sector employment. Demand for these goods and services comes from income generated within the city and its hinterland—but also from income transferred from outside, such as resource rents, tax revenues, and foreign aid.

The reason why a firm in the non-tradable sector can afford to pay higher wages—while a firm in the tradable sector cannot—is that the non-tradable producer can raise its prices citywide. By doing so, it passes its own cost increases on to consumers in the urban market. But such price hikes make the cost of living in a city even higher, contributing to the workers’ urban costs. This sequence can become a vicious cycle that keeps African cities out of the tradable sector and limits their economic growth.

Often, proposed solutions to Africa’s urban challenges focus simply on increased investments in structures or on reforming urban planning. These actions are necessary and urgent—but, by themselves, they are unlikely to lift cities out of the non-tradables trap. Why? Because coordination failures tend to inhibit the formation of new clusters of economic activity, which are necessary for efficient tradables production (see, among others, Henderson and Venables (2009)).

Given the dynamics described above, no firm wants to be the first to enter the tradables sector. Yet many would become established if they could coordinate their entry. To enable coordination, a city needs a credible coordination agent: either a forward-looking group of firms that can harmonize their plans and make a move together, or a large-scale land developer or municipal government that can realize its vision through major infrastructure investment (Henderson and Venables, 2009). Without such coordination the move into tradables will be unlikely to happen, leaving the city ‘closed for business’.

So how can Africa’s cities cease to be crowded, disconnected, and costly, and instead become liveable, connected, and productive, thereby opening their doors to regional and international markets? Here, policy actions to enhance the functioning of land markets (the factor market most urgently in need of reform) and to strengthen urban planning, regulation, and enforcement—followed by actions to coordinate and scale up investment in cities’ physical structures and infrastructure can be particularly useful. In particular:

1. Reform urban land markets and regulations. Policy-makers can act to improve the institutional structures that govern land markets and land use by:

   - simplifying and clarifying transfers of property rights among land market participants (freeing these procedures from today’s unclear, overlapping property-rights regimes);
   - supporting the effective management of urban development through foresighted planning, realistic regulation, and predictable enforcement.
2. Coordinate and increase early infrastructure investments. After taking firm and decisive steps to improve institutional structures, public authorities can build on those efforts to adapt physical structures and infrastructure—including housing, transport infrastructure (including roads), and basic services—by:

- making infrastructure investments early, and coordinating them with land market intentions and with the plans and regulations that guide physical structures (ensuring that infrastructure investments will be integrated with the growth of neighbourhoods and structures in predictable ways);
- intensifying these early, coordinated infrastructure investments to take full advantage of scale economies in housing, transport, and services (avoiding inefficient and fragmented investments that diverge from market demand).

Both efforts should aim at structural improvements in the allocation of a city’s land, capital, and structures. Their aim should be to achieve urban development at scale and for scale, while fostering economic specialization.

(ii) Strengthening land markets

Clarify land and property rights

Addressing institutional constraints: Restrictive regulations are strangling development in African cities, discouraging investment and limiting formal housing options for the poor. For example, Dar es Salaam requires lots to be at least 400 square metres. Anyone who wants to buy a stand-alone house in the formal sector near the centre must be able to afford a lot this size. The only ownership alternative is informal—and one-fourth of Dar es Salaam’s homeowners have no documentary proof of ownership (World Bank, 2015d).

Another kind of regulatory burden can be imposed by the system of land ownership itself. A majority of land in Kampala, Uganda operates under a complex land tenure regime that recognizes independent rights over land and structures, giving rise to legal disputes and blocking development (Muinde, 2013).

In Nigeria, high costs and burdensome regulations have stymied the formal development of urban land. Titling expenses alone can reach as high as 30 per cent of construction costs in Lagos and Port Harcourt, where total transaction costs range from 12 to 36 per cent of a property’s value (World Bank, 2015c). Zoning can also push people out of the formal sector and into unplanned development. In Ibadan in 2000, researchers found that 83 per cent of homes violated city zoning rules (Arimah and Adeagbo, 2000).

Strengthening property rights: African cities struggle with overlapping and sometimes contradictory property rights systems—formal, customary, and informal. Under the customary rules for land tenure that control much peri-urban and urban land, property rights depend on the consent of local chiefs or family elders. Many countries (mostly in Central Africa) have a wide range of land rights systems in urban and suburban areas (traditional, customary, collective, religious, and ‘modern’). This diversity is problematic, severely constraining urban land redevelopment and imposing high costs.
And even where formal titles or clear land rights exist, basic mapping, geographic, or ownership information is often inaccurate or land records maintained poorly, causing disputes. Tenure insecurity, measured as the share of the population with no formally recognized land tenure rights, increased in Africa from about 55 per cent in 2009 to about 66 per cent in 2012, with ‘strong tension’ more prevalent (and rising) in larger agglomerations than in average-sized towns (Picarelli, 2015).

Research by Bernard et al. (2016), based on a spatial computable general equilibrium model for the city of Kampala, shows that land tenure and geographic constraints explain up to 38 per cent of the variation in productivity and 48 per cent of the variation in amenity value across Greater Kampala. The negative effect is particularly strong for customary land tenure, which if converted to leasehold would increase productivity by 3 per cent in manufacturing, 4 per cent in business services, and 11 per cent in local services. A parish’s share of Mailo land also has a detrimental effect on service sector productivity, especially local services.

Unclear land rights severely constrain urban land redevelopment throughout the continent, imposing high costs. Applying for formal recognition can also be a tedious process. Land administration systems (such as registries and cadastre records) are incomplete and underused for enforcing legal claims and landholders’ fiscal obligations, so lenders cannot always use land as collateral. In sub-Saharan Africa, only 10 per cent of rural land is registered (Byamugisha, 2013).

**Strengthen land valuation**

The pricing of land on the market depends partly on policies such as taxes, charges, and subsidies that can complement regulatory controls on land use, creating financial incentives and disincentives. Revenues, such as those from land-based financing, can be used to finance administrative costs and infrastructure. Implementation tools such as capital investment, budgets, and phasing plans can help with planning.

**Removing data and legal obstacles:** Land valuation is outdated or incomplete in many African countries. In Kenya, the valuation and rating system has not been updated since colonial times, and property rolls are outdated: Mombasa’s was last updated in 1992 and Nairobi’s in 1981 (World Bank, 2016a). In Ghana, property valuations have not changed in the past 15–20 years (World Bank, 2015b). Some cities in Ethiopia do not even have such rolls (World Bank, 2015a). In Malawi, only ratable areas are listed and valued for tax purposes. However, over time, some non-ratable areas have become indistinguishable from ratable areas. As a result, Lilongwe City Council’s property valuation roll is estimated to list about 45 per cent of the properties in the city and Blantyre’s lists about a third (World Bank, 2016b).

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2 These indicators are based on the Institutional Profiles Databases (which include a land tenure component), produced by the Agence française de développement (AFD) and the French Finance Ministry based on the set of indicators developed by Lavigne-Delville and Durand-Lasserve (2009). The data used rely on Picarelli (2015), who conducted additional desk research to eliminate inconsistent observations that would bias the results. The retained indicators are deemed sufficiently consistent to provide an accurate picture of urban land tenure security.
In Malawi, the Local Government Act prescribes that the preparation and updating of valuation rolls can be done only by registered valuers (that is, valuers registered under the Land Economy Surveyors, Valuers, Estate Agents and Auctioneers Act), but there are very few in the country, pushing up costs. Property valuation methods are also inappropriate and cumbersome, relying on individual, rather than mass, valuations (World Bank, 2016b). In Nigeria, the sales comparison approach is the preferred method of valuation, but most cities lack the information on transactions needed (World Bank, 2015c). In Kenya, the system relies on individual valuations that can be subject to ratepayer objection before the roll is finalized, leading to very outdated property rolls in the more urban counties (World Bank, 2016a). Some laws even prohibit (or severely limit) land fees and taxes (World Bank, 2015d).

Even if land revenue laws were sound, cities would still have little power to leverage land for revenue, because fiscal cadastre records and capacities are weak. Moreover, cities’ reliance on central government transfers means that they have few incentives to make such efforts. Given the inadequacy of revenues from intergovernmental transfers, Africa’s cities should consider land and property taxes to finance urban infrastructure and public services.

**Strengthen urban planning institutions**

Land and property rights affect the transfer of land between users; land prices determine the intensity of investments in structures. Both land transfers and land prices are affected by land use regulation and urban planning—the policies that determine how and where land is used.

Urban planning and land use regulations are central for enhancing urban connectivity, productivity, and liveability because of externalities and coordination failures. Unregulated markets are unlikely to get urban densities and form right, because the productivity of firms and the job-generating aspects of increased density are positive externalities accruing freely to all, whereas the increased costs of construction, such as buildings, roads, and network utilities necessary for higher density to remain efficient, are not fully internalized by firms and households.

These market and coordination failures lead to less than optimal investment and ultimately to weaker productivity gains, less job creation, and lower wages. Further, well-functioning cities require that economies of scope and complementarities be leveraged in the provision of physical infrastructure (roads, drainage, street lighting, electricity, water, sewerage, and waste disposal) alongside policing and health care. Although each infrastructure sector and service can be addressed by appropriate government policies, addressing only one or two has little payoff if the others remain unresolved. With foresight and strong implementation, urban planning can help prevent these failures.

Across Africa today, urban plans and planning institutions appear ineffective. They are not coordinating investment in structures or managing the spatial form of cities. One source of difficulty is the inappropriate adoption of regulatory codes and planning models inherited from colonial regimes or imported from developed countries (Goodfellow, 2013). Another problem is that plans do not give credible accounts of finance, market dynamics, or distributional impacts. Minimum lot sizes, for example, may be intended as pro-poor land use regulations, but in practice they limit households’ investment choices (and in Brazil they have been associated with increased slum...
formation (Lall et al., 2006)). Yet another challenge arises from capacity and resource constraints.

**Strengthening capacity and resources for urban planning:** City and national authorities will have to make tough political decisions based on technical evidence and assessments. They will need to increase urban planning capacity and resources, even given competing funding priorities. In 2011, a survey of 12 African countries found, on average, 0.89 planners for every 100,000 people (Africa Planning Association and UN-Habitat, 2014)—a far lower ratio than in three high-income countries. It reported that recruiting skilled urban planners in a reasonably short time is a challenge in Africa, although institutional processes may have been at fault, given that ministry-level staff have to be recruited centrally through the Ministry of Public Services. The lack of staff capacity constrains effective management. It is even more crippling to enforcement, often the greatest challenge even where all necessary structures and regulations are in place.

**Streamline urban regulations:** Urban regulations are key instruments to put urban plans into action, because they determine the pattern of future land use. Yet many African cities’ urban regulations make it economically infeasible for households and firms to acquire planned land, forcing them to seek alternative land sources and contributing to extensive informal settlements. In particular, large minimum lots make formal land unaffordable, so the poor often have no option but to illegally access and subdivide land into very small parcels, creating slums. A survey of regulations in five countries shows that Kenya has the lowest minimum plot size, at 112 square metres (Figure 6). Rwanda does not specify a minimum size nationally; minimums are likely to be set by a local authority. Cities outside Africa have set lower minimum plot sizes, to allow access to formal tenure to the poorest population and promote formal, planned growth. When Philadelphia was settled, for instance, the city authorities set a minimum plot size of about 30 square metres. Continuous monitoring of on-the-ground conditions to determine the appropriateness of regulations drawn up would better inform the parameters to use.

**(iii) Coordination through infrastructure investment**

At the same time as they strengthen land markets, African cities have an urgent need to improve two sets of urban structures—physical and infrastructural—given that they are chronically underserviced by them (Banerjee and Morella, 2011). In 2006, the Africa Infrastructure Country Diagnostic (AICD) estimated that addressing the infrastructure backlog would require $68–$93 billion a year over the next three decades, a third of which would be for maintenance (Foster and Briceño-Garmendia, 2010). Besides addressing the service backlogs, one major reason for scaling up infrastructure is that it is a coordinating device—an irreversible, and therefore credible, commitment that is highly visible and can influence private investor decisions. Consider the following examples.

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3 Other countries, including Mauritius, Nigeria, South Africa, and Zimbabwe, have higher ratios.
In recent research, Felkner et al. (forthcoming) examine the extent to which the timing and spatial incidence of public investment in roads in four cities in East Africa is associated with private investment in housing and commercial and industrial structures, and with economic productivity and population density changes. Their study used data from very high-resolution satellite images to measure road investment using remote-sensing classification methods at a very high spatial resolution, and the authors use econometric techniques that measure roads and urban structure over time—including differences-in-differences with propensity score matching—to estimate the quantitative associations between road investment, land use changes, economic productivity, and population density.

The results quantify the full extent of the road network in each city for five categories of roads: three-lane paved roads, two-lane paved roads, two-lane paved roads with paved service lanes, one-lane paved roads, and unpaved roads. Also quantified is the full extent of road investment and road changes over 2003–13. The spatial resolution of the data enabled the authors to identify precisely where road investment was made in each city for each type of road and to spatially quantify the level of that investment. They find that paved road investment was positively and significantly associated with population density growth; growth in economic activity, as proxied by night light radiance; and industrial land use growth.

- **Road investment and population density.** Paved road investment is associated with a 37 per cent increase in population density for all cities pooled. It is associated with a 17 per cent increase in Kigali and a 34.4 per cent increase in Nairobi. Most of the estimated associations are strongest within 1–2 kilometres of the road investments. The bulk of the paved road investment impact appears to come from one-lane paved roads, less from two-lane paved roads with paved service lanes.

- **Road investment and economic activity as proxied by night light radiance.** Paved road investment is associated with an increase in economic activity (as proxied by night light radiance) of 24 per cent in Kigali and 13 per cent in Nairobi. As with population density, the magnitude of the estimated coefficients tends to be
highest within 1–2 kilometres of the locations of the investment. These results held across multiple robustness checks. (Results for Addis Ababa are questionable, because of likely errors in the city’s night light data related to the linear interannual calibration process.)

- **Road investment and industrial land use.** Paved road investment is associated with a 31 per cent growth in industrial land use, a result that holds across robustness checks. Two- and three-lane paved road investments have stronger associations with industrial land use growth than one-lane paved roads. Paved road investment corresponded to a 74 per cent increase in industrial land use in Addis Ababa, an 83 per cent increase in Dar es Salaam, and a 325 per cent in Kigali. The results for Nairobi were negative and significant.

- **Road investment and formal residential land use.** Results are inconclusive. When estimated for all cities pooled, paved road investment is associated with a significant decrease in formal residential land use growth. Results are negative for Dar es Salaam and Nairobi but positive for Kigali. The results are positive for Addis Ababa for unpaved roads.

The research reported above show the spatially localized benefits of urban road improvements. There are also broader citywide economic benefits of transportation improvements. In recent research on road improvements in Kampala, Bernard *et al.* (2016) examine the potential benefits of improving the northern bypass around the city, aimed at improving connectivity between the west and east of the city and upgrading the existing road network to facilitate movements within the city.

The direct beneficiaries of these improvements are workers using motorized transport, whose transportation costs decrease. Other residents also benefit, because lower transportation prices reduce the cost of living, at least in the short term, because over time, people relocate. The better-off locate farther from their jobs as commuting times decrease, reducing pressure on land close to the city centre and allowing poorer people to settle close to their jobs. Low-skilled informal workers may actually benefit more than high-income workers, depending on the strength of agglomeration effects. If these effects are strong enough in the informal sector, as they were in Colombia (Duranton, 2016), the relocation and increased clustering engendered by the transportation improvement will boost productivity in the non-tradable sector (in which most low-skilled workers are employed). The resulting increase in wages in that sector might surpass the wage effect for high-skilled workers.

The long-term effect of the bypass on urban welfare is eight times its short-term impact; the long-term effect of upgrading the road network is three times as great. Transportation investments not only decrease the aggregate commuting time of users of motorized and non-motorized transport, they also make easier for firms and households to relocate and have agglomeration effects on the city. If households and firms can relocate, both projects lower the cost of living by 19 per cent for high-income households and 6 per cent for low-skilled workers. With stronger scale economies in the informal sector and increasing returns to scale, the difference between low- and high-skilled workers decreases, with a reduction in the cost of living of 3 per cent and 9 per cent, respectively. These investments’ long-term effects on urban welfare are much higher than their short-term impacts: those from the construction of the bypass eight times, those from upgrading the road network, three times.
This research shows that the benefits of changes in the urban landscape, such as investment in transportation infrastructure, take time to emerge. Firms and households respond to these changes gradually. In the long term, planning policies should support relocation in response to change of connectivity for the full benefits of investments to be realized.

IV. Rekindling expectations by opening doors of cities to international markets

Africa’s crowded, disconnected, and costly cities are symptoms rather than causes of urban dysfunction. They appear ‘closed for business’ because of underlying distortions in the functioning of key factor and product markets. To build cities that open doors to regional and global markets—cities need to be liveable, connected, and affordable and therefore economically dense. There is a need to rekindle expectations about their future, grounded in better institutions. It is up to local and national authorities to undertake the institutional reforms needed for effective planning and coordination that will increase urban economic density and productivity and spur Africa’s belated structural transformation. Institutional structures must lead, not lag, urban infrastructure. If they do, the region’s cities will become not only better connected and more efficient, but also kinder to their inhabitants, whose skills will be critical to economic growth and development. Only when this happens will the doors of African cities stand open to the world.

Africa’s city leaders at the national and local levels need to direct their attention toward the deeper structural problems that misallocate land, fragment development, and limit productivity. Above all, the focus of reform should be on land markets and urban regulations, in order to enable investment and development, reward compliance, and ensure enforcement. Titles to property must be clear and secure. Real property transactions must not be unduly costly or burdened by bureaucracy. Further, investment efforts should focus on making early and coordinated infrastructure investments that allow for interdependence among sites, structures, and basic services.

The need for more efficient cities is impossible to ignore. Africa’s urban areas are quickly gaining in population: home to 472m people now, they will be twice as large in 25 years. The most populous cities are growing as fast as 4 per cent annually. Productive jobs, affordable housing, and effective infrastructure will be urgently needed for residents and newcomers alike.

References


