

Chapter 4 Africa's 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 labor costs might as well post a “Closed for business” sign. One that looks unlivable, without decent housing and amenities, could set up an “Out of service” sign as well.



A city that is a candidate for posting these signs has already entered a low development trap. Potential investors and trading partners quickly see the evidence of the physical and economic dysfunction that constrains public service provision, inhibits labor 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 should recognize the problem for what it is: not simply one of underinvestment leading to low infrastructure, but one of the interdependency 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.

This chapter looks at the form and function of African cities to spotlight key inefficiencies and their immediate effects — the signs that warn business away, limiting Africa's appeal to the business world and consigning its cities to producing mostly nontradables in the informal sector.

Cities closed for business

Chapters 1–3 laid out key features of developing country cities and documented the low levels of capital, lack of connectivity, and high costs facing households and firms in African cities. There are strong interlinkages between all these elements. Urban form (the built fabric or physical environment) shapes urban costs, such as commuting expenses and rents. Costs determine the urban function (the mix of activities undertaken in the city), in turn shaping productivity, labor demand, wages, and rents. There are feedback loops, as expectations about the city's performance — employment, productivity, wages, rents — determine investment decisions and hence urban form. These interactions can lead to virtuous cycles of rapid urban development — or to a development trap exhibiting the features described in chapters 1–3.

This chapter pulls the key elements together. It first looks at the ways in which business investment decisions in different sectors depend on the way the city functions, in particular its urban form. It then turns to residential investment decisions, in particular the ways in which they depend on expectations about future city growth.

Much of the chapter is analytical, pulling together findings from previous research and setting the stage for the chapters on housing and land tenure (chapter 5) and infrastructure (chapter 6). The analytic framework demonstrates how the different elements of the city fit together and highlights the fact that there can be several equilibrium outcomes. Expectations can be self-fulfilling, leading a city to

one outcome or the other. In one outcome, a city produces only nontradable goods, with low land values, little investment in buildings, and consequent failure to achieve the scale and density required for modern tradable production. The other outcome has the city producing tradable goods and services alongside nontradables. Land values are higher, as are expectations of rents, incentivizing developers to invest more in building a taller and denser city. In both cases, expectations become self-fulfilling: If developers anticipate increased tradable production, their expectations of wages and land prices will be higher, leading them to invest more in taller buildings. “Taller” cities have greater economic density than “flatter” cities, increasing the likelihood of agglomeration economies and the future growth potential of the city and decreasing urban costs.

The “nontradables trap”: Theory

Africa's failure to industrialize, and to create the jobs that come with industrialization, are a major cause of concern. Many factors lie behind this failure. The focus here is on the role that poorly functioning cities play, drawing on the framework developed by Venables (2016), which reflects the interactions that shape the performance of a developing country city.

The key ingredients are supply and demand for labor in the city. The supply curve gives the wage that the city has to offer to attract population from neighboring areas (figure 4.1). It slopes upward because cities impose “urban costs” — the additional costs workers face when living in the city because of



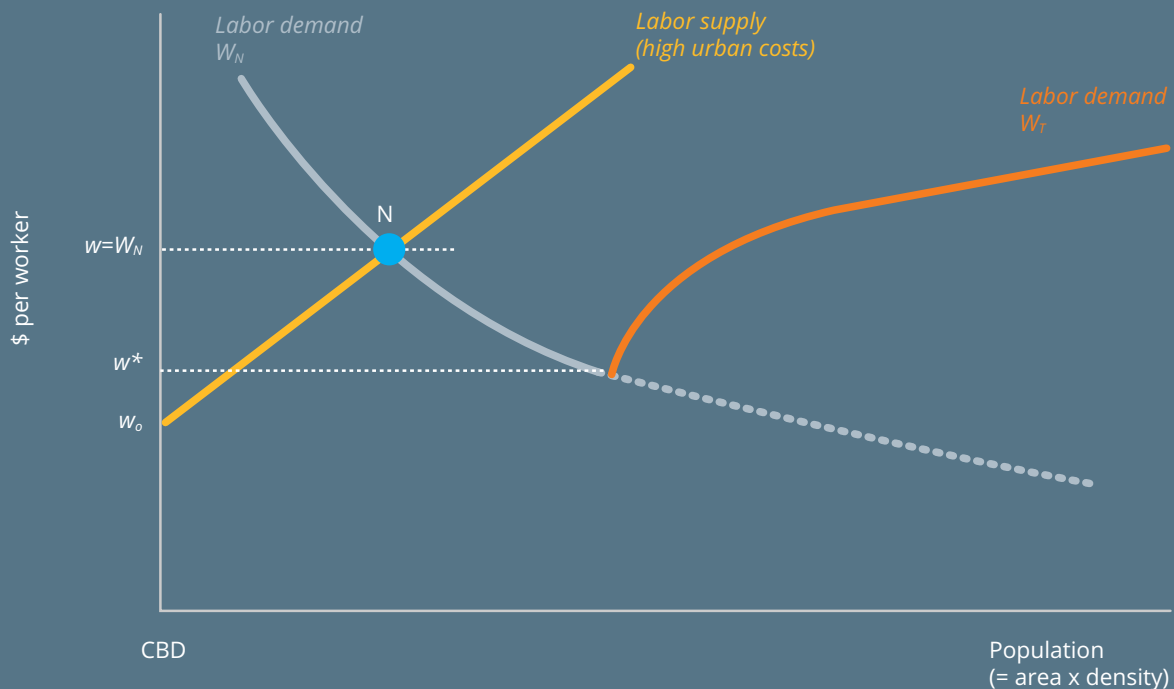
high rent, commuting costs, and the price of many goods (as shown in chapter 3). These costs increase with city size. Urban costs — and hence the height and slope of the supply curve — also increase with urban inefficiencies in delivering housing, transportation, and public services. Labor supply will be forthcoming only if wages rise to offset the costs of living in a city.

The demand curve is drawn with two distinct sections, one representing labor demand in the nontradable sector, the other in the tradable sector. Nontradables are goods and services that are sold within the city and its hinterland (perhaps extending to national or even regional sales). They include beer and cement, construction, and many services, including retailing, as well informal sector activities. Demand for these goods and services comes from income generated within the city and its hinterland and from income transferred from outside sources, such as resource

rents, tax revenues, and foreign aid. The curve is downward sloping because of diminishing returns; the more workers employed produce nontradables, the greater will be the supply of the goods they produce and hence the lower the price of the goods. Given local demand, the more workers are crammed into this sector, the lower will be their earnings.

In contrast, the price of tradable goods is set on the world market. A city's export activities do not run into a constraint set by the size of the local or regional market. The price of imports (and import-competing products) is set largely by the possibility of supply from the rest of the world. The demand for labor curve is therefore relatively flat. It is drawn in figure 4.1 as upward sloping because these sectors are likely to experience agglomeration economies, creating increasing returns to scale.

FIGURE 4.1
 Supply and demand for labor in a “local” city

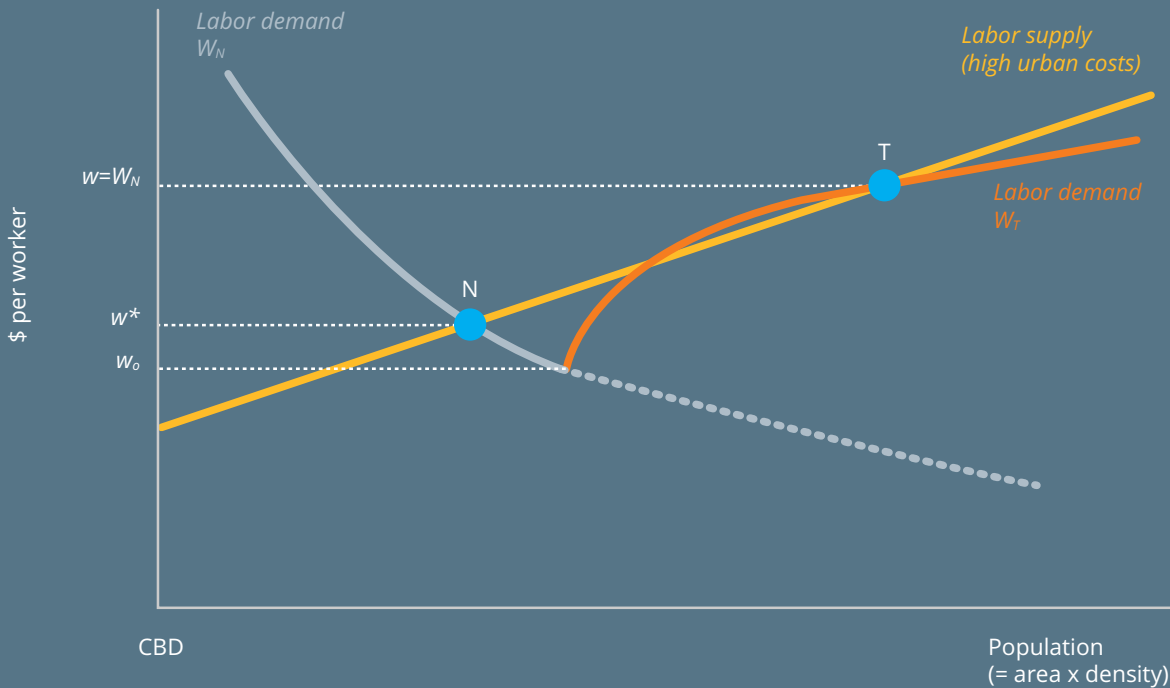


Source: Venables 2016.

Note: CBD = Central Business District. w_o is outside wage. W^* is the international wage, or the threshold for which the city is competitive in tradable production. W_N is the wage in the local city, W_T is the wage in the global city.

FIGURE 4.2

Supply and demand for labor in an internationally competitive city



Source: Venables 2016.

Note: CBD = Central Business District. W_o is outside wage. W^* is the international wage, or the threshold for which the city is competitive in tradable production. W_N is the wage in the local city, W_T is the wage in the global city.

What is the outcome of the interplay between supply and demand? If urban costs are high or increase sharply, then the situation is as in figure 4.2. Labor supply equals labor at point N. Four observations can be made. First, nominal wages are high. Second, real wages remain low (they are set by the supply of labor from outside the city; high nominal wages merely compensate for high urban costs). Third, nominal wages are too high to attract any tradable sector production, so the city produces only nontradables. Fourth, unlike tradable sector firms, firms in the nontradable sector are able to afford to pay these high wages by passing them on to consumers, contributing further to the high cost of living in the city.

Figure 4.2 illustrates an outcome in which urban costs increase less rapidly with city size, so the labor supply curve is flatter. In this case, labor supply equals labor

demand at point T, where both the nontradable and tradable sectors are active. The larger the city, the flatter the labor supply curve, although nominal wages may be high. Firms in the tradable sector can afford to pay these wages because employment in these sectors is high; agglomeration economies increase productivity.

The argument so far shows how urban form — urban costs and hence the shape of the labor supply curve — determine the size of the city and its production structure. Why is production of only nontradables considered a "trap"? In figure 4.2, there are three points at which labor supply equals labor demand. The middle one is unstable and can be ignored, but points N and T are both sustainable outcomes. At N the city produces only nontradables; at T both sectors are active.



Both outcomes are sustainable because agglomeration economies make it hard to start producing in new sectors. At point N the wage is too high to trigger tradable production, because productivity in the tradable sector is low — because there is no tradable production, there are no agglomeration economies.

This situation stems from coordination failure, a standard problem in developing new clusters of economic activity (see, among others, Henderson and Venables 2009). It arises when a group of firms (or individuals) has the resources to achieve a desirable outcome but fail to do so because they cannot (or do not) coordinate their decision making. The chicken and egg problem is that no firm wants to be the first to set up but many would become established if they could coordinate their entry.

To solve the problems, cities need either a forward-looking group of firms to harmonize their plans and make a move together or a large-scale land developer or city government with strong expectations that will establish its credibility by making irreversible investments in the new location (Henderson and Venables 2009). Absent coordination, agglomeration economies will not be realized, leaving all firms stuck in the suboptimal equilibrium. Cities will develop at a smaller scale, with fragmented neighborhoods, as they have in Africa.

Three messages emerge from this analysis. First, it is possible for real incomes to be low but nominal prices and wages high. In this scenario, the city produces only nontradables, with high prices passed on to the local market; the city is too high cost for tradable sectors to be able to operate.

Second, even if urban costs are lower, it may be hard to break out of the nontradables trap. Coordination failure means that the city is stuck at point N in figure 4.2, and it is not profitable for any firm to start up tradable production.

Third, there is a dichotomy of urban types. Some cities — including many in Asia — produce tradable goods at scale, bringing high productivity and high real incomes. Others — such as most in Africa — have not yet broken into this sector. They remain stuck at point N.

The “nontradables trap”: Evidence

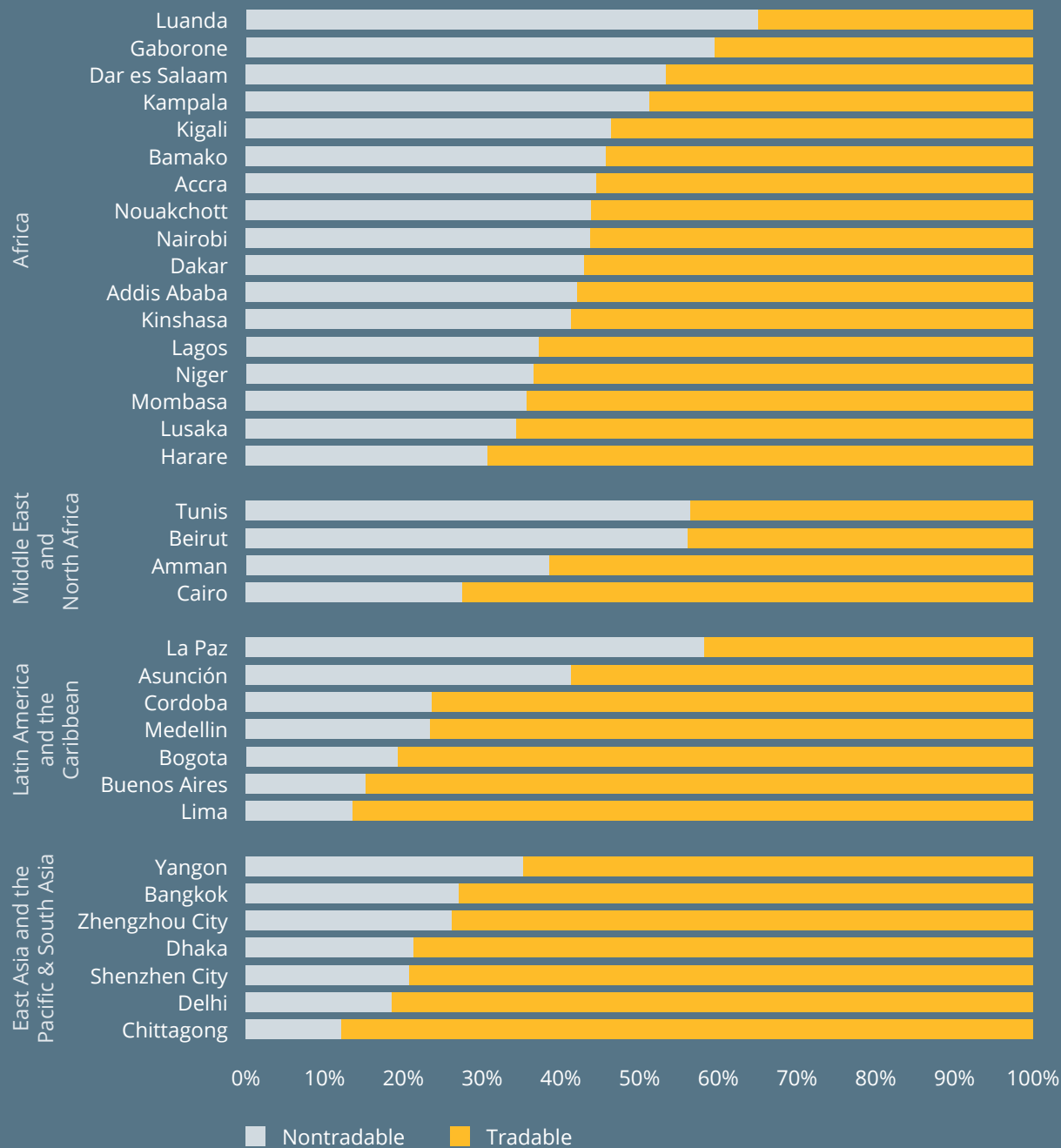
Chapter 3 established that the high-cost/high-wage configuration is a feature of African cities. There is also plenty of evidence that African cities — and countries — have not broken in to supplying internationally tradable manufactured goods or services. The contrast between Asia and Africa is illustrated in figure 4.3, which shows the shares of firms in tradable and nontradable sectors in selected cities. It shows that the share of tradables in Asian cities is about 70 percent, 20 percentage points higher than in African cities (about 50 percent).

Africa's failure to industrialize is a cause for concern because much of the growth in developing countries since the 1980s has been linked to the expansion of industrial production and higher-technology exports (Nallari and others 2012). Rapidly growing countries, like China, have switched from exporting mainly resource and agro-based products to increasingly participating in global production chains, in particular high-tech products like optical devices, transportation equipment, and domestic appliances as well as related assembly services. As countries are increasingly specializing in tasks rather than products, trade statistics are now moving from “naive” export valuation to domestic value added measures. The switch is particularly important in countries like China, whose share of processing exports is above 50 percent. In high-tech sectors, the share of foreign value added reaches 80 percent, resulting in an overestimated trade value for these products (Koopman and others 2008).

The big winners in China were “exports of electronic and telecommunications products and office equipment, the shares of which grew from 5.4 percent in 1985 to more than one-third in 2006” (Nallari and others 2012). Many other countries in East and Southeast Asia experienced similar transitions in their export mix during the first decade of this century (table 4.1). By contrast, the majority of African exports remain resource- and agro-based.

FIGURE 4.3

The tradables sector is much larger in Asia than in Africa



Source: Data from World Bank Enterprise surveys conducted since 2010.

Note: The data is from the latest WBE surveys post-2010 (with more than 15,000 firms in capital cities, or cities of at least one million inhabitants, and with at least 50 firms sampled). Only firms with five or more employees are interviewed. The sectoral specialization analyses used the UN International Standard Industrial Classification of All Economic Activities (3.1 revision). Manufacturing, wholesale and commission trade, and business services (such as travel agencies, transport, financial intermediation) are all tradable activities. By contrast, construction, local services, retail trade, health and social work, and other local activities are classified as nontradable.



Table 4.1 Top 10 commodity exports from Asia and Africa, 2000–10

Commodity	Trade value (billions of dollars)
Asia (East Asia, South Asia, and Oceania)	
Electrical, electronic equipment	7,409.6
Nuclear reactors, boilers, machinery, etc.	5,044.7
Vehicles other than railway, tramway	2,175.4
Mineral fuels, oils, distillation products, etc.	1,926.4
Optical, photo, technical, medical apparatus, etc.	1,085.4
Plastics	903.9
Articles of apparel, accessories, knit or crochet	798.2
Articles of apparel, accessories, not knit or crochet	774.1
Iron and steel	744.0
Pearls, precious stones, metals, coins, etc.	722.5
Africa	
Mineral fuels, oils, distillation products, etc.	1,224.4
Pearls, precious stones, metals, coins, etc.	169.7
Iron and steel	74.3
Ores, slag, and ash	64.0
Articles of apparel, accessories, not knit or crochet	62.2
Vehicles other than railway, tramway	59.3
Electrical, electronic equipment	57.4
Nuclear reactors, boilers, machinery, etc.	54.3
Cocoa and cocoa preparations	43.5
Inorganic chemicals, precious metal compound, isotopes	35.5

Source: Data from UN Comtrade Database.

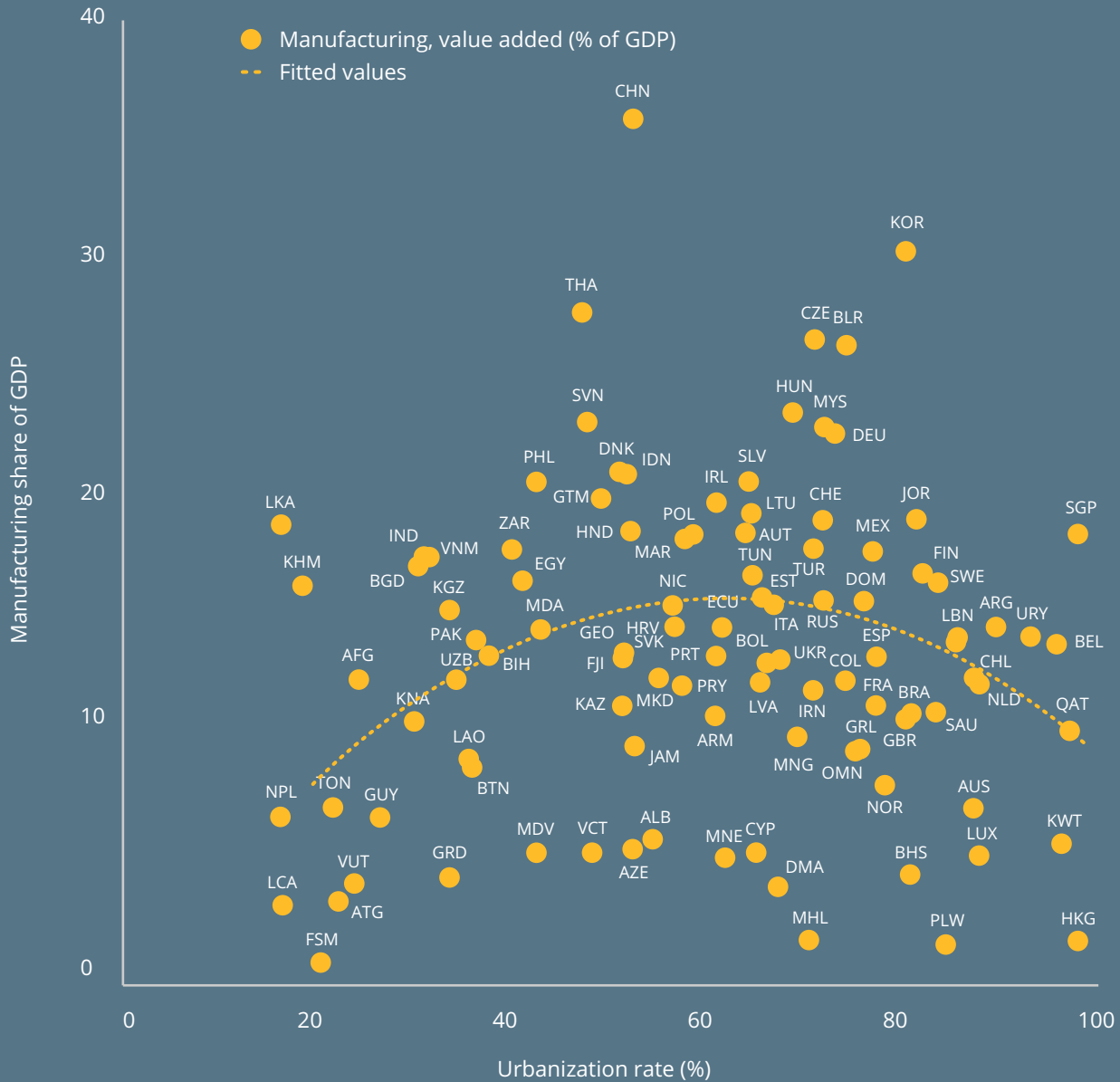
Globally, urbanization is strongly correlated with the expansion of manufacturing (figure 4.4). For most countries, manufacturing as a share of GDP rises with urban shares until about 60 percent of the population lives in cities and manufacturing accounts for about 15 percent of GDP.

Sub-Saharan Africa has not developed in this way: its pattern of growth has been described as “urbanization without industrialization” (Fay and Opal 2000; Jedwab 2013; Gollin, Jedwab, and Vollrath 2016). This theory argues that Africa’s urbanization growth has been driven by natural resource exports, a third explanation for relatively high demand for nontradable services produced in cities (box 4.1).

FIGURE 4.4

Urbanization and manufacturing share of GDP in Africa and outside Africa

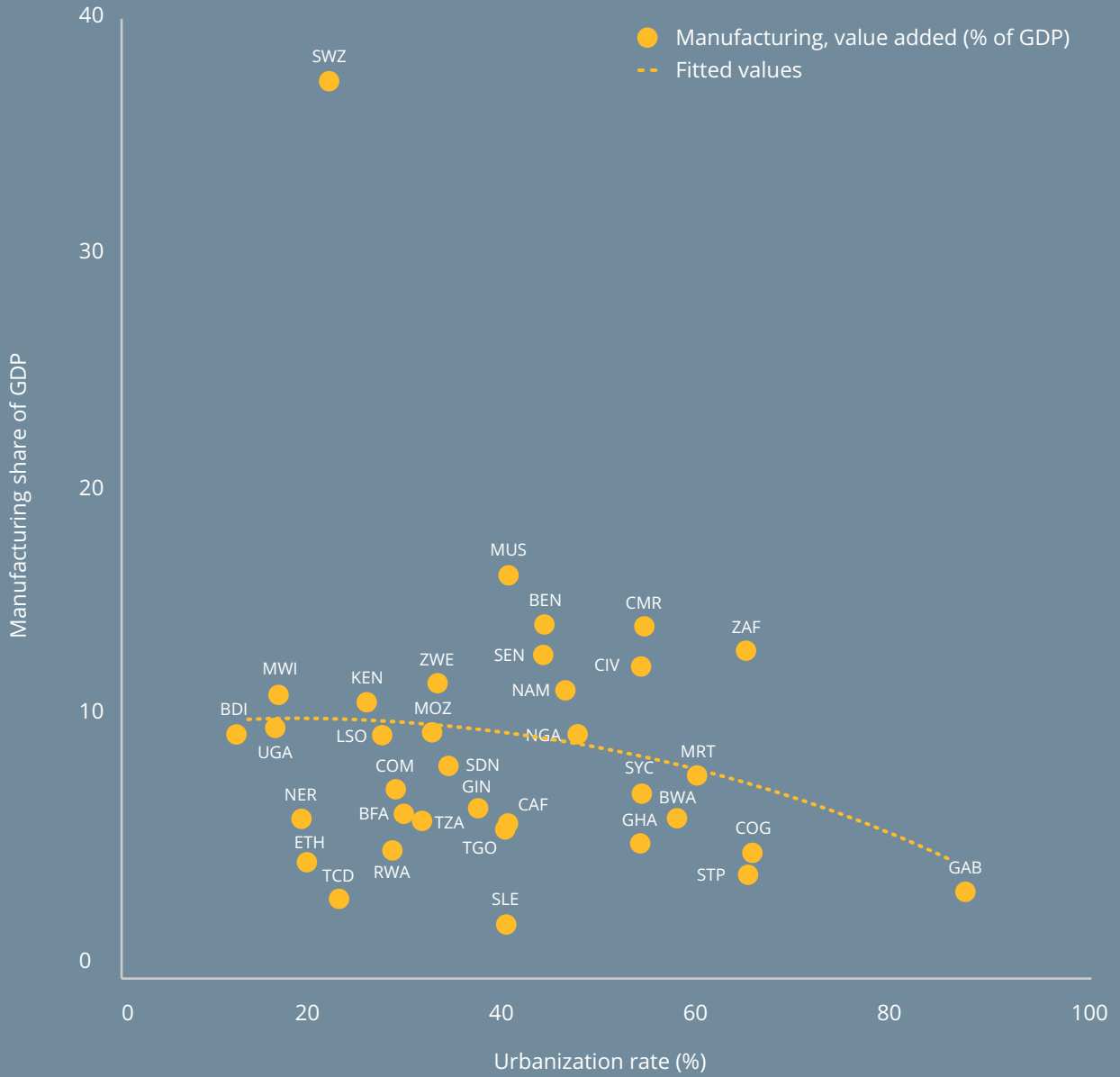
Outside Africa



Source: Data from World Development Indicators.



Africa



Source: Data from World Development Indicators.



BOX 4.1

Do natural resource exports explain why African cities specialize in nontradables?

Countries can follow one of two paths to achieve higher urbanization rates as they structurally transform. The first path moves workers out of agriculture and into manufacturing (box figure 4.1.1). This type of structural change — the path taken by most countries in Europe, Latin America, and Asia — creates “production cities,” which produce tradable goods for domestic and international markets.

The second urbanization path reflects the experience of African countries with large natural resource

endowments. Positive productivity shocks to the resource sector shift workers into the sector and out of the food and tradable sectors. Surplus income generated from natural resource productivity shocks causes a disproportionate rise in the demand for urban goods and services (relative to food). This added demand is met largely through imports (except for urban services, which are produced locally). Urbanization is driven by consumption, not production, creating “consumption cities” (Gollin, Jedwab, and Vollrath 2016).

BOX FIGURE 4.1.1

Urbanization and industrialization take different paths in resource exporters and nonresource exporter



Source: Gollin, Jedwab, and Vollrath 2016.



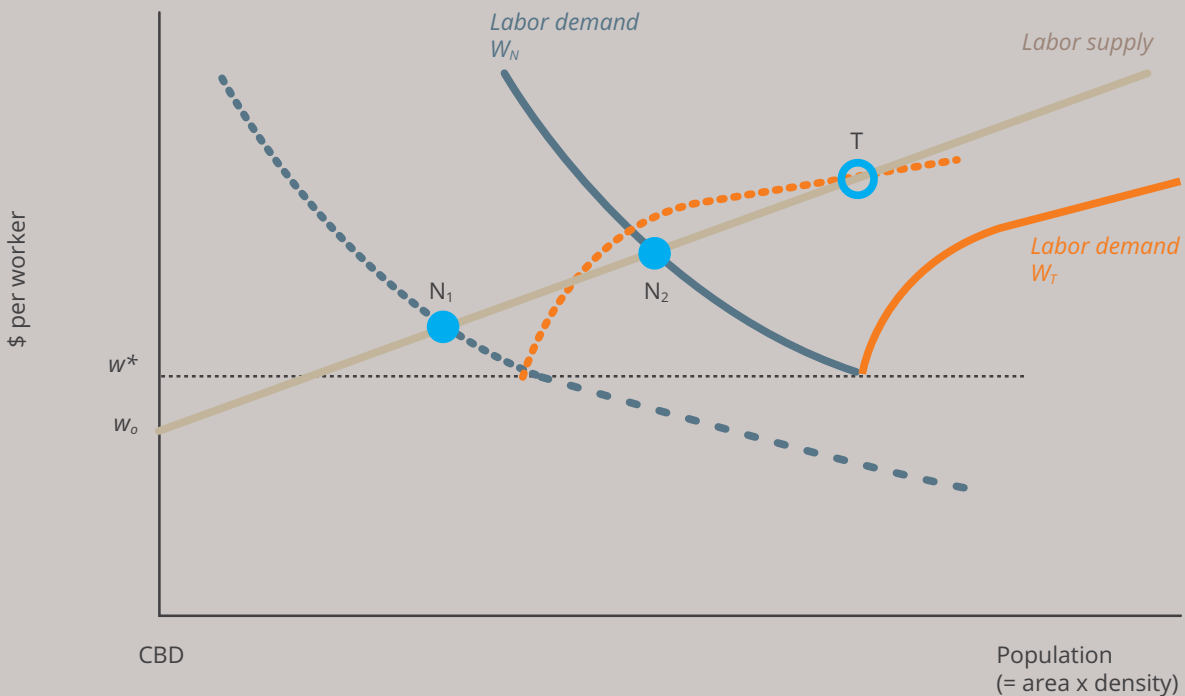
If this analysis is correct, urbanization in Sub-Saharan Africa may not generate the same productivity effects as urbanization in other developing regions — in part because of rapid growth in the natural resource sector, which increases urban employment mostly in the nontradable sector. The different growth paths taken by countries that do and do not rely on natural resource exports appear in box figure 4.1.1.

Disproportionate demand for nontradables can offset efforts to reduce urban costs — one of the factors that keeps cities locked into local markets.

In box figure 4.1.2, heavier demand for nontradable goods and services shifts the labor demand curve to the right. Starting from a city with two equilibria, an increase in demand for nontradables leads to the single equilibrium that specializes in nontradables.

BOX FIGURE 4.1.2

Large natural resource rents lead to an equilibrium dominated by nontradables (urban “Dutch disease”)



Source: Venables 2016.

Note: N is a city producing nontradable goods for the domestic market. T is a city producing tradable goods for both local and international markets. CBD is central business district. W_0 is outside wage. W^* is the international wage, or the threshold for which the city is competitive in tradable production.

Sunk costs, construction, and the expectations trap

Urban form depends on private investment decisions, including decisions made in the residential sector. For formal sector housing, these decisions involve sinking costs in constructing long-lived structures. Such decisions depend critically on expectations about the future prospects of the city. If the city is expected to be “artisanal,” based on low-value production of nontradables, then land rents will be expected to remain relatively low and it will not be worth investing in formal structures. The lack of incentive to invest perpetuates the disconnectedness and high urban costs that are one of the obstacles to investment. Expectations are therefore self-fulfilling. In contrast, more optimistic expectations increase investment in formal sector structures, including residential structures, bringing down urban costs and making the city more attractive as a place for local investment (flattening the labor supply curve).

The costs involved in building durable formal sector structures include several components. Construction costs are high, particularly in building tall. There may also be high conversion costs in going from informal to formal. They include the costs of road layout and the provision of water, sewerage, and other infrastructure. They also include legal and institutional costs. Building durable structures is unlikely to take place until ownership of land is made clear, a process

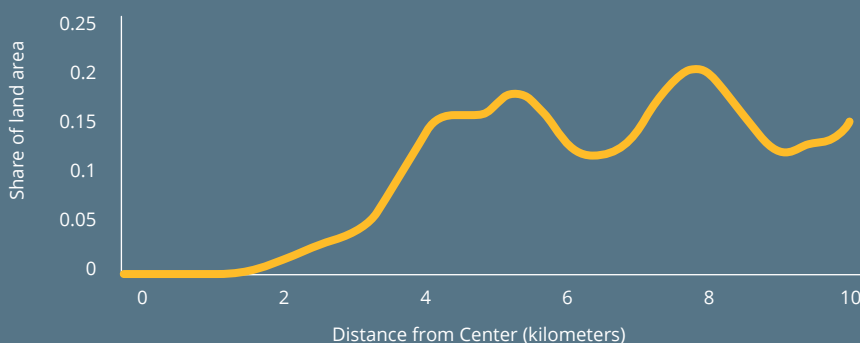
than can be a lengthy and expensive (see chapter 5). Imperfect land markets make it difficult and expensive to assemble parcels of land of size sufficient to justify infrastructure investments and other large-scale expenditures.

The future returns from building a structure are extremely uncertain in many developing cities. Lack of clarity in land rights and political risk create uncertainty about future rental incomes. Low expectations about the future growth of the city mean low expectations about the growth of rents. Even if developers expect the city to grow, they might not know where in the city that growth is likely to occur. An investor may be confident that growth will occur somewhere in the city, but if it could be in any one of many possible locations, the ensuing uncertainty means that no one will invest. These issues reflect coordination failure.

There are mechanisms for overcoming such failures. Sunk investments—made by the government or a group of investors—are one. They provide a strong signal to other potential investors and can have long-run effects. It has been argued that “investments sunk historically, even small ones that have now depreciated completely, might serve as a mechanism to coordinate contemporary investment” (Bleakley

FIGURE 4.5

The share of land devoted to slums increases with distance from the city center



Source: Henderson, Regan, and Venables 2016.



2012). This argument explains why places that have seen large sunk investments in the past (like towns along rail lines) continue to attract investment today (Jebwab and Moradi 2016; Jedwab, Kerby, and Moradi 2015).

Given these high sunk costs and low or uncertain expected returns, it is not surprising that investment in formal structures has been low. A further consequence is the patchwork of building types observed in many African cities, with informal settlements still present in central areas, adjacent to modern development.

Henderson, Regan, and Venables (2016) argue that informal settlement is likely to be part of an “efficient” urban structure in a growing low-income city but that the coexistence of formal and informal sector settlement near the center is inefficient. Their detailed study of Nairobi indicates that although there are no remaining slum areas within 2 kilometers of the city center, beyond that 10–20 percent of land is occupied by slums (figure 4.5). Slums are less tall than formal areas but have a higher proportion of land area covered by buildings (so less space is used for road and other amenities). The building volume per unit land is similar in slum and formal areas. However, the land rent differential between uses is large, indicating inefficient use of land. They estimate that the capital value forgone by not developing Kibera, Nairobi's largest slum, is on the order of \$1 billion.

An inefficient level of housing investment has implications that go beyond the housing sector. The supply curve of urban labor discussed earlier depends on, among other things, the stock of housing available to workers. Inefficiency and undersupply shift this curve to the left, raising costs and restricting the supply of workers. This shift is one of the factors that makes it more likely the city will be stuck in the nontradables trap. The coordination failure is therefore much wider than just between firms or between property developers. It intersects both sets of activities. There is an expectations trap, as developers will not construct housing unless they expect the city to grow (and other market failures in the housing market to be ironed out), and undersupply of housing is one of the factors undermining the profitability of tradable sector production, which in turn retards the growth of the city.

Countries in Sub-Saharan Africa are urbanizing rapidly. Some 472 million people live in urban areas across Africa, and this number is expected to double in the next 25 years (United Nations 2014). By 2030, Sub-Saharan African cities need to create 160 million additional jobs.

Africa's pattern of urbanization, however, is different from that underway in other developing regions, where increased urbanization has been accompanied by a rise in manufacturing activities. As two-thirds of Africa's urbanization still needs to happen, now is the moment to make African cities more productive.

Theory and evidence combine to paint a challenging picture of the current state of African cities. The urban landscape of African cities has generated economic inefficiencies that have increased urban costs. Low expectations have resulted in lack of investment in residential, commercial, and industrial buildings and in infrastructure. Such shortfalls in structures makes cities costly and forestall economic agglomeration.

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