



# Economic Premise

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## Rethinking Cities: Toward Shared Prosperity

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*The great transition from farm to city is filled with economic, social, and political promise. Cities are the product of a triad of forces. This Economic Premise explores how the three forces of spatial transformation—physical infrastructure, human interactions, and public policy—come together and shape cities. But too many cities in Sub-Saharan Africa continue to suffer from the oldest urban scourge—unclean water. Crime and murder turn many Latin American neighborhoods into places of terror rather than opportunity. Limited transport options can turn daily commutes in Asia’s mega cities into arduous treks. Shantytowns are a regular sight in many of the world’s burgeoning cities. So policy makers and city mayors need to tackle a wide range of problems, from debilitating conditions in urban slums to the lack of basic services such as clean water and sanitation, inadequate housing, the exclusion of the poor from the city’s socioeconomic fabric, and the management of natural hazards and pollution. If these challenges are left unaddressed, cities can become a source of social and political instability. With the right policies, cities can become engines of transformative change toward inclusive, people-centered, and sustainable development. For most of human history, people lived on the edge of survival. In the past two centuries, we have miraculously moved toward far greater prosperity through transformations, above all, in cities. Urbanization now has the potential of transforming the developing world, and that’s why getting urban policies right is so important. There is no future in rural poverty—the path to prosperity inevitably runs through cities. The right approach is not to accept the urban failures that often exist now, but to rethink cities and try to imagine how to get to a brighter urban future.*

### Why Rethink Cities?

In 1899, Adna Weber began his magisterial survey of urban growth by observing that “the most remarkable social phenomenon of the present century is the concentration of people in cities” (Weber 1899). Yet when Weber wrote, populations remained predominantly rural, even in wealthy countries, and poorer nations were overwhelmingly rural, as they had been for millennia. At the end of the 20th century, the developed world was overwhelmingly urban, but more than 60 percent of the populations of Africa and Asia were still rural.<sup>1</sup> The 21st century has already witnessed the half-way point where more than 50 percent of the world’s popula-

tion is now urban, and in this century, almost every nation is likely to become predominantly urban.

The great transition from farm to city is filled with economic, social, and political promise. Few countries have transitioned from poverty to prosperity without urbanizing. The concentration of people in cities can offer both economic opportunity and the chance for social change toward a more open, innovative, inclusive, and democratic society. The easy spread of knowledge within dense areas doesn’t just enable computer programmers to enter the global economy, it also enables the spread of new ideas about equality and opportunity and gives voice to multiple and diverse stakeholders, who are the lifeblood of political reform.

While urbanization can mean economic dynamism, inclusion and democracy, it also creates enormous challenges, and the difficulties of urban life are magnified when the public sector is weak. Urban proximity enables the exchange of bacteria just as easily as the exchange of new thoughts. It took centuries for the cities of the West to become places of good health, rather than contagious disease, but congestion and high housing prices continue to bedevil the world's more prosperous urban places. The cities of poorer nations, especially those with more problematic public sectors, remain beset by enormous challenges.

Despite these difficulties, urbanization will, and should, continue. Widespread prosperity seems much more likely to emerge from new cities than from the farms of the less developed world. The right response to the challenges of urban life is not to try to confine aspiring urbanites to rural poverty, but to defeat the demons that come with density.

Cities can be understood as the product of a triad of forces. First, and most obvious, cities are physical entities—streets, buildings, and subways. Visitors see these realities first, and while they are only part of the city, they shape everything else that occurs within an urban area. The physical bones of the city help determine the cost of housing, the integration of the rich and poor, the ease of getting around, and the quality of air and water. The second force is the public sector, which defines the borders of the city and is responsible for providing clean water and public safety. Public regulations shape private entrepreneurship and the buildings that give any city its skyline. Close proximity increases human connections, for good and for bad, and the public sector helps manage those interactions, allowing the benevolent ones to flourish and limiting the more damaging consequences of urban interaction.

The third force is the magic of human interaction. Certainly cities are physical entities and governmental units, but the real heart of a city is its people. Shiny buildings do not mean urban success—true success means that ordinary humans are finding success, by finding each other within the dense urban enclaves. These interactions generate innovations in art, technology, religion and politics, as they have for thousands of years since Pericles's Athens and Kautilya's Taxila.

The goal of this note is to explore how these forces come together and shape cities, and how the public sector can play a more positive role in enabling cities of the developing world to flourish. Too many cities in Sub-Saharan Africa continue to suffer from the oldest urban scourge—unclean water. Crime and murder turn many Latin American neighborhoods into places of terror rather than opportunity. Limited transport options can turn daily commutes in Asia's megacities into arduous treks. Shantytowns are a regular sight in many of the world's burgeoning cities.

There are no easy solutions. The cities of the West acquired clean water only through massive expenditures on in-

frastructure. In America's cities, the battle against crime seemed unwinnable just two decades ago. Long commutes and expensive housing infect almost every thriving city. But even if the great problems of urban life cannot be simply solved, there are better—and worse—policy approaches to these problems. Human history provides hard-won knowledge on how to make cities more livable.

There are many different plausible approaches to understanding urban solutions. One approach emphasizes clearly defined public sectors—such as transportation, police, and public health—and focuses on solutions in each sectoral silo. Yet some problems—such as economic vitality and quality of life—span sectors and require solutions outside any one area of public intervention. Therefore a second approach might start with clearly defined objectives, such as longevity and economic prosperity, but these can be too broad, and different fields often differ in their approaches. This note presents a hybrid approach traversing both.

## Rethinking City Strategies

Urbanization is a key driver of development. But it also poses enormous challenges. Policy makers and city mayors need to tackle a wide range of problems, from debilitating conditions in urban slums to the lack of basic services such as clean water and sanitation, inadequate housing, the exclusion of the poor from the city's socioeconomic fabric, and the management of natural hazards and pollution. If these problems are left unaddressed, cities can become a source of social and political instability. But cities can instead become the engines of transformative change toward inclusive, people-centered, and sustainable development.

The key questions examined here center on cities and economic growth and the changing dynamics of world economic geography. Should we expect the economic success of cities like Bangalore and Shenzhen to trickle down to the less fortunate? What policies can ensure that the economic benefits of urbanization help a broad swath of the population?

From the economy, pivot to the physical city: the market failures that lead to sprawling congested cities also cause environmental damage, increase greenhouse gas emissions, and inflict deleterious impacts on the most vulnerable citizens, the urban poor. How do cities manage urban land, housing, and transportation to become sustainable and livable? No one doubts that cities need infrastructure, including sewage facilities, roads, and power generation. Yet while the need for infrastructure is clear, the best means of providing it are less obvious. Should it be provided by the public or private sectors? How can limited financing be used more effectively? National policies matter for cities, and national policy makers can no longer afford to ignore this if they want to harness urbanization for economic growth, job creation, inclusion, and sustainability.

### **The urban imperative: unleashing economic change**

Few cities expand without economic success. Just a handful of cities have had such powerful noneconomic attractions that they have grown without a core economic comparative advantage. In the United States, early Boston attracted religious migrants, and Los Angeles drew in Midwestern farmers interested in a more Mediterranean climate. But even in these cases, urban pioneers wanted to earn a living, and later urbanites were attracted by the economic potential unleashed by the first residents. A more common historical pattern is that a city forms around a political nucleus. But even if political power is the primary source of the city's external revenues, people cluster around that power searching for economic advantage.

Every large city that is also a capital—from Washington, DC, to Kinshasa and Ankara—has grown in part because of the economic activity generated by the central authority. Yet even those cities are usually eager to see more nonpolitical sources of prosperity. In commercial cities, the fight for economic success is even more critical.

What do we know about urban productivity? The first, and most central, fact about the prosperity of cities is that productivity and incomes typically increase with city size and density. Glaeser and Gottlieb (2009) provide evidence for the economies of agglomerations in the United States, and there are many studies documenting similar patterns in other wealthy nations (for example, Combes, Mayer, and Thisse [2008]). If anything, the connection between urban density and prosperity seems to be even stronger in the developing world. Wages typically rise by 6 percent as density doubles in the United States. The connection between density and incomes appears to double in India and triple in China (Chauvin, Glaeser, and Tobio 2013). These facts just confirm what seems obvious to the naked eye—economic growth in the developing world is uneven and highly concentrated in cities.

Economists since Adam Smith have sought to understand why prosperity is higher in large population centers. One hypothesis is that some areas have innate productivity advantages as a result of natural factors, such as access to waterways or mines, and people come to cities to be near those productivity advantages. A related view is that some cities have manmade advantages, including the presence of national government, which attracts people. According to this view, the link between density and prosperity reflects largely reverse causality—productivity causes density, not the reverse.

There surely was much truth to this view historically. The ports of Liverpool, New York, and Shanghai were major geographic advantages that helped those cities grow. Bleakley and Lin (2012) document how U.S. cities grew at fault lines, the natural stopping point of inland navigation. Coal mines were critical to Essen and Pittsburgh. The per-

ceived political advantages of British control during the colonial era were surely part of the appeal of Singapore and Hong Kong.

### *The economies of agglomeration*

Few scholars see natural resources as the cause of most urban productivity today. Commodities, like coal, can be easily shipped and the natural harbors of many cities have become irrelevant. Soil quality may explain historical density levels (Combes, Mayer, and Thisse 2008), but it is hard to imagine that soil quality is having any direct impact on productivity today. Even in Africa, where urbanization is often associated with commodities, there is increasing evidence of agglomeration economies. Instead, most scholars believe that the agglomeration produces its own productivity, perhaps abetted by governmental factors and connections to the outside world.

The benefits of being around other people are typically labeled agglomeration economies, the starting point for understanding the sources of urban success. Since agglomeration economies are so basic, and so ubiquitous, it is useful to review them, for they underlie everything else that follows. At their core, agglomeration economies occur because density increases the ease of moving goods, people, and ideas. Cities remove the physical spaces between people and firms, and proximity is valuable precisely because it makes connections easier.

The most basic agglomeration economy is the reduction of transport costs for goods, which is emphasized by Krugman (1991) and others: if a supplier locates near customers, the costs of shipping decline. Ellison, Glaeser, and Kerr (2007) show that manufacturing industries that buy and sell to each other also locate near one another. This agglomeration economy is closely linked to economies of scale at the firm level, because if factories were infinitely indivisible, they would just spread out to be located near every conceivable customer. Cities enable scale economies and proximity for trading partners.

The decline in transport costs has made this agglomeration force less important in the developed cities of the West. For example, cities such as New York and London were once manufacturing powerhouses, places where factories located to be close to customers and transport infrastructure. As it became easier to ship goods, manufacturing left older, wealthier cities for cheaper locales in suburbs or lower-cost regions or lower-cost countries. In the 1960s and 1970s, many older cities had to struggle with the challenges created by this deindustrialization. A similar trend can be observed in some developing countries today, where manufacturing is gradually moving out of cities in search of cheaper locales.

But even if manufacturing is now far less important to San Francisco and Milan, it remains a mainstay for urban areas in the developing world. Developing countries are at an

earlier stage of development, and lower labor costs give them an advantage in producing manufactured goods. Moreover, transportation networks are far less reliable in the developing world, which give a greater edge to urban areas, especially if they are also well-functioning ports. It is far easier to ship from rural Ohio than from rural Maharashtra, so new manufacturing is far more likely to locate in Mumbai than in Cleveland.

#### *Specialized business services*

Adam Smith focused on the benefits of the division of labor, which he connected with urban densities, noting that in “the Highlands of Scotland, every farmer must be butcher, baker, and brewer for his own family” (Smith 1905 [reprinted 2003]). During Smith’s era, factory production was strongly associated with specialized labor, so Smith’s observation can be interpreted as suggesting that benefits of factories were easier to exploit in cities with large home markets. His exact words, however, refer to the service industry, which is particularly targeted toward local customers, and the benefits of specialization in urban service industries continue even in cities that have largely deindustrialized.

At its most tangible level, Smith’s observation can be seen in the abundance of specialized shops, salons, and restaurants in large cities. Yet in most cities, specialized business services are even more important. Kolko (2010) documents how business services have largely replaced manufacturing as the heart of urban economies in the developed world, and that they are becoming an important source of employment in developing countries too. These sectors have a natural affinity for high density locales, because they typically involve a lot of face-to-face contact. One advantage of locating in London is proximity to an abundance of legal, accounting and financial expertise, and that expertise can be extremely specialized, an added benefit to local customers.

The urban edge in providing business services essentially reflects the fact that cities reduce transportation costs for people, but there are other ways for that edge to make cities economically dynamic—by creating thick urban labor markets (Marshall 1890). In a city with a panoply of diverse employers, the economic difficulties of a single firm may not cause much hardship for those firms’ employees who can readily work somewhere else. In a company town, however, the travails of that company will lead to far more distress.

The abundance of local employers also eases the job search process, part of connecting labor and capital. Young workers may not know what sector or employer is a good match for their talents and inclinations. A city filled with different workplaces allows workers to try things out, to experiment with acting before entering into a career in accounting. The fallbacks may also support more risk taking by urban workers, who can try something uncertain, knowing that there will be other opportunities if things don’t pan out.

The ease of connecting with other people also produces nonpecuniary benefits of urban living. Young people come to cities, in part, to be near other young people and because cities are marriage markets (Costa and Kahn 2000). The diversity of urban pleasures helps to make cities even more attractive than urban wages on their own.

#### *Speeding the flow of ideas*

Perhaps the most important urban advantage, however, comes from speeding the flow of ideas. Jane Jacobs (1969) considered cities the well-spring of innovation because they enable old ideas to be transformed into new ideas. There is an abundance of examples, from the creation of the skyscraper in 1880s Chicago to the development of modern finance in post-1970 New York, of how personal connections among innovators helped create a collaborative chain of brilliance.

There are at least two distinct ways for workers to benefit from the free flow of ideas in cities. First, when ideas generate entrepreneurship and jobs, the extra labor demand increases wages. Second, when the workers learn from the people around them, their human capital increases, and that makes them more productive. Both forces tend to raise wages in urban areas. One piece of evidence supporting the second hypothesis is that workers who come to cities typically see their wages rise slowly with their experience in the city, rather than instantly increasing to the average in the area (Glaeser and Mare 2001). This pattern is perhaps most compatible with the view that cities are drivers of human capital, where workers become skilled by being around other skilled people.

General agglomeration economies should occur everywhere, but policy makers should seek to understand what forces are most powerful in their community. The more critical question for policy makers is how to harness related forces that explain differences across space. Empirical work has documented two major factors that determine the success of cities: education and entrepreneurship. In India, the quality of infrastructure and the education of the local labor force are the strongest predictors of city competitiveness for new firms (Ghani, Kerr, and O’Connell 2013).

#### *Spillovers of knowledge*

In the 1980s, the new growth theory, led by scholars such as Paul Romer and Robert Lucas, focused on knowledge spillovers as the source of increasing returns economywide that enabled long-run economic growth. The focus on the flow of knowledge pointed toward both education and cities.

In the United States, workers who live in more educated cities typically earn more, even holding their years of schooling constant (Rauch 1993). And the connection between an area’s education level and earnings appears to be even stronger in China and India than it is in the United States (Chauvin, Glaeser, and Tobio 2012). Policy makers now focus on job cre-

ation in cities in addition to increasing productivity and raising incomes.

Education institutions appear to be particularly powerful predictors of urban productivity (Moretti 2004). U.S. cities that had land grant colleges before 1940 have experienced higher wages and faster population growth in recent decades. These facts lend support to Senator Moynihan's claim, "If you want to build a *world class city* build a great *university* and *wait 200 years*." But most public officials have neither the ability to build a world class university nor the patience to wait 200 years. So, the importance of education must lead to a different set of policy levers. The education of an area reflects both selection, the in-migration of the skilled, and treatment—the education of the citizenry. Education strengthens a nation as a whole; therefore, attracting more skilled migrants means strengthening one community at the expense of another. In many cases, better local school systems will do double duty both by building a more educated workforce and by attracting skilled parents interested in better training for their children.

What policies will attract more skilled workers? The literature on this question is limited, but it seems to call for investing in amenities that are particularly relevant to the more skilled. One line of thought emphasizes core urban amenities such as safe streets, good schools and swift commutes, which should be valued by everyone. A second view focuses on urban attributes, like the arts and a thriving nightlife, which may be particularly attractive to more educated workers. The threat of inducing an exodus of the most skilled remains a major argument against attempts at local redistribution.

The literature on education is far larger, but there remains relatively little consensus on the determinants of a first-rate education system. High-quality teachers appear to be a primary ingredient in educational success (for example, Chetty, Friedman, and Rockoff [2011]), but better management and governance are also important. In the developing world, the problem of teacher absenteeism remains particularly acute. In some countries, like the United States, charter schools have achieved remarkable success, especially where public school systems are underperforming (Angrist et al. 2010). Similarly, the mushrooming of private schools in India is meeting the gap created by underperforming and low-quality public education in many of the country's urban areas.

#### *Nurturing entrepreneurs*

While the skills learned in school are surely important, the skills acquired out of school are likely to have an even greater impact. While many different skills are assuredly important to urban success, one particularly important knowledge base concerns entrepreneurship. The most traditional forms of economics tend to assume that the supply of entrepreneurship is constant across space, but since Chinitz (1961), econo-

mists have been aware of at least the possibility that the supply of entrepreneurs differs across space.

In Chinitz's (1961) comparison of New York and Pittsburgh, New York appeared to be more resilient even in the 1950s—in part thanks to the supply of entrepreneurship, a legacy of the city's industrial past. New York's largest industry had been garment production, which had few barriers to entry and provided a starting point for thousands of would-be entrepreneurs. Those entrepreneurs gained experience not just in making clothes, but also in starting a business—and they often took those skills into different industries, including banking and real estate. They also appear to have passed along some of those skills to their children. Pittsburgh, by contrast, was dominated by large firms, such as U.S. Steel. These companies may have been extremely efficient, but they tended to train middle managers rather than entrepreneurs. According to Chinitz (1961), the absence of entrepreneurs in Pittsburgh thus contributed to making the city less effective at reinventing itself.

Typically, area-level entrepreneurship has been measured either using average firm size, controlling for industry, or the share of employment in newer establishments. Both measures are strongly correlated with subsequent employment growth, both across and within metropolitan areas (Glaeser, Kerr, and Ponzetto 2009). Chinitz's hypothesis that natural resources, such as coal mines, led to heavy industries with fewer entrepreneurs and less capacity for urban regeneration also seems to be supported by the data (Chatterji, Glaeser, and Kerr 2013).

While the statistical work on entrepreneurship is at an early stage, the important role of entrepreneurship in generating local success is also supported by abundant urban history. Henry Ford played an outsized role in Detroit's history, and the resurgence of Seattle since the 1970s seems linked to an abundance of start-ups, including Microsoft, Amazon, and Starbucks. Entrepreneurs, like most people, are not perfectly mobile, and they often locate their businesses where they have spent their early adult lives. These businesses can often become mainstays of local employment, often for decades.

But even if the value of entrepreneurs is widely accepted, it is less clear what that implies for local policies. One activist school sees a role for large-scale government leadership in funding entrepreneurship and establishing a spatial cluster. Public support did play some role in creating Silicon Valley and the Bangalore Cluster. An alternative school argues that entrepreneurship is far too complicated for the public sector to effectively micromanage and instead argues for a more *laissez-faire* approach, emphasizing limited regulations and low taxes. A middle position focuses on improving the local business environment, improving physical infrastructure, attracting skilled workers, funding basic research, and providing an

appropriate legal infrastructure to allow that research to be commercialized.

### **Toward a more inclusive city**

Successful urban entrepreneurs can earn billions, but urban success requires that prosperity comes to more than just a few. Inequality is a long-standing feature of urban life. Plato wrote, “Any city, however small, is in fact divided into two, one the city of the poor, the other of the rich” (Plato 363BCE [reprinted 2012]). In a highly unequal world, we shouldn’t be surprised that cities are also unequal, especially when poorer people can choose to come to cities. Urban poverty reflects, in part, the enduring attraction that cities have for poorer people, because cities provide economic opportunity and often a more robust safety net. Yet we should still worry about whether cities are doing enough to provide economic opportunity for everyone.

The great-growing cities of the developing world are attracting millions of people from poor, rural areas. This migration process makes urban poverty inevitable. When those cities succeed, the flow of poorer people only increases, as it does when cities help poor people become more prosperous. So, successful cities cannot eradicate poverty, but they do provide opportunities to reduce the number of poor people within their borders. Wealthy countries often have communities without poverty, like the United States’ Greenwich, Connecticut, but such places are uniformly prosperous because they are unaffordable and have no space for the poor. That certainly is not success.

A more inclusive city is not without slums and poverty, but it does manage to regularly enable poor people to escape poverty. It creates jobs and provides ladders of wealth and occupations that provide a means of moving toward prosperity. There are many causes of exclusion within metropolitan areas. Neighborhoods differ in core amenities, including access to public transport, employment, or parks and safe public spaces. The rich are often willing to pay more for such local assets, and that leads to clusters of wealth in a city’s most desirable neighborhoods, and clusters of poverty where prices are lowest. If the rich are also willing to pay more for the privilege of living around other rich people, possibly because of better local schools or less crime, this will also lead to segregation by income.

As natural as some sorting by income within an urban area might be, the isolation of the poor in specific neighborhoods works against the ideal of the inclusive city. After all, isolated pockets of poverty can seem very far from the thriving heart of a city. Children raised in segregated slums would seem to lose the benefits of being part of a connected city. Unsurprisingly, social reforms have long desired to build cities with more social and economic integration.

The segregation of the poor should be a concern—divided cities are neither productive nor sustainable. At the least, gov-

ernments should worry about public policies that might contribute to segregation, such as artificial differences in the levels of public services across space or land-use controls that make it difficult to build affordable housing in more expensive neighborhoods. Public policies must address the unnecessary segregation resulting from significant differences in the availability of public services over space.

### *The returns to education*

Historically, education has been a primary tool for creating inclusion at the level of the city and the country. The returns to education are typically high in the developing world, and education provides a far more sustainable path toward social mobility. Despite the extremely high motivation of many students, education in developing cities is often beset by significant difficulties, including limited resources, teacher absenteeism, and extreme heterogeneity in student preparation. These problems can be even more extreme in the rural areas of the developing world.

However, this note is not an education policy primer, and does not take any stand on the appropriate path for education reform. This is a golden age of education research, where randomized trials and other statistical methods are enabling us to learn much more about how to make teaching effective. In some cases, private providers, such as charter schools in the United States, have achieved remarkable results. Other work shows that teacher quality is of enormous importance and teacher incentives can make a great difference. There are clearly different paths toward educational quality, and local circumstances may dictate which path will be more effective within any country. The point is that improving education, particularly for the poorest in society, is likely to be the most effective way of ensuring more inclusive cities.

### *The mix of industries*

There are two important ways the industrial mix relates to earnings for the less advantaged. First, some industries may simply have more demand for less-skilled workers than others, and this will tend to increase earnings for the less skilled. Indeed, one cause of the rise in inequality in the West since the 1970s has been a relative decline in industries and occupations, especially in manufacturing, which disproportionately employed those with less education. The rise of urban manufacturing in the developing world, by contrast, increases the demand for less-skilled workers.

Wage differences alone do not tell much about the quality of the jobs on offer. One reason that service sector jobs traditionally offered lower wages than manufacturing jobs, for comparably skilled workers, is that the service jobs had less physical discomfort than traditional manufacturing or mining. And an increase in demand for less-skilled workers in the city will also tend to attract less-skilled workers, limiting the local wage effects of the increase in demand.

From a national perspective, there is nothing bad about the fact that rural migrants come to take up urban jobs seeking better economic opportunities and a better life for their families. But current urbanites will often oppose their migration. Antipathy toward urban growth is then reflected in overly draconian land-use policies or other rules favoring insiders over outsiders. In some cases, as in China, internal migration is limited by rules, and the migrants that do arrive are often given far fewer privileges than the insiders. Managing the conflict between current insiders and future migrants will be a major political task for developing world cities for decades.

But the industrial mix affects worker productivity in a second and perhaps a more important way. A job is not just a paycheck; it is also an opportunity to learn. The disadvantaged benefit most from jobs that give them skills to help them move up. One plausible interpretation of the apparent success of industrial policy in Singapore is that, as workers moved from textiles to electronics and then up the quality ladder, they acquired human capital as they went. In this view, industrial policy is really human capital policy.

Despite Singapore's success, there are good reasons to suspect that industrial policy will more often produce cronyism than concrete benefits. Economists for centuries have urged a more *laissez-faire* approach to managing firm growth. But even if a government wants to avoid picking winners, choices regarding infrastructure and investment will inevitably favor one industry or another.

#### *The overwhelmingly large informal economy*

One major feature of developing world cities is that the poorer laborers often work in an informal sector that is free from regulations and taxes, but where workers lack access to public services and some parts of the safety net. The overwhelming scale of the informal economy reflects a state that engages in ambitious regulations, but lacks the ability to enforce them. While we may wish that every government had the inclination to engage in only limited, sensible regulations and the ability to enforce them, this is not the case in much of the developing world. In the world's poorer cities, the informal sector is an escape valve, enabling entrepreneurs to succeed and employ less-advantaged workers despite significant regulatory barriers.

In Indian cities, the informal sector is increasing in size relative to the formal sector (Kanbur and Ghani 2013). One interpretation of this increase is that density is even more valuable in the informal sector than in the formal sector. Since informal firms may rely more on tacit agreements between suppliers and customers, the benefits of easy face-to-face communication may be greater. Alternatively, informality may be more prevalent in smaller firms that disproportionately locate in cities because of their need to partner with other firms. A third force pulling informality into cities is that large-scale

manufacturing, which tends to be formal, is typically more land intensive and thus more suburban. Small service firms that prize informality are more naturally urban.

Millions of less-advantaged workers benefit from the employment the informal sector provides, but informality is far from a perfect solution. In the "gray" market, there are no rules protecting worker safety and often little legal recourse for workers who have been maltreated. Informality may be a reasonable response to a bad situation, and it may foster entrepreneurship and create jobs, but that doesn't mean there aren't significant costs to having millions of workers without social safety nets.

## Rethinking City Interventions

Cities are people and political units, but they are also physical entities, filled with vast amounts of housing and infrastructure and deeply shaped by public policies. Barriers to building can produce a flat city that sprawls and a proliferation of slums. New transport infrastructure can pull a city outward, as new settlements occur along the highway or subway line. The physical challenges facing developing world cities can be daunting, and historically many of these cities have made decisions with severe adverse consequences. Housing, land, and transportation are at the nexus of how a city develops and how livable and inclusive it is for those who come attracted by new opportunities.

### The provision of core urban services

To be inclusive, a city needs to provide more than just decent wages to its poorer workers, it needs to provide core urban services as well, such as clean water and sanitation. Workers need safety and decent commutes too, and they need decent housing. Often basic services are concentrated in the city core, and access to clean water and sanitation drops rapidly as one moves out of the core. The disparities between core and periphery are most acute for megacities. The benefits of urbanization do not seem to extend beyond the core. While density makes it more cost-effective to provide basic infrastructure services to urban residents, city governments often don't collect enough revenues to extend these services to the expanding urban population, or even to maintain existing services for current residents.

### Housing

Shantytowns have always existed in cities, though colder climates have tended to limit people's willingness to urbanize in completely substandard dwellings. In warmer locations, where rural settings have become perilous due to conflict or crop failures, migrants are willing to come to cities even if housing is wildly inadequate. The challenge of providing decent housing involves a number of constraints—the limited supply of urban land, the lack of property rights, outdated and unpractical regulations on minimum lot sizes and floor

area ratios, as well as weak construction sectors and a lack of suitable housing finance mechanisms for the poor and the middle class.

Housing is really a combination of two attributes—a physical home and a location. Housing values differ so much within and across cities precisely because locations differ so much in their value. Housing markets are essentially local, so interventions that provide more public housing in a far-flung suburb do little to ease the cost of living within a dense city. The key to solving the urban housing problem is not just to deliver more cheap housing—it is also to make sure that housing is in places that provide plenty of value for residents. Understanding the constraints on supply of adequate housing and the rising demand for affordable and adequate housing is important.

Shaping the demand for housing is the demand for structures and particular locations, but housing policy often does more to influence housing supply than housing demand. Supply is shaped by building technology, land availability, and the rules that influence construction. In some cases, those rules are widely flouted, so cities can develop an ocean of standard housing despite having extremely tight building rules—Mumbai is one such example. Similarly, the provision of public subsidized housing in far-flung places, away from jobs and adequate transport, fails to generate complementary private investments in housing maintenance or upgrading and creates inefficient and divided cities.

The supply of housing is built up over time, and understanding supply means understanding both the stock of homes and the flow. The flow of homes is determined by the combination of supply and demand, and then the stock represents the history of past flows. Typically, the flows are positive and the stock gradually increases, but there are times when the stock can be radically reduced either through planned demolitions or natural disasters. A radical reduction in the stock of housing due to a calamity can represent one of the greatest urban challenges.

Both rules and building technology determine the speed of the flow of housing supply. Complex multistory dwellings can take many months or years to build. A Byzantine permitting process can double or triple the construction time. Conversely, simple self-made or prefabricated homes can be put up in days, especially if there is no effective regulation. The speed of building can be considerably faster if residents are doing the building, avoiding the need to bring in outsiders to build more formal structures.

Housing in many developing countries is often marked by physical and legal inadequacies. Physically, the housing can be unsafe and lacking in core amenities, including running water and electricity. Legally, many residents lack clear title to their property, usually because homes were built without the permission of the land's owner. Developing world cities have an enormous informal housing market, just as they have an

enormous informal labor market, and the results are similar. The informal housing market provides usable space for poorer people who could not otherwise live in the city, but the residents of this housing have few of the protections of a more legal market.

We should be cautious about applying wealthy world standards to poorer nations. Housing that would be torn down in New York or London would often be seen as luxurious by the poorer residents of Addis Ababa. If housing is kept to standards that seem adequate to the wealthy world, the price will be prohibitive for poorer urbanites if they must pay for it themselves. If the housing is provided by the government, the public sector both risks crowding out other potentially more valuable forms of social spending, like education, and creates powerful, artificial incentives encouraging the poor to migrate to cities.

The gulf in wealth between developing world and developed world cities also suggests the value of planning for obsolescence. Any housing that is appropriate for Africa or India today will (it is hoped) be inadequate 40 years down the road, when both areas are far wealthier. So, any housing policy needs to be self-consciously temporary and adaptable to the rapidly changing nature of developing world economies.

#### **Land use**

The public approach to housing in developing world cities always includes land-use regulations, although they may be only sporadically enforced. Those regulations can have many purposes, but one typical goal is to ensure a minimum standard of living. Yet the impact of those requirements often increases the cost of housing precisely for people the rules are trying to help. This limits the ability of land-use regulations to ensure better housing standards.

It is perhaps possible to accept that poorer urbanites will live in very small, very simple homes. It is harder to accept that these homes will be unsafe because of unsound building, have sanitary issues related to lack of sewage and other infrastructure, or be in precarious areas prone to natural disasters like flooding or landslides. These safety challenges are particularly hard to solve, because poorer residents often take on considerable risks in urban labor markets and disregard rules against living in dangerous locales.

For the developing world, slums are often built ignoring both land-use restrictions and indeed property ownership itself. Many *favelas* and shantytowns were built on government land that was not intended to provide space for housing. In some cases, settlements grow up on private land that was being kept vacant for another purpose. There are difficult tradeoffs among the rule of law: the preservation of space for alternative uses, or the very real housing needs of the urban poor.

Housing involves structures as well as land, and the quest for better housing also involves innovative means of delivering inexpensive structures. A number of private companies have



been experimenting with smaller, prefabricated homes, often using inexpensive recycled materials. These strategies hark back to the days when Sears Roebuck sold thousands of cheap, do-it-yourself home-building kits throughout America, and private innovation helped create cheaper housing.

But it is hard to imagine that cheap housing structures will solve the problem of affordable urban housing unless the legal infrastructure is also effective and sensible. Ideally, land-use planning should aim at providing safe, affordable housing in a connected city, with functional transport corridors and easy connections between jobs and housing. Yet, too often land-use systems produce sclerotic cities that provide insufficient legal, dense housing and too many extremely arduous commutes. The focus on static urban design plans has resulted in massive urban sprawl and the development of new towns with little market demand.

Land use is closely tied to transportation planning. Housing may be the combination of structures and location, but the value of location is determined by the ease of access to other locations. The core model of urban housing prices, first articulated by William Alonso almost 50 years ago, describes how density and price reflect the ease of access to jobs at the center of the city. The importance of transportation has not diminished since Alonso's day (Alonso 1964). We ought to see transportation and land-use planning as a single topic.

For example, the impact of an urban height limitation will be determined in part by the ability to get to urban jobs from more distant locales. When a city with abundant public transportation limits the urban core, development for rich and poor will move away from the core, people will still be able to reach jobs, and the city will continue to grow. If only car transportation is possible, the poor are more likely to try to remain at the center, leading to overcrowding, but the rich will suburbanize. If all travel links are poor, either the city's growth will stop or it will still sprawl outward, but at an enormous cost of time and comfort as the new populations engage in long, difficult commutes.

### **Approaches to affordability**

Many affordability measures are foolish. The ratio of income to housing costs is one measure, but it is essentially arbitrary and often misleading. Consider a city and a rural area: in the city, workers can earn \$5,000 a year, but must pay \$2,000 in housing. In the rural area, housing costs only \$500 a year, but earnings are only \$2,500. The housing cost to income ratio is much higher in the city, suggesting an affordability problem, but earnings after paying for housing costs are 50 percent higher in the city, suggesting that the urban residents have a good deal. Indeed, the logic of spatial equilibrium would suggest that if there were no other particularly urban problems, housing costs should rise to \$3,000 a year, so that after-housing earnings were equalized between the two locales.

Another approach to housing affordability is the physical cost of delivering housing and whether housing prices substantially exceed physical costs. This process does not reveal whether poorer urbanites can afford the houses, but it does give some information about whether the housing market is functioning well. If the physical costs are relatively high, this suggests a problem in building technology. If prices are much higher than physical construction costs, this implies either high land values or regulatory barriers to construction.

The other side of land-use planning involves commercial structures, and comes with many of the same concerns: affordability is still desirable and safety remains a concern. Land-use regulations also affect the physical landscape. There has, however, been something of a sea change in the thinking on zoning for nonresidential uses. A century ago, planners were very concerned with separating industrial and commercial from residential uses of land. They saw negative impacts of industry on residential neighborhoods. Today, mixed-use planning is far more popular, because planners now recognize the environmental and social costs of artificially separating people from their work. Jane Jacobs (1969) was one of the great advocates of mixed-use cities. There may still be cases where particularly noxious factories need to be isolated, but in many cases, mixing rather than separating seems the more sensible policy.

### **The challenge of financing environmentally sound infrastructure**

The environment, particularly the impacts of climate change, is an important reason to focus on minimizing travel distances. Shorter commutes mean less energy use, which is of even more consequence if developing world cities develop automobile habits similar to the developed world. Cities are full of instances where individuals impose costs on third parties—externalities in the language of economics. The costs potentially related to carbon emissions provide an example of one such externality.

There is both a local and a global side to urban environmentalism. The global side focuses on city-level activities that may affect the entire planet, particularly through climate change. Cities do have higher carbon emissions than many traditional rural areas, but that is true of all more prosperous lifestyles. The relevant comparison is not between city living and rural poverty, but between city living and less dense, but still affluent, lifestyles, like sprawling suburbia. In that comparison, city living looks pretty green, because people drive less at higher densities and typically inhabit smaller living spaces, even holding family size and income constant (Glaeser and Kahn 2010). Recent literature also offers evidence of this relationship between urban form and per capita emissions and, specifically, the association of urban density with lower per capita emissions (Hoornweg, Sugar, and Gomez 2011).

If India and China see their per capita carbon emissions rise to the level in the sprawling United States, global carbon emissions will increase by more than 125 percent. But if they rise only to the level seen in wealthy but hyperdense Hong Kong SAR, China, global carbon emissions will rise by less than 30 percent. The environmental advantages of dense living provide one reason to rethink land-use policies that artificially limit building within the city center. Policies that limit driving, such as Singapore's electronic road pricing, were implemented mainly to limit congestion for economic and social reasons, yet they also support global environmental concerns.

Air quality, water pollution, and green spaces are three primary local concerns that help determine the local quality of life. In each case, private individuals tend to ignore the local impacts of their actions, such as when they deposit waste in common land areas, contaminating it, or drive polluting cars. For cities to be pleasant as well as productive, they must pursue policies that counter these costs of dense living.

Developing world cities are likely to pay more attention to environmental concerns as they become wealthier and better educated. A pleasant environment is a luxury good, and richer people are willing to pay more for a pleasant location. The poorer residents of developing world cities are more likely to put basic necessities ahead of parks and clean air. Education also matters, because a more educated population is likely to be more effective at lobbying for local concerns, including the environment.

Even if developing world cities don't get wealthier, many of them may still have to grapple with the challenges of climate change. If greenhouse gases lead to rising sea levels, or more extreme weather events, developing country cities are likely to face the consequences. Nearly two-thirds of urban settlements with more than 5 million people are located partly in low elevation coastal zones, which contain 13 percent of the world's population (McGranahan, Balk, and Anderson 2007). Many of them lack the infrastructure needed to cope with extreme weather events, so the possibility of major disasters is a looming challenge for the developing world.

#### *Alternative approaches to environmental issues*

Economics and engineering offer alternative approaches to these environmental issues. Economics emphasizes using incentives to change individual behavior. A carbon tax that makes energy users pay for the social costs of their actions is a classic example of a tax aimed at reducing socially costly behavior. Congestion charging is another example. Engineering focuses on changing the physical environment to reduce the negative consequences of dense living. If congestion charging is the economists' approach to traffic congestion, the engineering approach is to build more highway lanes or to provide more public transit options. For highways and driving, the

economic approach seems quite sensible: vehicle miles traveled increase roughly one-for-one with highway miles built (Duranton and Turner 2011). If this continues to hold in the developing world, just building more roads will not solve the traffic, since this will just induce more people to drive. It is hard to imagine that people will start limiting their driving unless they are charged for the social costs of driving and a viable alternative (such as reliable public transport) is available.

But in other cases, the engineering approach is far more feasible than using economics. It is difficult to imagine relying on private provision and taxes for clean water and sewage. How could such a system be enforced in the informal communities of the developing world? The engineering approach to clean water and sewage, which involves massive public investment in infrastructure, seems the only feasible solution.

#### *Building the right infrastructure*

But providing infrastructure in the developing world is also daunting. The infrastructure need is enormous, but so is the possibility of building the wrong infrastructure. Moreover, the building process is extraordinarily difficult, with plenty of opportunities for corruption and mismanagement. The public sector is often ill-suited to manage such projects, because of both a lack of technical expertise and because of the short time horizons that often influence political leaders.

Infrastructure challenges start with project selection. For decades economists have promoted cost-benefit analysis, and for centuries they have argued that infrastructure is best financed by user fees. Adam Smith argued that funding infrastructure with tolls can ensure that the projects built are also those that deliver sufficient social value added (Smith 1905 [reprinted 2003]). User fee financing may be politically difficult in some cases, and just plainly infeasible in others. Occasionally the externalities that justified the infrastructure to begin with push against charging too much for the infrastructure's use. For example, if the goal is to eliminate contagious disease, then charging too much for the water may push people to continue using unsafe sources.

#### *Paying for infrastructure*

When user fees cannot pay for the infrastructure, the push is toward conventional cost-benefit analysis and the use of more general tax funds. Even in this case, however, it is probably sensible to pay for infrastructure with local taxes paid by the people who use the infrastructure. Tax increment financing, which pays for infrastructure by taxing the increases in value of neighboring properties, provides an alternative way of making sure that the costs of infrastructure are paid for by people who actually benefit from it.

While the basic tools for cost-benefit analysis are well understood, there are numerous problems with implementation. Often project supporters will try to significantly overstate benefits by overestimating future use. In other cases, costs may be

underestimated. When infrastructure creates significant benefits for the local community, it may be hard to estimate these benefits, especially if they are diffuse. For example, it is hard to determine the value of a project meant to make a neighborhood more attractive. This unpredictability leaves plenty of room for manipulating estimates for political ends.

Getting the best from existing infrastructure also has value. Too often governments invest too much in new infrastructure and too little in maintaining the existing infrastructure stock. Getting the most out of existing infrastructure can include policies such as congestion pricing, which efficiently rations access, but politics tends to resist such charges.

#### *Public-private partnerships*

Great technical expertise in local governments is crucial if the government is managing the project, but it is also necessary if infrastructure provision has been farmed out to the private sector. Public-private partnerships (PPPs) are not a panacea. There is plenty of room for failure in PPPs, especially if the government ends up expropriating the private firm or if the private firm ends up subverting the government. At their best, PPPs enable private expertise and incentives to accomplish a socially desirable task, like building a new bridge or highway. The basic structure is that the private builder receives the right to build the project and agrees to a time path of user fees. Those fees then provide incentives for the private sector to maintain the project, since it can cover its costs only if it continues to attract users. In cases where user fees do not cover the costs, the government will need to supplement these fees with a direct subsidy.

PPPs offer tremendous promise, but there are many paths toward disaster as well. One possibility is that the private entity will convince the government to give them far too generous a subsidy. Any time the government is giving cash to a private entity, there is potential for corruption, since side payments to public officials can bring huge profits. Technical expertise is helpful in evaluating the project, but it will do little good if the official is on the payroll of the private company. A second problem is if the government decides not to honor its contract. Once the infrastructure is in place, the government has an incentive to lean on the private entity to reduce its user charges. If firms anticipate such expropriation, they will be unwilling to make investments in the first place. A third problem is that firms may skimp on investments that could prevent low probability disasters. The advocates of PPPs correctly emphasize that a private firm will not let the project deteriorate to the level where users disappear, but they may take risks, betting that disaster will not materialize. If there is a catastrophe, the company may trust that its liability will be limited.

These fears have materialized in many PPP projects throughout the world. Weaker public sectors are less likely to

deliver projects efficiently on their own, but they are also less effective at monitoring private providers. PPPs are well worth investigating, but their downsides must also be anticipated.

The infrastructure needs of developing world cities are among the greatest challenges of the developing world. Vast sums will be spent, and there is sure to be corresponding waste. Good governance is most important in areas where the government and the private sector can be most productive. Further, the capacity to enforce rules should be complementary to and not a substitute for market activity. The hope is that an increasingly sophisticated local public sector will be able to manage the process so that the lives of ordinary citizens are truly transformed with clean water, reliable electricity, and faster commutes. But this is predicated on investing in and bolstering local capacity.

### **Cities in a National System: The Spatial Dynamics**

Apart from Singapore, cities are part of a nationwide economic system that contains other cities and rural areas. The remarkable urban success of the Republic of Korea was driven mainly by the national government's comprehensive planning and investment policies. National governments make policies that will influence the growth of the city, including investments in nationwide transport systems and more location-specific interventions. In many countries, subnational political units, such as states or provinces, exert a fair amount of control over individual cities. How should higher levels of government react to urban growth?

Consider a more specific question. Should national governments favor large cities, or should they push populations into more medium-sized cities? As cities grow, they generate agglomeration economies, but there are also externalities associated with greater population densities. Optimal policies toward medium and large cities need to not only recognize the existence of these effects, but also to understand how these effects differ by city size.

The existence of agglomeration economies on their own does not imply favoring big cities. When people and businesses are pushed from medium to large cities, the large cities become more productive, but the smaller cities become less productive. Those effects need to be weighed against each other. If there were no negative effects of big city density, then even with these losses, there would be a good reason to channel people toward the largest metropolitan areas. Yet because density has downsides, the benefits must be weighed against the costs.

Agricultural productivity is often a precondition for urban growth: a nation rarely moves to urban living until its farms can feed its citizens. Big factories often leave urban areas, leaving services in the urban core. This is because in the long term, the largest cities are expensive places for in-

dustry, and with further development, modern industry tends to decentralize from the biggest cities, first to their peri-urban areas, and then to smaller cities and rural areas. Gradually, there emerges a geography of production in the urban hierarchy, whereby smaller cities tend to specialize in standardized manufacturing or certain services, while the largest cities tend to have a diverse set of business and financial services, dependent on an information-rich, dense local environment.

In practice, national leaders will rarely consider explicit policies that favor one locale over another, except if a particular place is economically disadvantaged relative to the rest of the country. Still, in many cases, national governments do make choices that implicitly favor one area over another; if knowledge of the size of agglomeration economies is limited, it probably makes sense to avoid attempts to favor one locale over another.

## Areas for Future Research

### New actions for researchers

The challenges facing the world's developing cities also call for more research on economic development, social mobility, and the impacts of government policies. Development research has experienced a revolution over the last 15 years, as increasingly sophisticated methods, especially randomized trials, have begun to emerge. In many situations these new methods have proved crucial, but other contexts require different approaches.

While there is widespread agreement that entrepreneurship can be an important ingredient for economic success, there is less agreement about what drives entrepreneurship or what government policies encourage and incubate new economic enterprises. Most of the research on entrepreneurship has been in the developed world, but even that is just beginning to focus on the causes of entrepreneurial differences across space. An important new branch of research in the developing world would be to document the connections between entrepreneurship and growth, but more work is also needed that recognizes that entrepreneurship and growth may be the result of deeper forces. More research is also needed on government policies, including regulation, that may affect entrepreneurship. The World Bank's ground-breaking work on measuring regulations can inform this research. Randomization is most likely to occur in this area around policies that target aid to individual entrepreneurs, rather than in regulations or other more widespread economic policies.

It is critical that more research be conducted on the impact of infrastructure on economic, social, and health outcomes. There has been a lot of water-related research on health outcomes, on private provision and on targeted subsidies, but even more is needed. There may be scope for randomized trials, but large-scale infrastructure cannot be ran-

domly allocated. In these cases, the best option may be to hope for natural experiments that allow estimations of full-range impacts of particular forms of development.

Human capital and skills are at the center of urban success, and there are already a large number of researchers examining the determinants of educational outcomes. This is an area where randomized trials are particularly useful. There are numerous examples of settings where classrooms have been randomly selected to use different techniques or to offer varying incentives to students. The main failing of this research is that outcomes are typically test scores, and we are primarily interested in adult outcomes. Some research in the United States has documented the connection between teacher quality and adult earnings, but more work in this area is needed in the developing world.

The phenomenon of growing informality in the face of rapid urbanization is relatively new to the research and policy-making arena. Further research is needed to identify the causes underlying this trend, such as:

- the nature of agglomeration externalities and how they play out for the formal and informal sectors;
- the precise reasons for productivity in the informal sector to be lower than in the formal sector, especially if agglomeration benefits seem to accrue equally, if not more so, to informal enterprises;
- the reasons for informality to persist in the face of rapid growth and continued deregulation in many countries;
- how to bring informal enterprises into the fiscal net so that they can contribute to the services needed for them to flourish; and
- the policy measures that can be undertaken to support the informal sector in creating jobs and addressing poverty, given that it does not look as though job creation in the formal sector has been or is likely to be vigorous enough to meet the employment and poverty challenges of the next two decades.

Other areas for research are on how regulations restrict and constrain the provision of affordable housing and on what can be done on both the supply and demand side for housing, including stimulating the private sector's provision of affordable housing. More research and city-based analyses of the impact of specific regulations on housing costs, housing supply, and housing affordability are needed.

Most knowledge on resilience today is based on rates of urban and economic growth and infrastructure typology of the last 50 years. But the pace and magnitude of urbanization are currently such that the built up area will triple in the next 30 years. One of the biggest challenges today is resilience in the face of much greater uncertainty; a more rapidly changing climate; significantly increased variability in political stability and commodities pricing; more demands on food and water; and the rapidly changing geopolitical landscape. Research on

resilience in an integrated context—resilient systems design—is a critical aspect of urban system design.

While many relevant policy decisions are made and implemented locally, most statistical data are collected at the national level. A lack of globally comparable data on cities has fragmented urban research agendas and limited the growth of cumulative knowledge generation across countries, regions, and disciplines. This in turn has limited the capacity to get fact-based understanding of the patterns of city performance across the globe. That is why it is so important to collect verifiable and comparable city-level data.

Finally, there also is need for research on the institutions that shape urban politics. We know relatively little about how institutions and politics affect the economic life of the city—case studies and more historically grounded work can provide more data in this area.

## Conclusion

Perhaps the most hopeful aspect of urban life is that cities tend to create their own solutions. London spread cholera, but also gave John Snow the information he needed to understand the sources of the disease. Urban connections are empowering communities throughout the world to press for urban improvements. There is hope in the future of cities, because cities have so often done miraculous things. The cities of the West were once places of suffering, crime and grime, but now they are thriving centers of innovation, culture and entrepreneurship, and far more pleasant and safe. Why? Because urban leaders effected change, and that change will continue only with better governance and stronger institutions.

For most of human history, people lived on the edge of survival. In the past two centuries, we have miraculously moved toward far greater prosperity through transformations, above all, in cities. Urbanization now has the potential of transforming the developing world, and that's why getting urban policies right is so important. There is no future in rural poverty—the path to prosperity inevitably runs through cities. The right approach is not to accept the urban failures that often exist now, but to rethink cities and try to imagine how to get to a brighter urban future.

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