

Part II

Supporting Reports

Urbanization and Economic Growth

Introduction

China's rapid urbanization and sustained high economic growth are largely attributable to its policies and reforms. In 1978, less than one-fifth of China's 975 million people lived in cities. But over the past three decades, about half a billion people moved from rural areas to urban areas, seeking work in manufacturing and services as China developed its special economic zones and export-oriented industries. This urban transformation has been mostly successful. Real per capita income increased 16 times from 1978 to 2012, lifting half a billion people out of poverty.

Although strikingly successful, China's urbanization now stands at a crossroads, as its economic transformation is incomplete. Urbanization that worked in the past will not work in the future because the dividends from China's transformation are declining, and China's economic growth model is showing signs of fatigue—in three ways.

First, the productivity gains from a structural transformation in labor markets and capital accumulation are set to decline gradually. The returns from reallocating factors of production across sectors—and even across ownership forms—have declined

considerably, while the growth attributable to total factor productivity (TFP) (not associated with factor reallocation) has declined. Such a decline is consistent with the moderations of growth in other rapidly developing economies. The next transition, from industry to services, is typically slower and generates less growth—because the initial productivity differences between industry and services are not as high as those between agriculture and industry.

Second, the global environment has changed, and exports can no longer drive economic growth. Domestic demand has to become the main driver of growth. Nor can a relatively small middle class—such as China's—sustain consumption growth sufficient to offset declining export demand. So, domestic demand will depend more on investment. And lately, much investment has been financed by credit, which is not sustainable.

Third, growth's dividends are offset by rising economic and social costs associated with the country's rapid transformation—the costs of increasing inefficiency, social division, and unsustainable resource use. The cities—now housing more than 700 million people—can expect up to 250 million more migrants over the next two decades. *Hukou*—the household registration system—forces many migrants

to leave their families behind, holding back labor migration and wage convergence. The urbanization of land has been faster than the migration of new residents, so average urban densities have fallen. And China's environmental transformation, unprecedented in its scale, has done severe damage, with both local and global implications.

A new urbanization trajectory that enhances economic forces of agglomeration, specialization, and mobility is needed to support economic growth on both the supply and demand sides. While reallocations of labor *across* space and sectors in some parts of China will continue to drive some economic growth, productivity increases will have to come more from improvements and advances *within* industries and sectors. As China's industries advance closer to the production possibility frontier, growth's dividends will increasingly be associated with the ability to take advantage of higher economic concentration (agglomeration), increased economies of scale (specialization), and more efficient allocation of factors of production (mobility).

On the supply side, greater economic concentration and specialization allow firms to benefit from economies of scale, thus facilitating industrial upgrading and technological convergence. Enhanced mobility and connectivity contributes to knowledge sharing, labor matching, and ultimately growth of human capital and employment. On the demand side, a more inclusive urbanization will expand the urban middle class, which will demand better services and lifestyles, in turn boosting domestic demand. These forces have already fundamentally changed China's economic landscape over the past three decades, but these forces could be used better if not undermined by frictions in factor markets.

Distortions in factor markets have led China's urbanization astray. China relies heavily on product markets for efficient allocations of goods and private services, but the transition to a market economy is incomplete, and many distortions remain in the factor markets for land, labor, and capital. Instead of supporting China's urbanization path, numerous administrative constraints and distortions have undermined it. The

urbanization of families has lagged behind the urbanization of jobs, while the urbanization of land has happened faster than the urbanization of people. China's unbalanced intergovernmental fiscal system has left many local governments dependent on resources from land conversions, prompting urban sprawl that does not allow fully unlocking agglomeration economies. This situation has lowered economic concentration, slowed income convergence, delayed a transition to a service-based economy, and undermined the growth of household consumption.

A new urbanization trajectory to strengthen agglomeration, specialization, and mobility will require comprehensive reforms in land, labor, and capital markets. The role of the government will have to change, giving market forces a greater role in allocation of factors of production, particularly land and capital, and getting out of the provision of goods that the private market is better at providing. Adjustments in the hukou system will be required to integrate migrants into urban life. Distorted incentives of local governments have made them direct participants in driving the economic growth by sustaining high public investment growth rather than efficient providers of public social services for all residents. Implementing these policies will not be easy, but it will be essential to complete China's transition to a market economy and further strengthen its foundations for growth.

The payoff will be a more efficient, inclusive, and sustainable growth model. China's new urbanization trajectory will not slow the moderation of economic growth that is likely over the next decades. But more efficient urbanization will improve the quality of growth and support growth even as China exhausts its demographic dividends. And in the absence of policy reforms, growth is likely to slow even more. A higher concentration of people will promote scale economies, market expansion, job creation with a deepening division of labor, and higher living standards. In addition, more inclusive urbanization will broaden the middle class—and this middle class will support consumption growth as urban lifestyles tend to be associated with higher consumption of durables and services. And more sustainable urbanization will

promote industrial upgrading and a transition to advanced industrial and service sectors.

Urbanization and growth at a crossroads

China's first stage of urbanization has been good for growth

China's urban transformation over the past three decades has increased incomes, raised living standards, and made China the world's largest manufacturer and exporter. Real per capita incomes increased 16 times from 1978 to 2012, and half a billion people were lifted out of poverty. And as workers shifted to urban employment with higher productivity and with labor productivity rising across sectors through large investments, real output per worker increased by a factor of 12. For three decades, China's economy grew at an annual average of 10 percent to become the world's second largest.

This spatial transformation of China from overwhelmingly rural to increasingly urban reflects the sectoral transformation of the economy as people moved from farming and allied rural activity into much higher productivity industrial and service jobs in urban areas. In 1978, nearly 70 million people were employed in the secondary industry, and by 2011, the number had risen to 225 million, with annual growth of 3.6 percent. Employment in the service industry increased from 49 million people to 273 million people, for average annual growth of 5.3 percent. These two transformations—the spatial and the sectoral—are two sides of the same coin. Largely successful, they resulted in higher incomes and higher resource use (figure 1.1).

As in many other countries, this transformation has been good for economic growth, but more urbanization does not always mean more economic growth. In the early stages of urbanization, productivity increases come from shifting resources from lower productivity rural activities to more productive urban-based sectors. Differences in relative wages have been one of the key drivers of migration to cities in China. But higher wages in cities are often offset by higher costs of housing and greater congestion. The same is true for

firms: the higher productivity of increased agglomeration can be undermined by higher costs of real estate and labor. Cross-country regressions of gross domestic product (GDP) per capita and urbanization rate suggest that urbanization is a very strong indicator of all aspects of productivity growth over the long run. But that does not establish causality. Indeed, academic studies find no econometric evidence to indicate that more urbanization results in more economic or productivity growth (box 1.1).

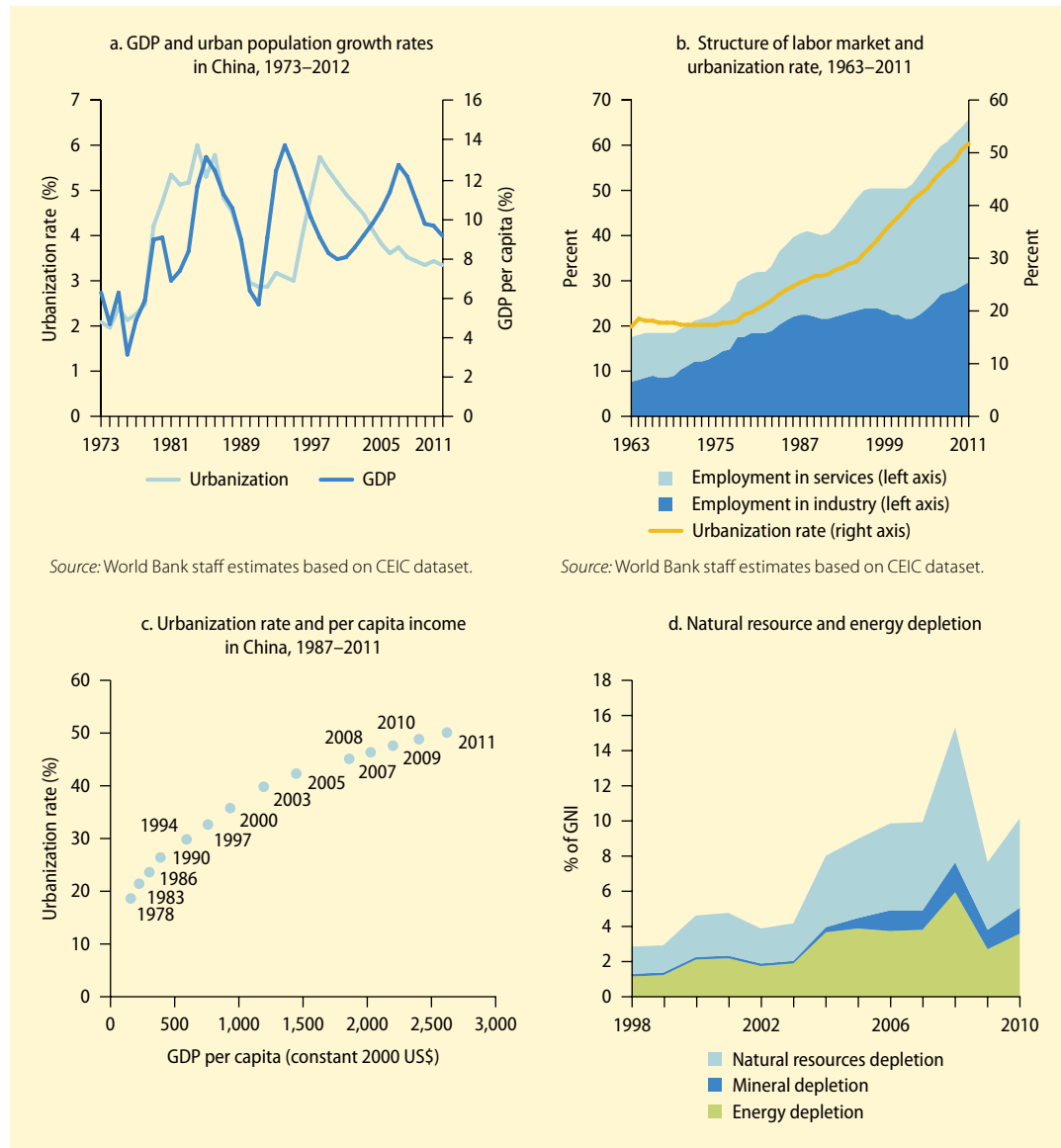
After 1978, with the opening of markets and other reforms, China began to see sizable economic benefits from its spatial transformation. Between 1979 and 1997, the flow of labor from agriculture to nonfarm sectors contributed about one-fifth of GDP growth, making it the single most important driver of economic growth in China since the reforms (Cai and Wang 1999). Sustained high economic growth rates after 1978 are largely attributable to China's policies and reforms.

First, China reformed agriculture. A household responsibility system for farmers and mechanization unleashed efficiency gains in agriculture and released excess labor in the rural sector. In 1978, 33 man-days were needed to produce one mu of rice, wheat, and corn. By 1985, only 18 man-days were needed, halving labor needs in seven years. By 2011, the labor used had dropped to 7 man-days per mu of land. Thus, great liberation of rural productive forces drove the rural economy, enabling rural enterprises to flourish and small towns to develop.

Second, China gradually relaxed constraints on internal migration. In 1984, the restriction on rural residents' settlement in townships was loosened. The restriction on settling in cities, especially small cities, was alleviated in 1997. In the early 2000s, reforms of hukou were introduced at local levels. Zhejiang Province eliminated the quota for moving from rural to urban areas and the quota on people changing from agricultural to nonagricultural status. And Shijiazhuang City of Hebei Province became the first provincial capital city to eliminate restrictions on urban resident registration.

Third, China industrialized, adopting modern manufacturing technologies and

FIGURE 1.1 China's impressive economic growth has been accompanied by a massive population shift into urban areas



Source: World Bank staff estimates based on CEIC dataset.

Source: World Bank staff estimates based on CEIC dataset.

Source: World Bank Development Data Platform.

Source: World Bank staff estimates based on sources and methods in World Bank 2011.

Note: GNI = gross national income.

opening access to global markets. It introduced preferential policies for foreign capital, including tax rebates and exemptions. And it established special economic zones and opened up coastal cities. The opening of markets and adoption of new technologies enabled firms to capture economies of scale through concentration, specialization, and technological upgrading—changes reflected

in China's global integration through trade in goods, investment, and technologies. The first cities to become more specialized were in China's coastal provinces, close to waterways with access to international waters. China's export volumes in world foreign trade rose from 0.8 percent in 1978 to 11.0 percent in 2012, making China the world's largest exporter.

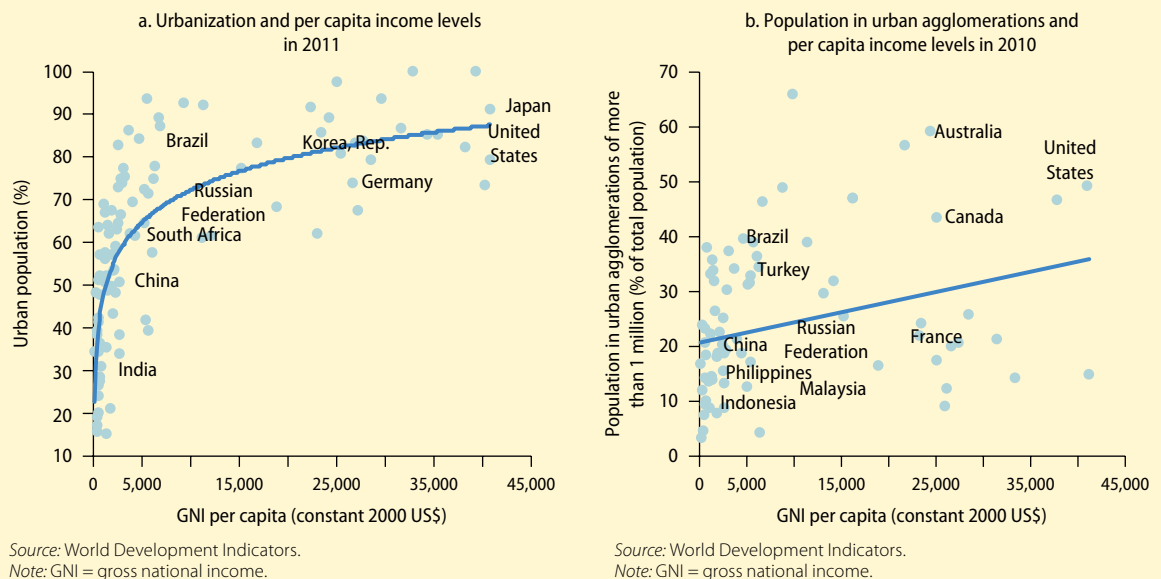
BOX 1.1 Urbanization and economic growth

Today, the world's largest 300 metropolitan areas account for more than half of global economic growth (Brookings Institution 2012). Globally, urbanization is a relatively recent phenomenon. In 1800, only 3 percent of the world's population lived in cities; in 1900, the rate was just 13 percent (with a total urban population of 220 million). By 1950, the urban population reached 730 million, or 29 percent of the world's population. And by 2007, more than half of the world's population resided in cities. By 2030, the urbanization rate is likely to surpass 60

percent (5 billion urban residents), and by 2050, 67 percent (6.3 billion urban residents).

An increase in the urbanization rate has coincided with economic growth. Cross-country data show that a rising urbanization rate and economic prosperity are positively correlated over time (figure B1.1.1). In fact, almost no country has reached income levels of more than \$10,000 before reaching an urban population of about 60 percent. Urbanization is inextricably linked to economic transformation; but more urbanization does not always mean more economic growth.

FIGURE B1.1.1 Urbanization is inextricably linked to economic growth



Cross-country regressions of GDP per capita and urbanization suggest that urbanization is a very strong indicator of all aspects of productivity growth over the long run. But that does not establish causality. In fact, academic studies find no econometric evidence that would indicate that more urbanization results in more economic or productivity growth (Henderson 2003). It is argued that urbanization is a byproduct of structural transformation out of agriculture into effective development of the manufacturing sector.

However, for countries at any income level that are still at the urbanization stage, there may be a level of urbanization that promotes productivity growth.

In fact, some countries do not grow with urbanization. In such cases, urbanization is mainly driven by push rather than pull factors (for instance, by a negative productivity shock in agriculture). Of course, the gap between urban and rural public service availability may also be a force driving the rural population into the city.

Changing the social security system, broadening access to higher education, and demobilizing the military further accelerated the urbanization process. Migrant workers' participation in the urban basic pension plan

and health insurance has accelerated since 2006.¹ Broadening access to higher education also supported an increase in urban population. University graduates from rural areas were able to become urban residents, and the

number of graduates grew from 165,000 in 1978 to 7 million in 2013. A large portion of demobilized military personnel also contributed to China's higher urbanization rate. Based on service of three years (two years for soldiers, but longer for cadres or soldiers from the People's Volunteer Army), about 1 million military personnel are demobilized and transferred to civilian jobs annually.

These policies made Chinese cities centers of economic and social activity. The boom in township businesses generated a large number of nonfarm jobs in urban areas. From 1985 to 1993, the number of township businesses quadrupled from 6.1 million to 24.5 million (National Bureau of Statistics of China 1994). And in 1992, Deng Xiaoping's southern tour further consolidated China's transformation into a market-based economy and affirmed cities as the centers of a market economy.

Since the mid-1990s, China's unprecedented urban growth has been increasing at an annual rate of more than 1 percentage point. The large city clusters in the eastern region developed rapidly, as did cities in the central and western regions. City clusters took shape in the Pearl River Delta, Yangtze River Delta, Beijing-Tianjin-Hebei, and Changsha-Zhuzhou-Xiantan. The ability of cities to absorb and support population growth and to provide public and social services improved rapidly.

China's successful transformation also stems from its ability to adjust urbanization policies to address emerging challenges and opportunities. And after 2002, urbanization policy gradually shifted its focus from quantity to quality. The 10th Five-Year Plan, introduced in 2001, stated that China would pursue urbanization in diverse ways and coordinate development between cities and small towns.

But a spatial transformation alone is insufficient for China to become a high-income country

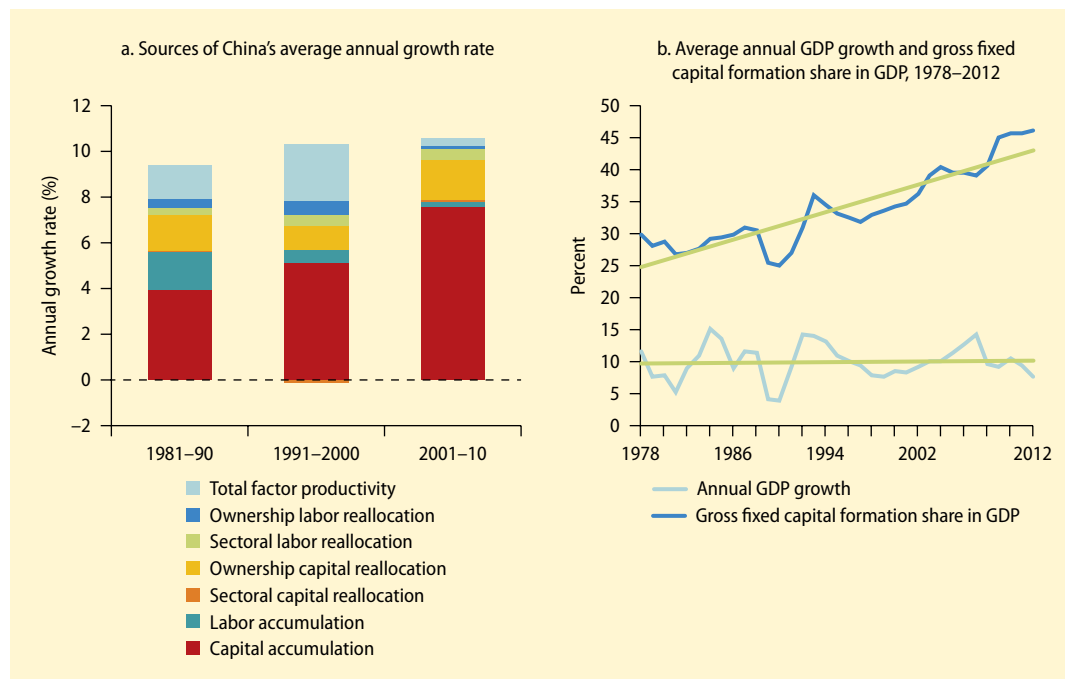
The conditions for the next phase of urbanization are very different from three decades ago. China is already an upper-middle-income country, the world's largest manufac-

turer and exporter. And it is on the cusp of a development stage in which efficiently using resources is more important for growth than simply mobilizing resources. To reach high-income status by 2020, China will require sustained growth of at least 7 percent a year. Although China's achievements show that such targets are not unrealistic—in the past three decades China doubled its real income four times—the dividends from first-generation economic reforms are declining. The growth dividends from factor reallocation are almost exhausted. Urbanization that worked in the past, driven mainly by structural reallocations of labor from rural to urban activities, will not produce growth sufficient for China to become a high-income country.

With the dividends of spatial transformation diminishing, the growth strategy is losing its relevance. Productivity gains from reallocating factors of production across sectors, and even across ownership forms, have declined (figure 1.2). And in recent decades, capital accumulation has become the dominant engine of growth. The share of investment in GDP has almost doubled over the past three decades. A decline in total factor productivity growth in China is consistent with the moderations of growth in other rapidly developing economies.² The next transition from industry to services typically is slower and generates less growth, because in the initial stages, productivity differences between industry and services are not as high as those between agriculture and industry.

To be sure, three other Asian economies—Japan, the Republic of Korea, and Taiwan, China—all relied on high investment rates over an extended period to reach high income. But China's capital stock per capita remains significantly lower than that in advanced countries. And continuing capital accumulation, although sizable, will contribute less and less to growth as the capital-labor ratio rises. A rise in China's incremental capital-output ratio (ICOR)³—from an average of 3.6 over 1991–2011 to 4.7 over 2009–11—indicates that this process may already have begun (table 1.1 and figure 1.3). A rise in ICORs was especially pronounced after the introduction of local government

FIGURE 1.2 Growth is increasingly dependent on capital accumulation as productivity from reallocation of labor and capital is declining



Source: Based on research by Bulman and Kraay 2013.

Source: World Bank staff calculations based on CEIC dataset.

stimulus measures in 2009 and 2010. Furthermore, ICORs have increased consistently across all city sizes in China (although returns on capital remain higher in larger cities than in others).

Changes in the global external environment have made domestic demand the main engine of growth. But a fairly small middle class, such as China's, cannot sustain consumption growth sufficient to offset declining export demand. From 2000 to 2012, consumption declined from 46 percent of GDP to 36 percent. So, domestic demand depends more on investment. And much investment has been financed by credit. As a result, debt levels in China have reached levels that are high by emerging market standards.

China is about to go through a wrenching change as the labor force that grew faster than the overall population ages. Over the next two decades, China's old-age dependency ratio is expected to double (World Bank and DRC 2013). The old-age dependency ratio will reach the current level in Norway and the Netherlands by 2030 (between 22 percent

TABLE 1.1 Incremental capital-output ratio in China and other economies, various periods

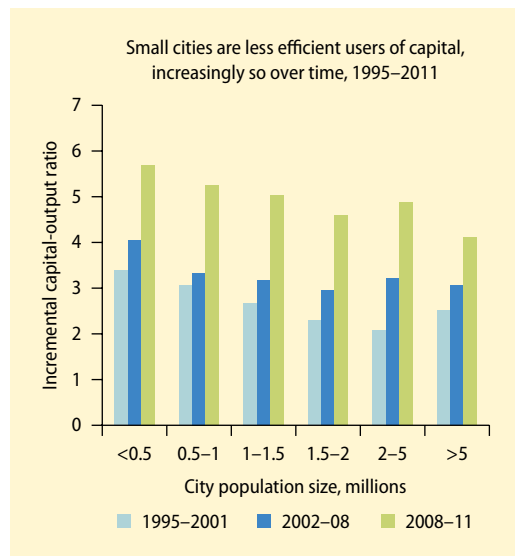
	Gross fixed capital formation, % of GDP	Average annual GDP growth, %	Incremental capital-output ratio
China, 1991–2011	36.7	10.4	3.6
China, 2009–11	45.4	9.6	4.7
China, 2012	46.1	7.8	5.4
Japan, 1961–70	32.6	10.2	3.2
Republic of Korea, 1981–90	29.6	9.2	3.2
Taiwan, China, 1981–90	21.9	8.0	2.7

Source: World Bank staff calculations based on Data Development Platform; CEIC dataset.

Note: GDP = gross domestic product.

and 23 percent).⁴ Meanwhile, China's labor force is projected to start shrinking as soon as 2015. In addition, rural surplus labor has declined significantly (figure 1.4). And the contribution to growth of reallocation of labor from agriculture to industry is declining as China gradually approaches the Lewis turning point (box 1.2).⁵ Moreover, the natural increase in urban population in the past decade is estimated at only 9 percent. About 36 percent of that increase has come from the

FIGURE 1.3 Small cities are less efficient users of capital, increasingly so over time, 1995–2011



Source: World Bank staff calculations based on Data Development Platform; CEIC dataset.

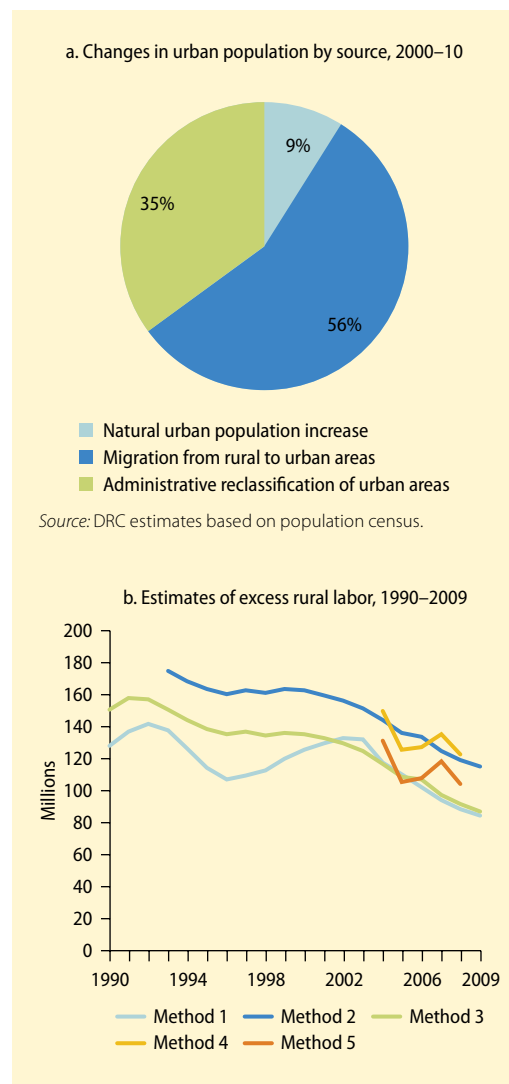
reclassification of certain rural areas as urban areas.⁶ Such rapid urban sprawl has contributed to congestion and reduced economic efficiency.

A new urbanization trajectory has to address stresses related to urban sprawl, inequality, and environmental damage

With more than 700 million urban residents, China has become the world's largest urban nation in human history. Between 1978 and 2012, China's urban population increased by more than a half billion people—more than twice as many as in India in the same period. Its urban population is expected to increase by about 250 million more over the next two decades. The scale of China's transformation and the stresses related to concentration, inequality, and resource use create inefficiencies and are costly to growth, with both local and global implications.

First, urban sprawl undermines productivity gains from agglomeration and specialization as production and the population spread. Traffic congestion and the

FIGURE 1.4 Changes in labor force and urban population



Source: Han 2009.

Note: The formula for calculating rural surplus labor (RSL) is $RSL = \text{farming labor} - \text{actual demand for farming labor}$. Method 1: farmer profit maximization; Method 2: industry differences; Method 3: resource-based labor demand; Method 4: labor to effective arable land ratio; Method 5: agricultural technology needs.

accompanying pollution in cities also push up the cost of production and the cost of living in cities. Estimates suggest that traffic-congestion costs account for 12.5 percent of the per capita income of Beijing residents and 9.1 percent of the per capita income of Shanghai residents.

Second, the first stage of urbanization is typically associated with an increase in

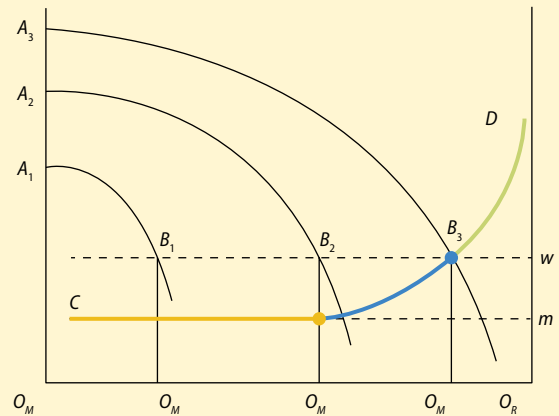
BOX 1.2 The Lewis turning point

A simple dual economy model developed by Lewis (1954) can characterize stages of economic development. In the first phase, the countryside provides the labor force for the industrial sector without any constraints. The marginal productivity of traditional agriculture is close to zero. With plentiful surplus labor in the countryside, the modern economic sector can recruit a great number of laborers with a pay level a little higher than the income of the traditional agricultural sector. The most significant feature of this phase is massive migration of the labor force without much change in pay. (In figure B1.2.1 is the supply curve of rural labor, $O_M O_R$ is the total labor in the economy, w is the pay level of the urban sector, and m is the surviving pay level in the countryside. The $B_1 B_2$ segment is the first phase of development.)

The second phase of economic development features a limited supply of labor from the countryside. In this phase, because of the continued migration of the labor force and higher marginal productivity compared with the average output of the agricultural sector, the industrial sector must offer a higher pay to attract labor (see the $B_2 B_3$ segment).

In the third phase, the pay in the city and the countryside are generally the same, the dual sector structure has disappeared, and the rural and urban

FIGURE B1.2.1 Lewis model



Source: Lewis 1954.

economies are highly integrated. In this phase, the surplus labor force from the countryside is completely absorbed, and the marginal productivities of the agricultural and modern economic sectors are equal. The transition point from the first phase to the second is generally known as the Lewis turning point.

income inequality that undermines growth of consumption and services, but China's inequality has increased to levels many consider unacceptable. One key reason is the dual structure of the household registration system, which separates urban residents based on their place of birth. While China's urbanization rate has exceeded 50 percent, not all urban residents have urban hukous. Those without urban hukous are unable to enjoy the same set of public services as those with urban hukous. According to estimates from the sixth population census, of the 670 million urban and township residents registered in 2010, the registered nonfarm population measured only 356 million, or 26.7 percent of the total, or 23 percentage points less than the urbanization rate. Four in ten urban residents have no access to the same package of public services and social participation

(including grassroots democratic voting) as the others with nonfarm hukous. This dual system has also undermined the growth of the middle class and creates social tensions (box 1.3).

Third, the industry-led growth has been intensive in energy, primary commodities, and resources and damaging to the environment. Unsustainable resource use has imposed large economic costs even if these are not revealed by market transactions; the costs include increased premature mortality, degraded urban environments, sharply increased congestion, and reduced urban livability. Although an industry-led transformation typically results in excessive resource use and environmental pollution, the size of China's industrial agglomeration and specialization has made the impact unusually devastating. Recent estimates by China's environment

BOX 1.3 Increasing social tensions

Social service agencies at the local level are struggling to meet the demands of rising migrant populations. And migrant workers often lack formal channels to make their voices heard, resulting in tensions between migrants and local governments. Many local residents worry that if migrants receive the same treatment as they do, their benefits might be reduced. This uneasiness can lead to social tensions, especially in places with a high proportion of migrants. For instance, there are 6.4 million migrants in Suzhou, about the same as the number of the local people; the number of migrants in Dongguan city is 6.5 million, four times the number of local people.

Consider Zengcheng. On the evening of June 10, 2011, in Xintang Town of Zengcheng District, Guangdong Province, a large riot broke out when a city inspector beat a pregnant peddler named Wang

Lianmei because she refused to pay a “protection fee.” In the afternoon and evening of June 12, tens of thousands of people gathered on the super highway to protest.

Now consider Zhili. On October 26, 2011, in Zhili Town of Wuxing District, Huzhou City of Zhejiang Province, more than 600 couples gathered in front of the town government building to protest against the “children’s clothes tax,” and many more surrounded and watched. The situation deteriorated the next day as riots broke out and some supermarkets were looted, thousands of automobiles were sabotaged, and more than 20 police cars were burnt. On October 28, the town government suspended the tax, fired the tax collectors involved in the incident, and the situation was brought under control.

ministry show that pollution cost the economy at least 2.5 percent of GDP in 2010. China’s dependence on imports has also increased, especially in energy.⁷ Resource depletion and pollution not only pose threats to China’s strategic priorities such as food security, energy, and environmental security—they also tarnish China’s international image.

That is why the new urbanization trajectory has to support three mutually related transformations: it has to become more productive, more inclusive, and more sustainable. More efficient urbanization will help sustain economic growth as excess labor and demographic dividends become exhausted. A concentration of population is conducive to taking advantage of economies of scale, expanding markets, deepening divisions of labor and job creation, and improving living standards. More inclusive urbanization will result in a broader middle class that will support consumption growth, as urban lifestyles tend to be associated with higher consumption of durables and services. More sustainable urbanization will promote the adoption of more energy-efficient technologies, accelerate industrial upgrading, and spur the transition from industry to service sectors.

Urbanization can be made more efficient by unlocking productivity and economic growth potential through more efficient allocation of labor, capital, and land. It can be made inclusive by providing equal access to basic public services and creating more equal opportunities for all citizens, which will empower the middle class, a new driver of China’s domestic demand. And it can be made more sustainable by promoting faster industrial upgrading to technologies and industries that are less resource intensive and more energy efficient.

Agglomeration, specialization, and mobility

As in the first stage of urbanization, reallocations of labor across space and sectors in some parts of China will continue to drive some economic growth, but productivity increases will be associated more with improvements and advances within industries and sectors. As China’s industries advance closer to the production possibility frontier, economic growth will increasingly be associated with the ability to take advantage of higher economic concentration (agglomeration), greater

TABLE 1.2 Growth's drivers on the new urbanization trajectory

	Supply side	Demand side
Drivers	Productivity (A), human (H) and physical capital (K), and labor (L) $Y = f(A, H, K, L)$	Consumption (C), investment (I), and government spending (G), <i>Net Exports (NX)</i> $Y = C + I + G + NX$
1. Agglomeration		
Higher economic concentration: high spatial proximity of firms and consumers	Supports knowledge sharing, labor matching, and pooling; promotes accumulation of human capital	Supports consumption of urban amenities and more efficient distribution of public goods and services (education)
2. Specialization		
Economies of scale	Leads to higher productivity	External competitiveness supported by export demand Requires industrial upgrading
3. Mobility and connectivity		
Efficient allocation of factors of production	Supports an increase in TFP through more efficient allocation of factors of production (capital and labor)	Requires investment in infrastructure

Source: Adapted from World Bank 2009.

Note: TFP = total factor productivity.

economies of scale (specialization), and more efficient allocation of factors of production (mobility).

This new urbanization trajectory—enhancing economic forces of agglomeration, specialization, and mobility—will continue to support economic growth on both the supply and demand sides (table 1.2). On the supply side, higher degrees of economic concentration and specialization will allow firms to benefit from economies of scale, thus facilitating industrial upgrading and technological convergence. Enhanced mobility and connectivity will facilitate knowledge sharing, labor matching, and ultimately the growth of employment and human capital. On the demand side, a more inclusive urbanization will expand the urban middle class, which will demand better services and lifestyles, which in turn will boost domestic demand. These forces have already changed China's economic landscape over the past three decades—but more is to come.

Agglomeration and specialization will support industrial upgrading and technological convergence

Economies of scale are one of the key reasons for rapidly growing industries and services to locate in cities. Cities offer higher concentrations of economic activity, allowing firms to

exploit economies of scale arising from being near other producers of the same or similar products (localization economies) and from being close to producers of a wide range of products and services (urbanization economies) (table 1.3).⁸ Geographical concentration of firms helps in sharing input suppliers, matching employment skills, and learning from each other (box 1.4; see also Lucas 1988; Moretti 2004). In the United States, almost all product innovations originate in metropolitan areas. Large and diverse cities act as nurseries for firms to try out a variety of innovative products, and once the technological process is developed, it is transferred to specialized cities for mass production (World Bank 2009). Thus, increased agglomeration and specialization of high-skilled industries and services facilitates industrial upgrading and technological convergence.

Industrial clusters of global importance have facilitated the agglomeration and specialization of Chinese firms. In the past, the central planning system favored a diversified production pattern in most cities. But over time, while the largest cities have remained diversified, market forces have made many Chinese cities more specialized to take advantage of economies of scale. Cities that were closer to waterways with access to international markets were the first to become more specialized by exploiting the lower

TABLE 1.3 The 12 types of economies of scale

Type of economy of scale			Example
Internal	1. Pecuniary		Being able to purchase intermediate inputs at volume discounts
	Technological Dynamic technological	2. Static technological	Average costs falling because of fixed costs of operating a plant
		3. Learning to operate a plant more efficiently over time	
External or agglomeration	Localization	Static	
		4. Shopping	Shoppers being attracted to places where there are many sellers
		5. Adam Smith specialization	Outsourcing allowing both the upstream input suppliers and downstream suppliers to profit from productivity gains because of specialization
		6. Marshall labor pooling	Workers with industry-specific skills being attracted to a location where there is a greater concentration
	Dynamic	7. Marshall-Arrow-Romer learning by doing	Reduction in costs arising from repeated and continuous production activity over time and spilling over between firms in the same place
		8. Jane Jacobs innovation	The more that different things are done locally creating more opportunity for observing and adapting ideas from others
	Urbanization	Static	
		9. Marshall labor pooling	Workers in an industry bringing innovations to firms in other industries (similar to number 6, but the benefit arises from the diversity of industries in one location)
		10. Adam Smith division of labor	Main difference being that the division of labor is made possible by the existence of many different buying industries in the same place (similar to number 5)
	Dynamic	11. Romer endogenous growth	The larger the market, the higher the profit; the more attractive the location to firms, the more jobs; the more labor pools, the larger the market
		12. Pure agglomeration	Spreading fixed costs of infrastructure over more taxpayers; diseconomies arising from congestion and pollution

Source: World Bank 2009.

costs of logistics in export-oriented manufacturing industries (box 1.5). Since the early 1980s, Chinese firms have developed industrial clusters for knitted woolens, footwear, electronics, textiles, and other products. In Zhejiang Province, industrial clusters for textiles and apparel formed; in Hangzhou, women's wear; in Wenzhou, men's wear; and in Ningbo, socks. Today, geographic clustering is more pronounced in high-skill and technology industries.

The Herschman-Herfindahl Index of industrial concentration across provinces shows that the production of computer peripherals is about two times more concentrated than the production of textiles.⁹ For advanced services (the service sector excluding hotels and restaurants, wholesale trade, and catering), the concentration is even higher. For instance, the concentration of research and development is about two times higher than the concentration of manufacturing. Services tend to require less land, and the service industry can have higher

concentration of employment than manufacturing and is more likely to benefit from agglomeration and urbanization economies.

China's economic activity has become more concentrated in the largest metropolitan areas. In 2010, China's 10 largest metropolitan areas accounted for slightly more than one-fifth of urban GDP and more than one-half of total exports originating in urban areas. Economic activity also has become more concentrated regionally—in 2010, more than 50 percent of China's urban GDP and more than 85 percent of exports originated in urban areas of coastal provinces.

Agglomeration and specialization have made Chinese firms more productive and competitive. A study by Lin, Li, and Yang (2011) of the textile industry on China's south and west coasts in 2000–05 found that agglomeration plays a significant role in TFP, with a nonlinear positive relation between agglomeration and productivity. Research by Ke and Yu (2014) shows that variations in industrial agglomeration explain two-thirds

BOX 1.4 Microfoundations of agglomeration economies: Sharing, matching, and learning

At the end of the 19th century, the economist Alfred Marshall noted that income sharing, labor market pooling, and knowledge spillover are the three major reasons for the agglomeration effect (Marshall 1890; Duranton and Puga 2004).

Sharing. There are many exclusive, undivided, and crowded facilities for shared use. The city is like a club for sharing such public goods and facilities. Producers can have access to a wider range of inputs and benefit from economies of scale and lower costs. The sharing of intermediate inputs allows suppliers to provide highly specific products and services according to the demands of the customers. The pooling capacity of a city comes not only from diversified income sharing but also from risk sharing.

Matching. Salop (1979) established a labor-matching model and put it into the framework of urban economics. There are two sources for economic agglomeration in the matching model. One source is the externality of matching: the increasing number of matching can improve the expected quality of matching (Helsley and Strange 1990). The other source is that in a competitive labor market, there is a correlation between the number of job vacancies of enterprise and the number of unemployed people.

That correlation intensifies labor market competition and reduces the fixed cost of enterprises. In a larger market, production factors can match better. Enterprises can choose inputs and special skills as they need and meet the demands of a specific market; in the meantime, in a place of abundant enterprises, labor is more likely to find suitable employers. When a worker gets more professional and specific skills, producers can find special talents more easily in large cities.

Learning. Lucas (1988) noted that the advantage of a city in learning is embodied not only in its cutting-edge technologies, but also in its acquisition of skills, knowledge creation, accumulation, and proliferation. The agglomeration can accelerate the dissemination of knowledge and help workers, entrepreneurs, and different enterprises learn from each other. In the process of discussion and communication, many ideas and thoughts came into being, and information and knowledge scattered. Knowledge-, information-, and technology-intensive industries are mostly concentrated in cities, especially in large metropolises. The larger the city, the higher the population density, the more diversified and concentrated information, the more frequently people communicate, and the faster productivity grows (Ciccone and Hall 1996).

of different experiences in the TFP growth across cities at the prefectural level and about one-half of the variations across cities at the provincial and subprovincial levels. Moreover, China's largest cities (tier 1 cities) have higher TFP. A survey of 12,400 Chinese manufacturing firms in 120 cities also finds that firms in the largest cities have higher productivity (figure 1.5; see also World Bank 2006).

Economies of scale from agglomeration tend to vary across industries and city sizes—smaller cities tend to specialize in mature industries, larger cities in services and high-skill industries.¹⁰ Improved infrastructure and transportation allow firms to become more specialized to exploit economies of scale not associated with agglomeration. These internal economies of scale arise

because firms can purchase intermediate inputs at volume discounts, because the fixed costs of operating a plant lower the average costs of production, and because managers learn to operate a plant more efficiently. And as cities become larger, they benefit less from industrial agglomeration and can face severe agglomeration diseconomies as residents in bigger cities are burdened with congestion and higher living costs for housing, food, and public services (Muth 1969; Fujita and Ogawa 1982; Henderson 2002).

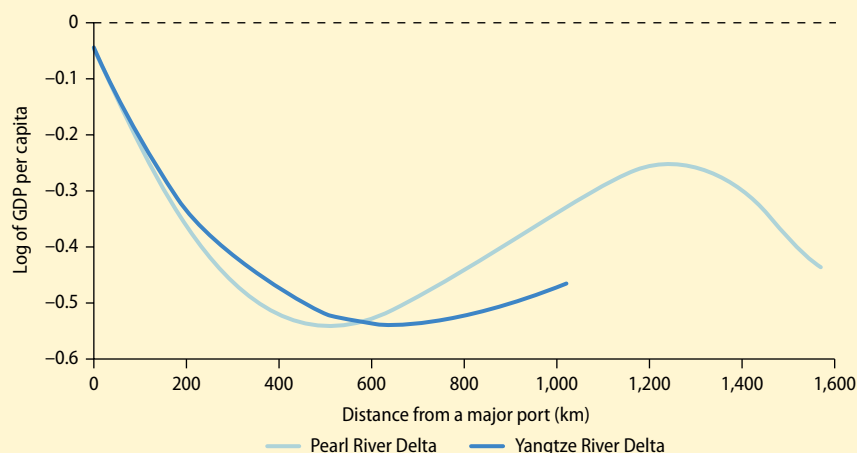
Maturing industries, especially in manufacturing, started to move out of the largest cities in China over the past decade (figure 1.6). Manufacturing has also started to shift out of prefecture-level cities and into counties, where the share of national manufacturing employment grew from 41 percent to 50

BOX 1.5 Agglomeration economies are attenuated by distance

The economies from agglomeration can drive the development of both industry and services. In a highly open economy, being close to a major coastal port means being close to the international market, and being close to a big regional city means being close to the domestic market. Therefore, the geographical location of a city is an important factor in its development.

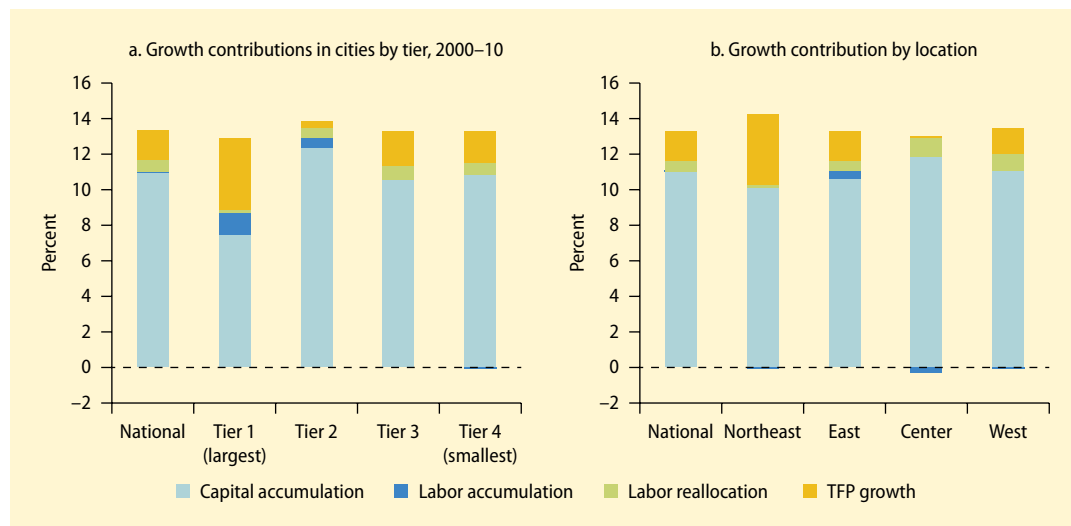
Figure B1.5.1 clearly demonstrates that within the metropolitan area of the Pearl River Delta, as the distance from Hong Kong SAR, China, grows, the GDP per capita of cities goes first lower, then higher, and then lower again. The GDP-per-capita curve is basically the same shape as the market-potential curve of the economic geography (Fujita and Thisse 1996).

FIGURE B1.5.1 Distance to major ports and economic development level of cities within a metropolitan area

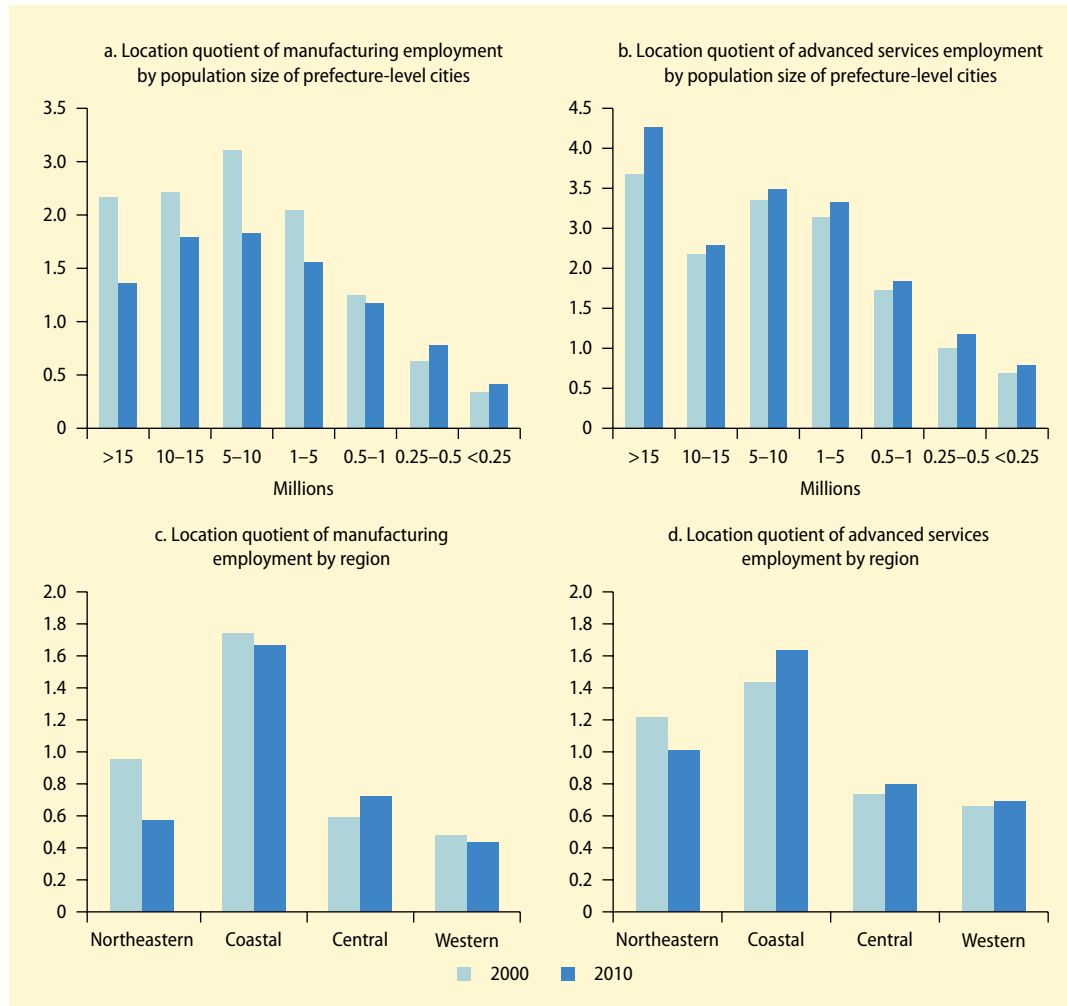


Source: Ming Lu 2013.
Note: km = kilometers.

FIGURE 1.5 Total factor productivity has been highest in tier 1 and northeastern cities



Source: World Bank staff estimates.

FIGURE 1.6 Changing patterns of specialization in manufacturing and advanced services

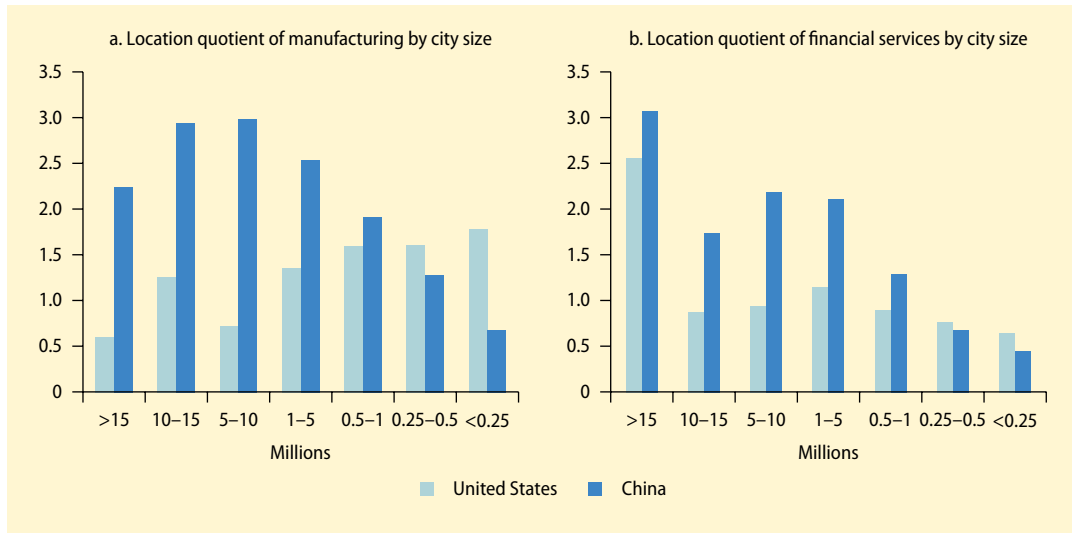
Source: World Bank staff calculations based on the 2000 and 2010 population censuses.

Note: Advanced services are all services except wholesale and retail trade and hotels and restaurants. The location quotient for any sector i in any city j is defined as π_{ij}/Π_i with $\pi_{ij} = x_{ij}/\sum_j x_{ij}$ and $\Pi_i = X_i/\sum_j X_i$, where x_{ij} is the amount of activity in sector i in city j and X_i is the amount of activity in sector i in China as a whole.

percent from 2000 to 2010. As a result, services account for a higher share of economic activity in the larger cities. In 2011, services accounted for 66 percent of GDP in the largest cities (15 million or more people), but only about 33 percent in smaller cities (with fewer than 1 million people). Assembling integrated computers has become less concentrated. Producing steel, which benefits from economies of scale, remains fairly evenly dispersed across provinces. That is explained in part by a legacy of central planning and state ownership. Before the 1980s, remote inland sites were favored for key sectors, such as iron and

steel production, and spatial clustering was discouraged (Fan and Scott 2003). The rising prices of land and housing also influence the choice of location of industries (Fan and Shao 2011).

Agglomeration and specialization could better support China's transformation toward high-skilled manufacturing and services. But the process in China has been slower than in other countries (figure 1.7). Although the transition of manufacturing out of largest cities in China has started, the process is still slow relative to specialization patterns of cities in the United States and

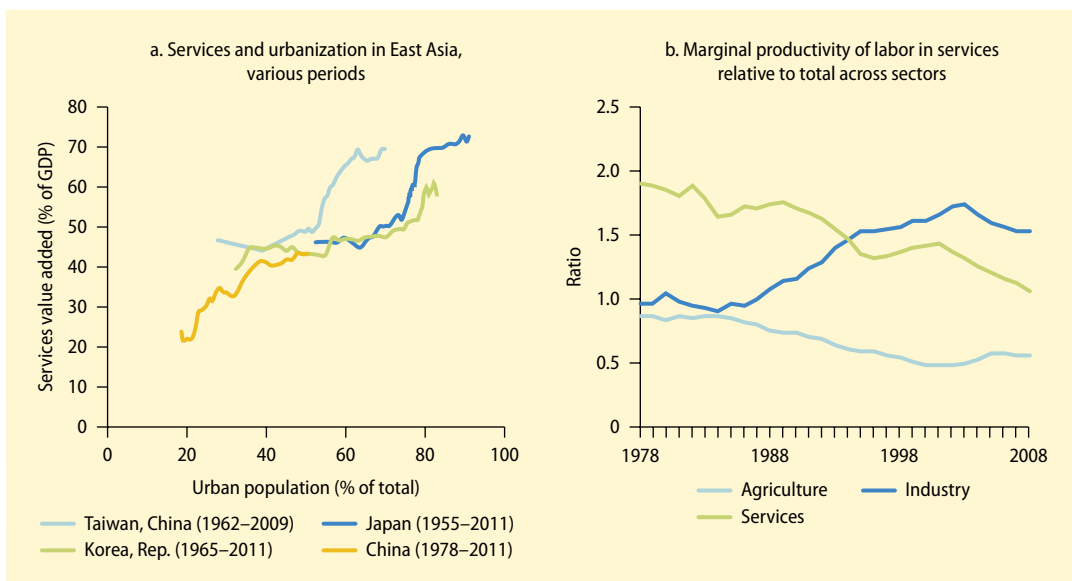
FIGURE 1.7 Despite recent trends, a large share of manufacturing remains in large and medium-size cities

Source: World Bank Staff calculations based on the 2010 population census, CEIC (China), and Bureau of Economic Activity (United States).

Korea where predominantly smaller cities are specializing in manufacturing (Henderson 1997, 2001). Chinese cities—both large and medium size—have high localization of financial services, whereas only the largest cities in the United States have very high localization of financial services. For China's

larger cities, manufacturing will continue to move out, but services need to grow.

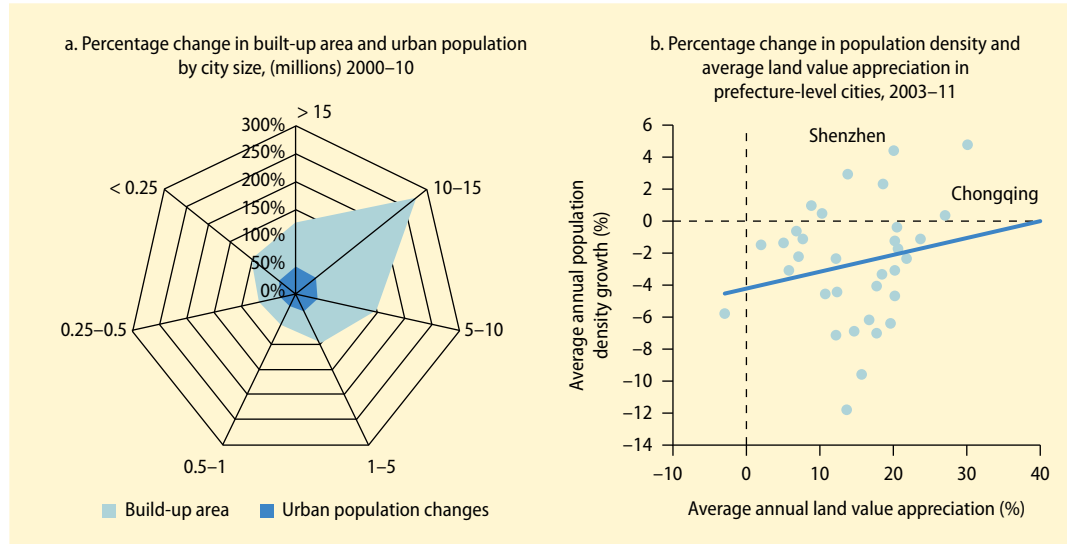
Even with urbanization, the share of services in GDP was only about 40 percent in 2011. But relative to other East Asian countries, China is not an outlier (figure 1.8).¹¹ Going forward, if China wants to become a

FIGURE 1.8 To become a high-income country, China will have to develop services quickly, but the marginal product of labor in services continues to decline

Source: World Bank staff calculations based on World Bank Development Data Platform.

Source: World Bank staff calculations.

FIGURE 1.9 Population densities of Chinese cities have fallen over the past decade as the urbanization of land was faster than the urbanization of people



Source: World Bank staff calculations based on the 2000 and 2010 population censuses and CEIC (China).
Note: Weighted average.

high-income country like Korea and Japan, it will have to develop services quickly from here on. Yet the value added per employee in services continues to lag behind the levels in industry.¹² Moreover, marginal productivity of labor in services, relative to aggregate labor productivity, has declined over the past three decades.

Low-population densities of cities have undermined forces of agglomeration. China's geographic concentration of economic activity remains substantially lower than in the United States, where the largest 10 metropolitan areas account for about 38 percent of GDP, compared with only about half that in China. Population densities of Chinese cities are also lower relative to benchmarks in advanced countries. Moreover, China's population densities have continued to decline as increases in the built-up area were faster than increases in the urban population over the past decade (figure 1.9). In part, too much land has been converted from rural to urban land because the state is able to expropriate it and avoid paying the fair market cost. Local governments have relied on land leases to finance both capital and recurrent spending.¹³ For 35 cities in China, faster increases in

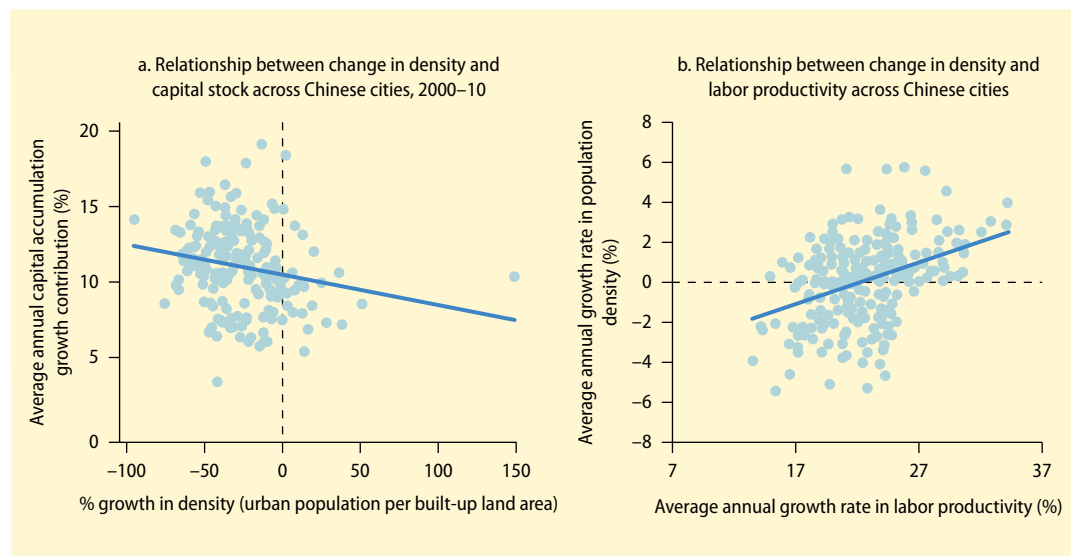
urban land prices are correlated with greater increases in density, so low land prices lead to urban sprawl. Chongqing and Shenzhen, both in the upper right quadrant, have led China's experimentation with rural land compensation reforms. These reforms increased barriers to rural land expropriation while also increasing farmer land compensation, thereby leading to higher urban land prices, less sprawl, and more efficient land use.

Falling densities have implications for economic growth. As densities fall, sustained growth requires even higher capital accumulation to offset declining productivity. Over the past decade in cities where economic densities have been falling, growth has tended to be supported more by capital accumulation than by productivity growth (figure 1.10).

Mobility and connectivity will support employment growth

Labor migration driven by economic forces is good for economic growth and employment growth. Productivity increases from economies of scale in cities allow firms to offer higher wages—one of the key drivers of labor reallocation from rural to urban

FIGURE 1.10 In places where economic densities are falling, growth is supported by capital accumulation rather than by productivity increases



Source: World Bank and DRC staff calculations based on the 2000 and 2010 population censuses and CEIC (China).
 Note: Data for 286 cities in population density and the average annual growth rate of labor productivity (1990–2012).

areas. Higher wages in Chinese cities pulled new migrants while disadvantageous economic opportunities in rural areas pushed new migrants into cities. Between 2000 and 2010 alone, 117 million Chinese moved from rural to urban areas to seek better employment opportunities. And coastal regions, the engines of China's growth, accounted for more than half of migrant inflows (table 1.4 and figure 1.11). Indeed, urban-rural migration has been the key factor in China's growth and urbanization.

It is estimated that labor migration has contributed to more than 20 percent of GDP growth during the past three decades (Yan and Li 2007). With high individual mobility, migrants have transformed the Chinese economy, providing the key input for

China's industrialization. They accounted for 58 percent of employment in the secondary industry, 52 percent in the tertiary industry, and 80 percent in the construction industry

FIGURE 1.11 Structure of migrants stock by type of migration by regions in 2010, %

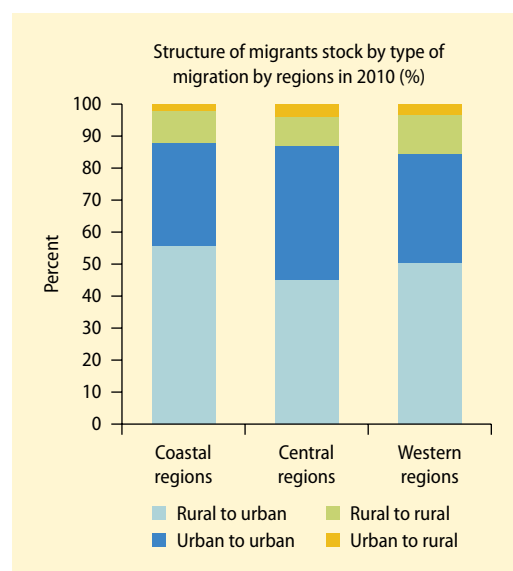
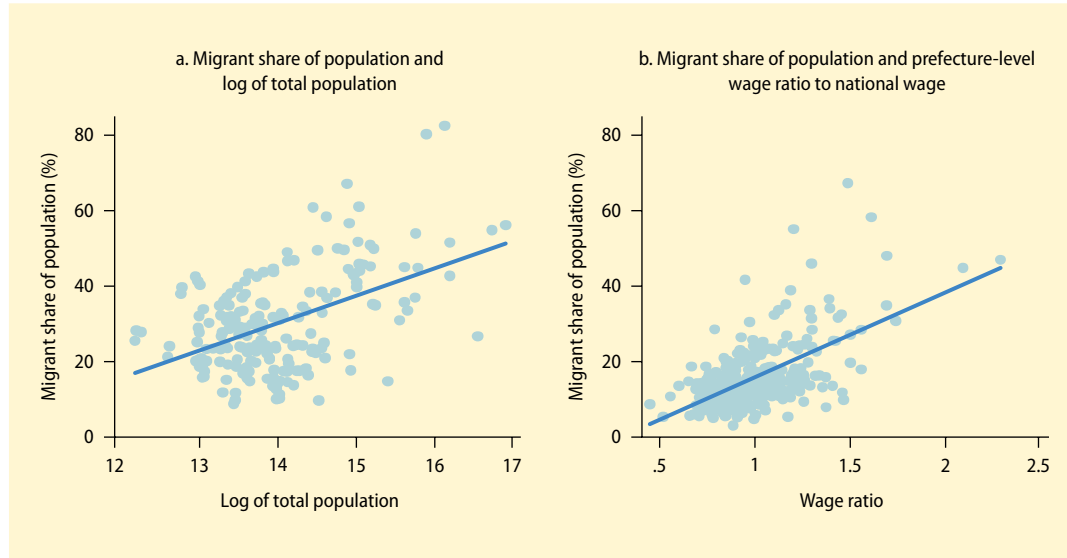


TABLE 1.4 Structure of migrants stock by receiving and sending region, 2010

	From coastal regions, %	From central regions, %	From western regions, %
Coastal regions	41.1	12.2	7.6
Central regions	1.0	18.2	0.5
Western regions	1.0	0.9	17.5

Source: World Bank staff estimates based on the 2010 population census.

Source: World Bank staff estimates based on the 2010 population census.

FIGURE 1.12 Migrants go to larger cities, where wages are higher

Source: World Bank staff estimates based on the 2010 population census.

(National Bureau of Statistics of China 2013). In 2010, China's coastal regions accounted for about two-thirds of total migrants, of which more than two-thirds were migrants from other coastal regions.

The majority of labor migrants are absorbed by the largest cities that have larger potential for agglomeration economies. Over the past decade, China's larger cities have attracted more migrants (figure 1.12), and cross-county migrants go where wages are higher.

Migrant workers supported sectors that were developing faster. Since 2004, more than half of employees in the secondary

industry have been migrant workers. And as the importance of services increased, the share of migrants working in these sectors also increased (table 1.5).

Better physical infrastructure, especially highways, has promoted connectivity and facilitated the mobility of labor. In the early years of the reform and opening, road transportation was a weak link. In 1978, the country had only 890,000 kilometers of highways, with zero kilometers of expressway and 10,000 kilometers of class II highways and above. In the late 1980s and early 1990s, the central government explicitly made developing the traffic system strategic

TABLE 1.5 Migrant worker employment by sector, 2004–12

Sector	2004	2008	2009	2010	2011	2012
Manufacturing	30.3	37.2	36.1	36.7	36	35.7
Construction industry	22.9	13.8	15.2	16.1	17.7	18.4
Transportation, warehousing, and postal services	—	6.4	6.8	6.9	6.6	6.6
Wholesale and retail businesses	4.6	9.0	10.0	10.0	10.1	9.8
Accommodation and catering services	6.7	5.5	6.0	6.0	5.3	5.2
Neighborhood services and other services	10.4	12.2	12.7	12.7	12.2	12.2
Other professions	—	15.9	13.2	11.6	12.1	12.1
Total	100	100	100	100	100	100

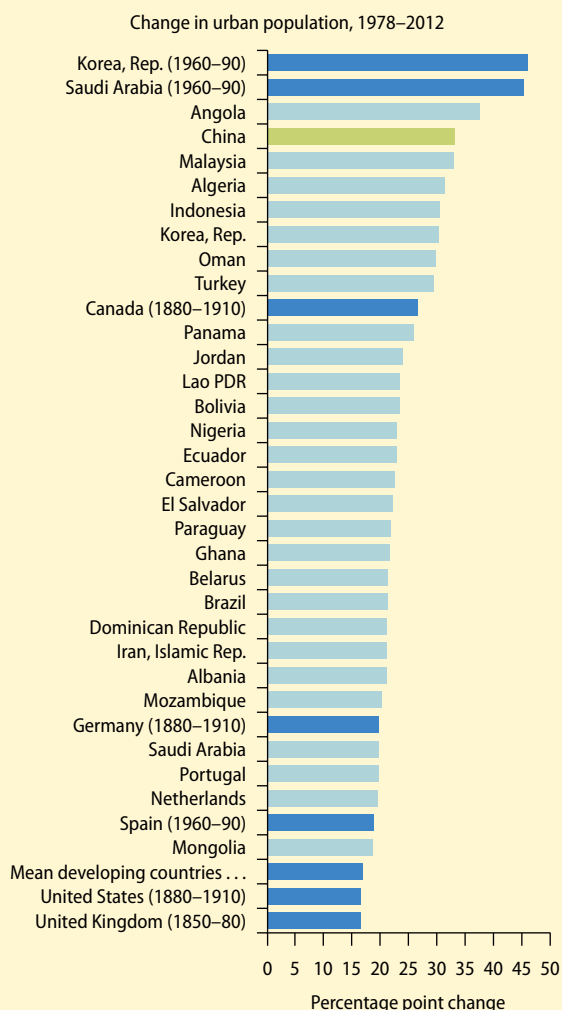
Source: Data for 2004 are from Liqun and Laiyun (2006); data for 2008–12 are from National Bureau of Statistics of China (2012).

Note: — = not available.

BOX 1.6 Is China's urbanization pattern unique? A global perspective

The recent increase in China's urbanization rate—32 percentage points over 1978 to 2012—is about twice the average for developing countries in the same period. But rapidly rising urbanizations have occurred in Korea, Malaysia, and other countries (figure B1.6.1). And, in a slightly longer perspective, the 45 years that it took China to rise from an urbanization rate of about 17 percent in 1968 to more than 50 percent in 2013 is comparable to the time it took the Soviet Union to rise from 17 percent in 1917 to 50 percent in 1961.

FIGURE B1.6.1 Percentage point changes in urban population shares between 1978 and 2012



Source: World Bank staff calculations based on World Development Indicators and Bairoch and Goertz 1986.

and urgent for the national economy, an historic opportunity for the grand development of the road network.

Better communication facilities also improved connectivity by providing information about employment opportunities. In 1978, only 734,000 rural households across the country had telephones, rising to 1.5 million in 1990, 51.7 million in 2000, and 938.8 million in 2011. Almost everyone had a phone.

Better education reduced social barriers to labor mobility. By 2000, the coverage of nine-year compulsory education was 85 percent, with enrollment rates of 99 percent in primary schools and 88 percent in junior high schools. In 1986, a quarter of the rural labor was illiterate or semiliterate, dropping to 16.9 percent in 1995, 9.5 percent in 2005, and 7.9 percent in 2009.

But in comparison with other countries at similar levels of development, labor mobility appears to be constrained. China's urbanization role is still below the 70 percent that is more typical for a country with China's per capita income. Its urban population growth—3 percent to 4 percent annually—is also below the 5 percent to 6 percent observed in other developing countries during their rapid growth (box 1.6). Other indicators suggest that urbanization is restrained: excess employment in agriculture remains significant, not all rural migrants are formally registered in urban areas, and the urban-rural wage gap remains large. China's reforms are entering their 35th year, and constrained labor migration has resulted in a larger urban-rural gap today than in 1978. In 2009, the rural surplus labor in China was between 85 million and 115 million people, about 19 percent of rural jobholders.

Restrained labor mobility is bad for growth—it slows productivity increases and income convergence. In the United States, labor mobility has led to the near elimination of interregional and urban-rural wage differences. Rural-urban migration in the United States helped equalize agricultural and non-agricultural wages, which had a disproportionate effect on poorer agricultural states, leading to regional convergence. The North-South labor income ratio fell from 2.4:1.0 to

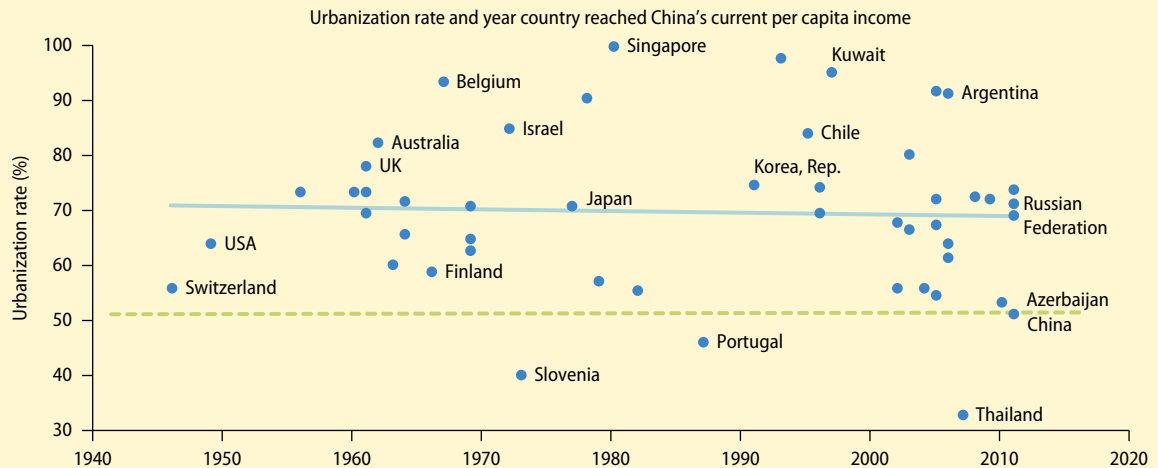
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BOX 1.6 (continued)

And compared with economies at similar incomes, China has a significantly lower urbanization rate (figure B1.6.2). The average urbanization rate of coun-

tries with similar incomes is about 70 percent. Only Portugal, Slovenia, and Thailand had lower urbanization rates than China at comparable incomes.

FIGURE B1.6.2 Urbanization rate and year country reached China's current per capita income



Source: Maddison World Economic History database; World Development Indicators; United Nations World Urbanization Prospects: The 2011 Revision; U.S. Census Bureau website; Zhuo 2013.

Note: China's per capita income is at \$8,825 in international dollars.

1.1:1.0 as the urbanization rate rose from 28 percent to 74 percent (Caselli and Coleman 2001). Similarly, Korea's rapid urbanization eliminated the urban-rural wage gap by 1994, just 33 years after General Park Chung-hee initiated Korea's rapid industrialization.

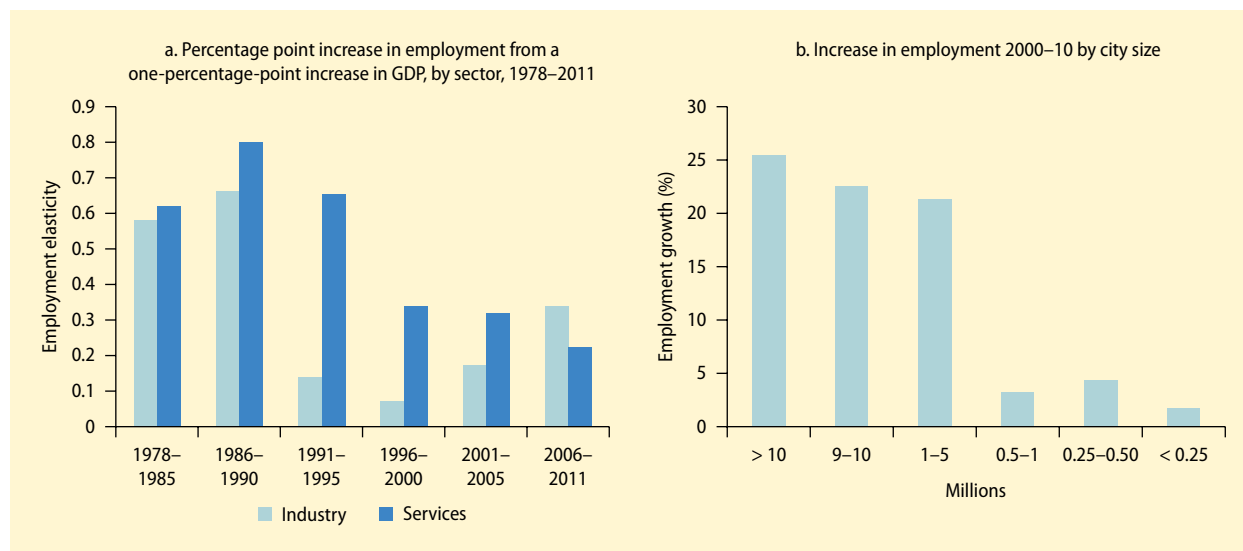
Increasing mobility and connectivity between rural and urban and across cities will support employment growth, which slowed in the past decade (figure 1.13). In 2010, cities with a population below 1 million accounted for about one-third of urban employment, but average employment growth in these cities was less than 5 percent over the past decade, on average about one-quarter of that in larger cities.

The emerging urban middle class will demand better services and lifestyles

Middle-class citizens are important for economic growth, particularly during the tran-

sition from a middle-income country to a high-income country. And cities promote the emerging urban middle class and domestic consumption. But households' high-income inequality, low-income share of GDP, and high savings rate have constrained China's middle class.

Countries that have developed their middle class have transitioned from export-led growth to consumption-led growth while relying on innovation and service-sector development, reducing the risk of getting stuck in a middle-income trap (Gill and others 2007). On the supply side, middle-class values of hard work, meritocracy, saving, and education enable rapid physical and human capital accumulation (Kharas 2010). Since the 14th century, a middle class has been the source of entrepreneurship and innovation, as well as the small businesses upon which modern economies thrive (Acemoglu and Zilibotti 1997). On the demand side,

FIGURE 1.13 Increased mobility and connectivity will support employment growth

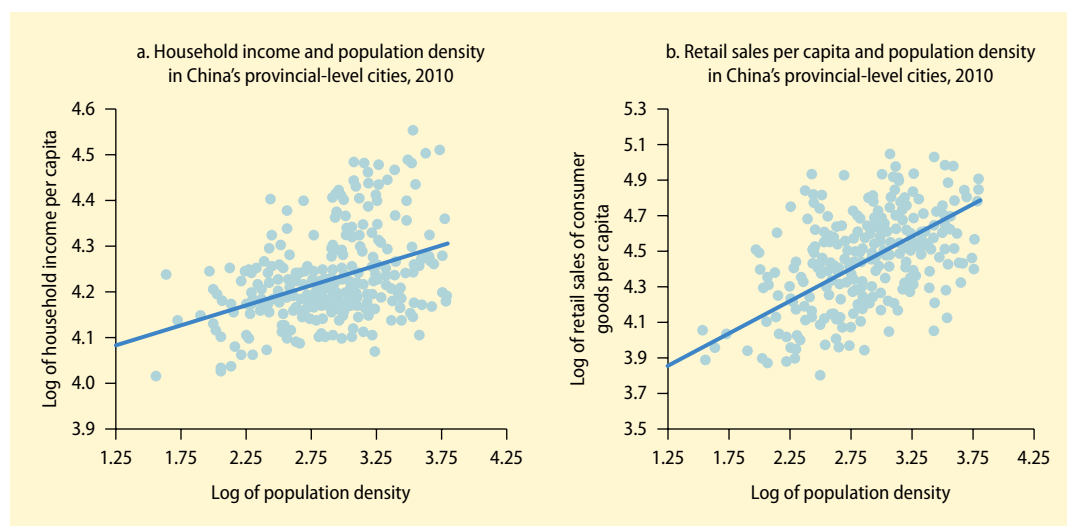
Source: DRC staff calculations.

Source: Estimates based on the 2000 and 2010 population censuses.

a middle class enjoys stable housing, job security, health, and educational opportunities—and has discretionary income to spend on leisure, leading to a “new consumerism” (Schor 1999). Middle-class consumers pay extra for quality, encouraging value-added branding and product differentiation. There is a kink in demand curves at purchasing power parity (PPP) \$6,000, after which

income elasticities of demand for consumer durables and services become greater than one (Nomura International 2009).

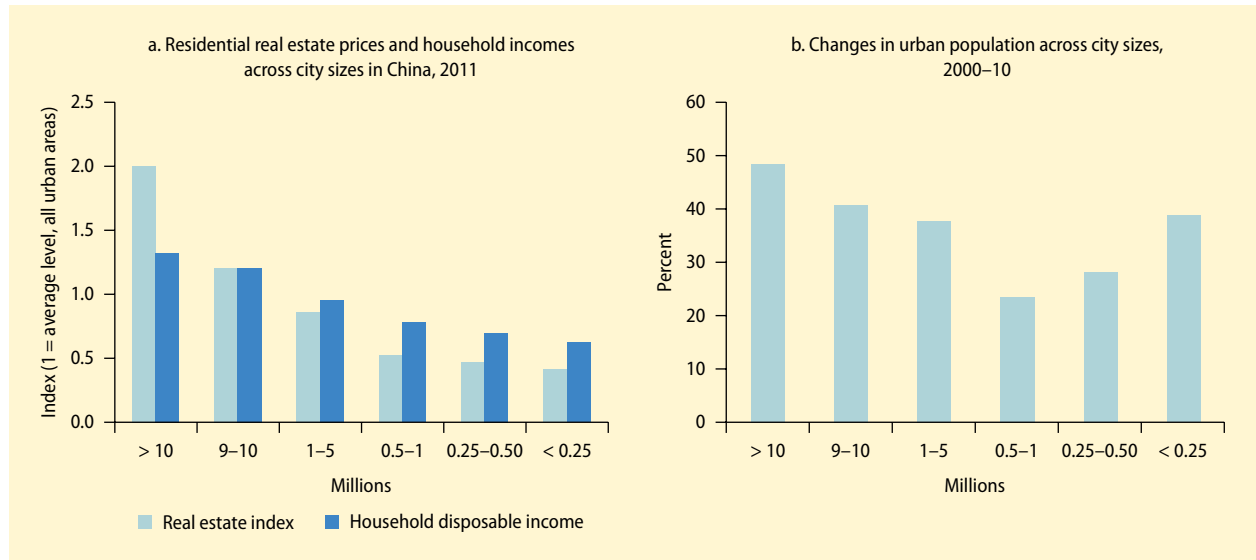
Cities offer consumption amenities associated with higher densities, which are associated with higher household incomes, as economies of scale allow firms to offer higher wages for labor (Glaeser, Kolko, and Saiz 2001) (figure 1.14). Those higher incomes,

FIGURE 1.14 Higher densities are associated with higher incomes and consumption

Source: World Bank staff estimates based on CEIC dataset.

Source: World Bank staff estimates based on CEIC dataset.

FIGURE 1.15 Real household incomes (adjusted for cost of real estate) are lower in the largest cities, yet they have experienced the largest increase in population



Source: World Bank staff estimates based on CEIC dataset.

Source: World Bank staff estimates based on census data.

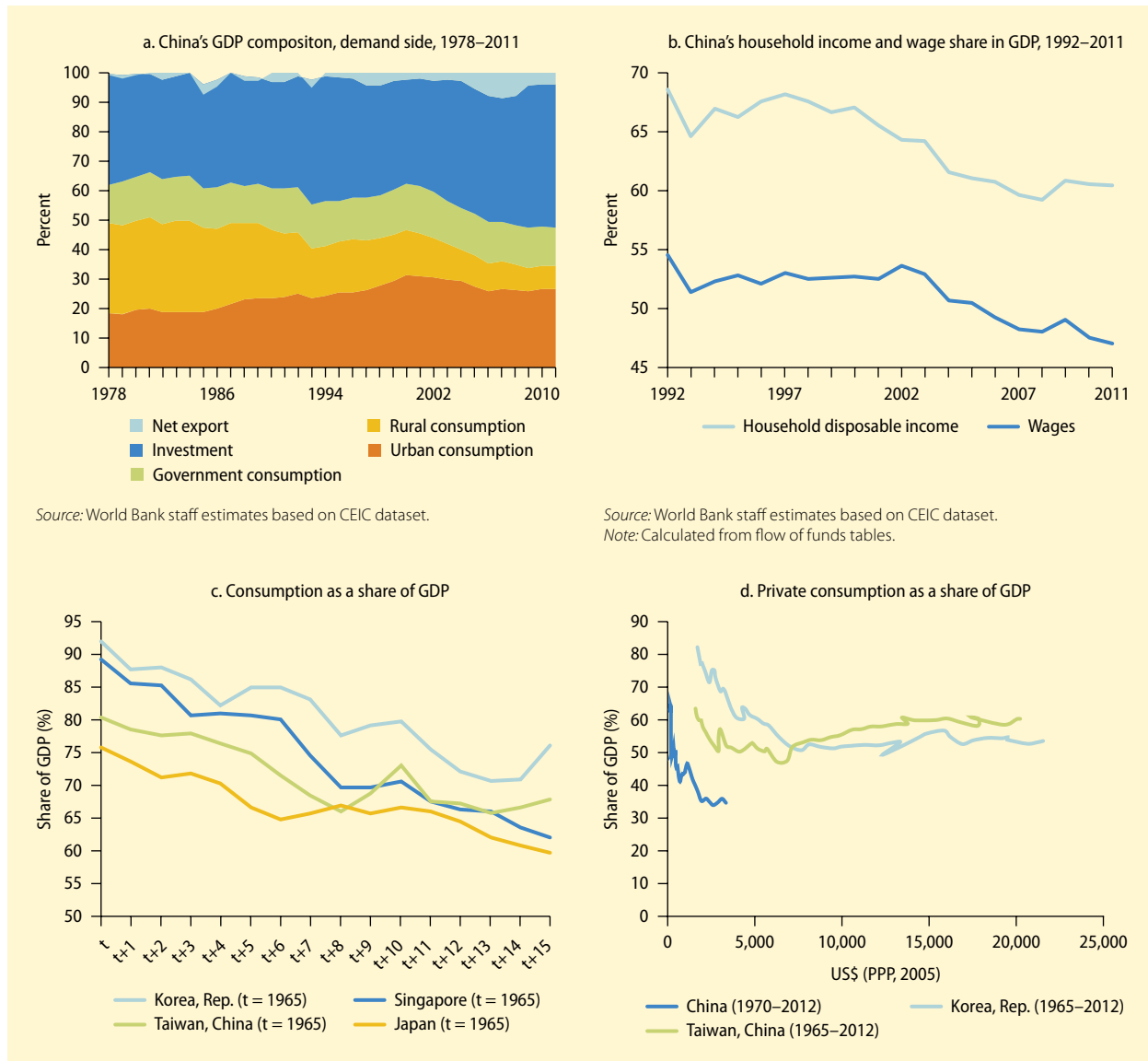
combined with social interactions associated with higher densities, boost the demand for consumption amenities. Cities can offer live concert, theater, and other commercial performances associated with large fixed costs. And it is argued that rising consumer amenities are associated with a revival of many of the metropolitan areas in the United States (Glaeser and Gottlieb 2006).

Estimating the value of available consumption amenities is difficult. One way to estimate how much households are willing to pay for these amenities is to compare incomes and costs of housing across cities. If there were a positive consumption externality associated with density, one would expect that incomes in larger cities, adjusted for costs of housing and transport, would be lower.¹⁴ And indeed, average household incomes in China's largest cities are about 30 percent higher than on the average for all urban areas, while housing costs per square meter are double the average. Yet the largest increases in population over the past decade were still in large cities (figure 1.15).

The first stage of urbanization commonly lowers the shares of consumption. Growth is driven mainly by industry and investment

rather than services and consumption. The productivity gains unlocked during China's structural transformation from rural to urban activities were far greater than real increases in labor compensation. And the remaining surplus labor in rural sectors constrains any upward wage pressures. As a result, the majority of the gains are captured by enterprises, allowing them to maintain high corporate savings rates to finance capital-intensive growth (figure 1.16). At the same time, moderate real wage growth maintained China's competitiveness in external markets. A simple "dual economy" model shows how the transfer of surplus workers from the rural sector to the modern economy, complemented by rising investment, leads to rapid but inefficient growth (Lewis 1954).

But China's growth imbalances have lasted much longer than those in other countries experiencing rapid economic development and transformation. They also differ across regions—the share of investment in GDP is significantly higher in western and central provinces. And imbalances in these regions widened after 2008, driven mainly by investment stimulus measures by local governments in western and central provinces.

FIGURE 1.16 The initial stages of urbanization and industrialization led to imbalances in economic growth

Source: World Bank staff estimates based on CEIC dataset.

Note: Primary industry—agriculture, Secondary—industry and construction, Tertiary—services.

Source: World Bank staff estimates based on World Bank Data Development Platform.

Mounting evidence suggests that returns on those investments have started to decline, requiring ever higher levels of investment to maintain economic activity (Lee, Syed, and Xueyan 2013). This finding contrasts with coastal provinces, where high investment rates in the past have started to translate to gradual increases in private consumption, as returns to those investments contribute to higher household incomes.

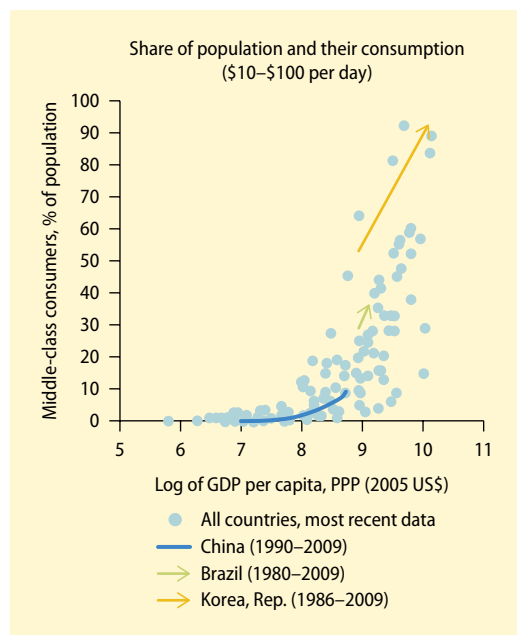
China's global middle class grew from less than 2 percent in 2000 to 11 percent in 2010, but its relative size remains low.¹⁵ China has become the world's second largest middle class in absolute terms with 157 million consumers, behind only the United States. But at only 11 percent of its population based on consumption, the Chinese middle class is small in relative terms (table 1.6 and figure 1.17).^{16,17} And at China's per capita income,

TABLE 1.6 Percentage of population with consumption between \$10–\$100 a day, in 2005 PPP dollars

	Urban	Rural	National
2000	3.5	0.6	1.7
2005	7.9	1.3	4.1
2006	9.7	1.8	5.3
2007	11.8	2.0	6.5
2008	13.6	2.1	7.5
2009	16.8	2.7	9.5
2010	19.5	3.2	11.4

Source: World Bank staff estimates based on Povcal data.

FIGURE 1.17 China's middle class continues to grow, but it remains small relative to China's development level



Source: World Bank staff estimates based on Povcal data.

more than 20 percent of the population should have entered the global middle class.

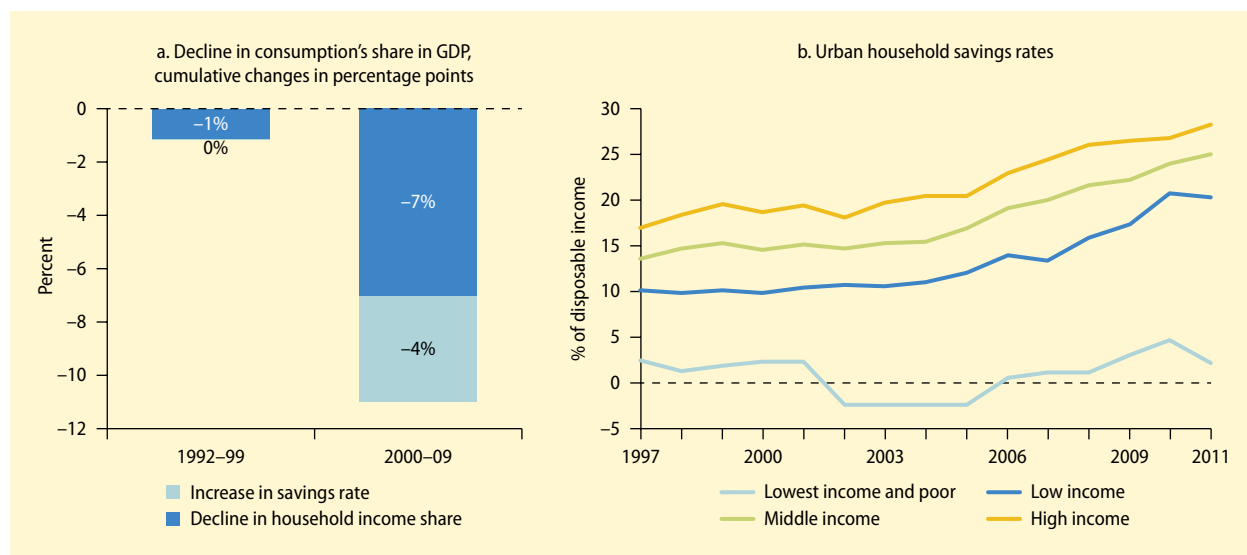
China's current per capita income is similar to Brazil's in 1980 and Korea's in 1986, but China's middle class is half that of Brazil's and a quarter that of Korea's (Kharas 2010). Korea's transition to high income came from developing an innovation-based knowledge economy on the shoulders of its large middle class. Brazil, meanwhile, continued to rely on commodity exports without sufficient

middle-class domestic demand. China's inequality is more similar to Brazil's in the 1970s than Korea's in the 1980s, and its high household savings rates further depress the emergence of a vibrant middle class.

Households with high-income inequality, a low-income share of GDP, and a high-savings rate have constrained middle-class development in China, all undermining faster growth in consumption (figure 1.18).

China's rising income inequality over the reform period is fairly normal, but the rate of increase is largely unprecedented. China is rapidly approaching the per capita income at which the United States inequality began to decline (before rising again at a much wealthier stage). And there are signs that China may be reaching the inflection point of the Kuznets curve. Whereas intrarural inequality at the start of reform was significantly higher (0.33) than intraurban inequality (0.24), intraurban inequality has grown much more over the past 30 years,¹⁸ especially when migrants are included.¹⁹ Even so, China's overall income inequality remains comparable to Malaysia, Singapore, and the United States. The contribution to overall inequality made by mean difference in urban and rural incomes rose from 37 percent in 1988 to 54 percent in 2007.²⁰ Adjusting for spatial cost-of-living differences reduces this figure to 41 percent, which is much higher than most other countries (Li, Chuliang, and Sicular 2013). But the urban-rural income gap began to shrink in 2009 and the consumption gap began to shrink as early as 2004. Despite wide interprovincial expenditure inequality—the richest province spends more than 8 times per capita than the poorest province, much larger even than Brazil where the richest state spends 2.3 times more than the poorest state (Dollar and Hofman 2008)—intraprovincial inequality of county-level units is even more extreme. In 2010, intraprovincial inequality accounted for 67.5 percent of national inequality in average county income, but interprovincial inequality accounted for only 32.5 percent.

High household savings are further inhibiting the emergence of a vibrant middle class. Rural households and migrants save as much as 30 percent more than permanent urban

FIGURE 1.18 Why is urban consumption so low?

Source: World Bank Staff estimates based on CEIC dataset.

residents at similar incomes. The migrants' precautionary savings are high because they lack social services and safety nets, such as government-supported social housing—and are less able to obtain private mortgages, so they generally cannot purchase homes except with cash. The lack of access to mortgages means that migrants do not enjoy a housing wealth effect: they cannot benefit from the massive increase in urban wealth resulting from the privatization of housing in the 1990s.²¹ Migrants' low wages and high household savings also limit their demand for consumer goods. If migrants were to consume at urban rates given equal service provision and more accessible and affordable housing, back-of-the-envelope calculations imply a 1.8 percentage point increase in the household consumption share of GDP.

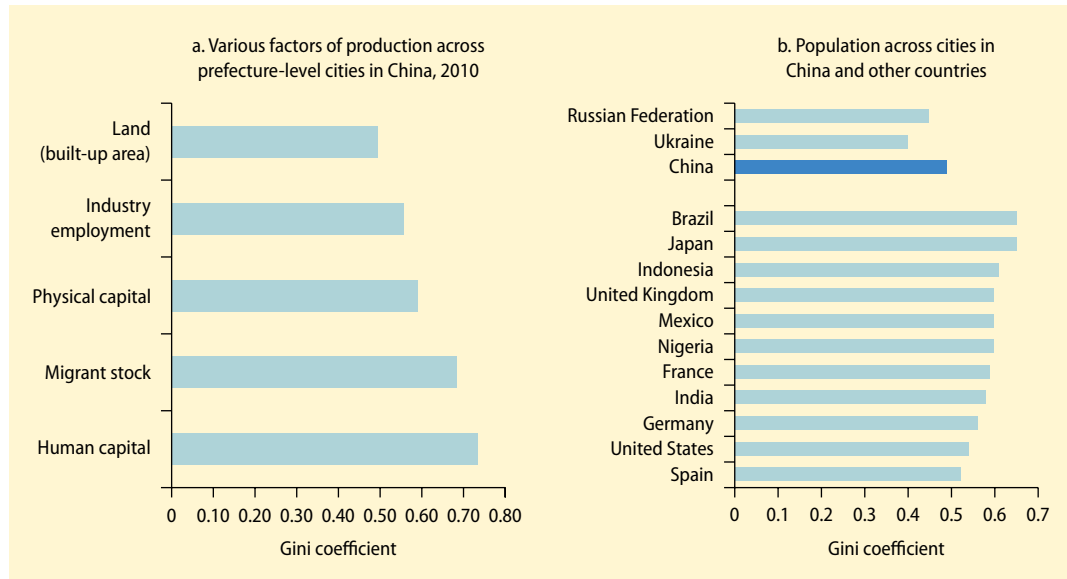
More efficient, inclusive, and sustainable urbanization and growth

A new urbanization trajectory to strengthen agglomeration and specialization will require comprehensive reforms in land and financial sector policies, while changes in hukou and fiscal policy will be required to strengthen

mobility and connectivity. The government should let market forces do more in allocating factors of production, particularly land and capital, and get out of providing goods that the private market is better at delivering. Adjustments in the hukou system will be required to integrate migrants into urban life. Distorted incentives of local governments have made them direct participants in driving the economic growth by sustaining high public investment growth rather than efficient providers of public social services for all residents. Implementing these policies will not be easy, but it will be essential to complete China's transition to a market economy and further strengthen its foundations for growth.

Adjusting land and financial sector policies to strengthen forces of agglomeration and specialization

China's future economic growth will depend on efficiently allocating factors of production, but distorted incentives and price signals in factor markets are leading China's urbanization astray. Distortions in the price of land have encouraged urban sprawl and undermined agglomeration economies. And distortions in access to and cost of capital have reduced the returns on capital and

FIGURE 1.19 The concentration of different factors of production differs widely in China

Source: World Bank and DRC staff estimates based on CEIC dataset and census data.

undermined specialization and technological upgrading.

The concentration of different factors of production differs widely in China. The Gini coefficients of concentration of various factors of production show that while the vast majority of migrant and human capital stock tends to be very concentrated, industrial employment and physical capital concentration is lower (figure 1.19). Moreover, the concentration of land, a factor that is immobile and should have very low concentration, is almost as concentrated as employment. The concentration of population in China is very similar to other former economies of central planning, but it remains significantly lower than in Brazil, Japan, and the United States. For economic efficiency, land and capital must be used in a way that has the greatest value. If not, the economy is not achieving its potential. Markets accomplish this through land prices and interest rates, but administrators have a difficult time imputing value to land or capital.

Distorted land prices have slowed specialization and the transition toward a service-based economy. Industries were drawn by cheap land, and they have no incentive to leave. In March 2013, the average price of

land for industrial use in Chinese cities was RMB 544 per square meter, while the average price of land for commercial use was about 10 times higher—RMB 5,151 per square meter. Moreover, while the price of land for industrial use remained broadly constant in real terms, the price of land for commercial use increased by about 12 percent a year on average in the past four years.²² In addition, whereas the prices of industrial land remain broadly uniform across cities, there is considerable variation in prices of land for commercial use across cities. In cities with more developed services, the price of land for commercial use has increased more. In Guangzhou, a ratio between prices of land for commercial and industry use is as high as 42. If industrial firms could capture the value of their land holdings, they would find it more attractive for some of them to relocate out of the city. Similarly, the low cost of land has resulted in sprawl, pollution, and congestion that would be lower if land were priced at its true social value.

The present land system—with incomplete property rights and government controls—creates stress, tension, and rising inequality. Land is essentially owned or controlled by the government, and its use is determined by

applying administrative rules. The rules are well intended, as are the people administering them, but they are not compatible with China's dynamic economy. Rigid land policies have effectively tied half the population to rural areas that produce only 10 percent of GDP. Rural peasants, among the poorest in any society, hold land collectively and cannot liquidate their holdings when they exit the collective. Household plots are also collectivized so that families do not even own the land under their houses, nor can they get a mortgage on that land.

Land reforms would give peasants the wealth from land sales, reducing social tensions and mitigating growing wealth inequality. Between 1990 and 2010, local governments expropriated rural land at RMB 2 trillion below market value (Page 2011). Assuming that this wealth would have generated returns similar to overall growth, farmers today would have more than RMB 5 trillion in household wealth, greatly lowering the urban-rural asset gap and increasing consumption through a wealth effect. In addition, rural land is held in small parcels, making it difficult to assemble economic-sized farms, reducing agricultural productivity and rural incomes. Despite massive off-farm migration, rural population growth has meant that cultivated land per agricultural laborer has remained fairly constant, increasing only from 0.35 hectares in 1978 to 0.41 in 2008. Average Chinese farm holdings are well under 1 hectare, far lower than the global average and 300 times smaller than the average farm in the United States.

Global evidence demonstrates that formal rural land markets with unconstrained transferability (selling and renting) lead to significant increases in agricultural investment and productivity through mechanization and larger rural plots. In the decade after Taiwan, China, privatized rural land in the 1950s, annual rice yields rose 60 percent and farm incomes 150 percent. New laws in Vietnam in 1993 established the right to inherit, transfer, sell, lease, or mortgage land and extended duration of land use rights from 20 years to 50 years. These reforms increased both efficiency and equity. Rental market participation quadrupled in the five years following

reform and land sale transactions increased sevenfold. Both had an unambiguously positive impact on productivity, and Vietnam went from being a net rice importer to becoming the world's second largest exporter (Deininger and Jin 2003).

Despite China's impressive progress in reforming the financial sector, the financial system remains repressed and suffers from key structural imbalances (World Bank and DRC 2013). Not only do these imbalances pose significant systemic risks, they prevent China's financial system from serving an increasingly dynamic and internationally integrated economy. China's municipal governments have increased investments in infrastructure, primarily through off-balance sheet borrowing to bypass their severely constrained access to capital markets. More efficient allocations of capital would require increasing interest-rate flexibility by moving to a point where interest rates clear the credit market. With interest rates doing so, the capital market would deepen to make more equity and securitized financing available. In addition, the capital market's legal framework would improve, the financial infrastructure would be upgraded, and more stringent rules on information disclosure would be imposed.

Constrained access to capital has slowed the specialization of high value-added services. China's financial sector, dominated by state-owned banks, facilitated a transfer of savings from households to large state-owned industrial enterprises. An interest-rate cap on domestic savings has effectively transferred household wealth of about 4 percent of GDP a year to the industrial sector (Lee, Syed, and Xueyan 2012). A transition from industry to services will be increasingly driven by small and medium enterprises, but China's financial intermediation remains inefficient in channeling financial resources. In addition, the interest-rate cap on domestic savings has also distorted the allocation of capital, encouraging households to channel their savings to nonproductive assets, notably real estate.

Market forces should play a greater role in allocating land and capital. To increase the efficiency of land use, it is necessary to ensure the security of agricultural land tenure, including introducing the transferability

of land rights and reforming land acquisition and compensation practices. This action includes rolling out the recent policy decision to grant indefinite land use rights to farmers, to expand land registration, and to strengthen rural land markets. These policies will increase more efficient allocation of land and support forces of agglomeration and specialization.

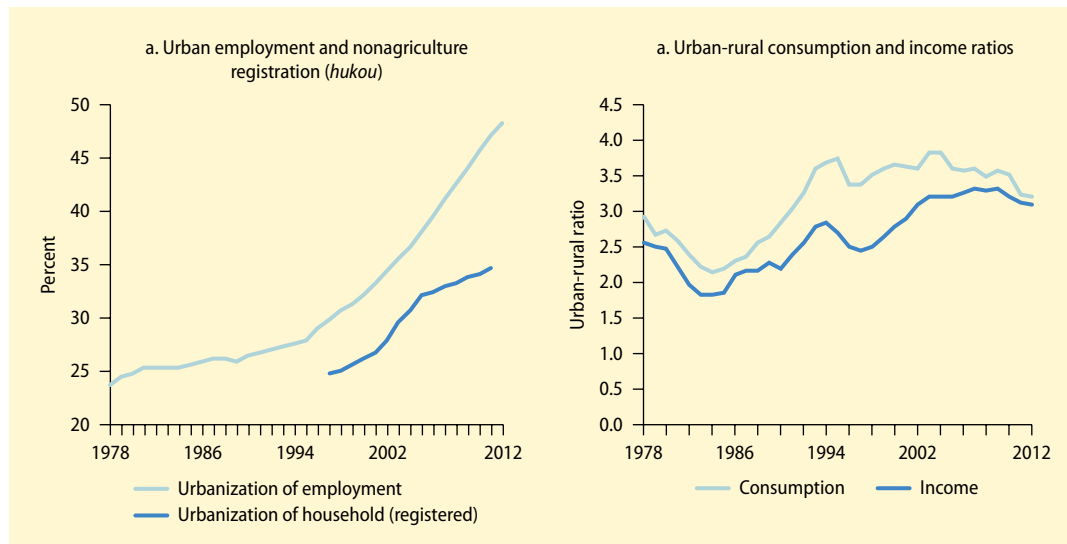
Empowering the middle class by letting migrants become urban residents

Developing a flexible and dynamic labor market that supports agglomeration, specialization, and mobility will be central to China's future success as a high-income, open economy. Reforming the hukou system, the permanent residency of migrants, is an essential element in China's transformation to an economy based on domestic demand. Currently, barriers to free migration prevent workers from going where they are needed and lead to imbalances in the supply and demand for labor. Rural-urban labor mobility has been a driver of China's growth, and slowing it reduces China's future growth potential. Already, China's major cities see a growing gap between the supply and demand of labor.

China has been very successful at urbanizing employment, but it has failed to make sufficient progress in urbanizing people. Hukou-based institutional barriers to movements of people combined with a decentralized fiscal system that results in spatial differences in the ability to provide social services have slowed income convergence and undermined the growth of an urban middle class (figure 1.20).

Whereas urbanization has made migrants better off, their economic and social opportunities often lag behind those of urban residents. The hukou household registration system has institutionalized a "floating" population of those who migrate without their families and have unequal access to social insurance and public services. They work longer hours in worse jobs for lower wages. In 2011, average wages for urban migrants were 43 percent less than those for urban residents (Credit Suisse Research Institute 2011). Controlled for education, the wage gap almost disappears, but migrants have limited access to quality education and have worse educational outcomes. And rather than have urbanization gradually integrate the migrant population, it continues to widen the divide between permanent residents and migrants: whereas 31 percent of the urban population

FIGURE 1.20 Slow urbanization of people has slowed income convergence



Source: World Bank Development Data Platform.

Source: World Bank Development Data Platform.

were temporary migrants in 2000, this share had grown to 42 percent by 2010.

The household registration system has also restricted many migrants from housing ownership in urban areas. Enabling people to live middle-class lifestyles requires a robust and affordable urban housing sector that gives all residents an achievable aspiration for better homes. Currently, only 10 percent of migrants own urban housing, compared with 90 percent of the permanent urban population. The migrants without housing do not gain from increases in home values and do not experience a positive housing wealth effect that would boost their consumption. Without permanent homes, they are also less likely to consume housing appliances and other goods and services related to home ownership. Because migrants are excluded from the mortgage finance market and from local urban social housing, they must save more of their income to purchase future housing. In other words, one-fifth of China's people are prevented from borrowing against future income and becoming current consumers.

Unequal sharing of capital gains is the source of serious and growing social discontent. In 2010, capital gains accounted for about 8 percent of average household incomes for permanent urban residents. But for urban migrants, the equivalent share was only about 3.4 percent. Rural-urban asset inequality is more extreme and has been institutionalized by semiprivatization of urban housing (with capital gains) and by continuing nontransferability of rural land. The wealth Gini coefficient in 2002 was 0.55, much higher than that of income inequality, and housing represented two-thirds of the inequality in net wealth (Zhao and Ding 2007). As urban housing prices rise, the differences become more stark: between 2002 and 2007, per capita urban housing wealth grew from 4.5 times rural housing wealth to 7.2 times, compared with an income gap of only 3.1 times in 2008.

China's constraints on free mobility of labor reinforced regional and urban-rural wage gaps, evincing a lack of efficiency, and China would have enjoyed large payoffs from quicker migration and faster convergence. Assume that over the 32 years from 1978 to 2010, migrants had naturally converged

wages, savings, consumption behavior, and nonwage income possibilities (property plus transfer income). Also assume that migrant labor productivity is equal to native urban labor productivity and that urban-rural migration does not diminish agricultural output (out-migrants are surplus labor). What would have been the gains to China's economy from faster migration? For every 0.1 percent faster annual migration over the 1978 to 2010 migration (1 million people in 1980, 1.34 million in 2010), real GDP in 2010 would have been higher by 4.6 percent. If China had enabled migration at close to Korean rates, its economy would be nearly 25 percent larger today. And structural change would have already begun: the household income share of GDP would be more than 5–8 percentage points higher than it is, and the consumption share of GDP would be 3–5 percentage points higher (depending on the growth rate from additional migration). China would be richer and already more dependent on domestic demand.

Providing public goods and services to support mobility and connectivity

The expected urban population increase may well be more than most cities can absorb with their existing infrastructure and service delivery capacity. Over the next two decades, new amenities will be provided to satisfy a higher-income population and service industries will ask for a different package of infrastructure and social services than manufacturing industries did. Higher incomes and automobile ownership have slowed travel times in China's major cities. In 2011, the average travel speed in Beijing was estimated at 7.5 miles an hour, about half that in New York or Singapore.

Adequate public infrastructure and services have long been recognized as a key factor of development and a tool for governments to promote competitiveness and regional and productivity growth.²³ But insufficient infrastructure and inadequate services are associated with rapid economic transformation and urbanization in developing countries. In many aspects, China is an exception—its infrastructure stock is notably

higher than that in countries at a similar level of development. Municipal investments in public infrastructure have accounted for about 3 percent of GDP in the past decade. And China has made tremendous progress in providing access to basic education and health services. But in many parts of China, the access to and quality of service provision and infrastructure remain low.

Public services are essential to minimize negative externalities associated with high population densities. Noise, congestion, waste, infectious disease, and other externalities become more severe as people locate near one another in large agglomerations. So, public services are one of the key elements that define cities. Drinking water, sanitation, and sewage disposal directly influence human development. Services lower income inequality and reduce poverty by unlocking more productive opportunities for more people, enhancing human capital and incomes (Seethapalli, Bramati, and Veredas 2008). And thanks to economies of scale, cities can lower the unit costs of providing water, sanitation, health care, education, electricity, and other essential services.

A global middle class will demand more from its government, particularly better services that encourage accumulations of human capital. But China has outgrown parts of its fiscal system. The narrow tax base of municipal governments results in insufficient and unequal provision of public services for rapidly increasing urban residents.²⁴ Shanghai's public education system has responded by becoming the envy of other regions in China and other parts of the world.²⁵ But Shanghai is an outlier, and its achievements currently are beyond the reach of other Chinese municipalities. Lacking resources or real incentives, local governments often exclude migrants as beneficiaries of social services. So, with many citizens unable to enjoy basic social services, China is reducing its future human capital.

Increasing spending on social objectives will require broadening the revenue base of local governments and setting new priorities. Property taxes have substantial revenue potential, as do taxes on natural resources (energy, water, pollution). But the current governance structure has aligned local

government incentives to achieve economic growth objectives over social objectives. Local governments have used capital expenditures financed both by land transactions and debt to boost short-term growth by provision of capital investments in infrastructure and real estate development. Moreover, after 2009 many lagging regions in western and central China have relied on investment as the engine of growth. Although such policies have increased convergence, the returns on capital investments in these regions have declined considerably and local government debt has increased.²⁶

A reallocation of spending toward social objectives, combined with increased migration, would also support regional wage convergence. Migration leads to regional wage convergence and tends to lower spatial and urban-rural inequality. But this convergence may not be fast enough. Cross-country evidence shows that access to basic public services converges slowly—urban-rural gaps in basic education, health, drinking water, and sanitation persist until countries reach upper-middle income. But most fast-growing countries have been able to quickly translate economic progress into spatial equity in basic health, nutrition, and education (World Bank 2009). Disparities in services within cities persist even in many upper-middle-income countries with high levels of urbanization.

China's growth dividends from the new urbanization trajectory

China's new urbanization trajectory will require reforms that enhance efficiency, increase inclusiveness, and promote sustainability. It may not reverse a moderation of economic growth that is likely over the next decades. But the payoff from the new urbanization trajectory is more efficient, inclusive, and sustainable growth. And in absence of policy reforms, growth is likely to slow even more.

China's new urbanization trajectory is underpinned by reforms

China's new urbanization trajectory is underpinned by reforms that will determine how

fast the excess employment from rural areas is integrated into urban areas. At the same time, the urbanization trajectory will be affected by demographic transformation.

Natural population growth in urban areas is estimated to moderate in the coming decades. According to the sixth population census, during the statistical period covering October 31, 2009, to November 1, 2010, the natural growth of urban population was just 0.42 percent. Using Chinese population estimates of the United Nations World Population Prospects 2010, it is estimated that the natural growth of China's urban population will be equivalent to 57 million over the next two decades. The United Nations also projects China's total population to reach 1.39 billion in 2030.

Excess employment in rural areas will be about 140 million in the next decade. Estimates of working hours indicate that those employed in agriculture spent on average only 158 working days on agriculture activities, suggesting that those in agriculture are underemployed.²⁷ In 2011, about 262.4 million people were employed in agriculture in rural areas.²⁸ An increase of working days spent on agriculture activities to 270 would reduce the number of workers currently employed in agriculture by a staggering 40 percent.²⁹ And an increase in mechanization in agriculture activities could reduce labor demand by another 16 million workers. So, the current stock of excess rural employment is estimated at around 105.7 million. Taking into account demographic changes (net working age population up by 6.04 million) and continuing mechanization (likely to release an additional 2.8 million workers each year), the excess rural employment is estimated to reach 149.5 million over the years 2012 to 2030.

In the coming decades, urbanization will continue, but its speed will moderate. Based on the logistic model, an S-shaped urban population trajectory is estimated for China (box 1.7). The model estimates predict that accelerated increase in urbanization rate for the period between 1994 and 2030. On the basis of those estimates, the inflection of urbanization rate (the highest annual rate of change in the urbanization rate) already

occurred in 2008. The urbanization rate will surpass 62 percent in 2020, 70 percent in 2030, and 76 percent in 2050. But in the medium term, the urbanization rate will be affected by the reforms undertaken.

Three broad sets of reforms underpin China's new urbanization trajectory:

- First are reforms to enhance the efficiency of urbanization by strengthening agglomeration, connectivity, and specialization. The largest cities in such urban agglomerations as Beijing, Shanghai, and Guangzhou have grown rapidly in recent years, serving as gateways to international markets. This trend is likely to be reinforced. Moreover, a gradual removal of constraints to labor mobility will accelerate urbanization. These reforms will increase TFP by 0.1–0.2 percentage points of GDP and increase the urbanization rate by 0.2 percentage points a year, relative to the baseline scenario.
- Second are reforms that enhance inclusive urbanization by strengthening the accumulation of human capital and increasing the access to public services. An increase in human capital will increase the skilled labor in the labor force and thus TFP.
- Third are reforms that make urbanization more sustainable by pricing some of the negative externalities associated with resource use, thus increasing energy efficiency.

To estimate the quantitative effect of the new urbanization trajectory, two quantitative growth scenarios are analyzed. The first scenario is analyzed on the basis of past trends, the second on the basis of three sets of reforms (table 1.7).

The scenarios result in diverging estimates of how much excess labor, including family members, will be absorbed in cities over the next decade. In 2011, it was estimated that the surplus labor transfer rate was about 65 percent—of the total rural employment surplus about two-thirds have already moved to urban areas. In the baseline business-as-usual scenario, the transfer rate is estimated to increase moderately to 80 percent. But in a reform scenario, the excess transfer rate is

BOX 1.7 Logistic model estimates of China's urbanization trajectory

The long-term urbanization trends can be estimated using historical urbanization trends that typically follow an S-shaped trend (Northam 1975). The logistic model is the more commonly used model for predicting a country's middle- to long-term urbanization development. It can be characterized by the equation below where $U(t)$ is urbanization rate at time t , K is the peak urbanization rate, and A and B stand for an early and late start of urbanization and the fast and slow speed of urbanization.

$$U(t) = \frac{K}{1 + A \exp(-Bt)}$$

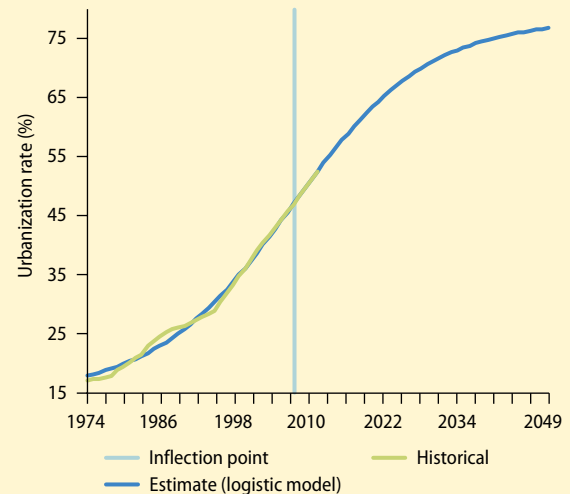
The key to the fitting of the logistic curve is to have appropriate estimates of parameters K , A , and B . The approach used in the past was to take the log of the equation, turn it into a linear equation, and use the linear equation to fit the parameters. In this way, a nonlinear fitting problem becomes a linear equation. The approach is easy to use, but also it is a more subjective one because it requires having an estimate of K . In addition, this approach works under the implicit assumption that K is constant. This assumption is not, however, in line with the reality that the peak urbanization rate changes as the optimal scale of a city changes as a result of institutional and policy adjustments.

The United Nations has been using this model since the 1970s to forecast the global urbanization prospects. Many Chinese scholars adopt the logistic model to predict China's urbanization development.

In this study, the nonlinear parameters of the logistic curve are estimated directly using data starting from 1974.

$$U(t) = \frac{0.632}{1 + 20 \exp(-0.089t)} + 0.15$$

FIGURE B1.7.1 Estimates of China's urbanization rates, 1974–2050



Source: DRC estimates based on the logistic model.

Urban population growth estimates based on the logistic model depend on assumptions of China's peak urbanization rate—estimated at 76.8 percent for this study (figure B1.7.1). But the peak urbanization may change because of various factors. On one hand, infrastructure improvements in connectivity, as well as policy reforms, could increase the optimal scale of cities—leading to higher optimal urbanization rate in future. On the other hand, deteriorating energy and environmental conditions and policy interventions may lower the peak urbanization rate at the same time. Thus, these long-term estimates of urban population growth should be interpreted with caution, especially when predicting urbanization patterns in the medium term.

estimated to increase to 90 percent, attributable to policy reforms that remove administrative barriers to labor movements and provide more equal access to public goods and services. And the reform scenario implies that a higher share of migrant workers will migrate with family members over the medium term. According to the latest census, the average size of a rural household is 3.4 people, but migrant worker households in urban areas consist only of 2.5 people,

as some household members have remained in rural areas. In the baseline scenario, the urban migrant worker household size is estimated to increase to 2.8 and in the reform scenario to 3.25 because of increased access to public services. Finally, household members of current migrant workers left behind in rural areas are likely to migrate to cities.

On the basis of this analysis, the urban population will increase by about 290 million in a reform scenario by 2030 (table

TABLE 1.7 Summary of the reforms scenario

First reform area: Enhance agglomeration economies and improve the efficiency of urbanization	
Baseline	<p>The baseline scenario assumes that total factor productivity will be supported by gradual increases in human capital and technological advances (based on historical trends). Urbanization continues on past trends:</p> <ul style="list-style-type: none"> • 0.9 percentage points a year 2013–20 • 0.7 percentage points a year 2021–30 • Technological and intermediate input changes (Total factor productivity [TFP] growth will be lower than the past 30 years, at about 2.0 percent.)
Reforms	<p>Eliminate the barriers of labor movement and accelerate the migration of labor. Urbanization is faster than baseline by 0.2 percentage points a year in 2014–30.</p> <p>Increase flexibility of movement of production factors and improve regional connectivity and coordination to increase densities and diversify of cities. TFP growth is 0.1–0.2 percentage points faster than baseline scenario.</p>
Second reform area: Increase the equality of outcome sharing and enhance the inclusiveness of urbanization	
Reforms	<p>Accelerate the urbanization of migrant workers.</p> <p>Equalize the public service between urban and rural and within cities. Assume that public spending increases by 1–2 percentage points over the baseline.</p> <p>Reform the income distribution and increase the share of the middle-income group. Assume that the proportion of the middle-income group will increase by 0.3–0.5 percentage points and aggregate average propensity to consumption will increase by 5 percentage points cumulatively more than the baseline.</p> <p>Promote the accumulation of human capital by equalizing public service and increasing the middle-income group. Assume that the TFP growth increases 0.5 percentage points more than the baseline because of the progress on human capital. In addition, the number of high skilled workers will increase 0.4 percentage points faster than the baseline.</p>
Third reform area: facilitate green growth and increase the sustainability of urbanization	
Reforms	<p>Impose a carbon tax to improve energy efficiency and reduce emissions intensity. Assume that the carbon tax will be levied from 2015 at RMB 50 per ton of carbon dioxide (CO₂) and be gradually increased to RMB 150 per ton of CO₂ in 2030.</p> <p>Energy efficiency will increase 0.5 percentage points faster than in the baseline.</p>

TABLE 1.8 Urban population projections over the medium term

	Baseline scenario	Reform scenario
Current stock of migrant workers	197.6 million	
Rural excess labor in 2011	105.6 million	
Cumulative rural excess labor (2012–30)	142.8 million	
Surplus labor transfer rate	80 percent	90 percent
Employment migration from rural to urban areas (2012–30)	119.6 million	134.5 million
Average size of migrant worker household (number of people)	3.0	3.25
Total new migrant worker and family member migration from rural to urban areas (2012–30)	149 million	181.6 million
Reunification of household units of existing migrants (2012–30)	32.18 million	48.2 million
Total population movements from rural to urban areas (2012–30)	181.19 million	229.88 million
Natural population growth in urban areas (2012–30)	57.25 million	
Total additional urban population in 2030	238.4 million	287.13 million
Total urban population in 2030	929.2 million	977.9 million
Urbanization rate in 2030	66.8 percent	70.2 percent

Source: Estimates by Development Research Center of the State Council.

1.8). In the absence of reforms that address labor mobility, urban population is likely to increase by only 238 million by 2030. As a result, the urbanization rate will reach 70.2 percent in 2030, almost 4 percentage points

higher than in the baseline scenario, bringing the country in line with expectations based on income. So, the reforms will accelerate the annual urbanization rate by 0.2 percentage points.

These estimates assume no additional changes in administrative divisions or statistical methods in classifying urban population.

China's economic growth model will change

A moderation of urbanization will coincide with a structural transformation of China's growth model. Within the next decades, China's economy will shift from rapid to moderate growth, with average annual growth of around 5 percent by 2030. First, because of a weaker external demand, China's export growth will slow—to around 10 percent annually on average—in the next 10 years. Second, continuing capital accumulation will contribute less to growth as the capital-labor ratio rises. And changes in the demographic profile will lead to a decline in the labor market participation rate. China's working-age population is expected to decline, and labor's contribution to growth will turn negative. In addition, the spatial transformation in labor markets will contribute less to growth.

Analyzing the effect of such a reform package will require quantifying both the supply- and demand-side factors of economic growth and their links. To project the effect of the new urbanization trajectory on growth, the study adopts the computable general equilibrium model of China's Development Research Center (box 1.8). Different from the simple macro model of aggregate production function, it can better simulate the effect of structural changes.

These three policies will contribute to higher growth rates under a reform scenario:

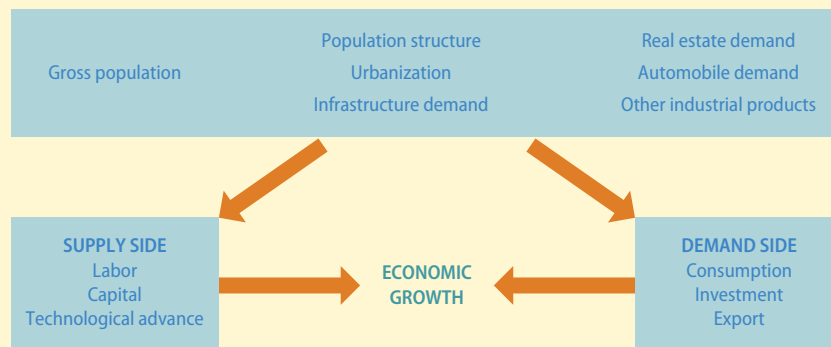
- The reallocation of excess labor from agriculture to other sectors will be accelerated, increasing growth by about 0.2 percentage points.
- Higher urbanization will result in a higher savings rate and investment (relative to the baseline) as the share of urban residents increases faster.
- An increase in the urbanization rate will promote human capital accumulation and agglomeration economies that will increase productivity relative to the baseline.

BOX 1.8 China's Development Research Center computable general equilibrium model

The model allows incorporating both the supply- and demand-side factors of growth (figure B1.8.1). On the supply side, the model includes key factors of production and also changes in production technology. Changes in production technology allow the model

to project both the effect of technological innovations in the production. On the demand side, the model includes both domestic (consumption and investment) and external sources of demand.

FIGURE B1.8.1 Analytical structure of the growth model



Source: Development Research Center of the State Council.

TABLE 1.9 Sources of growth, five-year averages: Baseline and reform scenarios, 2015–30

	2015–20	2020–25	2025–30
Annual GDP growth in baseline scenario	7.0	6.0	4.9
<i>Sources of growth:</i>			
Labor	–0.2	–0.2	–0.4
Capital	8.3	6.6	5.1
TFP	2.1	2.1	2.1
Annual GDP growth in reform scenario	7.2	6.1	5.2
<i>Sources of growth:</i>			
Labor	–0.2	–0.2	–0.4
Capital	8.1	6.3	4.7
TFP	2.4	2.5	2.5

Source: Estimates of the Development Research Center's Computable General Equilibrium model.

Note: TFP = total factor productivity.

TABLE 1.10 Composition of the demand side of GDP: Reform scenario, 2010–30

	2010	2015	2020	2025	2030
<i>GDP:</i>					
Household consumption	35.4	37.0	39.8	45.1	47.9
Government consumption	12.7	14.6	16.1	17.7	18.6
Capital formation	48.1	45.8	41.5	34.7	30.9
Net exports	3.8	2.6	2.6	2.6	2.6

Source: Estimates of the Development Research Center's Computable General Equilibrium model.

A reform dividend of an additional annual growth of 0.2 percentage points (table 1.9) will result in a cumulative increase in GDP by \$730 billion (in real prices) from 2015 to 2030.

Although growth rates will decline, the structure of growth will improve toward more efficient sources of domestic demand.

Demographic changes (population aging) and a decline in excess employment in agriculture will put upward pressures on wages. Higher wages and household disposable income will strengthen the middle class and support a shift in domestic demand from investment to consumption. Consumption as a share of GDP will start to increase gradually (table 1.10). And the structure of consumption will also change. As incomes increase, the share of services in the consumer basket will increase, while the share of agriculture output declines. By 2030, the proportion of household expenditures on services will increase by 18 percent while expenditures on agriculture outputs decline by about 5 percentage points.

China's industrial structure will also continue to evolve. In the reform scenario, the share of agriculture in output will continue to decline from 10 percent today to less than 6 percent by 2030 (table 1.11). The share of employment in agriculture will decline more rapidly—from 37 percent in 2010 to about 12 percent by 2030. The share of secondary industry in output will decline from about 50 percent in 2010 to 34 percent in 2030. But the composition of industries in manufacturing will also change—labor-intensive, export-oriented manufacturing sectors, such as textiles, clothing, and wood processing, are expected to decline, while transport, information technology, and other capital-intensive sectors are expected to grow more rapidly. Extractive industries are also expected to decline. And China's economic growth will become increasingly dependent

TABLE 1.11 Industrial structure of GDP and employment: Baseline and reform scenarios, 2010–30

	GDP					Employment				
	2010	2015	2020	2025	2030	2010	2015	2020	2025	2030
Baseline scenario										
Primary sector	10.0	8.1	6.9	5.7	4.4	36.7	31.0	25.9	21.6	17.1
Secondary sector	48.2	45.5	42.8	39.3	37.2	28.7	29.0	29.1	28.3	28.2
Tertiary sector	41.8	46.4	50.4	55.0	58.5	41.1	47.2	52.6	57.3	61.9
Reform scenario										
Primary sector	10.0	8.5	7.7	6.9	5.7	36.7	29.9	23.5	17.8	11.6
Secondary sector	48.2	44.7	40.9	36.5	33.7	28.7	29.2	29.2	28.3	28.1
Tertiary sector	41.8	46.8	51.4	56.7	60.6	41.1	48.2	54.8	60.9	67.1

Source: Estimates of the Development Research Center's Computable General Equilibrium model.

on services as urban areas will create the scale of demand for an increasingly diverse supply of services. The share of services will increase from 43 percent in 2010 to slightly more than 60 percent by 2030. The service sector's share in the economy will rise because of higher demand for services and because productivity increases in services are likely to lag behind those in manufacturing, increasing the relative prices of services.

Finally, a 1-percentage-point increase in the urbanization rate under a reform scenario can accelerate economic growth by about 0.8 percentage points of GDP in the first year and a cumulative 3.6 percent over five years, relative to the baseline scenario. These estimates are similar to other quantitative estimates of urbanization and growth elasticities.

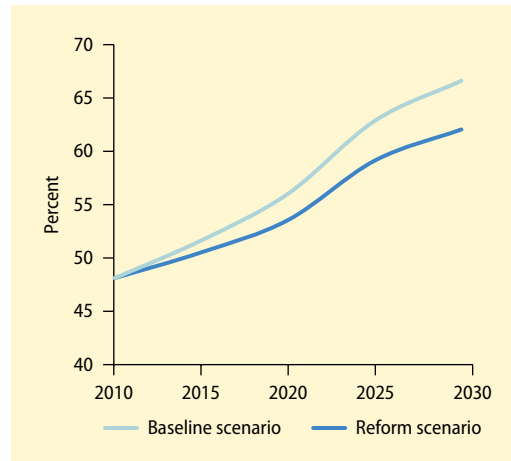
The payoff from the new urbanization trajectory is more efficient, inclusive, and sustainable growth

China's new urbanization trajectory will not reverse a moderation of economic growth over the next decades. It is also clear that many second-generation reforms associated with the new urbanization trajectory are likely to have a significantly smaller impact on growth than the first-generation reforms that led to rapid technological absorption in the manufacturing sectors. But the new trajectory will improve the quality of growth by making it more efficient, inclusive, and sustainable. Without policy action, the slowdown in growth could be more severe.

First, China's economic growth will become more efficient. Economic growth will become less dependent on capital accumulation. The share of investment in GDP is estimated to decline from almost 50 percent of GDP today to about 31 percent of GDP by 2030. And share of consumption will gradually increase. In the reform scenario, consumption's share of GDP reaches 66.5 percent of GDP, about 4.5 percentage points higher than in the baseline scenario (figure 1.21).

Second, the income disparity between urban and rural households will decline. In a reform scenario, tighter labor supply in rural areas will catalyze land consolidation and

FIGURE 1.21 Final consumption as a share of GDP, 2010–30

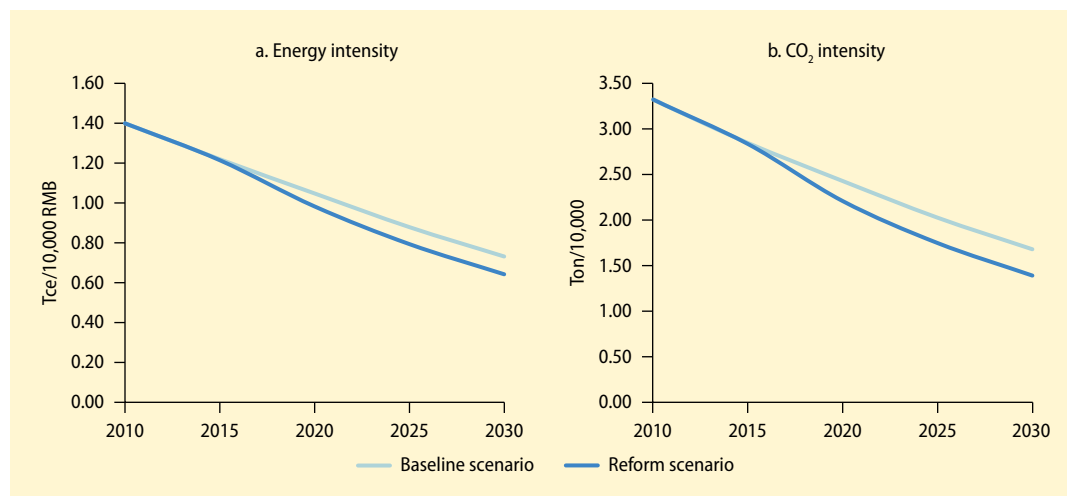


Source: Estimates of the Development Research Center's Computable General Equilibrium model.

rapid dissemination of new production technologies. This scenario will increase labor productivity, so wages in rural areas will rise faster than in urban areas, reducing urban-rural income disparities.

Third, the energy intensity of China's economy will decline (figure 1.22). The dominance of industry in its contribution to GDP, jobs, energy demand, and emissions makes China's cities unique. As the structure of economic growth moves from manufacturing toward services, the energy and carbon dioxide (CO₂) intensities will decline. Policies that use market price mechanisms to internalize negative externalities of energy use and CO₂ emissions can accelerate this decline. In the reform scenario, energy use and CO₂ can decline by 12–17 percent.

The urbanization trajectory will provide lots of opportunities (table 1.12). But implementing the reform scenario will require collective efforts and coordination among enterprise, household, and government sectors. Making the new policies and putting them in place will not be easy. Indeed, a radical change of course might be required. Even if the reforms need to be less gradual than past reforms, they are essential to completing China's transition to a market economy—and to further strengthening its foundations for growth.

FIGURE 1.22 The energy and CO₂ intensity of China's economy will decline

Source: Estimates of the Development Research Center's Computable General Equilibrium model.

Note: CO₂ = carbon dioxide.

TABLE 1.12 Urbanization will bring potential gains and pose risks to enterprises, households, and governments

	Enterprises	Households	Central and local governments
Potential (gains)	<ul style="list-style-type: none"> • Agglomeration effect: higher factor input intensity, companies gather related businesses and adjacent areas to form a cobweb structure • Specialization increases economies of scale and economies of scope, market size determines division of labor, productivity increases markedly • Strengthening comparative advantage of firms in transportation, inventory, transactions, raw materials, sales, information, labor searching, and reputation • Increased human capital and industrial clustering, conducive to innovation • Increased productivity in agriculture 	<ul style="list-style-type: none"> • An increasing middle class • More employment opportunities • Better public services and convenience stimulate consumption • Knowledge dissemination and learning made easier, conducive to human capital accumulation and appreciation • Attractiveness of urban lifestyle • Increased propensity to purchase services 	<ul style="list-style-type: none"> • Economies of scale for public services, more effective delivery • Expansion of public facilities stimulates domestic demand • Economic growth and efficiency gains on the basis of agglomeration, increased government revenue • Improved government capacity and efficiency
Costs (risks)	<ul style="list-style-type: none"> • Beyond a certain point of urbanization, external diseconomies will start to undermine city competitiveness • Sharp increases in labor costs 	<ul style="list-style-type: none"> • Sharp increases in land and housing prices • Social instability • Pollution and environmental deterioration • Heavy congestion 	<ul style="list-style-type: none"> • Increased complexities of city management • Implementation risk of proposed reform scenario • Increasing cost of managing traffic congestion and environmental problems

Notes

1. In 2006, the State Council promulgated Opinions on Addressing Migrant Worker-Related Issues, requiring equal treatment for migrant workers and entitling them to equal rights and obligations with urban workers.
2. Episodes of growth declines observed in other countries over the past decades are typically associated with a decline in productivity when gains from structural reallocation from agriculture to industry and technology absorption become exhausted (Eichengreen, Park, and Schin 2011).

3. Incremental capital-output ratio (ICOR) = (change in capital stock) / (change in gross domestic product) = (gross fixed capital formation as a share of total output) / (annual growth rate of gross domestic product).
4. The old-age dependency ratio is defined as the ratio of the number of people ages 65 years and older to those of ages 15–65.
5. The total number of migrant workers was 242 million in 2010, 13 million more than that in the previous year; 253 million in 2011, 11 million more than that in the previous year; and 263 million in 2012, 10 million more than that in the previous year.
6. See Zhuo (2013). Between 2000 and 2010, urban population increased by 232 million, 80 million from administrative changes. In the same time, the number of prefecture-level cities increased by 25, county-level districts by 779, and districts under municipal administration by 70.
7. Estimates suggest that China's imports of agricultural products are equal to using 35 percent of arable land and 47 percent of water for farming. Energy dependence, especially oil dependence, has risen to 57 percent. China's farm sector registers water-use efficiency of 30–40 percent, not even half the number in developed countries. Energy-use efficiency in China is around 30 percent, not even three-fourths that in developed countries.
8. In localization economies, arising mainly from within-industry interactions, spatial proximity of clustered producers allows sharing of a large pool of specialized labor, logistics, and other inputs. In urbanization economies, arising from between-industry interaction, spatial proximity of related producers allows them to exploit advantages of sharing capital inputs and services.
9. The Herschman-Herfindahl Index for sector i is the amount of activity in sector i in province or city j and is the total amount of activity in sector i in China as a whole.
10. Evidence from other countries shows that geographic clustering is more pronounced in high-skill and high-technology industries (such as electronic computing machinery, process control instruments, semiconductors, and pharmaceuticals) than in light industries (such as textiles or food). See also Henderson (1997) and Glaesar, Scheinkman, and Schleifer (1995).
11. The share of services in GDP in Korea and Japan was broadly the same as in China when the urbanization rate was about 50 percent.
12. In 2011, value added per employee in industry was still about 5.5 times higher than that in agriculture—and in services, it was about 4.2 times higher than that in agriculture.
13. In 2012, gross land lease proceeds accounted for 5.2 percent of GDP, although net proceeds adjusted for compensation were less. For 2011, it is estimated that net land lease proceeds accounted for only one-third of gross land lease proceeds.
14. See spatial equilibrium models by Alonso (1964), Mills (1967), and Muth (1969).
15. The global middle class is defined as households with daily expenditures between \$10 and \$100 per person (in 2005 PPP dollars). The lower bound is the average poverty line in Portugal and Italy. The upper bound is twice the median income of Luxemburg. Thus, the global middle class excludes those considered poor in the poorest advanced countries and considered rich in the richest advanced country.
16. Weighted by urban and rural population, about 11 percent of population in China had daily consumption expenditures between \$10 and \$100 (in 2005 PPP dollars) in 2010. Most Chinese (88%) consumed less than \$10 a day in 2010; about one-fifth spent less than \$2 a day. Less than 1 percent spent more than \$100 a day.
17. Measured by income, China's middle class made up almost 25 percent of China's population and more than 40 percent of its urban population in 2010.
18. China's 1988 income inequality urban Gini coefficient of 0.24 and rural Gini coefficient of 0.33 were very low by international standards. The national Gini coefficient of 0.38 reflected high urban-rural disparities. By 2007, these Gini coefficients were 0.34, 0.36, and 0.5, respectively (Knight 2013).
19. The 2002 Chinese Household Income Project (CHIP) survey enabled comparison of an urban Gini coefficient including and excluding migrants. Inclusion raised the Gini coefficient by 2 percentage points (Khan and Riskin 2007) but this is likely an understatement given that migrants living in households are likely wealthier than individual migrants.
20. Sicular and others (2006) find that the gap has been overstated. Adjusting for spatial price differences and including migrants lowers the contribution to 26–27 percent of total inequality, although this is still high by international standards. Whereas many measures of the rural-urban income gap are overstated

- by nonadjustment for cost of living differences, they are understated by not including urban subsidies.
21. China's Gini coefficient for wealth in 2002 was 0.55, much higher than that of income—and housing represented two-thirds of the inequality in net wealth (Zhao and Ding 2007). As urban housing prices rise, the differences become starker. Between 2002 and 2007, per capita urban housing wealth grew from 4.5 times rural housing wealth to 7.2 times, compared with an urban-rural income ratio of 3.1 times. Nearly 90 percent of permanent urban residents owned housing in the mid-2000s, but less than 10 percent of migrants did.
 22. The nominal price of land for industrial use increased 3.5 percent a year between 2009 and 2013.
 23. The importance of public spending, including provisions of public services and products, has also been studied extensively in literature. The new growth literature, employing either neoclassical (Solow 1956; Swan 1956) or endogenous growth (Lucas 1988) models, has intensively focused on the role of physical and human capital as key factors for long-run growth. Barro (1990) was the first to introduce public sector components in the production function within the endogenous growth framework to include tax-financed government services that affect production or utility.
 24. China's decentralized public finance system and municipal governments are responsible for providing and financing all vital public services and infrastructure, but municipal revenues are heavily concentrated in regions with economic activity.
 25. According to the Organisation for Economic Co-operation and Development's Performance for International Student Assessment survey, Shanghai ranks ahead of Korea; Finland; Hong Kong SAR, China; and Singapore on 15-year-old student performance in reading, mathematics, and science (OECD 2013).
 26. The total debt of the local government-borrowing platform has increased significantly in the past decade. A recent National Audit Office's report estimates that local government debt and contingent liabilities have reached 33 percent of GDP as of June 30, 2013.
 27. Estimates were based on CHIP data.
 28. In 2011, 3.6 million agriculture workers were located in urban areas.
 29. This relies on a consensus estimate of annual working days required for farming (Wang and Ding 2005).

References

- Acemoglu, Daron, and Fabrizio Zilibotti. 1997. "Was Prometheus Unbound By Chance? Risk, Diversification, and Growth." *Journal of Political Economy* 105 (4): 709–51.
- Alonso, William. 1964. *Location and Land Use*. Cambridge, MA: Harvard University Press.
- Bairoch, Paul, and Gary Goertz. 1986. "Factors of Urbanization in the Nineteenth Century Developed Countries: A Descriptive and Econometric Analysis." *Urban Studies* 23: 285–305.
- Barro, Robert J. 1990. "Government Spending in a Simple Model of Endogenous Growth." *Journal of Political Economy* 98 (5): 103–25.
- Brookings Institution. 2012. *Global MetroMonitor*. Washington, DC: Metropolitan Policy Program at Brookings Institution.
- Bulman, David, and Aart Kraay. 2013. "Thirty years of Growth in China: Accumulation, Reallocation, and TFP Growth." Unpublished working paper, World Bank, Washington, DC.
- Cai, Fang, and Dewen Wang. 1999. "The Sustainability of Economic Growth and the Labour Contribution." *Economic Research Journal* 10: 62–68.
- Caselli, Francesco, and Wilbur Coleman. 2001. "The U.S. Structural Transformation and Regional Convergence: A Reinterpretation." *Journal of Political Economy* 109 (3): 584–616.
- Ciccone, Antonio, and Robert Hall. 1996. "Productivity and the Density of Economic Activity." *American Economic Review* 86 (1): 54–70.
- CEIC Data: www.ceicdata.com.
- Credit Suisse Research Institute. 2011. *China Consumer Finance Survey*. Hong Kong SAR, China: Credit Suisse Research Institute.
- Deininger, Klaus, and Songqing Jin. 2003. "The Impact of Property Rights on Households' Investment, Risk Coping, and Policy Preferences: Evidence from China." *Economic Development and Cultural Change* 51 (4): 851–82.
- Dollar, David, and Bert Hofman. 2008. "Intergovernmental Fiscal Relations, Expenditure Assignment, and Governance." In *Public Finance in China: Reform and Growth for a Harmonious Society*, edited by Jiwei Lou and

- Shuilin Wang, 39–51. Washington, DC: World Bank.
- Duranton, Gilles, and Diego Puga. 2004. “Micro-foundations of Urban Agglomeration Economics.” In *Handbook of Region and Urban Economics, Volume 4: Cities and Geography*, edited by Vernon Henderson and Jacques-François Thisse, 2063–2111. Amsterdam: Elsevier.
- Eichengreen, Barry, Donghyun Park, and Kwanho Shin. 2011. “When Fast Growing Economies Slow Down: International Evidence and Implications for China.” NBER Working Paper No. 16919, National Bureau of Economic Research, Cambridge, MA.
- Fan, Jianyong, and Ting Shao. 2011. “Housing Price, Location of Differentiated Product and Urban System.” *Economic Research Journal* 46 (2): 87–98.
- Fan, C. Cindy, and Allen J. Scott. 2003. “Industrial Agglomeration and Development: A Survey of Spatial Economic Issues in East Asia and a Statistical Analysis of Chinese Regions.” *Economic Geography* 79 (3): 295–319.
- Fujita, Masahisa, and Hideaki Ogawa. 1982. “Multiple Equilibria and Structural Transformation of Non-Monocentric Urban Configurations.” *Regional Science and Urban Economics* 12 (2): 161–96.
- Fujita, Masahisa, and Jacques-François Thisse. 1996. “Economics of Agglomeration.” *Journal of the Japanese and International Economies*, 10 (4): 339–78.
- Gill, Indermit, Homi Kharas, Deepak Bhattasali, Milan Brahmbhatt, Gaurav Datt, Mona Haddad, Edward Mountfield, Radu Tatucu, and Ekaterina Vostroknutova. 2007. *An East Asian Renaissance: Ideas for Economic Growth*. Washington, DC: World Bank.
- Glaeser, Edward, and Joshua Gottlieb. 2006. “Urban Resurgence and the Consumer City.” Discussion Paper 2109, Harvard Institute of Economic Research, Cambridge, MA.
- Glaeser, Edward, Jose Scheinkman, and Andrei Schleifer. 1995. “Economic Growth in a Cross-Section of Cities.” *Journal of Monetary Economics* 36 (1): 117–43.
- Glaeser, Edward, Jed Kolko, and Albert Saiz. 2001. “Consumer City.” *Journal of Economic Geography* 1 (1): 27–50.
- Han, Jun. 2009. *Surveying the Chinese Migrant Workers*. Beijing: China Development Press.
- Helsley, Robert W., and William C. Strange. 1990. “Matching and Agglomeration Economies in a System of Cities.” *Regional Science and Urban Economics* 20 (2): 189–212.
- Henderson, J. Vernon. 1997. “Medium Size Cities.” *Regional Science and Urban Economics* 27 (6): 583–612.
- . 2001. “Scale Externalities in Korea.” *Journal of Urban Economics*: 49 (3): 479–504.
- . 2002. “Urbanization in Developing Countries.” *The World Bank Research Observer* 17 (1): 89–112.
- . 2003. “The Urbanization Process and Economic Growth: The So-What Question.” *Journal of Economic Growth* 8 (1): 47–71.
- Ke, Shanzi, and Yufeng Yu. 2014. “The Pathways for Industrial Agglomeration to TFP Growth—The Experience of Chinese Cities for 2001–2010.” *Journal of Asia Pacific Economy* 19 (2): 310–32.
- Khan, Azizur, and Carl Riskin. 2007. “Growth and Distribution of Household Income in China between 1995 and 2002.” In *Inequality and Public Policy in China*, edited by Björn Gustafsson, L. Shi, and T. Sicular, 35–60. Cambridge, U.K., and New York: Cambridge University Press.
- Kharas, Homi. 2010. “The Emerging Middle Class in Developing Countries.” OECD Development Centre Working Paper No. 285, Organisation for Economic Co-operation and Development, Paris.
- Knight, John. 2013. “Inequality in China: An Overview.” *The World Bank Research Observer* 29 (1).
- Lee, Il Houn, Murtaza Syed, and Liu Xueyan. 2012. “Is China Over-Investing and Does It Matter?” IMF Working Paper No. 12/277, International Monetary Fund, Washington, DC.
- . 2013. “China’s Path to Consumer-Based Growth: Reorienting Investment and Enhancing Efficiency.” IMF Working Paper No. 13/83, International Monetary Fund, Washington, DC.
- Lewis, W. Arthur. 1954. “Economic Development with Unlimited Supplies of Labour.” *The Manchester School* 22 (2): 139–91.
- Li, Shi, Luo Chuliang, and Terry Sicular. 2013. “Overview: Income Inequality and Poverty in China, 2002–2007.” In *Rising Inequality in China: Challenge to the Harmonious Society*, edited by Shi Li, Hiroshi Sato, and Terry Sicular, 24–59. New York: Cambridge University Press.
- Lin, Hui-Lin, Hsiao-Yun Li, and Chih-Hai Yang. 2011. “Agglomeration and Productivity: Firm-Level Evidence from China’s Textile Industry.” *China Economic Review* 22 (3): 313–29.

- Liquan, Peng, and Sheng Laiyun. 2006. "The Number, Structure, and Feature of Present Migrant Workers." In *Report about China's Population and Labor No. 7—The Social Economic Result of Population Change*, edited by Cai Fang. Beijing: Social Science Documentation Publishing House.
- Lucas, Robert E. 1988. "On the Mechanics of Economic Development." *Journal of Monetary Economics* 22: 3–42.
- Marshall, Alfred. 1890. *Principles of Economics*. London: Macmillan.
- Mills, Edwin S. 1967. "An Aggregative Model of Resource Allocation in a Metropolitan Area." *American Economic Review* 57 (2): 197–210.
- Ming Lu. 2013. *The Power of Space: Geography, Politics, and Urban Development*. Shanghai: Shanghai People's Press.
- Moretti, Enrico. 2004. "Worker Education, Spillovers, and Productivity." *American Economic Review* 94 (3): 656–90.
- Muth, Richard. 1969. *Cities and Housing: The Spatial Pattern of Urban Residential Land Use*. Chicago: University of Chicago Press.
- National Bureau of Statistics of China. 1994. *China Statistical Yearbook*. Beijing: China Statistics Press.
- . 2012. *Survey Report of Chinese Migrant Workers*. Beijing: China Statistics Press.
- . 2013. *Fifth National Population Census*. Beijing: China Statistics Press.
- Nomura International. 2009. "China: A Secular Shift." In *Asian Bank Reflections*, vol. 3. Tokyo: Nomura International.
- Northam, Ray M. 1975. *Urban Geography*. New York: John Wiley & Sons.
- OECD (Organisation for Economic Co-operation and Development). 2013. Programme for International Student Assessment (PISA). OECD website. <http://www.oecd.org/pisa/>.
- Page, Jeremy. 2011. "Land Dispute in China Town Sparks Revolt." *The Wall Street Journal*, December 15.
- Salop, Steven C. 1979. "Monopolistic Competition with Outside Goods." *The Bell Journal of Economics* 10 (1): 141–56.
- Schor, Juliet B. 1999. "The New Politics of Consumption." *Boston Review* 24 (3–4): 4–9.
- Seethepalli, Kalpana, Maria Caterina Bramati, and David Veredas. 2008. "How Relevant Is Infrastructure to Growth in East Asia." Policy Research Working Paper, World Bank, Washington, DC.
- Sicular, Terry, Ximing Yue, Björn Gustafsson, and Shi Li. 2006. "The Urban-Rural Income Gap and Inequality in China." Working Paper RP 2006/135, World Institute for Development Economic Research (UNU-WIDER), Helsinki.
- Solow, Robert. 1956. "A Contribution to the Theory of Economic Growth." *The Quarterly Journal of Economics* 70 (1): 65–97.
- Swan, Trevor. 1956. "Economic Growth and Capital Accumulation." *Economic Record* 32 (2): 334–61.
- Wang, Jianguo, and Shouhai Ding. 2005. "How Much Surplus Agricultural Labor Is There in China?" *Social Sciences in China* 5: 27–35.
- World Bank. 2006. *China: Governance, Investment Climate, and Harmonious Society: Competitiveness Enhancements for 120 Cities in China*. Washington, DC: World Bank.
- . 2009. *World Development Report 2009: Reshaping Economic Geography*. Washington, DC: World Bank.
- . 2011. *The Changing Wealth of Nations: Measuring Sustainable Development in the New Millennium*. Washington, DC: World Bank.
- World Bank and DRC (Development Research Center of the State Council, China). 2013. *China 2030: Building a Modern, Harmonious, and Creative Society*. Washington, DC: World Bank.
- Yan, Yulong, and Xiaoyu Li. 2007. "The Measurement of Contribution of Off-Farm Workers to Economic Growth and the Fruits of Economic Growth They Shared." *Statistical Research* 24 (1).
- Zhao, Renwei, and Sai Ding. 2007. "The Distribution of Wealth in China." In *Inequality and Public Policy in China*, edited by Björn Gustafsson, Li Shi, and Terry Sicular, 118–44. New York: Cambridge University Press.
- Zhuo, Xian. 2013. "How to Evaluate the Actual Progress of China's Urbanization." Working Paper, Development and Research Center of the State Council, Beijing.

Planning and Connecting Cities for Greater Diversity and Livability

Introduction

The pace of China's transformation from an agricultural to an industrial economy has been unprecedented, with agriculture's share in gross domestic product (GDP) declining from 35 percent in 1960 to 10 percent in 2010. In the process, the country's large coastal cities have become factories for the world. Much of the industrial transformation and accompanying urbanization over the past 30 years was enabled by national reforms that opened the economy to foreign investment and built the infrastructure to support an industrial economy. Shantou, Shenzhen, and Zhuhai in Guangdong Province and Xiamen in Fujian Province became pilots for opening China to the global economy, allowing entrepreneurs to start businesses and relaxing price controls, protectionist policies, and regulations. Large-scale investment followed, with gross capital formation increasing from 35 percent of GDP in 1980 to 48 percent in 2011. Infrastructure investment accounted for 10 percent of GDP. Such magnitudes of investment were also characteristic of the Republic of Korea, which urbanized rapidly and moved into high income.

China needs to enhance economic efficiency by gradually moving from a lower-end

export-oriented industrial economy to a higher-value-added manufacturing and service economy with an increasingly strong internal market for consumption. In fact, market forces will push China toward a greater concentration in innovation and services than in industry. Banks, insurance companies, hospitals, and schools can operate in high-rise buildings that economize on land and promote high density (World Bank 2009). Because of external economies, business services have even greater potential for agglomeration than does industry—financial firms, insurance companies, and banking syndicates benefit from being close to one another. In the United Kingdom, for example, financial and insurance services are 35 times, and information and communication firms 7 times, more concentrated than manufacturing (Campos 2012). Locating in close proximity stimulates the growth of other specialist services, such as legal, software, data processing, advertising, and management consulting firms. Enabling these interactions is the density that cities offer, making it easier for frequent face-to-face contact between employees, entrepreneurs, and financiers, which in turn increases innovation and productivity (Black and Henderson 1999; Lucas 1993; Rosenthal and Strange 2003).

The concentration of services will also be accompanied by spreading industry from a few metropolises to a larger number of small cities. In the United States between 1972 and 2000, service employment concentrated in metropolitan areas as industry moved out to suburban locations 20 to 70 kilometers away (Desmet and Fafchamps 2004). Investments in transport infrastructure, which made trade cheaper, made the decentralization of industry possible. In Korea, the decentralization of industry from the three largest cities to smaller cities and the hinterland followed massive transport and communications infrastructure investments in the early 1980s (World Bank 2013a).

The transformation from a concentration on industry to one on services is already taking place. Consider Beijing, whose economy is 14 times more concentrated than the national average in high-end service jobs and 12 times more concentrated in research and development jobs. But the pace of transformation is slow. This report focuses on the next phase of economic growth, which will be based on cities reaping the full benefits of agglomeration through greater efficiency, more rational use of resources, a transition toward higher-value-added manufacturing and services, and increased productivity and innovation. Cities will have to leverage market forces to support strategic objectives for socioeconomic development and to maximize the impact of past and future investments in connectivity. Policy makers will have to promote a continuous dialogue among all stakeholders on the best solutions for making cities competitive, as well as attractive locations for people and investments, while addressing critical bottlenecks such as congestion and pollution. The following are the challenges that city governments face as they move from the role of direct planners and implementers to becoming regulators and enablers of the urbanization process:

Reduce sprawl and increase productivity by implementing a unified market-based land pricing system for both rural and urban areas. Such a system, together with the use of market-based disposition mechanisms such as auctions and requests for proposals to determine all land uses (without favoring

industries), will greatly help optimize land use. Because the value of land is determined by both its location and its land use, master plans should facilitate private sector investments by providing clarity on permissible uses. The system should be flexible to allow for changes in use and densification or intensification of development (by increasing the permissible floor-area ratio) as land values increase over time. Instruments for trading development rights should be developed to encourage development within superblocks and to create more intense urban environments more efficient use of existing infrastructure, leading to increased productivity and knowledge spillovers.

Foster livable, highly productive, and efficient cities through flexible people-centered planning. Urban spaces should be built on a human scale that people can relate to and in which people can interact. The uniqueness of existing cities and their natural and cultural environment should be the starting point (as opposed to turning one's back on existing settlements in favor of new cities). Incentives can be established for mayors to invest in improved livability and to reward them based on the quality of service delivery. Regulation should be adjusted to allow for regeneration and intensification within existing superblocks, and for implementing new small-block development. A fine-grain street grid can be developed to foster mixed use and local accessibility to daily amenities such as shops, health clinics, schools, and public parks. Integration of transport systems from the local to the regional should be seamless. The result would be more livable cities that foster economic growth, productivity, and people-friendly environments; attract higher talent and more knowledge spillovers; encourage services and technology development and more efficient use of resources (infrastructure, energy, land, water); and produce less pollution.

Facilitate the development of clusters by improving connectivity of people and businesses. China has done a remarkable job of developing infrastructure to connect cities and regions in the country. This strategy should be enhanced by improving

connectivity between cities and integrating different transport systems for a more seamless connection of businesses. Special attention should be given to local accessibility and door-to-door connectivity of people and communities to services and jobs. Metropolitan governance structures and financial transfer systems should be established to coordinate strategic plans and seek opportunities for joint public service delivery. The result will avoid duplication and move toward higher productivity, specialization, and more efficient delivery of services.

Enhancing efficiency and agglomeration economies in China

Urban concentration and spatial development in China

The urbanization process around the world has led to a portfolio of viable and livable cities, differentiated by size, location, and density, but well connected at the national level and clustered at local and regional levels. China's urbanization process resembles that of developed economies such as the United States and Japan, with a substantial number of people moving to large urban agglomerations. The 10 largest metropolitan regions in China—Beijing, Changsha, Chengdu, Guangzhou, Hangzhou, Nanjing, Shanghai, Shenzhen, Tianjin, and Wuxi—have become the main engines of growth, creating 26 percent of China's GDP in 2010. Cities of 1 million to 10 million people, the so called second-tier cities, provide specialized and differentiated products and services. Getting urbanization “right” requires the creation of an even playing field to encourage scale and agglomeration economies across cities together with efforts to manage the downsides of congestion, pollution, and natural resource depletion. Improved land management should be at the heart of policy reforms across urban areas, coupled with connectivity enhancements between towns, cities, and metropolises.

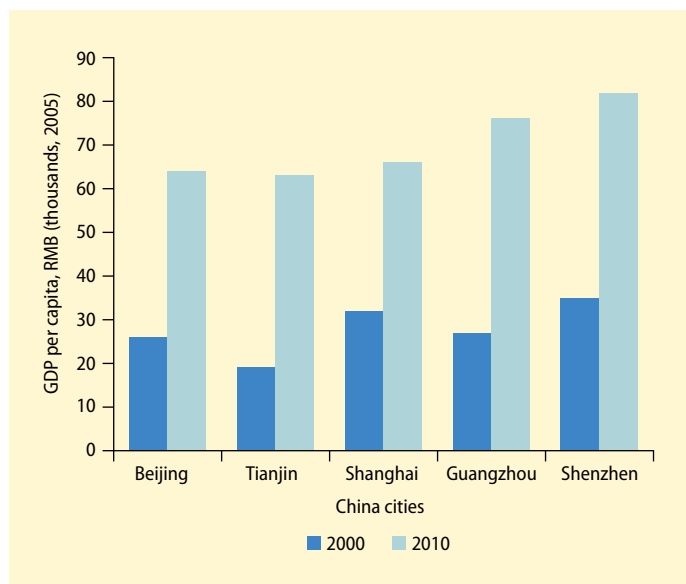
The most striking feature of China's urbanization in the past decade has been the rapid concentration of people and economic activities in large cities with good access to international markets. The largest and

fastest-growing internal migrant populations are in the Beijing, Dongguan, Guangzhou, and Shanghai metropolitan regions, with more than 52 million migrants in 2010, or 35 percent of all migrants in China. Urbanization—particularly urban concentration in the largest cities—has gone hand in hand with economic progress. Econometric analysis shows proximity to global cities such as Beijing, Shanghai, or Shenzhen, along with clustering of the urban population, to be an important contributor to a city's success, both for economic productivity (GDP per capita) and population growth (Lall and Wang 2011).

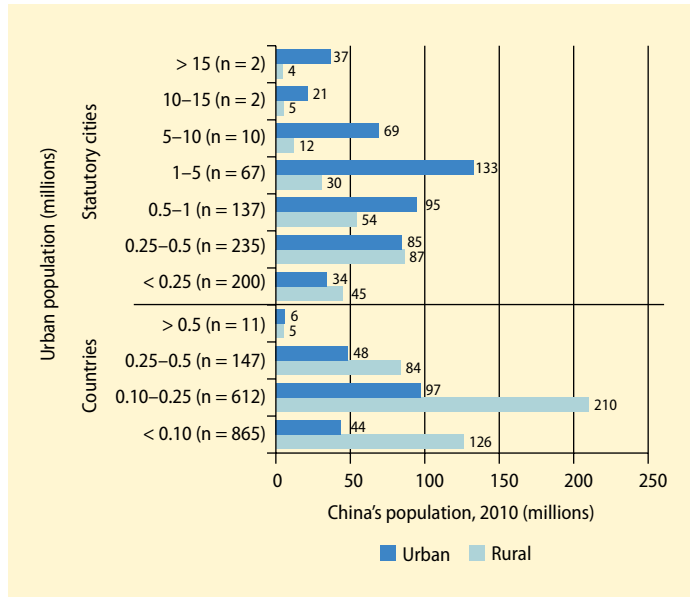
The combined economies of Beijing, Guangzhou, Shanghai, Shenzhen, and Tianjin amounted to \$1 trillion in 2010, twice the size of Norway's or Sweden's economy, and on the heels of Korea's. Incomes have increased rapidly as well. Per capita GDP rose from RMB 35,000 to RMB 82,000 in Shenzhen between 2000 and 2010, and from RMB 32,000 to RMB 66,000 in Shanghai (figure 2.1). Rising prosperity has attracted millions of people from the countryside. Between 2000 and 2005, migration to Beijing from other provinces grew 6.6 percent a year; and to Shanghai, 9.1 percent a year.

The very rapid pace of economic growth and migration to cities has enhanced the

FIGURE 2.1 Per capita GDP in 2000 and 2010



Source: CEIC data.

FIGURE 2.2 Population in 2010 by city size

Source: Staff estimates based on 2010 Census Data.

economic efficiency of China's urban system. In the early 1990s, Chinese cities were undersized with substantial efficiency losses from lack of scale. With migration restrictions limiting labor mobility and agglomeration into larger cities, a much larger share of China's urban population lived in small cities (between 100,000 and 1 million) than was the case in other emerging economies and such developed countries as the United States (Au and Henderson 2006).

China's urbanization rate rose from around 20 percent in 1980s to 50 percent in 2010 (figure 2.2). This fast-paced urbanization has led to a shift away from the countryside and toward increasing concentrations of people in cities and city regions, especially in the Yangtze and Pearl River Deltas, and in the Beijing-Tianjin region in the north. During the past decade, the decline in population has been significant in much of the Northeast, in the Sichuan Plain, across most of the Yangtze and Huai River Basins, in the inland coastal areas of Zhejiang and Fujian, northern Guangdong, and most of Guizhou and Guangxi Provinces (map 2.1).

The relaxation of migration restrictions and the huge migrations that followed have dramatically altered the distribution of

people across cities of different sizes. The distribution of towns, cities, and metropolises in China now resembles that of developed economies such as the United States and Japan. China's share of population in smaller cities is comparable to the rest of the developing world, although it is much higher than in developed countries that are fully urbanized like the United States (figure 2.3). Right-sizing the urban distribution enhances efficiency because larger cities can support more economic diversity based on lower fixed costs of setting up a firm, on scale economies in providing nontraded intermediate inputs (Au and Henderson 2006), and on the propensity of metropolitan areas to produce more high-tech and experimental items that require a diversity of skills and production types to thrive (Jacobs 1969; Duranton and Puga 2000). Secondary cities will specialize in more standardized manufacturing, while small cities strengthen their economy around existing industries and sectors related to natural resources and agriculture.

With massive inflows of workers, China's cities have become factories for the world. A report published by the *China Economic Weekly* in 2012 showed that the nation produced 80 percent of the world's color televisions, 70 percent of its air conditioners, 50 percent of its refrigerators, and 40 percent of its washing machines. Total output of the home appliance sector in China reached RMB 1.07 trillion (\$169 billion) in 2011, which was 4.7 times the amount in 2001, when the country became a member of the World Trade Organization.¹ Abundant low-skilled workers, along with access to land and global markets, allowed manufacturing firms to exploit huge economies of scale. Nearly two-thirds percent of all manufacturing jobs are in coastal provinces.² Indeed, China's development story of the past three decades has been centered around a well-defined and extremely effective "growth template," where successive waves of Chinese cities moved aggressively to boost investment and job creation, mostly based on establishing economic development zones centered around low-skilled manufacturing that benefited from economies of scale and access to markets.

Notable here is the Pearl River Delta, which accounts for 1.2 percent of China's land area, 4.5 percent of population, and 9 percent of GDP.³ China's opening to the world began with experiments in Shenzhen and Zhuhai in 1980 that rapidly spilled over to neighboring cities and towns in the delta. Today, the delta is China's most prosperous region, with per capita incomes more than twice the national average. With the delta designated a special economic zone (SEZ), local governments, individual enterprises, and farmers enjoyed more autonomy in decision making for what to produce, where to produce it, and where to live. With government enabling the market, 70 percent of Hong Kong SAR, China's industry moved to China in 10 years (Klako Group 2004).

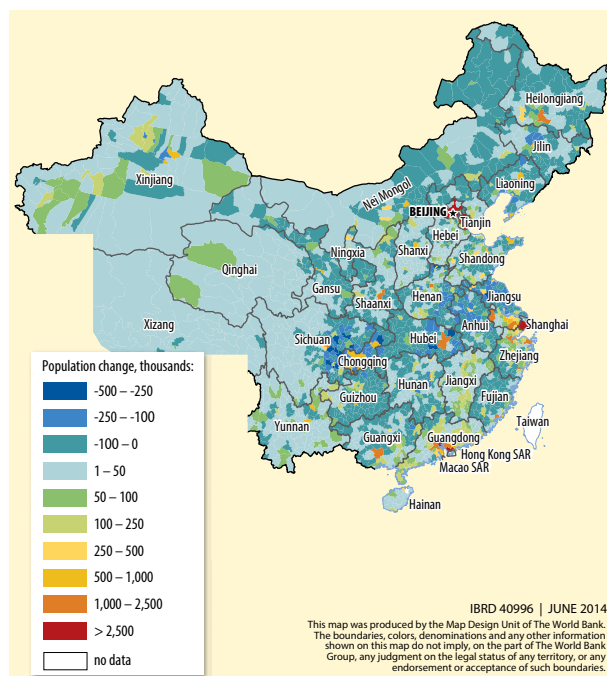
Since the mid-1990s, large amounts of foreign direct investment (FDI) have come from Japan, the United States, and the European Union, among other places. In 2010, the Pearl River Delta was the destination for more than 10 percent of the FDI in China. And the delta is moving up the industrial value chain, shifting away from its concentration in textiles technology-intensive manufacturing such as electronics, biotechnology, and optical and electromechanical products.

Up the eastern seaboard is the Yangtze River Delta, China's economic giant. A physically integrated cluster with the strongest economy in China, the delta accounts for 4.4 percent of China's land area, 10 percent of its population, 24 percent of industry, and 19 percent of GDP. The hub city of Shanghai serves as the economic and financial center, and spoke cities include Hangzhou, Nanjing, and Suzhou. Between 2000 and 2010, land use in the Yangtze River Delta rapidly changed to transform the cities of Shanghai, Suzhou, Wuxi, Wujin, Nanjing, and others into a continuous urban agglomeration.

China's urbanization and industrial development

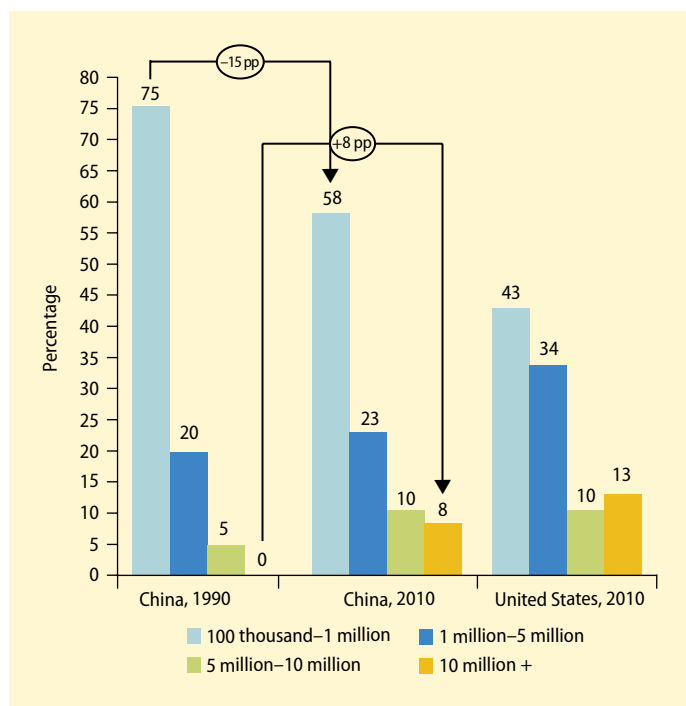
China's rapid urbanization and concentrated industrial development followed the norm for East Asian countries. From the 1950s through the 1980s, economic activity in Japan concentrated in the Tokkaido region

MAP 2.1 Population changes from 2000 to 2010



Source: Staff estimates based on 2000 and 2010 Census Data.

FIGURE 2.3 Distribution of cities by size in China and the United States



Source: Henderson 2013.
 Note: pp = Percentage points.

(Tokyo–Nagoya–Osaka corridor), aided by a conscious decision to concentrate infrastructure investment in this region. High savings and investment rates of around 40 percent of GDP by 1970 provided the resources for heavy transportation and urban infrastructure. Japanese cities began by specializing in labor-intensive, low-technology goods and then moved up the technology chain. Economic concentration was also instrumental in economizing on infrastructure investment, and the geographical proximity of different activities gave rise to agglomeration economies that aided rapid productivity growth and enabled innovation in traditional production processes.

Following Japan, the Asian Tigers—Hong Kong SAR, China; Korea; Singapore; and Taiwan, China—also followed a path of rapid urbanization and concentrated industrial development. Like Japan, they first specialized in labor-intensive, low-technology goods and then moved up the technology chain. The Seoul and Pusan metropolitan regions accounted for almost 70 percent of Korea's urban population by the mid-1970s. Taiwan, China, also focused on concentrated spatial development in Taipei and Kaohsiung. Each Tiger adopted an export-oriented strategy, which required massive investments in key transport and communication links with the rest of the world. The economic activities in these cities were as connected with the rest of the world as with their hinterlands, if not more so.

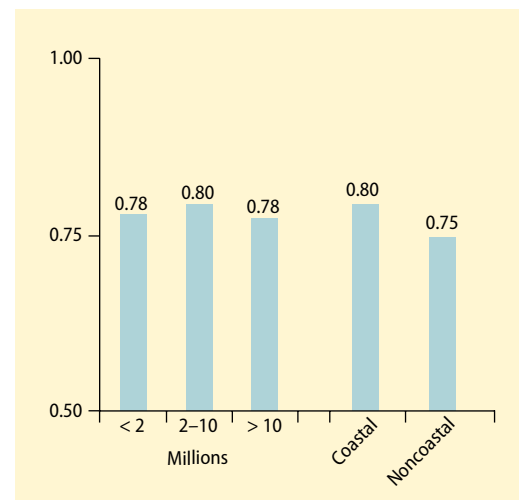
Concentrated economic growth and urbanization has also been the pattern India has followed since its economic liberalization in the early 1990s. Urban growth has been concentrated in the largest metropolises and their neighboring suburbs, which support 9 percent of the country's population and provide 18 percent of the employment on 1 percent of the land area. Within manufacturing, high-tech industries are specialized in the seven largest metropolises, and medium-tech industries are more densely specialized in the second-tier cities of 1 million to 4 million people (World Bank 2013a). As the Russian Federation moved to a market-based economy after 1989, many firms left remote areas and new firms grew up in places close to large

markets. Between 1989 and 2004, 70 percent of the national increase in firms took place in regions with broad market access (Brown and others 2008).

The concentration of people and economic activities in China's coastal cities has benefited economic efficiency. The concentration of activities and increased densities in cities make it easier to move goods, people, and ideas and to provide services more efficiently. Cities remove physical spaces between people and firms, and proximity is valuable precisely because it makes connections easier (Glaeser 2011). Because they are close to buyers, suppliers, workers, and others in related industries, firms can reduce transaction costs, enhance productivity, and innovate. Recent evidence for China shows that efficiency measured by total factor productivity (TFP), using the standard Cobb-Douglas production function with land, labor, and capital, tends to be slightly higher in coastal cities than elsewhere in China (figure 2.4).

Research conducted across 261 Chinese cities in 2004 showed that labor productivity would increase by 8.8 percent with a doubling of employment density (Fan 2007). In contrast, the elasticity of labor productivity

FIGURE 2.4 Efficiency by city size and location in 2010



Source: Employment data are taken from the 2010 census; capital stock is derived from fixed asset investment reported in CEIC (www.ceicdata.com), and land is measured as the built-up area of each city. Note: The vertical axis of this chart shows the residual from a Cobb-Douglas production function with labor, land, and capital as inputs.

is 5 percent in the United States and 4.5 percent in Germany, Italy, France, and Spain (Ciccone and Hall 1996). Evidence from the Yangtze Delta shows that doubling the concentration of firms in the same industry boosts productivity by 3.3 percent and that the benefits accrue more to firms with higher-skilled workers, who are more likely to absorb technology spillovers (Hashiguchi and Tanaka 2013).

Using firm-level data from China's industrial census for 2004, recent research for this report shows that manufacturing firms strongly prefer to be in close proximity to other firms in the same industry, benefiting from localization economies. Firms in high-tech production are willing to pay RMB 1.03 million for an increase of one percentage point in the number of firms from the same sector at the same location. And firms in the machinery sector are willing to pay RMB 917,000 for such an increase (Afilal and Lall 2014). Interestingly, while industries employing skilled workers tend to cluster in large cities, standardized manufacturing prefers to disperse from large cities to specialized clusters. In addition, to reduce their transport costs, export-oriented firms prefer to locate close to ports, although not in a large city. Clearly, a process of industry upgrading and specialization across cities of different types is under way.

Externalities of urbanization process

The number of vehicles, congestion, and energy demand are all increasing rapidly and posing a major challenge for the livability and environmental quality in cities over the next two decades. Current urban expansion and lack of coordinated land use and transport policies are locking cities into car dependency and further congestion. Chinese cities in general tend to have high densities in central areas surrounded by greatly dispersed and low-density suburban areas; public transportation in suburbia is thus not efficient or even economically feasible. The number of motor vehicles almost quadrupled over 12 years, up from 56 million in 2000 to 240 million by the end of 2012, as reported by the Ministry of Public security. China has also become the

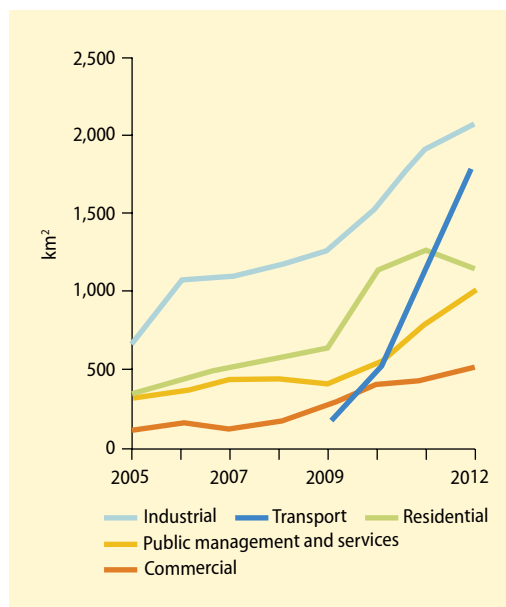
world's largest car producer and the largest new car market in the world.

Impacts of administrative land allocation

Land use in Chinese cities is determined by administrative decisions and detailed in master plans. Land for residential and commercial purposes is auctioned, whereas land for industries is heavily subsidized because industrial production is given priority over commercial and service-oriented activities. The proportion of land devoted to industries has been growing rapidly in the past few years (figure 2.5). Around 26 percent of the built area of cities is devoted to industrial development. For example, in Tianjin, industrial land amounts to 22 percent of the built area, while in Zhengzhou it amounts to 23 percent. Both cities are slightly below the Chinese average but still much above large cities in market economies. In contrast, Seoul uses 7 percent of its built land for industries; Hong Kong SAR, China, 5 percent; and New York City, 4 percent.

The large proportion of industrial land in Chinese cities reflects the location of enterprises in designated industrial zones close to

FIGURE 2.5 Recent trends in land use allocation from farmland to other uses (square kilometers)



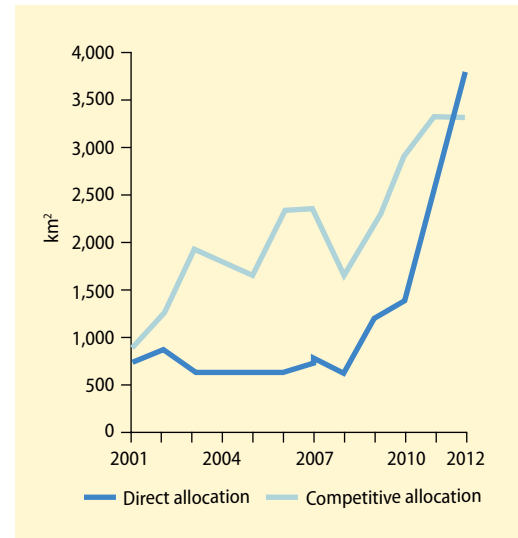
Source: Staff estimates.

cities. Most industrial zones are managed by municipalities or designated municipal-owned corporations, which receive loans for infrastructure investments with land as collateral. Land use rights for industrial use are negotiated at low rates to attract mobile capital and with the expectation that these industries will provide jobs and tax revenues for the city. Recent trends show that in 2012 alone more than 2,000 square kilometers were allocated for industrial development. Of the 6,015 zones established by municipalities, only 1,251 are registered with provincial governments or the State Council (Peterson and Clarke-Annez 2007). By contrast, when market mechanisms are involved, industries compete with other sectors for the use of land. Land-intensive industries are pushed by economic forces to peripheral or smaller towns where real estate is cheaper. Such competition increases economic efficiency.

Not only has the municipal allocation of land for industrial use slowed the pace of urban redevelopment, it has potentially stifled the growth of smaller cities that could be more natural locations for mature industries moving out of the big metropolises. Even when industries do move from the urban core, they are often relocated to the immediate periphery of urban areas, often preventing smaller towns in different administrative jurisdictions from competing. Consider firms in heavy manufacturing, including chemicals, metal products, and plastics. In 1999, 49 percent of these firms in a megacity with more than 10 million people were located in the urban core; by 2009 that share had dropped to 38 percent. Heavy industry deconcentrated to rural counties in these megacities. At the same time, heavy industry declined from 40 percent to 30 percent in the urban cores of cities between 3 million and 10 million people. Similar patterns of suburbanization or limited deconcentration to urban peripheries are seen for other sectors such as machinery and textiles. For 108 metropolitan areas in China, 85 percent of industrial GDP in 1990 was produced in center cities; by 2005, that share had fallen to 60 percent (Cai and Henderson 2013).

So while the share of industrial land in the city core built area is falling, its

FIGURE 2.6 Annual construction land supply—direct vs. competitive allocation (km²)



Source: World Bank.

overall proportion in the metropolitan region is increasing, because industries can occupy larger tracts of cheaper land on the urban periphery. In recent years, most urban construction land has been administratively allocated for industrial development (about 10,800 square kilometers), while the competitive auction of land use rights for residential and commercial purposes has been much lower, 6,100 and 2,100 square kilometers, respectively (figure 2.6). In general, industry moved only as far as the city suburbs—Shanghai still had among the highest percentage of construction land zoned for industrial and warehousing use in China (World Bank 2008).

China must start getting industrial land consumption to more “normal” proportions. Continuing the current patterns is hurting the economy and can lock cities into unsustainable land uses that have long-term consequences for environment sustainability. As industry leaves the urban cores, the land it once occupied should be redeveloped to accommodate firms in tradable services. While a wide range of initiatives can repurpose old industrial districts, these initiatives typically involve redevelopment of infrastructure and other projects to make the city’s spatial structure more efficient, sustainable, and

BOX 2.1 Barcelona 22@: Urban land redevelopment led by the private sector and enabled by the government

The city of Barcelona has undergone an ambitious transformation since the late 1990s, using the post-Olympic push to redevelop 180 hectares of the city's land languishing as warehouses after industry left the area 20 years before. Led by the private sector and enabled by public policy, the redeveloped area is now home to more than 1,500 companies, 10 universities with 25,000 students, 12 technology centers, and 3,000 new housing units for low-income residents.

The project, started as a government-led initiative, initially focused on offering preferential real estate and met with limited success. In 2004 the private sector got involved, focusing on four traded services that already existed in Barcelona but that were spread across the city. Market-induced relocation of interrelated activities allowed for rapid growth and attracted international companies.

One successful example was the work done to convince a large media company, Mediapro (<http://www.mediapro.es>), to move its headquarters, studios, and technical center into the same block with the Universitat Pompeu Fabra Media Center (<http://www.upf.edu>), plus similar nearby centers of other universities, the national public radio offices, and office space for

other media companies. All of it was done without any subsidies, just with an intelligent requalification mechanism that allowed private developers to convert industrial zoning into 22@ zoning with higher building ratios, in exchange for returning 10 percent of the land to the city for green spaces, another 10 percent for social housing, and 10 percent for common technological infrastructures (technology centers). All in all, the city paid for only a portion of the street paving and fiber optics infrastructure.

The key to success was the complementary roles of the public and private sectors. At inception, leadership came from the city mayor and the public sector, focusing on restructuring misused urban space close to the city center for mixed uses, clean industries, knowledge infrastructure, living areas, and green zones. Development through specialized traded clusters and private sector investment created incentives and a reality check for public sector ambitions. The danger in the maturity phase is when the government sees the success of the project and tries to replicate it by funding projects directly. Without building partnerships with the private sector, the project ran the risk of turning into "white elephants."

Source: Contributed by Emiliano Duch.

livable. The key here is to encourage businesses and residents to take the lead in redeveloping former industrial areas. The city of Barcelona with its 22@ Program shows how (box 2.1).

Improving efficiency and livability of cities

Increase the market role

Market forces have pushed China toward concentrating industry in its large coastal cities, helping firms there reap economies of scale. Now, the economic path of cities across China's urban system will need to evolve. In the United States and Korea, industry decentralized out of the biggest cities, which then became hubs of research and development and higher-technology development, where diversity and cross-sector fertilization aids

innovation and new product development (Cai and Henderson 2013). The density and economic diversity of the largest cities enable experimentation, where potential manufacturers try different technologies and products until they find what they are best suited to produce (Duranton and Puga 2000). Experience from today's developed economies tells us that the innovation and service economy will be even more concentrated than the industrial economy because services tend to use less land per employee, and service sectors benefit more from external economies, increasing the demand for physical proximity and density.

Along with the concentration of services in the largest cities, standardized industries typically decentralize to smaller cities. In the United States, the share of manufacturing has rapidly declined in large cities and resulted in the development of many more service cities.

These include health, entertainment, transport services, insurance, and finance cities, in addition to the traditional university towns and state capitals. Although the transition was not without challenges, as New York experienced in the 1970s and Detroit is currently undergoing, formerly large and diverse manufacturing cities have become more market and service oriented, and the most industrialized parts of the United States are now rural areas and smaller cities (Kolko 1999). Firm-level evidence from Japan also shows that branches of electronics firms doing research and development and trial production are in larger metropolitan areas, while the mass production of standard items is in nonmetropolitan areas (Fujita and others 2004).

Decentralizing industry is possible with investments in transport infrastructure; lower transport costs help industrial firms leave large cities, where land prices are high, by giving them access to markets for their products. Between 1990 and 2010, the rail network length in an average prefecture increased from 142 kilometers to 210 kilometers. More dramatically, in 1990 there were no limited access highways in China; by the end of 2012, there were more than 96,000 kilometers. Recent econometric analysis shows that investments in railroads have led to the decentralization of industry in China (Baum-Snow and Turner 2012). Each railroad line from the city center outward is estimated to displace 25 percent of core city industrial GDP to the rest of the prefecture.

The transformation from industry to services is already taking place across Chinese cities. While Foxconn Technologies corporate headquarters and the business cluster

developing Apple products remain in Shenzhen, for example, the company's manufacturing base producing computer connectors has been relocated to Zhengzhou in Henan Province, and the computer manufacturing business is now in Chongqing and Wuhan (CDRF 2010). Statistical analysis of employment growth, using propensity score matching, points to faster growth in the tertiary sector in cities that belong to metropolitan areas compared with similar cities not in metropolitan areas (table 2.1). Finance, insurance, and real estate (FIRE) grew almost 2 percentage points more in metropolitan cities than in nonmetropolitan cities.

Systematic assessment of the service sector in China shows that tradable services are not adequately concentrated in the largest cities. Typically, when one thinks of financial and insurance services, New York and London come to mind as dominating the global landscape for these services. Such a city does not yet exist in China.

The location quotient is an index showing the specialization or share of a specific sector in a city's economy compared with the national share. The concentration of finance and insurance services in cities with populations of more than 10 million is only one-tenth the national average, whereas such services in small cities with less than 500,000 people are 35 percent more concentrated than the national average. This imbalance reflects efficiency losses, because these services benefit from agglomeration economies that come from being in large dense cities. Similarly, real estate services are also evenly distributed across different size cities in China. Perhaps the only service that appears to be concentrated in large cities is research

TABLE 2.1 Annual change in key economic and welfare indicators between 2000 and 2010

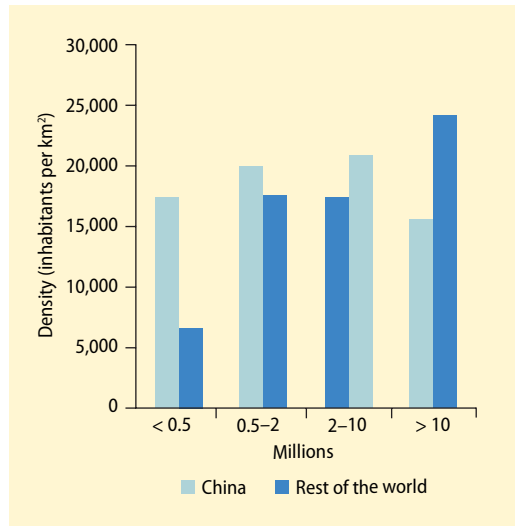
Percentage

Variable	Metro cities	Nonmetro cities	Difference	Standard error	T-stat
Total share of employees in manufacturing	76.6	82.9	-6.3	9.4	-0.6
Location quotient of manufacturing employees	2.3	3.1	-0.8	0.8	-1.1
Workers in secondary industry as a share of total employed	0.7	0.6	0.1	0.1	1.9
Workers in tertiary industry as a share of total employed	0.70	0.58	0.12%	0.04%	3.1
FIRE services	5.8	3.9	1.9	0.9	2.1
R&D services	33.2	22.7	10.5	13.8	0.8

Source: Census 2000 and 2010, based on propensity score matching.

Note: The location quotient measures a region's specialization relative to the nation's average. FIRE = finance, insurance, and real estate; R&D = research and development.

FIGURE 2.7 China's largest cities have lower densities than their peers worldwide



Source: Demographia.com

and development, where the concentration of research and development (R&D) activities in cities of more than 10 million people is 35 percent higher than the national average. These patterns show that China has a long way to go to reach the concentration of traded business services in other large successful cities across the world.

China's cities need to get their densities "right" and make the city's markets for labor, goods, and services accessible to other cities. Cities with populations of more than 2 million are not as dense as similarly sized cities across the world (figure 2.7). Although China's megacities, with more than 10 million people, have comparable high densities in their central core areas to cities in Japan and the United States, densities drop significantly in suburban areas and the overall densities are rapidly declining.

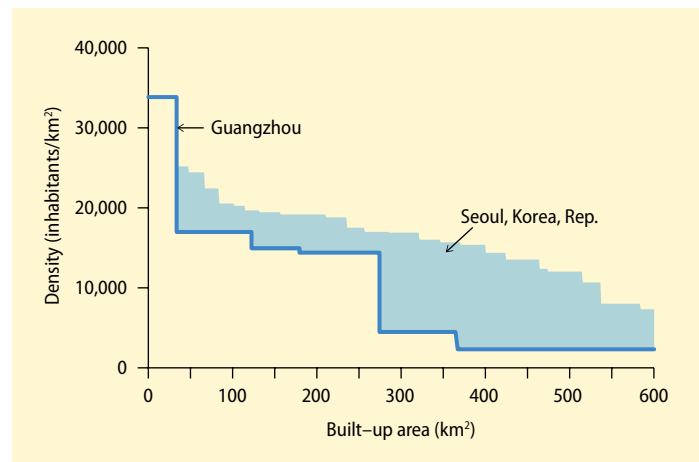
Making simultaneous progress on improving density and connectivity remains at the core of enhancing economic efficiency, and the government will have to focus its efforts in areas that it can manage—such as strategic infrastructure investments, urban planning, and public finance. But the government will also need to redistribute to national, provincial, and local governments the responsibilities, powers, and resources

necessary to coordinate investments and manage externalities—and relax its control and involvement in land, labor, and capital markets, activities that markets manage more efficiently.

Price and regulatory instruments can enhance density and efficiency

China is not yet taking full advantage of the benefits of density. For example, an additional 4.2 million people could be added to the Guangzhou population before it reached the same density profile as Seoul without adding more land (figure 2.8). The great benefit of doing so would be more efficient use of existing infrastructure and services, thus reducing the demand for new land and infrastructure. Similarly, Shenzhen could accommodate another 5.3 million people if it were redeveloped to the same density profile as Seoul. Not only does densification enhance efficiency, it also reduces carbon emissions and infrastructure costs. Chinese cities are already moving in the right direction with densities showing an upward trend. Beijing increased density by 50 percent on average in medium-low density areas (5,000 to 7,500 people per square kilometer), and by 48 percent in very low density areas (fewer than 1,000 people per square kilometer) between 2000 and 2010.

FIGURE 2.8 Urban density profile comparison between Guangzhou and Seoul



Source: World Bank.

To enhance density and nurture innovation and the service sector while slowing the speed of a physical expansion, local governments need to refine urban planning capabilities by strengthening price and regulatory instruments in their planning repertoires. By allowing developers of industrial, commercial, and residential areas to bid competitively for land on a more equal basis, land use will become more efficiently allocated both in the urban cores and on the periphery.

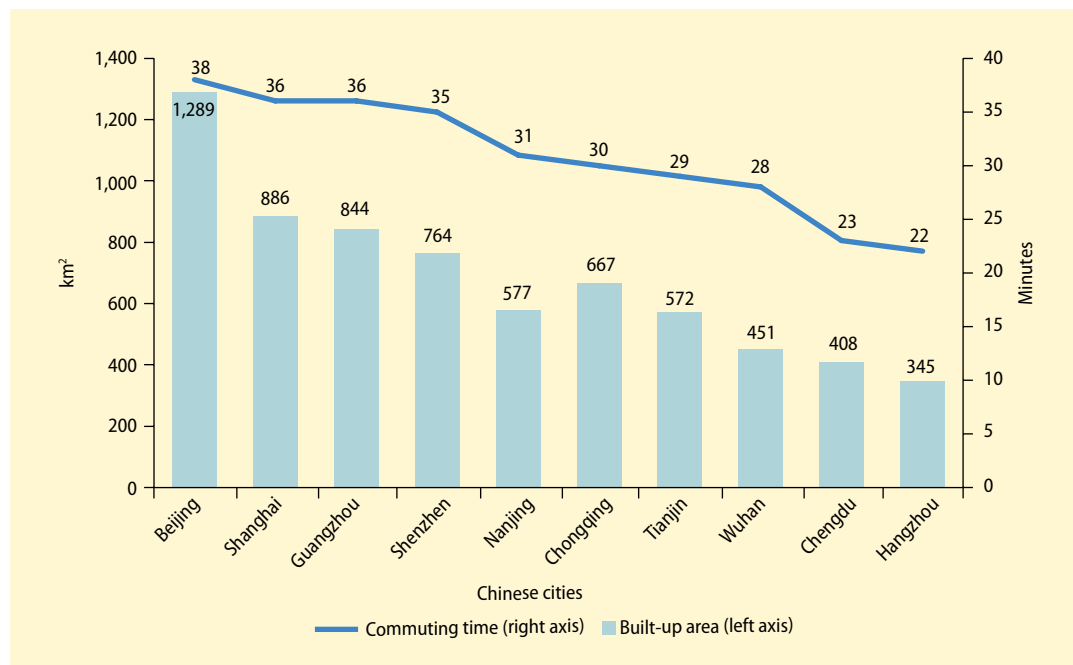
In most cities across the world, land prices shape density and land use, subject to restrictions put in place by land use regulations. If land prices are high, developers will build high-density, high-rise office buildings, shopping centers, and apartments. Higher densities generate greater need for infrastructure services (electricity, water, wastewater). But they also support environmental sustainability by being better suited to public transport. To be sure, density must not overwhelm infrastructure. Yet it is equally important not to underuse infrastructure by imposing low-density caps where infrastructure can support higher ones. Hence there is a need to coordinate land use and density with infrastructure.

Build urban planning and management capabilities at the metropolitan scale

In addition to better managing urban densities, simultaneous improvements in connectivity within and between cities have considerable bearing on enhancing economic efficiency. Connections between cities enable firms to access local, regional, and global markets—both for buying inputs and selling outputs. They also give consumers options and, in many cases, better prices (World Bank 2013a). Within cities, connections enable people to access employment, and they enable firms to attract workers, access other inputs, and sell their products in local markets. In China the evidence points to increases in congestion and commuting times associated with rapid spatial expansion of cities, potentially eroding gains from urbanization (figure 2.9).

Rapid urbanization and economic growth have increased the movement of goods and products. Between 2008 and 2012, freight movement measured in ton-kilometers grew annually by 9.4 percent, on par with GDP growth, reaching 17 trillion ton-kilometers in 2012 (Clean Air Asia 2013). Road transport

FIGURE 2.9 Spatial expansion of cities is associated with higher commute times



Source: Staff estimates.

accounts for 78 percent of the 41.2 billion tons of freight moved in 2012, and 35 percent of freight ton-kilometers. But moving freight by road is becoming inefficient as well as environmentally unsustainable. Some estimates suggest that 40 percent of trucks run empty for intercity trips and that it takes on average 72 hours to unload and load a truck (Clean Air Asia 2013). Short-haul truckers frequently return home empty, and long-haul truckers have to wait an excessive amount of time to get loads, seriously reducing operating efficiency (ADB 2012b).

With the largest Chinese urban regions rapidly spilling beyond their traditional boundaries, coordinating transport investments and policies at the metropolitan level is important. Accountability for providing better public transport blurs where the natural boundaries of a transport region include more than one autonomous agency. Many agencies at the city level are responsible for different aspects of urban transportation (metros, buses, road construction, traffic management, land use) that connects metropolitan areas.

To improve connectivity, metropolitan and regional agencies may need to be established where there is a mismatch between municipal boundaries and the urban economic footprint. In many countries, single subject or limited subject metropolitan-level agencies may be created by national law (as in *Syndicat des transports d'Île-de-France* [STIF] in the French Ile de France or the *Consortio Regional de Transportes de Madrid* [CRTM] in Madrid), or by state law (as in Vancouver, Canada). Or they may be formed by voluntary association between municipalities (as in most French metropolitan areas and in Recife, Brazil). The French case is particularly interesting: the formation of an urban transport organization authority (Autorité Organisatrice de Transport Urban [AOTU]), though voluntary action, is strongly encouraged by national law that gives areas setting up an AOTU the right to levy an employment tax specifically earmarked for public transport. There are even cases, as in the Washington, DC, metropolitan area, where the parties to the agreement (the District of Columbia and some districts within the states of Maryland and Virginia) have different legal status.

In all these cases the management of the transport organization includes representatives of the participant authorities and can operate only through the agreement of those representatives. In that sense there is indirect accountability. In most cases, to prevent a continuing haggle about the distribution of costs and benefits between the parties, there is a predetermined formula for allocating the costs, separate from the annual internal budgetary process. To reduce inefficiencies in the movement of goods and services, a good starting point will be to better coordinate policies, sequence investments, and integrate operations of the transport systems among the vast number of transport providers.

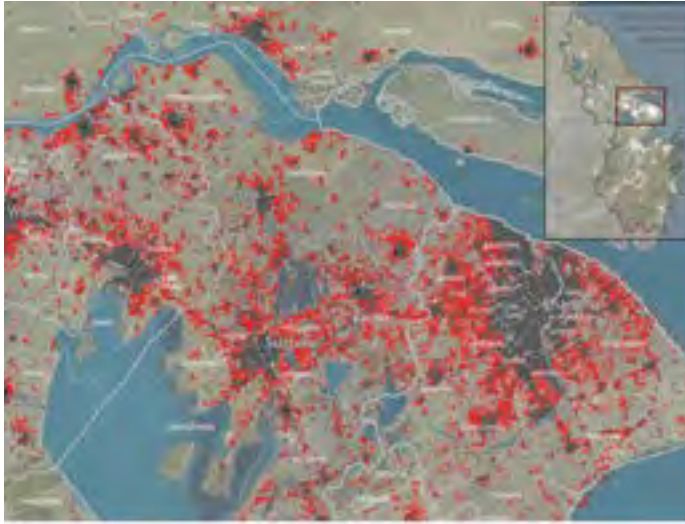
Planning for compact, dense, and vibrant cities

Trends and processes in urban spatial layout and planning

The stock of urban construction land increased more than 100 percent between 2000 and 2010 in Baoding, Fuzhou, Hangzhou, Hefei, Nantong, Quanzhou, and Shanghai, Metropolitan Regions. The largest absolute increases were in the Beijing, Guangzhou, Hangzhou, Shanghai, and Shenyang Metropolitan Regions. The area of urban land per capita varies significantly. The highest area per capita is in smaller metropolitan areas, with 1 million to 5 million residents. Tangshan and Baoding metropolitan areas have the highest ratio followed by Wenzhou, Zhongshan, and Changchun. None of these cities is a major destination for migrants, and expansion between 2000 and 2010 was likely supply driven by municipal governments and not by real demand for housing or industrial facilities.

New developments contribute to sprawl and to the decrease in densities (map 2.2 shows the sprawl for the Shanghai area). About 95 percent of urban growth in China happens as low-density edge or leapfrog growth, while a very little percentage of growth happens by infill and urban redevelopment. The building of new towns and economic development zones on the edges of existing cities serves local governments in

MAP 2.2 Sprawl in Shanghai Metropolitan Region between 2000 and 2010 (in red)



Source: Map prepared by the University of Wisconsin-Madison, May 2013.

their competition to attract capital and foster economic growth. The new expansion zones are often planned and built at rather low gross densities because of the size of road infrastructure, setbacks, and open spaces. For example, Binhai New District in Tianjin Municipality is being built at roughly half the density inside Tianjin's third ring road. Chenggong is another example. It is a new town 15 kilometers from downtown Kunming, with an area of 160 square kilometers, or 2.6 times the size of Manhattan. The planned gross floor area ratio (FAR)—the ratio of a building's total floor area (gross floor area) to the size of the piece of land upon which it is built—in Chenggong is 0.87, much less than the FAR of 3 to 4 in dense European cities.⁴

If sprawl continues at its current rate, urban areas will triple in land size by 2030. Based on empirical data from more than 50 cities worldwide, and with the expectation that the urban GDP will grow 2.5 times and the urban population will grow 1.5 times, urban energy consumption will triple. Sprawl will be responsible for 59 percent of this growth in energy consumption, while demographic changes and GDP will be responsible for just 12 percent and 29 percent, respectively (Bourdic 2011). Containing sprawl,

therefore, is extremely important for managing energy consumption and building more sustainable cities.

Quotas and growth restrictions have had limited effect on urban expansion

The spatial expansion of Chinese cities is marked by fragmented and noncontiguous development of new towns and economic development zones. This fragmentation is an unintended outcome of quotas to protect basic agricultural land because the policy does not discriminate sufficiently between agricultural lands within the city boundaries and those beyond. Because some of the agricultural land close to built-up areas cannot be developed, more distant nonagricultural villages are incorporated into the urban space. At the periphery, high-rise residential buildings are progressively replacing village housing and town and village enterprises (TVEs), while large pockets of agricultural land are left undeveloped within the city core. This leapfrog development is inefficient and expensive because utility networks and transport lines have to bypass the empty land, which loses productivity for lack of access to irrigation. Although the motivation of the Basic Agricultural Protection Law was well intended, its implementation lowers both agricultural and urban productivity.

A detailed study on the urban development process in Beijing showed that growth management policies had limited impact on the expansion of the city in suburban districts and greenbelt areas. The limited impact was mainly the result of conflicting national and local objectives that grew out of the fiscal and political decentralization process. With the dual land market system (box 2.2), local governments have relied on land conversion to finance public services. With increased decentralization and autonomy, they have pursued their own growth objectives and relaxed development controls to better obtain and compete (with other governments) for more investment opportunities. Few incentives exist for cooperation among governments, and village, town, and county interests prevail above municipal and national interests (Zhao, Lu, and Woltjer 2009).

BOX 2.2 Dual land market system

China's current land system is a result of a series of land reforms that started in the early 1980s. There are two tiers of land use right markets in China. The first is administrative allocation of land use rights through the "plan track" to the state or a nonprofit entity. An "allocation price" is paid, consisting of three components: the expropriation cost of the land, various stipulated land fees, and a government-set allocation fee. The second tier is conveyance of land use rights from the state to private users for a fixed period of time (40 years for commercial land, 50 years for industrial land, and 70 years for residential land). The "conveyance price" also consists of three major components—the expropriation cost of the land and various stipulated land fees, as in the first tier, together with a conveyance fee, which is "market determined" in that it is negotiated or determined by public tender or auction. The market-determined conveyance fee is

usually substantially higher than the allocation fee. In other words, state units are able to obtain land use rights at costs that are much lower than those paid by commercial users and with no time limit.

Only private users that have gained land use rights through higher conveyance prices are able to participate in the "secondary market" for land use rights in urban areas. Specifically, holders of land use rights obtained through conveyance may transfer these rights to others, rent to others the land on which they have use rights, or use their land use rights as collateral. Furthermore, the price for land use rights in the secondary market can be substantially higher than the conveyance price in the primary market. So the ability to mortgage one's land use rights is tremendously important in an economy where the capital market is underdeveloped and where banks are unwilling to lend without collateral.

Industries located in central urban areas during the period of the planned economy are being relocated to smaller cities and new economic development zones in peri-urban areas where municipal authorities have incentives to release land below market value because they see industries as major drivers of local economic development and jobs. Most major cities are planning major expansions of new towns and development zones at the urban periphery as part of their urban master plans. These are quite often "showcase" or "image" projects and sacrifice people's preferences and intensity of land use. Land allocation to industry in Chinese cities is between two to three times that in comparable cities in other countries with well-functioning land markets. Although reforms are under way to correct the allocation and pricing of industrial land, the problem will take time to redress because most relocation of industry is fairly recent.

In addition, governments have increasingly been relying on mortgage loans through local government financing vehicles (land banks) that help circumvent restrictions on local government borrowing; these loans are backed by future land sales as collateral. Both practices have contributed to aggressive

requisitioning farmland in a manner that is contributing to unsound forms of urban growth, unsustainable local finance, and the waste of land resources. The oversupply of industrial land and limited release of urban land for residential and commercial purposes have a direct impact on housing prices, which have been soaring (Rabinovitch 2013), making the provision of affordable housing more difficult.

The planning process in China

China's planning institutions follow a hierarchical structure. The main administrative system includes the central administrative bodies, the State Council, and local administrative bodies at the province, county, city, and township and district levels. At the local levels, the peoples' congresses have the capacity to elect members of the government and the power to adopt local regulations and monitor government functions, including urban planning (Song 2012). Local governments usually follow the lead of the central government in developing various plans, such as the five-year plans for economic and social development at each level. Further examples of national-level plans are provided in table

TABLE 2.2 Examples of key national plans

Plan	Institution
Major Function-Oriented Zone	National Development and Reform Commission
Land use master plans	Ministry of Land and Resources
Comprehensive plans for river basins and flood control planning	Ministry of Water Resources
Comprehensive transportation plans	Ministry of Transport
	Ministry of Railway
	General Administration of Civil Aviation
National economic and social development plans	National Development and Reform Commission
Regional economic development plans	National Development and Reform Commission

Source: Adapted from Song and Pan 2009.

2.2. The planning system consists of socio-economic and sectoral planning at all levels of government, and urban planning at the municipal level. At each level, institutions are expected to coordinate with each other in the development, implementation, and monitoring of plans. The time frame for socioeconomic and sectoral plans includes long-term, medium-term (that is, five-year), and annual. Urban master plans usually cover a time span of 20 years.

A new tool, Major Function-Oriented Zone, is being implemented by the Chinese government. This tool promotes coordinated regional development and spatial structures, and takes into account the different roles that different regions in China play, for example, regarding urbanization and industrialization, the protection of ecosystems, agricultural production, and safeguarding the natural and cultural heritage. This new tool expands the focus from just economic development to embrace other development priorities throughout the regions.

Regional planning is not mandatory but is generally conducted at the central level by the National Development and Reform Commission, whose duties include preparing national economic and social development plans, planning development priority zones, coordinating regional development and strategies for urbanization and sustainable development. The planning process adopted by the Chinese system is similar to that seen in other countries. To put it simply, the system is a top-down and bottom-up process with a central planning agency. The main difference is that greater effort is needed for the Chinese system to cope with the inherent

complexity of economic planning for a large territory, population, and economy with significant regional diversity and disparity. With increasing emergence of interprovincial economic cooperation, the government is facing a new challenge in regional planning.

Urban planning is implemented at the state level by the Ministry of Housing and Urban-Rural Development (MOHURD), which is overseen by the State Council; at the provincial level by the Department of Housing and Urban-Rural Development, overseen by the Provincial Government; and at the city or town level by the construction commission, urban planning commission, or urban planning bureau, overseen by the local government (Song and Pan 2009). Institutions at various levels first prepare an urban master plan and then a detailed control plan for their level and submit it for approval to the appropriate upper-level body, depending on the size or status of the city or town. The State Council has to approve urban plans for several cities, including municipalities directly reporting to the council (Beijing, Chongqing, Shanghai, and Tianjin), provincial capital cities, cities with over 1 million residents, and other designated cities. A city planning supervising system covers all provincial capital cities, all subprovincial cities, and all national historic cities except municipalities.

At the local level, the preparation and implementation of urban development plans requires involvement of many government agencies; the key agencies are listed in table 2.3.

Master plans are usually prepared on a 20–30 year horizon and are for the whole metropolitan area, not just the urban area.

TABLE 2.3 Key local planning institutions

Institution	Responsibility
Development and Reform Commission	Establish five-year plan for economic and social development and regional development plans and guide urban planning process
Urban Planning Bureau	Manage urban planning process as well as planning related projects
Land Resources Bureau	Manage land use master plan and other land-use related activities
Water Resources Bureau	River basin and flood control plans
Transport Bureau	Participate in urban planning process and transport planning
Public Works/Infrastructure Bureau	Maintain public infrastructure
Environmental Protection Bureau	Develop local environmental regulation and monitor environmental protection
Statistics Bureau	Provide demographic data for planning process

Source: Adapted from Song and Pan 2009.

Master plans have a five-year implementation plan and a number of associated sectoral master and implementation plans under them, and are expected to be updated and reappraised every few years. District plans may be prepared for medium-large cities. Detailed control plans and detailed construction plans are prepared under these higher-level plans. Urban transport plans are generally a process under the urban planning system. Land use plans are overseen by land management bureaus under a separate process from urban plans (and often are not in sync with the urban planning process). Because of the pace of urbanization and development, however, land use and infrastructure development in China's cities often exceeds the limit and expectation set by the master plan (Zhi 2013). The oversight function of higher-level authorities for urban spatial expansion also largely fails amid rapid urbanization.

As in other countries, various organizations, institutions, and levels involved in the planning process and coordination between planners and sector departments is essential for preparing comprehensive plans (but can face difficulties). An integrated urban plan is one that takes into account all the factors set out in table 2.4. At the core of the process is the need to synthesize and prioritize investments plans proposed under the plans and by line ministries and link these with the budgeting process managed by the Ministry of Finance (Zhi 2013).

Planning practices and land use allocation in secondary land markets

Chinese planning practice contributes to land use inefficiencies by limiting building intensity. China is developing a lot of land, but not necessarily in a way that responds

TABLE 2.4 Factors making up an integrated urban plan

Factor	Role	Result
Social and economic forecasts	Evaluations of population and economic conditions	Shared with all other agencies to guide their plans (land use, infrastructure, environment)
Land resource protection and land use allocation	Land resource and land use planning combined into one function	Helps ensure timely decisions on new development locations and limitations and conservation of farmlands or open spaces
Transport planning	Coordinate with land use and urban planning	Ensures layout and capacity of transport infrastructure and systems correspond to land use and urban plans
Environmental protection	Coordinate with urban and transport plans	Monitors both industrial and agricultural pollution as well as mitigates pollution from urban and transport.

Source: Adapted from Song 2012.

BOX 2.3 Regulatory restrictions on urban redevelopment and densification

Restrictions on urban redevelopment run a range of complexity. On the simpler side, consider the redevelopment of a traditional seven-story walkup area in a Chinese city. If the redevelopment is being done for a public purpose (such as for a park or railway), the current land users will be compensated at locally specified compensation rates. This type of redevelopment is relatively low cost and straightforward but can only be carried out by the government.

For commercial redevelopment, a prospective developer must negotiate with each individual property “owner” over the entire lot. Given how large these lots are, a typical superblock developed as a seven-story walkup would require negotiating compensation rates with many individuals, a challenging proposition for any private land developer. In practice, an urban development investment corporation (UDIC) negotiates with all the landowners and redevelops the entire lot—compensating land owners and clearing the land. Only then can the land be reapportioned and redeveloped using the same process as for newly converted urban land.

In other words, for almost any form of redevelopment within an urban area, it is likely that a government-backed UDIC will need to be involved and that the process will require complex negotiations with a huge number of land owners of a large-scale lot. This requirement for large-scale government intervention indicates that redevelopment in Chinese cities is a challenge. It cannot be done at a small scale, because all major changes can only be made at the “lot” level, which is typically large, fixed, and decided in the past. These restrictions suggest how land use and density decisions in China are “locked in”—decided at one point and difficult to change incrementally.

Contrast this situation with a case of the same set of buildings each on their own individual lot. Here, a property owner would only have to control one lot to propose a land use change. If, perhaps, a developer perceived a need for a hotel, or a set of shops, he could purchase one single property from its “owners” (a simpler proposition than negotiating with the entire large lot). In addition, if necessary, the developer could petition for rezoning only of his small lot, rather than the larger superblock containing dozens of buildings.

Source: Based on description prepared by Andrew Salzberg.

to consumer demand or promotes efficiency. Local governments have not used density regulations effectively to provide incentives to increase densities along major public transport corridors and stations, while reducing densities in less accessible and peri-urban areas. Zoning and FARs are often applied at the large block or parcel level and lack a clear strategic policy direction that would allow for gradual densification based on infrastructure improvements and land value increases over time. In general, density restrictions are too rigid in city centers, forcing development to the urban periphery.

Changes in land use require permission from the government, and land developers who abandon the use forfeit their right back to the government. Land developers have some flexibility in defining the layout and subdividing the lot under specific guidelines; however, the land’s delineation and FAR are often fixed with little flexibility. Because land and the buildings on that land are separate

items of ownership, they often require separate registration in different offices. Businesses and individuals who buy property, receive a certificate that links their property cadastral information to the entire lot that was leased to the developer, which contains other land and, likely, buildings. In other words, the original secondary land developer still controls the original lot (box 2.3), and the building developer only has an ownership certificate for his building. In other words, true “subdivision” of a lot, in the sense of the word used in western contexts, is not possible in the Chinese context. Even if smaller developers are allowed to participate in the development process by building and owning buildings, the underlying land remains tied to the original leased plot.

Urban blocks are often oversized and do not optimize land use

Chinese cities were developed with superblocks of 400 meters (or more) to accommo-

date the *danweis*, or the places of employment of state-owned enterprises, and the land use rights of many superblocks in older parts of cities are still owned by the *danweis*. Most new developments continue to be built at very large block sizes. The blocks in newly planned expansion zones typically range from 400 meters to over 800 meters a side, compared with blocks in Tokyo that average 50 meters a side, or blocks in Paris, London, and Manhattan that average 120 meters a side. One 400 meter Chinese superblock equals 64 Japanese blocks and 11 blocks in Manhattan, Paris, London or Hong Kong SAR, China. Like the former city center superblocks, the new superblocks are usually not subdivided into smaller plots when leased, which prevents a more competitive and gradual redevelopment of the block over time. The superblocks have also benefited large developers with the means and access to capital market to purchase the lease rights and develop these blocks.



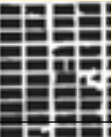



The building coverage ratio—the ratio of the building's footprint to the size of the lot—of superblocks in Chinese developments varies between 15 and 25 percent.⁵ This building coverage ratio is low compared with historical small blocks (where the ratio is 50–65 percent), forcing Chinese urban designers to compensate for the loss of density by going vertical. The density, as measured by the floor area ratio, of vertical

superblocks is by far inferior to that of small continuous perimeter blocks. Setbacks at the edge of the superblock create a strong discontinuity and isolation from the street, often reinforced with fences around new developments. Inside superblocks, repetitive buildings (office towers, housing parallel slabs, villas) stand in isolation without forming a continuous whole with the rest of the urban fabric. Superblocks thus lack complexity and differentiation. In an area of less than four Chinese superblocks, the city of Turin houses hundreds of buildings, many plazas and monuments, 40 kilometers of facades along streets, and 15 kilometers of facades along internal courtyards (box 2.4).

Although the Code for Transport Planning of Urban Roads (GB 50220-95) differentiates between different types of roads, the actual plans and designs of urban streets, especially in new development areas, make little distinction by use and function of streets. They do not take into account the needs of different users, nor are they based on realistic forecasts of traffic demand. Many roads are oversized, in part because planning guidelines require an arterial road (eight lanes or more) every kilometer and a main urban road every 500 meters. That might be appropriate for large metropolitan regions, but it is neither feasible nor desirable in smaller towns. The standards and guidelines are responsible for three

BOX 2.4 Comparison of connectivity in Chinese and other cities

The table shows the differences in connectivity for three cities in China and three in Europe.

	Turin, Italy	Barcelona, Spain	Paris, France	Pudong Shanghai, China	Hutong Beijing, China	New areas Beijing, China
Urban grid						
Intersections per km ²	152	103	133	17	119	14
Distance between intersections	80	130	150	280	75	400

inefficiencies: overly large superblocks that are not subdivided into smaller plots; roads that are too wide, often between six and ten lanes, and designed for high-speed traffic, typical of highways; and the absence of secondary and tertiary roads based on function; the lack of such a public street network results in a public street density that is three times lower than in Europe and in Manhattan and eight times lower than in Japan.

Public space design, including street design, has been replaced in Chinese urban planning practice by road engineering with increased traffic flows as the main objective. The National Standard of Urban Residential District Planning and Design sets out the standard for road width within the residential district. Regulations on street widths, street traffic speed, and block length shows that at the residential district level, the built environment is intended to promote walking. Given the arterial roads, however, which are normally one kilometer apart, the environment is not pedestrian friendly.⁶ The multi-lane, high-speed arterial roads act as impassable barriers within the city and reduce the connectivity between neighborhoods as people are forced to walk 700 meters to cross an 80-meter-wide road.

Huge potential for densification and intensification of urban development

Compactness enhances economic efficiency and social inclusiveness of cities. Compactness, densification, mixed-use, and fine-grain street networks should be encouraged at the block, neighborhood, and metropolitan scales. At the block level, superblocks should evolve progressively into small blocks with higher FAR, better inside connections and more accessible amenities. At the neighborhood level, a dense distribution of public facilities and amenities should be encouraged. At the metropolitan level, infill development and integrated transport land use development need to be encouraged. Density (demographic or FAR) is not the only characteristic of compact sustainable cities. Proximity and accessibility, mixed use, and connectedness are also preconditions for the formation of agglomeration economies and for addressing

social inclusiveness and environmental well-being. They should be enhanced in an adaptive strategic planning process by increasing progressively the number of intersections per square kilometer and the linear density of streets to develop the connectivity and create a more fine-grain urban fabric.

The density of public amenities such as public parks and health care, child care, and education facilities should be increased, to create a city where most daily amenities are accessible within a five minute walk. Finally, cities should mix commercial space, offices, and residential areas to reduce the distance residents have to travel to their jobs or to recreational space. Articulated densities will allow more efficient and cleaner transport modes to become viable and affordable, such as biking, walking, and public transit systems. Densification is not an end in itself, but a means of improving the sustainability, connectivity, accessibility, and diversity of the city, as well as its vitality. It is a relative indicator of the intensity of development, as one can see in the comparison between Pudong and Puxi, both districts in Shanghai (box 2.5).

Forms of densification must be encouraged at three different scales. At the building and block scale, traditional perimeter blocks of about 100 meters a side and buildings of medium height (five to seven floors) offer the highest potential for densification, with gross FARs (including infrastructures) usually three times higher than towers-in-a-park superblocks of 400 meters side. At the neighborhood scale, the density of urban fabric should be balanced by a fine mesh of streets and a dense distribution of public parks and amenities. At the metropolitan scale, planners should locate the areas where infill would increase the compactness and decrease the fragmentation of the urban area. They should give an efficient shape to the metropolitan growth by concentrating densification actions along transportation corridors and discouraging leapfrog and edge sprawl.



Moving from superblocks to small, well-connected plots

Small blocks allow more density and agglomeration economies. Chinese cities could be

BOX 2.5 Density compared in Pudong and Puxi, Shanghai

A one-square-mile selection in Pudong

Pudong is often considered as a model of high-density urban development. The following table compares two districts located on the opposite side of the Huangpu River: Pudong and Puxi. Because of the large-scale infrastructures associated with the large-scale buildings in Pudong, such as highways, large setbacks, parking space, there are huge areas that are not built. The building coverage ratio is much higher in Puxi, and, as a result, its gross urban density is higher than in Pudong.

800mx800m squares		
	HongKou– Puxi, Shanghai	Lujiazui– Pudong, Shanghai
Building type	Low-rise housing	Towers
Coverage ratio	53%	14%
Gross urban density	1.9	1.2

Source: Salat, Labbe, and Nowacki 2011.

redeveloped within the existing built urban footprint by dividing superblocks into smaller blocks and increasing intensity inward rather than directing the growth outward toward spatial expansion. Redevelopment within the existing footprint would create more compact cities, would foster short-range accessibility and interactions, would diversify the economic fabric at the local scale, and would decrease the environmental loads of cities. Small blocks in the Chinese context can achieve an average gross FAR around 2.5—doubling at a minimum the FAR of the current

superblocks (Salat, Labbe, and Nowacki 2011). A finer-grain urban fabric could be obtained by subdividing the superblocks into small blocks of 100–150 meters a side and reorganizing the spatial layout by constructing additional medium-rise buildings that redefine the boundaries and internal structure of the block. China's unprecedented effort of the past three decades to build large structures has left space to build the intermediate and small elements in the space in superblocks left empty by the low building coverage ratio. Filling in this empty land with new low-rise

dense and continuous construction, recreating vibrant streets inside the existing blocks, and connecting the whole city by narrower streets running from block to block with walking and cycling paths is a challenge—but it is also a source of new profits generated by the use of high-value existing urban land.

Several innovative strategies for infill development within existing superblocks in Chinese cities have been proposed in a joint Massachusetts Institute of Technology (MIT) and Tsinghua University project for designing more energy efficient and cleaner neighborhoods that would spur economic growth and quality of life of neighborhoods and cities (Frenchman, Wampler, and Zengras 2011).

Key concepts of the high-low-rise block are the following:

- The integration of high-rise with low-rise forms creates a high-density neighborhood that is human scaled, combining valuable properties of both low- and high-rise development.
- The new urban form is energy efficient. According to MIT calculations, it reduces the overall energy consumption per household by more than 40 percent compared with conventional superblocks and brings the energy consumption close to the same level as traditional forms and at the same level as small-block grid-based neighborhoods (Frenchman, Wampler, and Zengras 2011).
- The new urban form provides services and amenities that residents need daily within close walking proximity, creating a highly functional and livable environment.
- The basic unit of development consists of a mixed-use small perimeter block of four to six stories enclosing an interior courtyard and includes one or more high-rise towers. The courtyard provides semiprivate space for residents in the cluster.
- Towers are carefully placed in each cluster to ensure adequate sunlight in all residential units and beneficial shade in the summer months.

As the above example shows, there are design options to adapt the current superblock and intensify its use to serve various

functions, but a lot will depend on regulatory and institutional issues discussed earlier. Relaxing the block control rules is one of the key policies necessary for the Chinese urban landscape to evolve toward a more efficient mixed-use form. Chenggong's Master Plan, revised by Calthorpe Associates,⁷ is based on smaller blocks and articulated density along transit systems. The Kunming Urban Planning and Design Institute designed it to conform to block control regulations, which resulted, even with "special case" status, in a plan with a core area made of 11 control units, 65 superblocks, and 384 parcels, with a net decrease in the street density. The revised plan is a significant progress compared with current practice, although it is still behind the level of fine-grained and mixed-use cities like Manhattan or Paris.

Removing barriers and introducing flexibility in the local planning and building regulations is key for implementing mixed-use small perimeter blocks. Success can be tested during a transitional phase through an assessment of the environmental performance of a building and neighborhood that considers such things as smart growth, energy efficiency, resource recycling, environmental quality, and sustainability. Examples, such as the Comprehensive Assessment System for Building Environmental Efficiency (CASBEE) in Japan or the Leadership for Energy and Environment Design for Neighborhood Development (LEED-ND), could be introduced and used to assess the effectiveness of local regulation and pave the way for changes. Current local codes do not allow small perimeter blocks, and negotiating with planning bureaus to get an exemption can be an extremely long and bureaucratic process. Even in special zones such as the Chenggong New Town, environmental and energy efficiency improvements were compromised considerably by the 50-meter setbacks rules on the main roads.

Revision of planning and building codes is urgently needed to bring them into line with international practice and allow for more efficient and sustainable urban development. The following changes would introducing more flexibility into the block control system and increase the kilometers of streets per square kilometer of area:

- Introduce conforming line ratios requiring that a minimal proportion of the buildings to be aligned along the street and sidewalk (without a setback). The conforming line ratio can be modulated according to the type of building (more than 60 percent for residential buildings, more than 70 percent for commercial and office buildings).
- Insert zoning at the parcel or lot level to encourage mixed use at the block level.
- Reset standards on building coverage and green coverage to allow a continuous façade of buildings.
- Reduce minimum building setbacks. Many American cities are suppressing their setback rules to promote pedestrian-friendly environments with active street edges. As an example, in Chenggong the minimum setbacks are being reduced to 10 meters along roads wider than 40 meters, to 5 meters for roads 40 meters wide, and between 1 and 5 meters for roads less than 40 meters wide.
- Introduce more flexibility in solar protection lines.
- Reduce turning radius at street intersections.

Market diversification and other benefits of smaller blocks

Subdivision of land leases and market opening to smaller-scale investors are key for incremental densification. Land leases should be subdivided into smaller plots, and financial mechanisms should be created, to foster the coexistence of a few large projects with large-scale finance, a medium number of medium-scale projects, and a myriad of microprojects financed by small and private local initiatives.

Except for rare and justified situations (large infrastructures, key urban amenities), cities should avoid the super block approach to land division. Rather, cities should divide superblocks into a few dozen urban plots (about one hectare in size) with diversified uses. To do so, national and local authorities will have to implement the following key actions.

The higher cost of fine-grain urban development can be covered through the increase of FAR and the implementation of FAR rights.

The development of a fine-grain street network is more expensive in absolute value, as shown in box 2.6: RMB 58 million per square kilometer compared with RMB 35 million in the more traditional developments. However, the increase in density made possible by the finer grain of urban fabric leads to lower pavement costs per capita—RMB 3,700 per capita, compared with RMB 5,514 per capita for the superblock. This inversion of absolute investment costs and per capita investment costs shows the importance of implementing financial mechanisms to finance the absolute additional costs with the increase in FAR. This approach makes economic sense only if densification takes place. In Europe, the public authority finances the fine-grain street network and captures the value in the long run through land sales and property taxes.

More dense, mixed-use, and well-connected neighborhoods




A high density of streets with a good balance of different street sizes promotes walking and cycling. A high density of narrow streets with close intersections creates a vibrant, safe, and walkable urban landscape. Destinations tend to be within walking distance, and the system of close intersections enables the pedestrian to change direction easily. The connectivity of streets of different sizes ensures the continuity of public space that is an essential feature for walkability (box 2.7). The differentiation of street widths goes along with a differentiation of travel speeds. Narrow streets are designed for low-speed traffic with bicycle lanes, while larger streets can accommodate faster traffic.

A sublayer of connective public streets and well-defined and designed public spaces inside the existing superblocks would increase connectivity in Chinese cities. Progressive development of a small-mesh street network would end up by reconnecting the full city. International best practice shows that this finer grain also better optimizes traffic flows while creating more direct routes and maximizing pedestrian mobility.

Local street patterns should be integrated with surrounding networks to provide flexibility and accommodate changes in built and

BOX 2.6 Cost analysis of street network for various size blocks

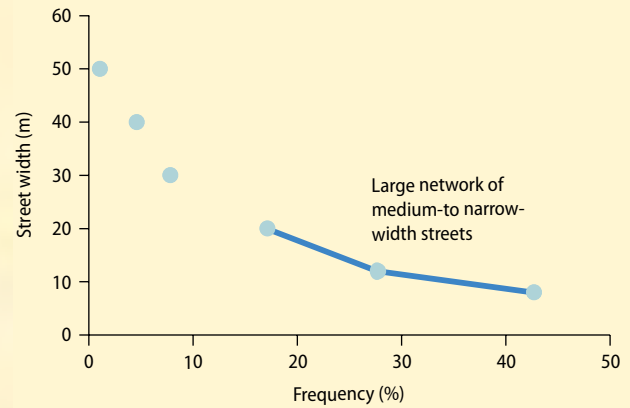
This box compares infrastructure costs associated with three models of street network. The first model corresponds to the traditional Chinese superblock, which typically has 500 meters between intersections and multilane roads every 500 meters. The third model corresponds to the European model, based on empirical figures for Paris (Bourdic and Salat 2013).

	Model 1 “Traditional” Chinese block 500 m between intersections 	Model 2 Medium-grain small block 170 m between intersections 	Model 3 Fine-grain small block 130 m between intersections 
	<i>Black lines: 10 lanes</i> <i>motorized streets (10L M)</i> <i>Dark blue lines: 6 lanes</i> <i>motorized streets (6L M)</i>	<i>Light blue lines: 4 lanes</i> <i>motorized streets (4L M)</i> <i>Green lines: 2 lanes</i> <i>motorized streets (2L M)</i>	<i>Light blue lines: 4 lanes</i> <i>motorized streets (4L M)</i> <i>Green lines: 2 lanes</i> <i>motorized streets (2L M)</i>
Street length for 1 km²	10L M: 2,000 m 6L M: 2,000 m	4L M: 2,000 m Diagonal 4L M: 2,800 m 2L M: 10,000 m	4L M: 2,000 m Diagonal 4L M: 2,800 m 2L M: 14,000 m
Street length by type	Motorized way: 32,000 m Bicycle lanes: 8,000 m Pedestrian lane: 8,000 m	Motorized way: 39,200 m Bicycle lanes: 29,600 m Pedestrian lane: 29,600 m	Motorized way: 47,200 m Bicycle lanes: 37,600 m Pedestrian lane: 37,600 m
Street area by type (m² for 1 km²)	Motorized way: 115,200 m ² Bicycle lanes: 16,000 m ² Pedestrian lane: 16,000 m ²	Motorized way: 141,120 m ² Bicycle lanes: 59,200 m ² Pedestrian lane: 59,200 m ²	Motorized way: 169,920 m ² Bicycle lanes: 75,200 m ² Pedestrian lane: 75,200 m ²
Pavement costs for 1 km²	35.1 million RMB	47.8 million RMB	57.8 million RMB
Block length facing street (km/km²)	7.4 km	19.4 km	26.0 km
Human density (job+housing)	7,500 cap/km ²	15,000 cap/km ²	20,000 cap/km ²
Nb of intersections per km²	4	36	78
Pavement cost per capita (RMB/cap)	5,514 RMB/cap	4,033 RMB/cap	3,700 RMB/cap

BOX 2.7 Street patterns in Paris, France

The street network in the central areas of Paris is distributed according to a long-tail distribution: 60 percent of the streets (the historical street network) are less than 12 meters wide and accommodate only low-speed traffic. Avenues and boulevards are 20 and 30 meters wide and can accommodate faster transit and public transportation (bus and tramway). There are

700 kilometers of medium-scale streets that ensure high walkability and accessibility and that foster smooth traffic diffusion in the city. There are in comparison, few large boulevards providing room for a variety of modal choices (public transportation, car, bicycle, pedestrians).



Paris street network (left). High proportion of medium-to-narrow-width streets (right).

Source: Bourdic and Salat 2012.

social environments. Street networks should, in general, be connected at all scales and in between scales. Connected or “permeable” networks not only encourage walking and cycling but also lead to a more even spread of motor traffic throughout an area and so avoid the need for distributor roads. A development with poor links to the surrounding area creates an enclave, which encourages movement to and from it by car rather than by other modes. New developments and alterations to existing street networks should be designed with multiple access points that connect with, and complement, existing street patterns. The traditional planning approach favoring mobility should be limited, and accessibility should be encouraged.

Housing choice and diversity should be provided. Neighborhoods must be planned

to provide for choices in quality housing that meets a greater variety of needs and preferences. Affordable housing development needs to be better integrated within the city fabric. Density levels in suburban areas of many cities in China are much lower than in the city core, which occupies only 4 percent of the land, but accommodates 29 percent of the total municipal population. Because local governments have limited revenue sources, low-income housing is built in suburban locations where land is cheap, and where supporting social and economic infrastructure (such as schools, health centers, transportation, and jobs) lag behind. This practice creates the risk of ghettoizing low-income households and contributes to urban sprawl.

Record land prices and strong property markets in many Chinese cities have raised

BOX 2.8 China's urban villages

Urban villages (*chengzhongcun*, or literally “village in the city”) are a phenomenon of China's urbanization process, particularly in major cities, directly linked to the dual urban-rural land market. As cities expanded, local governments acquired agricultural land from rural collectives, converted it into state-owned urban construction land to build modern infrastructure and buildings. However, acquiring the associated rural residential properties and relocating households, particularly from well-established, concentrated villages, proved difficult, not to mention expensive. So, in many cases, these collective villages were left to be absorbed by the cities even though they were not part of the approved master plan. They are now surrounded by skyscrapers in the center of cities or by high-end gated villa communities in the suburbs.

Rental housing in urban villages has proved a valuable source of replacement income for residents. Residents of urban villages commonly retain their property rights and their housing plots within the collective land tenure system (Liu and others 2010). To make up for the loss of agricultural income, residents expanded and subdivided residential buildings on their properties to rent to migrants looking for affordable housing in major cities close to job opportunities. In Guangzhou, for example, there are an estimated 138 urban villages covering about 20 percent of the municipality and housing around 70

percent of migrants and 40 percent of the total urban population. The average monthly rent for an urban village space in Guangzhou is around RMB 16 (\$2.60 per square meter—half the city average (Lin and de Meulder 2012; Zheng and others 2009).

Urban villages are often overcrowded with poor sanitary conditions. To maximize rental income, residents have expanded houses, in some cases up to eight stories high. As these urban villages are outside the responsibility of the municipal authorities, the design and construction of buildings are not constrained by urban building and safety standards (Song and Zenou 2012). Standards for rural housing usually limit buildings to two and a half stories and certain perimeters (Wu, Zhang, and Webster 2013), but enforcement by village committees is weak. In the result has been high-density neighborhoods, inadequately served by basic public utilities, with poor ventilation and drainage and often lacking basic facilities. A survey of facilities in 50 urban villages in Beijing in 2008 showed that the majority did not have bathrooms, kitchens, or heating. (Zheng and others 2009).

Many municipal authorities and city residents consider these urban villages to be eyesores (Du and Li 2010). A recent study in Shenzhen, where urban villages are scattered throughout the city, found that proximity to urban villages has a negative effect on the prices of nearby residential developments (Song

concerns about the affordability of housing in many cities, where the costs of buying or renting a home are increasing much faster than incomes. Instead of intervening in the land markets and limiting the maximum bid prices as Beijing recently did, implementation of a property tax system could be an important instrument for local governments to capitalize on the heated market and cross-subsidize and expand the supply of affordable homes. Policies include the use of increased tax revenue associated with higher property values and an active real estate market, as well as requiring the inclusion of a modest number of affordable homes within new residential developments.

Experience in South Africa and Mexico illustrates that affordable homeownership programs on the outskirts of the city can be significantly less expensive in the short run,

but much more expensive in the long run. Regeneration of urban cores in established cities has higher up-front costs because of more complex construction, upgrading of public spaces, and improvement of existing services, but once revitalized, urban cores become self-sustaining by attracting further investments and for a considerably longer period of time (Licciardi and Amirtahmasebi 2012). Mixed land uses also prevent central areas from closing down at night, improve diversity in housing supply, stimulate a range of diverse economic activities, and reduce transportation costs.

Other important instruments that several countries have used to provide affordable housing include “inclusionary zoning” or “incentive zoning” policies. Zoning policies could require (inclusionary zoning) or create incentives (incentive zoning) for developers to

BOX 2.8 (continued)

and Zenou 2012). However, urban villages have played a role by providing affordable housing for migrant workers to support the urban economy. Migrants living in urban villages are not limited to unskilled labor. University graduates live in urban villages and work in high-tech sectors such as information technology. One study in Guangzhou, found that 10.3 percent of migrants renting housing in the surveyed urban villages were university graduates (Du and Li 2010).

Because the land in urban villages belongs to the rural land system, residents cannot sell their land directly to developers. The state may acquire the land, compensating the current residents, and lease it to developers in the urban land market. However, these urban village collectives have strong vested interests in retaining their properties and rental and commercial incomes. Nonetheless, most major cities have already begun or are planning redevelopment projects to bring these, often prime pieces of land, into the urban land system and essentially to make them more governable (Wu, Zhang, and Webster 2013). Cities have taken different approaches to redevelopment of urban villages, with some cities compensating residents generously to encourage resettlement; others are working in partnership with developers and urban villages in the redevelopment process. This process is likely to lead to the introduction of more land within existing cities for infill development.

Redevelopment of urban villages needs an approach that considers all levels of government, all stakeholders, and multiple strategies based on thorough understanding of village attributes as well as the city's strategic priorities for housing migrant workers. The top-down approach, mainly based on a "demolish and redevelop model," is unlikely to work in many cases. Many large-scale redevelopment projects have been proposed in recent years, but the majority of them have not gone beyond the initial study stage because of conflicts of interest among stakeholder groups (Lin, de Meulder, and Wang 2011). Bottom-up approaches, to gradually reshape urban villages, are also unlikely to fully solve the problems of informality and lack of regulation on their own (Lin and de Meulder 2012). Different approaches are required for different types of urban village. Those in the inner city areas, for example, tend to have higher populations and building densities and higher socioeconomic status but poorer housing status. Understanding the physical form is not sufficient, however, to find strategies to integrate these communities into urban society. That will require a better understanding of social relations and the organization and management of the urban villages as well as recognizing the role of market forces and need for adoption of market rules (Liu and others 2010).

Contribution from Joanna Masic.

include a certain percentage of low-income housing (usually 10–20 percent either in rental or ownership) in new large-scale housing or mixed-use developments (those with at least 100 units, for example, or a minimum surface area, say, at least 50,000 square meters). A well-designed program could benefit the community, low-income people, and developers alike. Fairfax County in Virginia approved a plan to rezone an area around a metro station that will increase density substantially and required the developer to make at least 5 percent of the new housing "affordable." In addition, the government could provide special subsidies for the construction of affordable housing units (box 2.8).

Governments can also make abandoned or vacant land and properties available for affordable homes. Government-owned land,

such as large parking lots around government buildings and low-density structures in areas zoned for high-density development, can be used for affordable housing. The rehabilitation of older buildings to minimum safety standards could also provide reasonable and affordable housing for low-income people.

Connecting people, linking businesses

Expanding the economic reach of cities through improved connectivity

Improvements in connectivity within and between cities have considerable bearing on enhancing economic efficiency.⁸ They enable firms to access local, regional, and global markets—both to buy inputs and

sell outputs—as well as to exchange ideas, thereby stimulating innovation. Connections also give consumers options and in many cases better prices. Within cities, connections enable people to access employment and services, and they enable firms to attract workers, access other inputs, and sell their products in local markets.

Intercity connectivity has dramatically improved over the past 20 years in China, for both freight and passengers. The scale and pace of network expansion is unprecedented. China undertook major upgrades in each of the transport modes, particularly road and rail. Between 2006 and 2012, China added 780,500 kilometers of roads, 50,860 kilometers of expressway, 65,230 kilometers of rural highways, 20,900 kilometers of railway, 41 airports, and 2,361 kilometers of high-grade inland waterways. The new expressways and

high-speed railways (HSRs) helped cut intercity travel time by 50–70 percent.

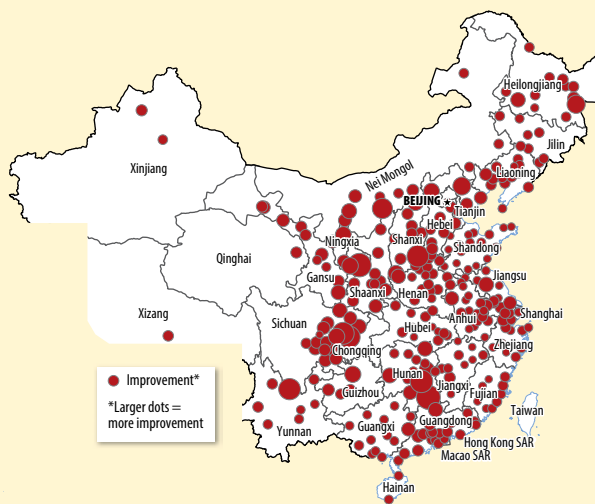
Such improved intercity connectivity is redefining the level of economic integration and accessibility for most Chinese cities. First-, second- and third-tier cities are gradually being connected through modern transport infrastructure and benefit from a broadened range of alternative services for both freight and passengers. Disparity in accessibility among cities in China has dropped as a result of transport investments over the past decade with the coefficient of variation dropping by nearly 50 percent (box 2.9). The development of the expressway network has facilitated growing exchanges between firms leading to agglomeration benefits. Based on econometric analysis in Guangdong, it is estimated that the real wage rate would increase by 10 percent when the economic mass

BOX 2.9 Improvement in intercity accessibility (2000–10)

The map shows the change in accessibility in 287 prefecture-and-above level cities in China during 2001–10. The size of the dots is proportional to the magnitude of improvement in accessibility measured in terms of economic mass. Three groups of cities experienced significant improvement in economic potential during this period, as joint outcomes of different types of transport infrastructure development.

Cities that are located along a belt from northeast to southwest China, the frontier of the “Grand West Development” national strategy, have experienced the greatest improvement in economic potential. These cities have benefited greatly from the expansion of expressways and conventional railways to remote regions. The second group of cities in mid-to-north China most likely benefited from the expansion of the conventional railway system, completion of the expressway network, and opening of new airports (such as Changzhi, Qingyang, and Erdos). The third group consists of those cities that lie along the high-speed rail lines. A typical example is the Wuhan-Guangzhou line running from middle to south China.

Source: Fang 2013.



IBRD 40997 | JUNE 2014
This map was produced by the Map Design Unit of The World Bank. The boundaries, colors, denominations and any other information shown on this map do not imply, on the part of The World Bank Group, any judgment on the legal status of any territory, or any endorsement or acceptance of such boundaries.

BOX 2.10 Impact of highway connection on Guangdong Special Economic Zone

A recent study estimated the productivity elasticity with regard to spatial proximity to economic mass in Guangdong implying that a doubling of the economic mass would raise productivity by 10 percent. The study, which reviewed the relationship between agglomeration and productivity in Guangdong, was based on economic and travel time data for 88 county and urban districts from 1999 to 2009. The estimated elasticity is just above the consensus range for developed countries (3–8 percent) and is 2.5 times that of the United Kingdom (3.5 percent) (Rosenthal and Strange 2004; Rice and others 2006).

These results are consistent with the markedly different development trajectories taken by the initial three special economic zones (SEZs) set up in Guangdong. Shenzhen, adjacent to Hong Kong SAR, China, and thus exposed to that large economic mass at the time, flourished: it grew from a sleepy border town to a metropolis of over 10 million residents, and its annual average economic growth rate during 2000–08 was 15 percent. Zhuhai, next to Macau but

otherwise more distant from the main economic centers, had a growth rate of 13 percent a year in the same period. By contrast, Shantou was designated the third SEZ in Guangdong on the strength of having strong familial connections to overseas business communities in Europe and the United States, despite being more than 450 kilometers away from the provincial capital, Guangzhou. It was not connected to the national expressway network until after 2003. It has had the slowest GDP growth among all Guangdong municipalities (9 percent a year for 2000–08). Meanwhile, those municipalities that are physically close to Guangzhou and Shenzhen, such as Dongguan, Foshan, Qingyuan, and Zhongshan, achieved the highest growth rates over this period, all over 15 percent a year (although from lower bases). The more buoyant innovation associated with higher domestic business and consumer demand in Shenzhen contrasts strongly with the backwater development in Shantou over the past decade.

Source: Salzberg, Bullock, Jin, and Fang 2013.

(measured as the number of jobs in connected cities divided by the cost of travel to those cities) doubles (box 2.10) (Roberts and others 2012; Salzberg, Bullock, Jin, and Fang 2013. High-end service sectors (finance and information technology) and the tourism industry appear to be benefiting the most from improved accessibility,⁹ but manufacturing is also gaining from the expanding ease of road connection with other firms.

Accessibility brought by high-speed rail is also redefining business interactions. A case study on the Wuhan-Guangzhou HSR corridor indicates that the regional urban hierarchy in South China is evolving toward a more interwoven structure, with remarkable growth in interprovincial trips between third-tier cities and upper-level cities that they do not belong to administratively (Fang 2013).

Cities have also invested massively in expanding their inner connectivity. Estimated investments in urban connectivity (road, bridge and metro) amounted to RMB 902 billion (including RMB 194 billion for

metro), or 1.8 percent of the GDP of 657 cities in 2011 (64 percent of total investments by the cities). Road networks in cities have expanded from 2.4 billion square meters to 5.2 billion square meters and by 159,617 kilometers to 294,443 kilometers between 2000 and 2010, reaching about 13.21 square meters per inhabitant. The metro networks grew from 117 kilometers in 2000 to 1,755 kilometers in 2012 in 16 cities. Moreover, metro systems in 20 additional cities have been approved or are currently under construction, and the total length in operation is scheduled to reach 6,000 kilometers by 2020. Cities also placed growing emphasis on bus transport during the period. The total length of bus lines in operation increased from 126,000 kilometers in 2006 to 521,000 kilometers in 2011. Total annual bus and trolley ridership reached 67.0 billion in prefecture-level cities, growing 8.5 percent a year. The total ridership of urban rail in 2012 reached 7.1 billion growing at 31 percent a year (*China City Statistical Yearbook*

2011, 2012; Li 2013; *China Statistical Yearbook* 2007–12).

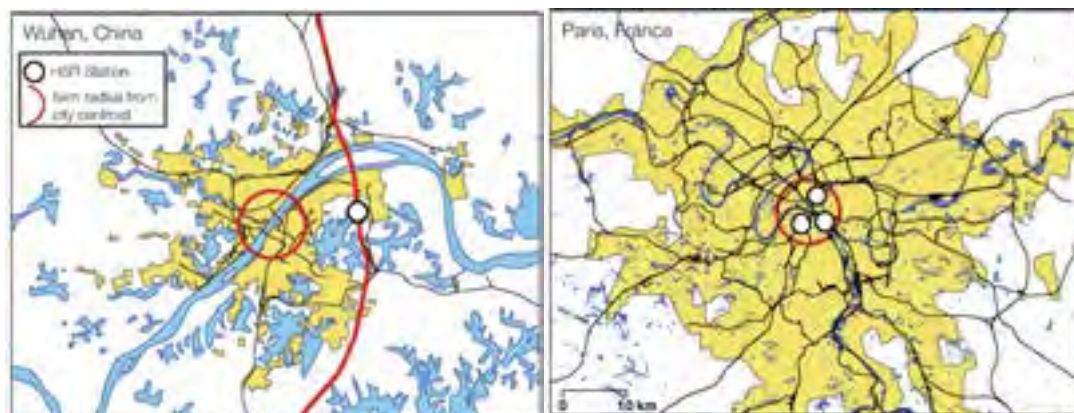
Despite such improvements, much remains to be achieved to ensure sustainable connectivity. At this stage, land use and transport plans are often not sufficiently aligned to address current and future economic needs. Densities in the central areas of Chinese cities do not vary sufficiently across the urban space to reflect the availability of transport network and mass transit. Uniformly regulated FAR values suppress location premiums from being reflected in the price of land. When they vary, FAR values are not publicly available on citywide maps as guides to developers but are the subject of detailed planning at the block level, an approach that fails to signal the value of land based on location and leads to its suboptimal use. Such approach undermines the development of strategically located high-density nodes around mass transit stations and leads to the development of high density areas unsupported by mass transit and prone to traffic congestion. As cities in China continue to expand spatially, suburban housing uncoordinated with transport infrastructure will also increase automobile use, energy consumption and travel time.

The coordination between land use and access and mobility policies is always most effective in the early stages of motorization, when worst excesses are potentially avoidable through proper planning. Chinese cities are rapidly developing their public transport

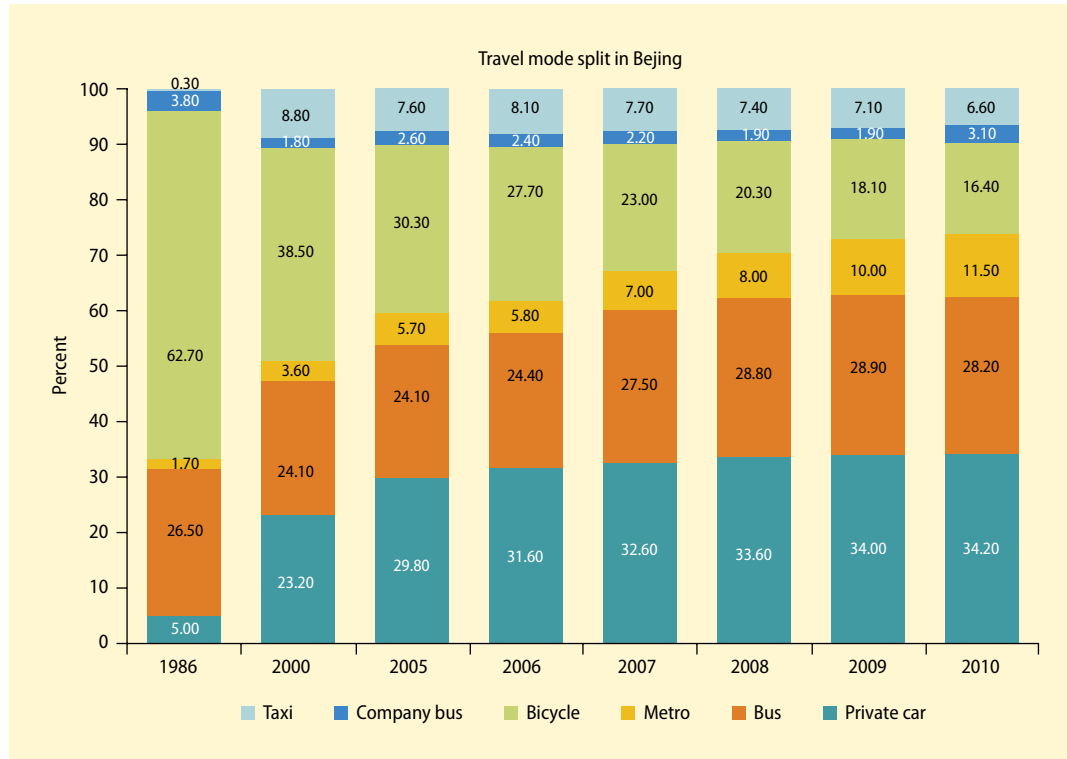
networks at present. These networks require a large upfront investment and will likely require substantial operational subsidies in the future. To improve the effectiveness and efficiency of such systems, land use planning will need to foster high densities of residence and employment along mass transit routes to ensure high ridership.

Where major hubs such as HSR stations have been created, land use planning often fails to leverage the connectivity gains those generate. Many cities in China have actively embraced a new, peripheral station location as a catalyst for the development of a new urban district, sometimes located as far away from the city centers as airports are (figure 2.10). Such stations are easier and cheaper to build than central stations but they require substantial accompanying measures. In the short run, a peripheral location will dampen rail ridership and hinder connectivity, with longer and more challenging access times and more difficult transfers to conventional trains and long distances buses. This effect may be mitigated to some degree by urban development migrating to HSR stations, even those located outside of the existing urban core, but that presupposes close attention to supportive planning and development processes. Current evidence indicates that the dual role of stations, as transport node and core urban economic space, generating substantial potential for agglomeration economies, has not yet fully been leveraged by many cities. In

FIGURE 2.10 Station locations in Wuhan and Paris



Source: World Bank 2013b.

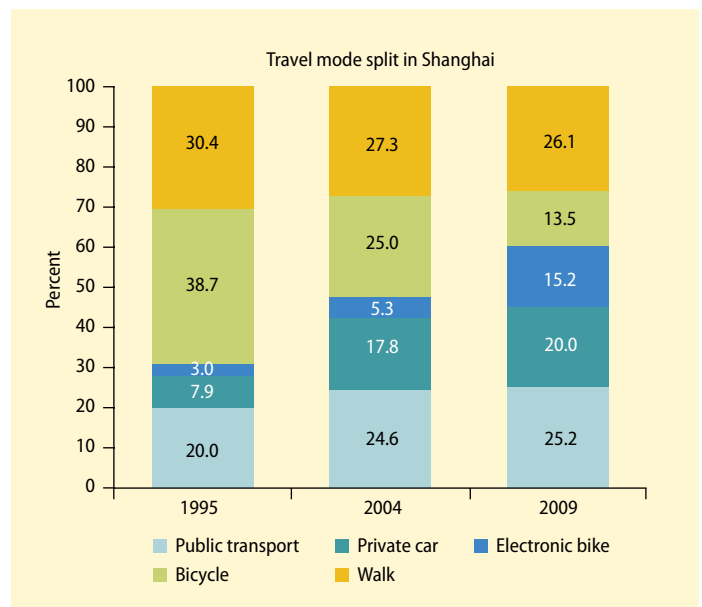
FIGURE 2.11 Travel mode shares in Beijing, 1986–2010


Source: Beijing Transport Research Center 2007–11.

such cities, only the node function is considered, with limited emphasis on concentrating activities around stations.

Rising economic costs of connecting cities

Urban mobility is plagued by long commutes; overcrowded public transport rides at peak hours; and a high or growing level of congestion, energy consumption, air pollution and traffic accidents. This pattern is symptomatic of large cities with rapidly growing car and truck traffic. In first- and second-tier cities, the rapid growth in the vehicle fleet has overwhelmed growth of the road network and strongly contributed to growing congestion levels and longer commutes (figures 2.11; 2.12). Overall, China counted more than twice as many vehicles per square meter of urban roads in 2010 as in 2000. The urban road network that enabled high average travel

FIGURE 2.12 Travel mode shares in Shanghai, 1995–2009


Source: Shanghai Urban and Transport Planning Institute 2011.

speed when car use was low can no longer be expected to do so. The average commuting time is estimated at 52 minutes in Beijing, 48 minutes in Guangzhou, and 47 minutes in Shanghai (China Academy of Science 2010), and travel speed fluctuates widely depending on the time of the day. Short of taking preventive actions, this pattern, prevalent in large cities, is likely to appear in most other Chinese cities over the next two decades as their car ownership continues to grow rapidly.

Time lost to congestion and associated higher fuel use cause by far the highest external, or indirect, costs from transportation, followed by air pollution, traffic safety, and noise pollution. International estimates of total indirect costs from road transport range from 5 to more than 40 cents a kilometer (Proost and Van Dender 2011). This high level of externalities is prevalent in China, as reflected in two studies estimating the indirect costs from transport in Beijing. Mao and others (2012) put the figure at 4.2 percent of GDP for congestion costs only, while Creutzig and He (2009) put it a 7.5 percent to 15.0 percent of GDP for all types of externalities, most of which are created by private car use.

Despite renewed emphasis on public transport, greater integration among transport modes needs to be achieved if public transportation is to remain attractive against car transportation. Chinese cities have benefited from major investment in metros, bus rapid transit, and bus systems since the issuance of State Council Directives 46 and 64 on public transport, and each component of the public transport system is usually of good quality, taken individually. But door-to-door trips by public transport are inconvenient because of poor physical and service integration, often characterized by excessive transfer distances, mismatched schedules, separate ticketing systems, or lack of easily accessible transfer facilities, all issues that Chinese cities are starting to address. These problems are caused mostly by institutional fragmentation at the city level, where different agencies are responsible for each different aspect of urban transportation (metros, buses, road construction, traffic management, land use).

On the freight side, road transport dominates the transport of semifinished or finished

products as in most other countries, even over long distances, generating high pollution and contributing to relatively high logistics costs. Road transport accounts for 78 percent of the 41.2 billion tons of freight moved in 2012, and 35 percent of freight ton kilometers. However, the relative lack of development in the freight industry leads to much inefficiency (ADB 2012b). Some estimates suggest that 40 percent of trucks run empty for intercity trips, and that it takes on average 72 hours to load and unload a truck (Clean Air Asia 2013). Short-haul truckers frequently return home empty and long-haul truckers have to wait an excessive amount of time to pick up a return loads, a wait estimated to cost truck operators between RMB 700 and RMB 1,000. Further, of all road transport emissions in China, freight trucks account for 36 percent of carbon monoxide, 60 percent of nitrogen oxides, and 76 percent of particulate matter (Ministry of Environmental Protection 2012).

The breadth and depth of logistics services could be improved on several measures.

According to a 2012 review by the Ministry of Transport and the Asian Development Bank, the logistics industry is highly fragmented (ADB 2012b). Aside from a few large and modern logistics companies catering to the needs of large firms, the industry is populated by many low-cost providers with limited capabilities and resources, creating an unhealthy environment of distrust. The industry is faced with poor standardization and insufficient intermodal facilities. This is in part caused by national policy that favors large companies over the needs of the many small to mid-size companies and their logistic providers. It is reinforced by a body of law and regulations that regulate various aspects of logistics operations by transport mode making synergies across modes more difficult. The China General Chamber of Commerce estimates logistics costs in China at 18 percent of GDP, a relatively high level compared with 8 to 10 percent in advanced countries. In particular short distance trips within metropolitan areas have a high ton per kilometer cost (figure 2.13). As the economy becomes more complex and e-commerce expands, gaps in urban logistics and inter-urban multimodal transport have started to

appear, leaving cities with excess pollution and shippers with excess transport time and excessive logistical costs, due to high inventory and management costs.

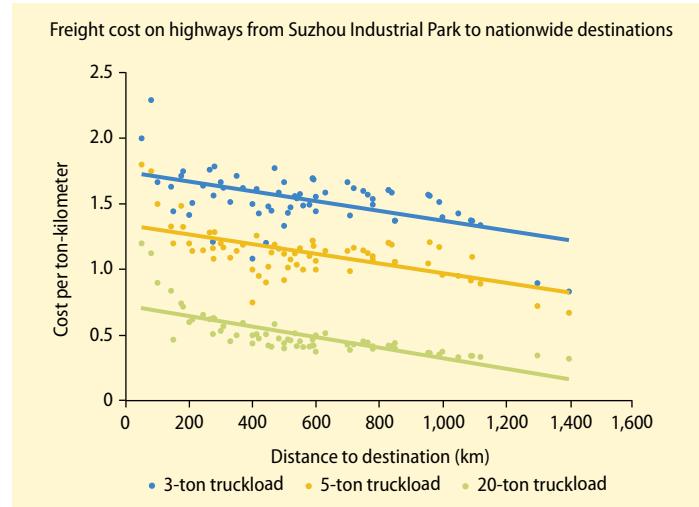
So what are some of the practical options for improving connectivity? First, the many public and private participants involved in connecting businesses and people will need to factor in more systematically the potential economic and social changes, sufficiently ahead of their occurrence, to adjust and align land use and transport plans. They will need to develop and optimize the infrastructure capacity to handle demand sustainably, as well as to optimize the delivery of freight and passenger services. Sustainable connectivity will need to be safe, clean, inclusive, economically efficient, resource efficient, space efficient, and resilient to major weather events, particularly those expected as a result of climate change. China has issued many policy statements to address these aspects, including the need to strengthen public transport or to better integrate various transport modes. Despite the progress to date, there is no room for complacency as the demands of the economy of 2030 and growing concerns over environment, social, financial, and economic sustainability call for yet further deep transformation in interurban and urban connectivity.

Based on international experience, the following key directions would support the goal of sustainably connecting people and businesses, while addressing some of the existing challenges:

- Articulate land use planning and transport infrastructure to respond to and prepare for economic changes.
- Develop and optimize freight transport focusing on resource efficient modes and interconnections, and increase efficiency in services.
- Rebalance passenger urban mobility toward public transport and nonmotorized transport, while making use of pricing mechanisms to manage travel demand.

Beyond those general directions, with the rapid development of mass transit and high-speed rail, Chinese cities will also have an

FIGURE 2.13 Road transport cost per ton-kilometer



Source: World Bank Survey of Freight Forwarders.

opportunity to create vibrant urban spaces around many of the new mass transit stations under development (World Bank 2013c). These stations, centered at the intersection of urban mass transit systems, will achieve their fullest impact if they are surrounded by a dense, fully integrated, mixed-use space, friendly to pedestrian and bikes. They could balance the water and energy needs of the various businesses they will host. The neighborhoods around these stations could be turned into lively and vibrant places at a human scale in the city and become a destination for outside visitors. They could mix people of different social background. While one could have a car in those neighborhoods, it would not be necessary for daily leaving. Beyond the metropolitan area, those stations would connect to one another through the high-speed rail stations, connected to the mass transit network. Only walking and mass transit would be required to go from one node in a city to the next in the next city. Such transformation could take place progressively based on market demand.

Coordinate land use planning and transport infrastructure

The economic structure of 2030 will deeply influence connectivity needs (Chicago Metropolitan Agency for Planning 2013). The

needs of each city will be different and driven to a large extent by its economic characteristics. Resource-intensive primary production will require low transport cost and proximity. Intermediate manufacturing and production for regional consumption will require good supply chain connections. Final goods production for global trade will require reliability, flexibility, and export access. Service industries will need rapid connection to other cities for their staff like high-speed rail or air transport. In all cases, local consumption will also require good trucking access to the urban core for rapid delivery, particularly with China expected to be the largest e-commerce nation by 2015 with an estimated RMB 3.3 trillion in activity (Bain & Company 2013).

To maximize their success, cities need to align their economic comparative advantage, land use, and transport planning. That will enable firms to be deeply knit within their supply chains. It will also allow for proper sizing of connectivity, ensuring accessibility but also avoiding either excessive connectivity to places of limited economic value or insufficient connectivity to rapidly expanding economic centers. The planning task is complex, given the rapid evolution in clusters and the multiple agencies involved at the city level, but is essential to developing coherent long-term strategies. Planning can make effective use of city-level data and user feedback to adjust dynamically. City leaders are well aware that integrated urban planning is essential for sustainability for both freight and passenger movement.

Planning for urban mobility

Urban mobility solutions are complex and need close tailoring to local circumstances. Size, urban form, topography, and climate all determine the needs of a city and vary markedly from city to city. Cities that have made significant progress in improving their sustainable mobility have done so through a mixed strategy involving careful attention to land use consideration; development of good quality and efficient public transport systems, a hierarchical street and transport network, and a safe infrastructure for bikes and

pedestrians; and, for midsize to large cities, the introduction of pricing schemes like parking charges or congestion charges to manage travel demand and reflect both external impacts and limitation in system capacity.

The European Commission encourages European cities above a certain size to develop urban mobility plans, aligned with their integrated urban development plans. To that end, cities can access an urban mobility portal (<http://www.eltis.org>) that provides a rich array of tools and case studies. Such practices have been applied systematically for a long time in countries like France where urban mobility plans (*Plan de Déplacements Urbains*) covering all modes became mandatory starting in 1996 for cities of more than 100,000. While the plans are context specific, they are developed in the policy framework set by law (box 2.11).

Working at different jurisdictional scales

Such planning needs to take place at the right scale. Many countries have moved to a metropolitan scale, because economic boundaries now frequently extend beyond administrative ones. In China, improved highways and high-speed rail lines are redefining the notion of effective metropolitan regions that can be reached within a one hour. With the largest Chinese urban regions rapidly spilling beyond their traditional boundaries, such coordination of policies, investments, and services is best addressed at a metropolitan level to improve their overall economic efficiency. Since accountability for providing transport infrastructure and public transport becomes blurred when the natural boundaries of a transport region include more than one autonomous agency (Gwilliam 2011), opportunities to provide more diverse and integrated services risk being lost without proper coordination.

While different definition exists, metropolitan regions are generally identified as large concentrations of population and economic activity that constitute functional economic areas, spanning multiple local government authorities. As part of this study, about 49 core metropolises were identified in China in 2010, defined as metropolitan

BOX 2.11 Urban mobility plan in France

Urban mobility plans were introduced in France in 1982 by law (Law on Inner Transport) and became mandatory following the Law on Air and Rational Use of Energy in 1996. Their role was strengthened through the Law on Solidarity and Urban Renewals, which required the coordination of the plan with urban planning. An urban mobility plan should seek to ensure a sustainable balance between the mobility needs of people and the protection of health and environment.

It should cover improvement in safety, reduction in car traffic, development of public transport and non-motorized transport, efficient management and oper-

ation of urban road network through sharing of space across modes and traffic information sharing, on street and off street parking management, transport and delivery of goods, integrated tariffs and ticketing for mobility, and incentives to companies to facilitate public transport and carpooling for their employees.

The Urban Mobility Portal of the European Commission collects good practice case studies and shares them to help cities learn from one another. See, for example, the Urban Mobility Plan of Lille 2011: http://www.eltis.org/index.php?id=13&study_id=3080.

Source: French Laws (legifrance.gouv.fr/); Wikipedia.

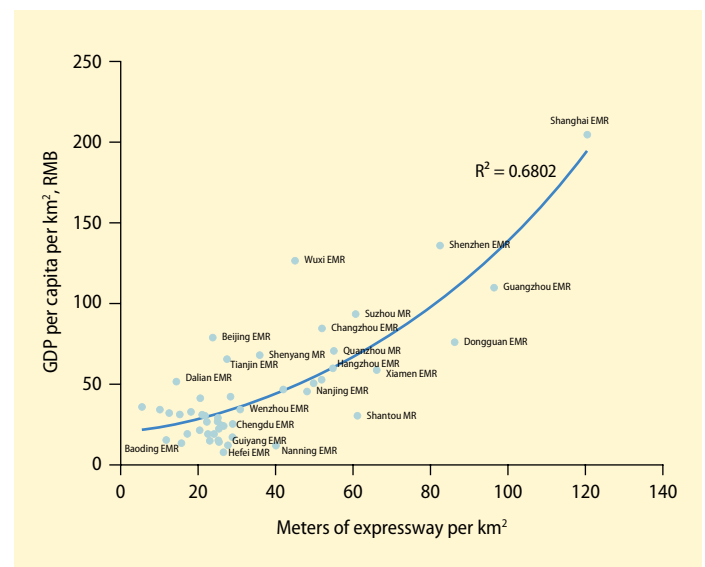
areas around cities with more than 1 million urban residents, where at least two-thirds of the population was urban (Chreod 2014). In 2010, these metropolises represented 45 percent of the total urban population, 57 percent of GDP, and 95 percent of population growth since 2000. Intrametropolitan connectivity appears to matter for most metropolitan regions, given the strong correlation between the stock of expressways and the highest productivity per land area (figure 2.14). Higher levels of connectivity appear to be allowing agglomeration economies to strongly manifest in these regions.

At the metropolitan scale, governments need to closely coordinate land use plans, infrastructure investments, and urban services. Political and economic competition among municipalities often impedes the coordination of planning, investment, and service provision across administrative boundaries. To address this challenge, cities, internationally, have started to combine land use and transportation planning under a single metropolitan entity charged with the development of a comprehensive plan. For example, the Chicago Metropolitan Agency for Planning was established in 2005 as a combination of the Metropolitan Planning Organization and the Northeastern Illinois Planning Commission. It now leads the implementation of

the “GO TO 2040” comprehensive regional plan, for Chicago and seven surrounding counties; the plan integrates transport with land use, housing, economic development, open space, and environmental and other quality of life needs.

At the urban scale, flexibility and responsiveness to changes and development of integrated solutions across government agencies

FIGURE 2.14 Economic density and stock of expressways, 2010



Source: Chreod 2014.

are needed. China has, in theory, a relatively rigorous urban planning process, but it is far looser in implementation. The actual planning process is often overwhelmed by the rapid pace of development. Approval of a master plan can take many years, by which time it already may be well out of date. In addition, the existing system of checks and balances is generally insufficient to ensure that master plans, when approved, are not arbitrarily modified by local government officials. Most master plans are not fully implemented within the time frame of the plan, which is usually 20 years. Practices at the city level are silo based; departments and agencies have varying missions, objectives, budgets, governance structures, and staff profiles; and these differences often hinder the types of cross-sector and interagency coordination needed for transit and land use integration.

Articulating densities around mass transit and high speed rail

The level of alignment of the mass transit system and road network with economic needs and land use directly affects the level of urban mobility requirements. Fragmented and single-use zoning development increases the need for connectivity. Easy and low-cost parking, low densities, and large streets encourage car traffic. Planning, when well done, can channel higher densities along high-capacity mass transit systems and around rail stations (box 2.12). Such increased concentration of activities and the resulting transport flows facilitate investments in transport infrastructure and walkable neighborhoods, resulting in more efficient mobility options.

Several opportunities exist to improve accessibility for essential services within the existing urban fabric through targeted increases in densities. To that end, planners should promote infill development that maximizes the use of existing infrastructure and services, including public transport, to encourage investment in the existing urban fabric. Planners should also direct growth to locations where it would support the provision of key community facilities such as schools and health facilities. An important tool that local governments have to direct

growth is their expenditures for capital improvements such as streets, parks, and schools. Linking those expenditures to a long-term strategic vision can be a powerful motivator for private investment consistent with the vision. That would include the development of a capital improvement program that specifies needed urban service improvements over time and identifies sources of funding.

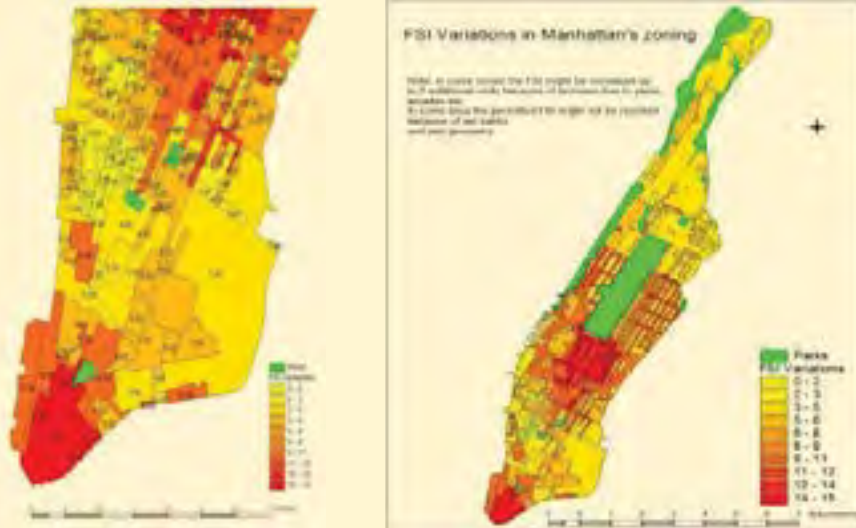
The evolution of the economy toward more services and innovation will lead to an intensification of exchanges and meetings among businesses in the service industry. The vast network of metro stations (an estimated 4,000 by 2020) and high-speed rail stations (about 180 currently) being built provides a unique opportunity to develop a highly interconnected and concentrated network of service firms at both the national and municipal scales. The transit-oriented development experiences in Hong Kong SAR, China; Japan; Korea; and Singapore have shown how the combination of real estate, a highly walkable environment, and mass transit solutions can lead to a transformation of the urban space (Calimente 2012; World Bank 2013c).

The precise value of such an integrated development would warrant a detailed analysis for all key stations, when submitting development plans. The development is likely to take place over long periods, and actual results will vary from station to station. A 500-meter radius around a typical metro station represents about 785,000 square meters of land and about 400,000 square meters for the train station (counting the space used by tracks and access and egress facilities). The potential for development depends on the function of the station, the floor area ratio (typically a ratio of 2 to 8 between the building floor area and the size of the land upon which it is built), existing development, the number of mass transit lines connecting to the station, and the business needs in each specific location. In a city like Nanchang, an order of magnitude for the gross floor area around a metro station is 2 million to 4 million square meters within 10 minutes walking distance, a percentage of which can typically be jointly developed with the construction of a station (Qu and others 2014).

BOX 2.12 Increase flexibility and variation in floor area ratio (FAR) values as in cities like New York

New York has a wide range of variation in FAR values. The city spatial structure is one of the few monocentric cities in the United States, with two specialized central business districts (CBDs) in Manhattan. Thirty percent of trips are made by transit (60 percent in Manhattan). New York has the longest

metro network in the world. The FAR range of variation is 15 in CBDs and 10 along main avenues (left map). The residential Floor Space Index (FSI) varies from 0.6 in the suburbs to 10 in Manhattan next to CBDs (right panel).



Source: New York Planning Department 2011.

Success in transit-oriented development requires flexibility in the application of laws and regulations and close cooperation between the local government and the developer. In particular, government policies, land laws, and planning laws need to be well aligned. The combination of rail plus property development with little to no financial support from the city gives strong incentives to the developer to deliver high value. In Hong Kong SAR, China, the Mass Transit Railway (MTR) company gets involved early in urban planning to ensure that joint rail and urban development proposals are integrated in a sustainable manner. The preliminary planning studies for plots along the rail can be discussed jointly with the Planning Department and lead to the preparation of a master layout plan for the development

of these plots with application to the Town Planning Board for approval. Arrangements through detailed regulatory and design guidelines for real estate development, as in Singapore, offer another option.

Accompanying measures

Transit-oriented development needs to be complemented by close attention to the space allocated for pedestrians and bicycles compared with the space dedicated to cars in areas near stations. Cities like Paris, Seoul, and London have started to reduce the space for cars in their street landscape. They have converted former urban highways into pedestrian roads, and turned thoroughways into slow local roads. These conversions emphasize that driving and parking a private car is

a personal choice, not a basic civil right, and that the urban space needs to be shared.

In parallel, the management of travel demand can play a large role in reducing the roles of cars, as outlined in the Green Urbanization report. Regardless of the urban mobility capacity developed, traffic fluctuates widely by time of the day and day of the week. Attempts at accommodating peak motor traffic result in oversized and inefficient road networks. Cities like London, Paris, and Singapore have made owning and using a car an expensive choice, compared with using a well-performing public transport alternative. The use of higher pricing during peak demand periods has enabled cities to encourage a spreading of demand before and after such peak.

Actions to connect people

Considering the above, several follow-up actions would support China in meeting its connectivity goals:

- Set up Metropolitan Planning Offices for a number of pilot regions, with a mandate to optimize their land use and transport planning.
- Require cities, when submitting mass transit network plans for national approval, to provide land use plans demonstrating that densities are strategically distributed across a metropolitan area to match the availability of mass transit corridors and stations, with urban design facilitating access by bikes or walkers around these stations. The approved plan should be made public.
- Select, with cities, a number of promising metro stations and high-speed rail stations to implement transit-oriented development concepts in practice. Those pilots would include a variety of typical sites like mega-hubs, mass transit intersections, and various kind of stations. The implementation would be focused on understanding any legal and regulatory aspects that need to be addressed to bring the highest potential integration and redevelopment value, building on the rich experience of countries like Japan, Korea, and Singapore.

Moving freight

Intercity connectivity improvements are expected to be further pursued as part of the 12th and 13th Five-Year Plans and subsector plans, linking by 2030 all major cities of at least 500,000 inhabitants to express rail services and all cities of more than 200,000 inhabitants to expressways.¹⁰ The 12th Five-Year Plan anticipates an investment of RMB 8.2 trillion (\$1.3 trillion) to upgrade the country's intercity transport (including rail). Road construction accounts for the main portion of the investment, followed by railways and inland transport. The strategies in place seek to address major network gaps by 2020–30 so that supply slightly surpasses demand and meets economic and social needs, through comprehensive transport planning and close integration. Such investments will put China in a competitive position compared with other large developed countries.

China can build on a number of proven strategies to avoid or reduce the need for road freight transport by shifting road freight to more energy-efficient and environmentally friendly modes like intermodal, rail, and inland waterway transport, and by improving the efficiency of vehicles through technology or management. Improved logistics for road freight include the use of articulated trucks (“drop-and-hook”); increased loading on return trips; better matching of vehicle capacities to loads; and increased use of logistics information platforms, consortia between freight companies, and freight consolidation centers. Ample international best practices exist on which China could build.

This approach can be combined with long-term policies requiring urban logistics to use vehicles with low environmental impact for the final urban delivery, similar to the ambitious goals for interurban and urban freight logistics set in other countries and regions. The European Commission, for example, aims to achieve essentially zero-emission transport in major urban centers by 2030 (box 2.13).

Such goals are worthwhile pursuing because they guide logistics providers in their investments. In the European Union, the main

BOX 2.13 European Commission zero emission urban logistics

In its 2011 White Paper “Roadmap to a Single European Transport Area: Towards a Competitive and Resource Efficient Transport System,” the European Commission laid out an ambitious agenda for freight mobility in Europe, in response to growing concerns over environment and economic efficiency issues. In particular it seeks to stimulate new transport patterns concentrating freight and passenger flows to enable more efficient connectivity drawing on a combination of transport modes. The plan will require structural changes to ensure that rail and river transport gain a greater proportion of mid- to long-distance freight.

The commission paper emphasizes the need to organize the interface between long-distance and last-mile freight transport more efficiently, by limiting individual deliveries, the most inefficient part of the journey to the shortest possible route. It anticipates that, with an intelligent transport system and real time traffic management, delivery time can be shortened and congestion reduced for last-mile distribution. This distribution could be performed by low-emission and potentially silent urban trucks (electric/hybrid) to allow a greater portion of freight delivery to take place at night.

Source: European Commission 2011.

policy thrust is to shift 30 percent of long-distance road freight (over 300 kilometers) to other modes such as rail or waterborne transport by 2030, and more than 50 percent by 2050, facilitated by efficient and green freight corridors, appropriate infrastructure, and a European multimodal transport information, management, and payment system.

Choices in allocations of investments across the different modes strongly influence choices by shippers. The shift in market share over the past 10 years in China to freight road traffic reflects in part higher levels of service quality compared with rail or river transport but also the greatly enhanced road network, while the railway and river networks remained too heavily congested for time-sensitive cargo. Rail container traffic accounts for only 1.1 percent of port traffic, for example, because most containers leave ports by truck.

Internationally, shippers have shown great responsiveness to the cost and quality of alternative services, when active market-based competition leads to the development of new services. Such experience is particularly relevant in the context of the shift of industrial activities to central and western China, which will require low-cost and efficient transport for manufactured goods to be price competitive. For example, in the United

States, the number of containers and trailers transported by rail has doubled since 1990 to 12.3 million units (half of it is for global trade) and now accounts for 22.7 percent of revenue for the major railways.

The challenge in improving freight logistics is to move from policy guidance to actual implementation. Logistics by nature involves many agencies with conflicting mandates. The solutions are quite technical, and the topic is seldom a high priority compared with passenger transport. China is no different, with responsibility split among 13 ministries and until recently a separate ministry of railways. Funds for river transport and interconnections have been limited. Policies, while suitable in content, are not legally binding and lack detailed measures and timetables for implementation. That has delayed the implementation in practice of many of the solutions being piloted, such as full trailer trucks, which despite their promotion are still prohibited on highways; a lack of standardization of drop-and-hook solutions means they are still unattractive investments for the market, and there are still gaps in intermodal transport facilities planning.

While the public sector plays a valuable role in setting the enabling environment for logistics, by nature, logistics is a private venture. The solutions proposed will work

only if they are commercially attractive. To that end, reaching a critical volume of cargo flow rapidly is a strong imperative, because it determines the service level that can be offered. The case of freight consolidation centers illustrates the challenge. While it is conceptually attractive to aggregate intercity freight before it is distributed to the various urban areas, very few consolidation centers have succeeded in practice, particularly when run by the public sector. Those that have succeeded have often been set up by large retailers that have extended their control back along the supply chain, generating economies of scale. The impact of publicly funded distribution centers at a metropolitan level needs careful review to avoid undermining the success of such market-driven initiatives.

Considering the above, several follow-up actions would support China in meeting its freight connectivity goals:

- Accelerate the development of the inland waterway system, freight railways, and their interconnections (ports) to ensure that these networks have sufficient capacity to carry time-sensitive goods.
- Improve agency cooperation through the existing Steering Committee under the China Green Freight Initiative (led by the Ministry of Transport), and engage more broadly with the private sector through associations like the China Road Transport Association, the China Communications and Transportation Association, and the Green Freight Asian Network, to understand the sector needs and status and to ensure better tailoring of policies.
- Revisit the current practice of having consolidation centers built and operated by the

government and encourage large-scale distributors to play such role.

- Consider the redevelopment of underused but well-connected industrial zones into urban logistics centers.
- Consider introducing market competition for the provision of rail container traffic by an international shipping line to accelerate innovation and service improvement and introduce modern technology.
- Accelerate the setting of standards to facilitate the introduction of modern logistics practices, in particular intermodal transport and urban distribution.

Financing China's cities

With China's political and fiscal decentralization process, local governments have become increasingly responsible for financing public services. That has imposed a great challenge to cities and towns because transfers from the central and provincial governments account for only 2 percent of the total public investment budget in cities and only about 10 percent in county towns (table 2.5). As a result, local governments have to raise the majority of the local revenues, and with limited available resources, they rely heavily on land conversion and concession revenues to support investment needs.

The strong urban planning framework in China, together with increased land revenues played an important role in promoting China's urbanization, industrialization, and economic growth by financing better infrastructure standards and services and securing the provision of necessary public goods. Compared with most countries, China has done remarkably well in managing the rapid urbanization process and providing the infrastructure investments necessary to keep pace with the population growth. All four indicators of urban infrastructure increased over time in both cities and county towns (table 2.6). The level of urban infrastructure, however, has been higher in cities than in county towns.

The level of wastewater treatment coverage in particular shows exceptional growth since 2001 in cities and especially in county towns. This strong growth in environmental infrastructure is a reflection of increasing

TABLE 2.5 Sources of fiscal revenues for financing investment in public service facilities, 2011

Percent

	Cities	County towns	Separate towns
Central government	1	7	6
Provincial government	1	3	10
City (county) government	95	85	32
Town government	0	5	52
Other sources	2	0	0
RMB million	1,178,172	262,408	79,910

Source: China Urban-Rural Construction Statistical Yearbook 2011.

TABLE 2.6 Provision of basic infrastructure services in urban areas

	1990	1995	2000	2005	2010
Water coverage rate (%)	48.0	58.7	63.9	91.1	96.7
Wastewater coverage rate (%)	14.9	19.7	34.3	52.0	82.3
Road surface per capita (m ² /person)	3.1	4.4	6.1	10.9	13.2
Urban population with access to natural gas (%)	19.1	34.3	45.4	82.1	92.0

Source: China Urban-Rural Construction Statistical Yearbook 2011.

environmental consciousness that has recently focused more attention on sewage treatment plants and industrial wastewater treatment. By the end of 2011, close to 1,600 wastewater plants treated 33.8 billion cubic meters of wastewater, or about 84 percent of all wastewater. There are still urban-rural gaps, but the gap is slowly closing, with wastewater coverage reaching 84 percent in cities compared with 70 percent in county towns.¹¹ The percentage of separate towns (that is, towns not connected to the facilities of cities or county towns) with industrial wastewater treatment plants or facilities is less than 55 percent compared with 90 percent in cities and over 60 percent in county towns.¹²

How do China's cities sustainably bridge the gap between readily available resources and investment needs? What sources should they tap? A good place to start would be to coordinate urban financing with urban planning. Next, Chinese cities need to move away from their reliance on land sales and leases and move toward a sustainable property tax system and trading of development rights. Third, cities can strategically redevelop existing urban areas to generate financing for infrastructure and other durable structures.

Synchronizing planning and financing of cities to encourage densification

Relying primarily on quantity regulations, municipal governments have rapidly urbanized land and developed industrial estates and new towns, often in excess of need to demonstrate economic development and to generate revenues locally. The national government has actually passed regulations to protect agricultural land and control overconversion of rural land, but these have produced unintended consequences—a fragmented urban

periphery as growth leapfrogs over protected areas, weakened coordination of land use with public transportation, and reduced incentives to intensify land use within the city. The fragmentation of built-up areas at the urban fringe has become worse since the early 1990s (World Bank 2008).

City planning has not been coordinated with available financing, a situation that has had considerable bearing on the increasing inefficiency in capital allocation. Urban master plans are made for a horizon of 25 years, while capital investment planning covers a horizon of 5 years. Land use planning is done every year, with limited or no consultation with other planning units. Now consider fiscal decentralization, which gave city governments functional and fiscal responsibilities for urban development (economic development and employment, in addition to more traditional responsibilities for the provision and management of a municipality) without providing much leeway to generate their own revenues. Without a sustainable financing mechanism and with a growing imbalance between fiscal power and expenditure needs, the municipal financing system is unsustainable (Wu 2013). Local governments also require a balanced budget and are not allowed to borrow, except under highly restrictive conditions.

The lack of sustainable financing mechanisms does more than simply constrain China's cities financially. Overdependence on land revenue has created rapid urban expansion and fragmented land use. After more than a decade of rapid growth in off-budget financing for urban development, cities need to move toward more sustainable and forward-looking municipal finance mechanisms. To support this move, the national and city governments need to reform policies on two fronts.

First, they need to refine the timing of various plans so that development and land use planning are synchronized. In the absence of sufficient funds, the local governments can coordinate and adjust plans accordingly as a package rather than piecemeal. Second, local governments should be provided with more options to raise revenues locally and should rely on recurring revenues that enable long-term planning, such as property taxes, a value added tax (VAT), tariffs on services, and eventually access to borrowing and issuing bonds.

A well-designed property tax system and other innovative land financing mechanisms also can mitigate overdependence on land concession revenues. The diaspora bond market, a stable and cheap source of external finance, can create an alternative source of financing. It is often used when countries have limited access to international capital markets. India and Israel have each raised more than \$35 billion by tapping into the wealth of their diaspora communities. For diaspora investors, these bonds offer the opportunity to help their country of origin while also providing an investment opportunity (Ketkar and Ratha 2010). In addition, any investment will be under the watchful eyes of the investors, and investment will also be efficient, based on market demands.

Property taxes to encourage redevelopment and increase revenues

In many countries, property taxes have become the predominant source of revenue for local governments. In addition, property taxes allow cities to recoup the increases in land value that result from development and provide a very good alternative source of funding for land sales or development rights. In advanced economies, property taxes account for up to 70 percent of the revenues generated by local governments. Property tax revenues increase together with land values as a result of investments and improvements in infrastructure, amenities, and overall development of the area. As such, property taxes are a very good proxy for the benefits taxpayers receive from local services provided by local governments.

Property taxes reduce distortion in land markets and stimulate more efficient use of land. An important benefit of a property tax is the incentive it creates to develop underdeveloped or vacant land, thus increasing land transactions. In the 1980s, low property tax rates in Japan provided incentives to own land rather than other assets (stocks or security) but not to develop that land; increasing the property tax was an effective instrument to control ownership of unused land and hikes of property prices (OECD-CDRF 2010). Property taxes could have a similar effect in China, helping to contain sprawl and to create incentives for developing vacant land or redeveloping land toward more efficient and productive uses. They also could entice homeowners to rent their vacant properties to collect the revenues needed to pay taxes.

The correction of distortions in land pricing would help limit overallocation at the urban periphery. Most studies of land use in China have recommended reduced distortions and greater transparency in the pricing of land use rights to increase both equity and land use efficiency. As is common in most countries, land use plans will continue to dictate the conversion of rural land and the use of urban construction land. Private developers should be able to bid competitively for all land, and information on the transactions and value should be made available to the public. Land subdivision regulations should assign costs more clearly to developers, municipalities, and higher levels of government for various levels of infrastructure. With more transparent systems and a competitive market, land on the periphery would become more expensive, making its use more efficient and higher in quality. Reducing distorted incentives by pricing serviced peripheral land at market rates would go a long way to obviate the need for land conversion quotas. Limiting developers to serviced land and use of subdivision regulations to make them pay for services (a standard planning practice in market economies) would reduce the amount of land being developed.

Land value capture mechanisms should replace land leases to finance infrastructure

development. Experiences in cities like Hong Kong SAR, China, and Tokyo show that “capture value”—an infrastructure financing concept that seeks to capture land value created by new infrastructure, particularly transit—is effective not only for sustainable finance but also for more efficient and sustainable urban development. Value capture is particularly well suited for financing transit infrastructure in dense, congested settings, where a high premium is placed on accessibility and where the institutional capacity exists to administer the program. Accessibility benefits, which get capitalized into land values, present enormous opportunities for recapturing some of the value created by transit investment.

While China has experimented with some level of property taxes, issues arise because the fundamental ownership rights legally belong to the state. In a practical sense, however, long-term land use rights are traded as an alternative for ownership rights. It would be possible to tax this “land use right.” Because there is currently no property tax in China, real property assets have an advantage compared with other assets, which neither encourages owner to develop their land nor reduces the incentives for speculation and land banking. Introduction of a property tax in urban areas would reduce these distortions.

In addition to raising revenue, different financing instruments can contribute to more compact urban development. To finance infrastructure, local governments in developed countries apply an array of instruments, including tax increment financing, impact fees, development charges, land conversion fees, and related instruments. All these instruments use current, or anticipated future increases in, land value to finance infrastructure in the area to be developed. Taxing vacant land more, for example, especially in urbanized areas, can promote densification. Property owners should pay the full costs of developing land on the outskirts of the city, including being charged appropriately for access to infrastructure networks.

Development impact fees can direct development toward areas already served by infrastructures. Development impact fees are one

of several types of fees levied on developers requiring them to contribute land, facilities, or funding to help pay for off-site capital improvements. The main purpose of impact fees is to help finance off-site impacts and infrastructure costs of development, but they also can be used to encourage more efficient development patterns. Cities can discourage development through higher impact fees in areas without infrastructure and encourage development through lower fees in areas already served by public facilities (Nelson and Duncan 1995).

Incentives for infill and brownfield redevelopment can facilitate the reuse of industrial lots in cities. Incentives for developers can encourage high-density urban development in city centers, but this development must still respond to demand. On the one hand, redevelopers face many barriers, including high land prices, limitations on land use, and the costs of demolishing and cleaning up existing facilities. On the other hand, brownfield redevelopment offers many benefits, such as urban revitalization, increased asset value of the site and its surroundings, increased tax base, increased employment, environmental protection, effective use of existing infrastructure, and prevention of urban sprawl.

A split-rate or two-rate property tax is another approach that promotes infill and redevelopment in urban areas. Under such a system, a higher tax rate is applied to land values and a lower rate for improvement values such as buildings. This reduces the tax burden on land-intensive uses (such as apartment buildings) and increases the tax burden on land-extensive uses. A split-rate property tax would provide the incentive of lower taxes for capital investment in building improvements and tax away the speculative value of holding undeveloped property within the urban growth area, thus promoting infill and redevelopment. Experience in several communities in Pennsylvania indicates that a split-rate property tax can be an effective tool to stimulate central city revitalization (Hartzok 1997) (box 2.14). Similar taxes have also been implemented in Sydney; Hong Kong SAR, China; and cities in Denmark and Finland.

BOX 2.14 Split-rate property taxes in Pittsburgh

The city of Pittsburgh in Pennsylvania state adopted a split-rate tax system 100 year ago in 1913, where it taxed vacant land owners twice the rate it taxed owners of developed property. In 1979, the city expanded the system, and it now taxes vacant landowners a whopping six times more than its taxes owners of developed property.

The result is that Pittsburgh has a more compact development pattern than many cities because its tax policy discouraged leapfrog development. Instead of hurting the economy, the split-rate tax system has encouraged development: Pittsburgh had a 70.4 percent increase in building permits in the decade after expanding its split-rate tax system.

Innovative finance mechanisms to foster infill development

Traditional instruments of finance to support densification and redevelopment such as the property tax and user charges can be complemented with more innovative instruments such as betterment fees, where the capital investment costs associated with given infrastructure improvements are recovered from those benefiting from the improvements. This system is widely used in Colombian cities. Another option widely used in U.S. cities is tax-increment financing, where local

governments borrow against the future anticipated increase in property taxes that result from certain types of urban infrastructure improvements.

Another innovative approach is providing development rights—based instruments such as the sale or auction of development rights—the Certificates of Additional Construction Potential (CEPACs) widely used in urban operations in São Paulo, Brazil, are an example (box 2.15). These certificates allow the construction of additional floor(s) above the current codes in designated areas in return for a payment to a general fund

BOX 2.15 Auctioning of land development rights: CEPACs in São Paulo, Brazil

Traditionally, prevailing densities in São Paulo Municipality have been uniformly low, with the floor area ratio in the city's master plan ranging from 1.5 to 2.5—meaning for any given land parcel, the maximum permissible built area ranged between 1.5 and 2.5 times the plot area. Such artificially low densities for a city with the land market and demand characteristics of São Paulo had several consequences, including high land prices, sprawl and serious congestion, and the prevalence of underused or underdeveloped properties in desirable areas.

To increase the density within specified areas, São Paulo Municipality issues tradable certificates (called certificates of additional development potential, or CEPACs), which are sold in phases through electronic auctions. Developers use the CEPACs to redevelop an existing property to its higher density potential or change the land use to another permissible use. Usually, developers acquire the property

they are interested in redeveloping and then apply for a building permit accompanied and the appropriate number of CEPACs to redevelop the property in question to its new development potential and land use. The proceeds from the sale of the CEPACs are used for infrastructure improvements required to sustain the increased development density in the area. Overall, CEPACs generate as much as \$200 million a year for infrastructure improvements, roughly equivalent to 11 percent of the annual property tax revenues in 2009 (Sandroni 2010).

CEPACs are useful in that they enable local governments to recover up-front the funds they need to finance urban infrastructure improvements in the given location where the development rights are sold. The phased sale of CEPACs and the use of an auction as the disposition method allow local governments to gauge the market and assess the extent to which the market supports densification.

for infrastructure improvement in the city. Another option is an impact fee, where issuance of a building permit for certain land uses or developments likely to generate an additional negative impact on the city—usually congestion—are made conditional on payment of a fee to finance the infrastructure improvements needed to offset the adverse impact. Impact fees are used in cities as diverse as São Paulo and San Francisco). New York City has used a similar system, which provides additional building space in return for a developer-financed infrastructure improvement; the fees have raised revenues to finance 3.5 million square feet of public spaces, arcades, and façade improvements in the city.

Key actions moving forward

Urban planning and the role of stakeholders

Urban planning in market economies differs greatly from urban planning in centrally planned economies. In market economies, successful urban master plans leverage market forces to support strategic objectives for socioeconomic development. The city uses master plans to regulate land use. Because the value of a piece of land is determined by both its location and its land use, master plans enable the private sector to fairly price land by providing clarity on permissible uses. The private sector buys, sells, and uses the land in accordance with the permissible use.

As China increases the role of market forces in shaping development, urban planning will continue to be an important tool to guide development and create more efficient and sustainable cities, but the role of various stakeholders will have to change to allow more flexibility and market intervention (table 2.7). Instead of leading development, the government should play a regulatory role to ensure minimum standards and encourage competitive allocation of land among different developers, including industrial developers, to optimize land use and encourage the most productive use of land. Urban planning should be done at the lowest level, empowering local governments, which can make

strategic decisions, but the plans should make strategic links with regional development and investment plans.

Local governments should become more active players in the process, promoting a continuous dialogue among all stakeholders on the best solutions to make cities competitive as well as attractive locations for people and investment. Developers and citizens should also become more active players in the urban planning process. The private sector should be able to purchase land in an environment of clarity of rights, develop it according to demand, and then trade it freely. Market demand is critical to this process. In the current system, planners focused on defining land use in isolation often become pure designers, applying abstract predefined schemes to a spatial plan.

Urban planners should have a city management approach and define smart regulations, focused on a few parameters that leave room for the natural evolution of cities. Interacting with other experts, they can forecast market dynamics within a reasonable time horizon, usually not more than 10 years. Urban planners should also develop innovative tools to assess environmental constraints to development and potential risks, and introduce economic instruments to guide development and leverage land value more efficiently to provide infrastructure. In that sense, land in peri-urban areas still should be regulated carefully, but developers should be able to purchase land use rights and develop land that has been allocated for urban use at the fringe in a more competitive process.

Relax control and increase flexibility, accountability, and transparency

Comprehensive land use planning (the master plan) has been an effective tool used in many countries to control disordered conversion of rural into urban land. A comprehensive plan is largely a policy statement of the future land use and development goals. It serves primarily to mitigate conflicts between different land uses and helps coordinate transport development with housing, recreational, and commercial activities. The 1947 Finger plan of Copenhagen epitomizes such an approach,

TABLE 2.7 Role of different agencies and stakeholders

	Current planning system	Modern planning system
Vision	Urban planning is an end, a tool to achieve a layout, making concrete a crystallized image of the cities that planners have in mind.	Urban planning is a means, a tool to help cities perform “functions,” having long-term objectives of urban sustainability in mind, while ensuring flexibility and allowing change.
Methodology	Urban planning is a top-down and ad hoc exercise, managed at the government level with little interaction with other stakeholders and consideration for actual demand and processes to permit changes over time.	Urban planning has a bottom-up approach; it is a dynamic process mainly driven at city level, aimed at connecting and financing cities for socioeconomic development and ensuring basic quality of life and environment.
Land	Land is a free resource, without value, to be owned only by the public sector and leased to others under very strict land use controls that are primarily supply driven.	Land should be seen as a limited, valuable resource, to be owned, developed, and used by a multiplicity of actors, depending on demand, with the public sector acting as a regulator. With a market approach, land is allowed to be traded freely and transparently. Property rights are guaranteed, and transaction costs within land markets are kept within acceptable limits.
Results	Cities easily become locked into outdated patterns with, for example, high percentages of industrial and underdeveloped land in prime locations because changes in land use, floor area ratios, and ownership are very bureaucratic and therefore discouraged.	Cities should be considered from an evolutionary perspective, leaving strategic choices for their future open. Rather than prescribing and locking the city into a certain image to be achieved, urban planning encourages exploring innovative solutions, including those to finance interventions at a scale larger than individual plots.
Urban plan features	Plans include detailed drawings to be implemented over time, accompanied by volumes of regulations. Since planning is conceived as a gigantic, once-and-forever exercise that is approved at the highest level of government, plans are not easy to update or adjusted to meet evolving needs and improvements in infrastructure and accessibility.	Planning tools are sophisticated and dynamic. There is usually a higher-level planning, aiming at ensuring rights of way for future infrastructure and maintaining what are defined “land invariables,” that is, rivers, natural resources, and conservation areas. In addition, a lower, more flexible level of planning addresses land subject to development, for housing, retail, industries, and agriculture. While the former layer is usually less subject to change, as invariables do not vary overtime, the latter layer can be more easily updated, giving the option of adjusting plans to the evolving needs and development of the city.

Source: Based on a contribution by Ellen Hamilton, World Bank.

because it combines land use regulation and transit-oriented zoning. The plan sought to control sprawl and maintain a compact urban form through a principle of accessibility. The general idea was that large office workplaces would generally be located within 600 meters of the closest public transportation station. China should continue to control suburban development by comprehensive land use planning but should consider these reforms:

- Regulating the conversion of rural to urban land at the national and provincial levels, but allowing for direct transaction between private developers and collective owners.
- Delegating authority to municipalities for city planning and land use control plans.
- Requiring a more detailed fine-grain planning at the plot level instead of superblock or higher level. Mixed-use zoning should be applied more widely.
- Improving coordination between transport and land use plans and intensifying land use based on access and capacity of transport systems (giving priority to public transport).
- Strengthening strategic and regional development plans beyond the administrative boundary of a single municipality, to which a city plan should conform.
- Emphasizing governance in the planning process, as a consensus-building mechanism between levels of governments, and involving the public in the process.

- Including a more detailed and long-term financing plan based on revenues from government, the private sector, and income and other revenue generated by the delivery of infrastructure services

The land conversion within a municipality should prioritize conversion within urban growth boundaries and along growth corridors. The fragmentation of the urban fringe leaves patches of farmland served by expensive infrastructure networks while development leapfrogs beyond the built-up edge. Infrastructure and transportation routes should guide development and reinforce growth vectors with infrastructure delivery being given priority in nodes (such as suburban subcenters).

Land use policy is an important facet of strategic planning that requires continual adjustment to market forces and their impact on land. Ignoring market forces in land development projects includes, for example, not considering the annual effective demand for housing or the competitive supply of housing in local markets. Without this assessment, governments tend to convert far too much land than is warranted by market conditions. To adequately measure urban land development, cities should keep data on the number of housing units built in the past year, land and housing prices, rents for office buildings and factories, infrastructure deployment patterns, land subdivision patterns, and so on. Without this information, the private sector, in turn, may overbuild in markets that do not have an appropriate demand.

A more comprehensive approach to metropolitan planning would use FAR variations as part of a strategic spatial strategy consistent with consumer demand for accessibility and efficient functioning (high ridership with financial viability) of the mass transport network. The planning and development of specific corridors would need a long-term horizon, setting land uses and building densities today with a view to future use. Along with public transit improvements, corridors could be assigned higher development intensities. To support the growth of strategic corridors with sufficient developable land, local governments could channel land conversion

quotas to these areas by allowing transfer of land conversion quotas from slower-growing counties outside the corridors.

The FAR regulation could be used by municipalities to channel growth to desired locations and enable the emergence of high-density nodes. By using FAR regulations to discriminate between land with different location premiums, municipalities can create the variations in the value of land that would encourage efficient use. Thus, locations in the proximity of mass transit stations can be allowed higher FAR values to encourage densification.

Citywide zoning maps should show the allowed FAR variations by zone to provide accurate valuation guides to developers. In cities with functioning land markets, FAR values are closely linked to local demand for floor space, being higher where demand is higher. In turn, higher demand will result in higher land prices, which act as the signals that drive efficient land use. In China, urban master plans need to show FAR values to enable developers to compare the value of different locations. Currently, FAR values are specified only at the individual block level rather than as part of the publicly available master plan documentation, and there seems to be no explicit spatial strategy to guide the FAR values used in the detailed plans.

Strengthen market forces to create livable and diverse cities

Government policies should be size neutral and not favor specific regions. The changes in the distribution of city sizes in China are the beginning of an expected concentration that happens as part of the urbanization process and is observable everywhere in the world. During the next 20 years, this concentration is likely to increase further as China reaches an urbanization rate of 75 percent or higher. Countries like Japan and the United States have achieved a high level of urbanization and economic growth with reasonable levels of concentration, while Korea has done the same with high levels of scaling and concentration of its urban system. The challenge for China during the next 20 years will be to support

BOX 2.16 Planning and management to reduce risks from natural disasters

Climate change will aggravate existing risks in coastal cities. China is home to two of the world's 10 most vulnerable cities in terms of number of people exposed to coastal flooding: Guangzhou and Shanghai. Natural disaster risk management needs to become an integral part of urban planning and management, since disasters are frequently the consequence of poor planning and management. Three aspects are particularly important. First, hazard proofing new urban infrastructure should be standard procedure, but it is frequently ignored. The incremental costs are often marginal and could be easily integrated into the designs. Hazard proofing includes implementing structural engineering standards for public buildings, but also sizing of drainage systems for peak events, or developing steeply sloped land without increasing the probability of landslides.

Second, maintenance of infrastructure and good basic service provision reduce the severity of hazard events and prevent further indirect damages.^a In many cities, especially smaller ones, public services such as water, sanitation, sewerage, lighting, and health services are not adequate, affecting household welfare, converting everyday hazards into disasters (Bull-Kamanga and others, 2003). For instance, where drainage networks are poorly maintained, even moderate floods can cause deaths from waterborne diseases and cross contamination between water and sewer lines. Roads on steep terrain that are not kept in good condition can increase erosion and landslide risk. These “institutional” efforts of achieving mini-

mum standards in service delivery should form the bedrock of hazard risk reduction strategies.

Third, urban master plans, in particular zoning, need to prohibit settlement in the most hazardous areas. As cities are rapidly expanding and their economies are growing, it is paramount that these plans incorporate assessment of natural hazards to avoid costly disasters in the future. A recent study in the Yangtze River Delta shows that cities that maintain a high degree of compliance with master plan measures, in particular with preservation zoning, had a smaller amount of urban land located in high-risk zones (Saehoon and Rowe 2013). In addition, special attention should be given to the more vulnerable poor people and towns that are often disproportionately exposed to higher risks. While enforcement of zoning laws may limit development in hazardous locations, it can cut poor people off from labor market opportunities by forcing them onto cheaper land far from the city center.

Public policies should facilitate the development of market-based instruments for better managing disaster risk, provide the right regulatory environment, and selectively intervene where clearly defined social and environmental externalities exist. Common institutions that allocate property rights, manage land use, monitor zoning compliance, and disseminate credible information on hazard risk are fundamental building blocks for balancing gains from economic density with risk from natural hazards.

Source: Based on Lall and Deichmann 2009.

a. The poor record on infrastructure maintenance has been highlighted by Estache and Fay 2007, among many others. At 4 percent of GDP, estimates of required maintenance expenditures equal those required for new infrastructure investment.

the pursuit of a concentration pattern while articulating density with transport systems within metropolitan regions. Cities should avoid fragmented development and sprawl and improve connectivity between cities so that the agglomeration economies will benefit all types and sizes of cities. Medium and small cities can support and benefit from the economies and markets of nearby large cities.

The pricing of land use rights needs to be less distorted and more transparent. The pricing system could be reformed along the

following lines: First, urban land use rights for the development of industrial, commercial, and residential areas should be allocated through a competitive bidding process, and the subsidized pricing of industrial land should be completely abandoned. Second, land subdivision regulations should clearly assign costs for various levels of infrastructure to developers, municipalities, and higher levels of government. Third, agriculture land needs to be priced based on its economic value so that displaced farmers receive higher

compensation, making development on the periphery more expensive, and thus more efficient in land use terms and higher in quality. Adjusting the current pricing of agricultural land for conversion into urban land to more closely reflect market prices, combined with an increase in FARs, would certainly increase the economic efficiency of urban land. That would be preferable to the current land conversion quotas, which cause spatial distortions in the development of Chinese cities.

Reducing the size of city blocks and urban plots would allow more potential buyers to participate in the process and increase the number of land transactions (and revenue) over time. The substitution between land and capital inputs is restricted by the predetermined and inflexible floor area ratios as well as by the fact that land prices are linearly correlated with the floor area ratio.

Revise the existing urban planning codes and infrastructure standards to ensure they more demand driven and service oriented. Redefine official norms, building codes, and urban planning codes and revise technical standards for urban road and other infrastructure planning to allow for more flexible and demand-based designs and avoid oversizing of infrastructure. The urban street codes need to be immediately revised based on function and hierarchy of streets within urban fabric.

Update the urban planning process. China would benefit from a major review of its urban planning systems. Such a review would facilitate the move to more efficient land use. The misalignment of Chengdu's planning with on-the-ground outcomes in the 1990s was a reflection of this failure to undertake urban land use planning based on a full awareness of the demographics, urban economic function, market forces, and major planned public investments. Recent research by the Urban Planning Society of China reveals that the urban planning certification and continuing education system has weaknesses and is not providing the necessary knowledge base to address rapid urban growth.

Creating a land use right transfer system that allows rapid growing cities with high demand for land to purchase land use rights of surplus urban construction land in

underdeveloped urban expansion areas might help reallocate urban construction land at the national and regional level more efficiently. It also offers an opportunity for urban construction to be returned to rural land use.

City clusters could be fostered by improving connectivity and regional coordination. Coordination mechanisms or regional authorities at the metropolitan level could be created to increase the efficiency of public service delivery in critical areas such as public and mass transportation, water and sanitation, waste management and housing. Managing scarce regional water resources and building energy- and cost-efficient waste systems will similarly require more cooperation among county, district, and sometimes municipal governments. The challenge for Chinese cities will be to facilitate such cooperation across sectors and jurisdictional boundaries without significantly compromising the strong culture of implementation that has been at the core of economic development in the past three decades. Often in China, the best solutions will likely be local, involving context-sensitive and pragmatic answers to particular issues, rather than wholesale changes in approach. It will be important to identify such solutions as they emerge and find ways of mainstreaming them across cities.

Investments should continue in regional transport infrastructure (such as highways, railways, and other transport systems) to improve connectivity and the flow of capital, goods, people, and services. Regional economic development plans should be developed, and local plans be required to link to them. Pricing mechanisms should be introduced to address critical environmental resource constraints (water, air, land) at the regional level.

Metropolitan land use and transportation planning should be integrated and employment and residential patterns aligned accordingly. Municipal governments need incentives to stop treating cities as pools of state-owned assets (especially land) that need to be monetized and to integrate land use and transportation planning for long-term efficiency. Large metropolitan areas should accelerate development of mass transit systems aligned

with compatible land use. FARs should be based on distance and accessibility from main public and mass transport systems to encourage densification along corridors and critical transport nodes. Such systems should rely on full or partial private ownership so that transit system operators have incentives to coordinate the network with employment and residential patterns in order to maximize revenues. The governments would need to ensure, through development policies and investment programs, that there is supply of affordable land in areas of market demand. High-density nodes linked by rapid transit systems would reduce congestion, pollution, and travel cost. Currently, many systems in China, such as Light Rail Transit (LRT) Line 1 in Wuhan, align poorly with land use, employment distribution, and residential densities.

Notes

1. "China produces most home appliances," *China Daily*, October 3, 2012.
2. Coastal provinces include Beijing, Fujian, Guangdong, Hainan, Hebei, Jiangsu, Liaoning, Shandong, Shanghai, Tianjin, and Zhejiang. These provinces are home to 41 percent of China's population.
3. Dongguan, Foshan, Guangzhou, Huizhou, Jiangmen, Shenzhen, Zhaoqing, Zhongshan, and Zhuhai.
4. In land use and zoning plans, the term refers to limits imposed on the FAR ratio.
5. For example, if the plot of land is 100 square meters and the building coverage ratio is 60 percent, then the first floor of the constructed building can be up 60 square meters.
6. This was based on draft research paper prepared by Shuai Ren for this report.
7. The project financed by the Energy Foundation & China Sustainable Cities Program is supporting the revision of the Chenggong New Town Master Plan, a future administrative and employment center for the Greater Kunming region, as a "low-carbon city."
8. While this section does not cover virtual connectivity, high-speed communication networks will play a critical role for innovation and service industries by facilitating the transfer and exchange of knowledge, the virtual delivery of services, and seamless exchanges among companies.
9. Based on Fang (2013), who estimated elasticity of urban economic performance to intercity accessibility using panel data of 260 prefecture-and-above level cities during 2001–10.
10. This section builds on a joint Clean Air Asia-World Bank Report 2013.
11. *China Urban-Rural Construction Statistical Yearbook 2011*, tables 1-1-1 (for cities) and 2-1-1 (for county towns).
12. See <http://green.sina.com.cn/news/roll/2011-06-13/220022633293.shtml>.

References

- ADB (Asian Development Bank). 2012a. *Asian Development Outlook 2012: Confronting Rising Inequality in Asia*. Metro Manila, Philippines: Asian Development Bank. <http://search.ebscohost.com/login.aspx?direct=true&scope=site&db=nlebk&db=nlabk&AN=577389>.
- . 2012b. "Transport Efficiency through Logistics Development: Policy Study." ADB, Metro Manila, Philippines.
- Afilal, A., and S. V. Lall. 2014. "The Value of Agglomeration Economies across Chinese Cities." Informal report.
- Au, Chun-Chung, and J. Vernon Henderson. 2006. "Are Chinese Cities Too Small?" *Review of Economic Studies* 73 (3): 549–576.
- Bain & Company. 2013. *China E-commerce Report*.
- Baum-Snow, N., and M. Turner. 2012. "Transportation and the Decentralization of Chinese Cities."
- Beijing Transport Research Center. Various years, 2007–11. "Beijing Transport Development Annual Report."
- Black, Duncan, and J. Vernon Henderson. 1999. "A Theory of Urban Growth." *Journal of Political Economy* 107 (2): 52–284.
- Bourdic, L. 2011. "Urban Density and Private Transport Energy Consumption—From Global Trends to Local Solutions." MSc Thesis, Imperial College, London.
- Bourdic, L., and S. Salat. 2012. "Street Patterns in Paris." Working Paper, Urban Morphology Institute, Paris.
- . 2013. "The Cost of Fine Grain Design vs. Superblocks in China." Working Paper, Urban Morphology Institute, Paris.
- Brown, D., M. Fay, J. Felkner, S. V. Lall, and H. G. Wang. 2008. "The Death of Distance? Economic Implications of Infrastructure Improvement in Russia." World Bank, Washington, DC.

- Bull-Kamanga, L., K. Diagne, A. Lavell, E. Leon, F. Lerise, H. MacGregor, A. Maskrey, M. Meshack, M. Pelling, H. Reid, D. Satterthwaite, J. Songsore, K. Westgate, and A. Yitambe. 2003. "From Everyday Hazards to Disasters: The Accumulation of Risk in Urban Areas." *Environment and Urbanization* 15 (1) (April 1): 193–204. doi:10.1177/095624780301500109.
- Calimonte, John. 2012. "Rail Integrated Communities in Tokyo." *Journal of Transport and Land Use*.
- Cai, W., and J. V. Henderson. 2013. Distorted capital markets in China: the bias towards political cities and state owned firms. Background paper for *Urban China*, World Bank, Washington, DC.
- Campos, C. 2012. "The Geographical Concentration of Industries." Regional Economic Analysis, June 20, 2012.
- CDRF (China Development Research Foundation). 2010. *China Development Report 2010*. Beijing: CDRF.
- CMAP (Chicago Metropolitan Authority for Planning). 2013. *The Freight Manufacturing Nexus: Metropolitan Chicago's Build-in Advantage*. Chicago: CMAP.
- China Academy of Science. 2010. "China New Urbanization Report." Informal report.
- China Statistics Press. 2011 and 2012. *China City Statistical Yearbook*.
- China Statistics Press. Various years, 2007 to 2012. *China Statistical Yearbook*.
- Chreod. 2014. *China's Metropolitan Regions*. Washington, DC: World Bank.
- Ciccone, A., and Robert E. Hall. 1996. "Productivity and the Density of Economic Activity." *American Economic Review* 86 (1): 54–70.
- Clean Air Asia. 2013. "China Green Freight Policy and Institutional Analysis Report." prepared for the World Bank.
- Creutzig, F. and D. He. 2009. "Climate Change Mitigation and Co-benefits of Feasible Transport Demand Policies in Beijing." *Transportation Research Part D: Transport and Environment* 14 (2), 120–131.
- Desmet, Klaus, and M. Fafchamps. 2004. "Employment Concentration across US Counties." CEPR Discussion Paper 4689. CEPR Discussion Papers. <http://ideas.repec.org/p/cpr/ceprdp/4689.html>.
- Du, H., and S. Li. 2010. "Migrants, Urban Villages, and Community Sentiments: A Case of Guangzhou, China." *Asian Geographer* 27 (1–2).
- Duranton, G., and D. Puga. 2000. "Nursery Cities: Urban Diversity, Process Innovation, and the Life-cycle of Products." Working Paper dpuga-00-01, University of Toronto, Department of Economics. <http://ideas.repec.org/p/tor/tecipa/dpuga-00-01.html>.
- Estache, A., and M. Fay. 2007. "Current Debates on Infrastructure Policy." Policy Research Working Paper no. 4410, World Bank, Washington, DC.
- Fan, J. 2007. "Industrial Agglomeration and Difference of Regional Productivity." *Frontiers of economics in China*. 2: 346–361.
- Fang, W. 2013. "Dispersion of Agglomeration through Transport Infrastructure." PhD Thesis, Massachusetts Institute of Technology, Cambridge, MA.
- Frenchman, D., J. Wampler, and P.C. Zegras. 2011. *Designing Clean Energy Cities: New Approaches to Urban Design and Energy Performance*. Massachusetts Institute of Technology, School of Architecture and Planning, School of Architecture, Making the "Clean Energy City" in China (Project), MIT-Tsinghua Joint Urban Design Studio, Energy Foundation, China.
- Fujita, M., V. Henderson, Y. Kanemoto, and T. Mori. 2004. "Spatial Distribution of Economic Activities in Japan and China." In *Handbook of Urban and Regional Economics*, vol. 4. V. Henderson and J. F. Thisse, eds.
- Gihring, T.A. 1999. "A Potential Tool for Urban Growth Management." *APA Journal*.
- Glaeser, E.L. 2011. "Rethinking the Federal Bias toward Homeownership." *Cityscape* 13 (2): 5–37.
- Gwilliam, K. 2011. *Developing the Public Transport Sector in China*. Washington, DC: World Bank.
- Guoyong, Li. 2013. "Status Quo and Challenges of China's Urban Rail." Speech at the 2013 China Urban Mass Transit Forum, June 3, Shanghai. http://zt.cnautonews.com/cglt2013/ldjh/201306/t20130603_203191.htm.
- Hao, P., S. Geertman, P. Hooimeijer, and R. Sliuzas. 2012. "Spatial Analyses of the Urban Village Development Process in Shenzhen, China." *International Journal of Urban and Regional Research* DOI:10.1111/j.1468-2427.2012.01109.
- Hartzok, A. 1997. "Pennsylvania's Success with Local Property Tax Reform: The Split Rate Tax." *The American Journal of Economics and Sociology*, April 1997, 56(2), pp. 205–13.
- Hashiguchi, Y., and K. Tanaka. 2013. "Agglomeration and Firm-level Productivity: a Bayesian Spatial Approach." IDE Discussion Paper 403, Institute of Developing Economies, Japan External Trade Organization (JETRO). <http://ideas.repec.org/p/jet/dpaper/dpaper403.html>.

- Hartzok, A. 1997. "Pennsylvania's Success with Local Property Tax Reform: The Split Rate Tax." *The American Journal of Economics and Sociology*.
- Jacobs, J. 1969. *The Economy of Cities*. New York: Vintage Books.
- Ketkar, S. L., and D. Ratha. 2010. "Diaspora Bonds: Tapping the Diaspora during Difficult Times." *Journal of International Commerce, Economics and Policy* 1 (2) 251–263.
- Klako Group. 2004. "China's Pearl River Delta." *China's Invest Monthly Newsletter*, June. www.klakogroup.com/en/china-invest-monthly-newsletter/chinas-pearl-river-delta.
- Kolko, J. 1999. "Can I Get Some Service Here? Information Technology, Service Industries, and the Future of Cities." SSRN Scholarly Paper ID 985712, Rochester, NY, Social Science Research Network. <http://papers.ssrn.com/abstract=985712>.
- Lall, S.V., and H. G. Wang. 2011. "Balancing Urban Transformation and Spatial Inclusion in China." *An Eye on East Asia and the Pacific* 6, World Bank, Washington, DC.
- Lall, S., and U. Deichmann. 2009. "Density and Disasters: Economics of Urban Hazard Risk." Policy Research Working Paper no. 5161, World Bank, Washington, DC.
- Li, Guoyong. 2013. Interview with Mr. Li Guoyong from the National Development and Reform Commission, China. http://www.chinadaily.com.cn/hqgj/jryw/2013-08-14/content_9848776.html.
- Licciardi, G. and R. Amirtahmasebi. 2012. *The Economics of Uniqueness: Investing in Historic City Cores and Cultural Heritage Assets for Sustainable Development*. Urban Development Series. Washington, DC: The World Bank.
- Lin, Y., B. de Meulder, and S. Wang. 2011. "Understanding the 'Village in the City' in Guangzhou: Economic Integration and Development Issue and their Implications for the Urban Migrant." *Urban Studies* 28(16) 3583–3598.
- Lin, Y. and B. de Meulder. 2012. "A Conceptual Framework for the Strategic Urban Project Approach for Sustainable Redevelopment of 'Villages in the City' in Guangzhou." *Habitat International* 36: 380–387.
- Liu, Y., S. He, F. Wu, and C. Webster. 2010. "Urban Villages under China's Rapid Urbanization: Unregulated Assets and Transitional Neighborhoods." *Habitat International* 34: 135–144.
- Lucas, R. E. 1993. "Making a Miracle." *Econometrica* 61: 251–72.
- Mao, L., Zhu, H., and Duan, L. 2012. "The Social Cost of Traffic Congestion and Countermeasures in Beijing." *Sustainable Transportation Systems*: 68–76. <http://dx.doi.org/10.1061/9780784412299.0010>.
- Ministry of Environmental Protection. 2012. *2012 China Vehicle Emission Control Annual Report*.
- Nelson, A.C., and J.B. Duncan. 1995. *Growth Management Principles and Practices*. Chicago, Ill.; Washington D.C.: Planners Press, American Planning Association.
- OECD-CDRF (Organisation for Economic Co-operation and Development and China Development Research Foundation). 2012. "Trend in Urbanization and Urban Policies in OECD Countries: What Lessons for China?" Background Paper.
- Proost, S., and K. Van Dender. 2011. "What Long-Term Road Transport Future? Trends and Policy Options." *Review of Environmental Economics and Policy* 5 (1) pp. 44–65.
- Qu, L., Y. Gao, A. Salzberg, and G. Ollivier. 2014. "Walkability Analysis for Chinese Transit Oriented Development: A Case Study in Nanchang." Transportation Research Board Annual Meeting 2014 Paper #14-0888, Washington, DC.
- Rabinovitch, Simon. 2013. "Fear of Missing Out Fuels China Property Market." *Financial Times*, September 18, 2013. <http://www.ft.com/intl/cms/s/0/3d6870d6-204a-11e3-9a9a-00144feab7de.html#axzz2fKJbYRbZ>.
- Rice, P.G., A.J. Venables, and E. Patacchini. 2006. "Spatial Determinants of Productivity: Analysis for the Regions of Great Britain." *Regional Science and Urban Economics* 36: 727–752.
- Roberts, M., U. Deichmann, B. Fingleton, and T. Shi. 2012. "Evaluating China's Road to Prosperity: A New Economic Geography Approach." *Regional Science and Urban Economics* 42: 580–594.
- Wu, F., F. Zhang, and C. Webster. 2013. "Informality and the Development and Demolition of Urban Villages in the Chinese Peri-urban Area." *Urban Studies* 2013 (50): 1919.
- Rosenthal, S.S., and W.C. Strange. 2003. "Geography, Industrial Organization, and Agglomeration." *The Review of Economics and Statistics* 85 (2): 377–93.
- . 2004. "Evidence on the Nature and Sources Of Agglomeration." *Review of Economics and Statistics* 85: 377–393.
- Saeboon K., and P.G. Rowe. 2013. "Are Master Plans Effective in Limiting Development in China's Disaster-Prone Areas?" *Landscape and Urban Planning* 111: 79–90.

- Salat, S., F. Labbé, and C. Nowacki. 2011. "Cities and Forms: On Sustainable Urbanism." CTS Urban Morphology Laboratory.
- Salzberg, A., R. Bullock, Y. Jin, and W. Fang. 2013. "High-Speed Rail, Regional Economics, and Urban Development in China." China Transport Topics No. 08, World Bank, Beijing.
- Sandroni, P. 2010a. "A New Financial Instrument of Value Capture in São Paulo: Certificates of Additional Construction Potential." In *Municipal Revenues and Land Policies*, Gregory K. Ingram and Yu-Hong Hong, eds. Cambridge, MA: Lincoln Institute of Land Policy.
- Sandroni, P. 2010b. A New Financial Instrument of Value Capture in São Paulo: Certificates of Additional Construction. Conference Paper. https://www.lincolnst.edu/pubs/2064_A-New-Financial-Instrument-of-Value-Capture-in-S%C3%A3o-Paulo.
- Shanghai Urban and Transport Planning Institute. 2011. "Shanghai 5th Comprehensive Transport Survey Report."
- Song, Y., and Y. Zenou. 2012. "Urban Villages and Housing Values in China." *Regional Science and Urban Economics* 42: 495–505.
- Song, Y., and X. Pan. 2009. "Toward Better Plans to Guide Smart Development in Chinese Cities." In *Smart Urban Growth for China*, Y. Song and C. Ding, eds. Cambridge, MA: Lincoln Institute of Land Policy.
- Song, Y. 2012. "Planning institutions: China." In *International Encyclopedia of Housing and Home, Vol 5*, Susan J. Smith, Marja Elsinga, Lorna Fox O'Mahony, Ong Seow Eng, Susan Wachter, and Sasha Tsenkova, eds. Oxford: Elsevier Ltd.
- Zhi L. 2013. "Planning and Policy Coordination in China's Infrastructure Development." Background Paper, EAP Infrastructure Flagship Study, World Bank.
- Wang, L., C.C. Li, Q. Ying, X. Cheng, X.Y. Wang, X.Y. Li, L.Y. Hu, L. Liang, L. Yu, H.B. Huang, and P. Gong. 2012. "China's Urban Expansion from 1990 to 2010 Determined with Satellite Remote Sensing." *Chinese Science Bulletin* 57 (22): 2802–2812. doi:10.1007/s11434-012-5235-7.
- World Bank. 2008. "The Spatial Growth of Metropolitan Cities in China: Issues and Options in Urban Land Use." Informal report.
- World Bank. 2009. *World Development Report 2009: Reshaping Economic Geography*. Washington, DC: World Bank.
- . 2011. "Climate Finance in the Urban Context." The World Bank issues brief #4 of *Development, Climate and Finance*.
- . 2013a. *Planning, Connecting, and Financing Cities—Now*. Washington, DC: World Bank.
- . 2013b. "Regional Impacts of High Speed Rail in China—Identification, Quantification and Outlook." Background Paper, World Bank, Washington, DC.
- . 2013c. Discussions during the "Transforming Cities with Transit and Financing Transit with Land Values Workshop." Beijing, China, November 1, 2013.
- . 2013d. China Transport Topic, Note 8.
- Wu, F., F. Zhang, and C. Webster. 2013. "Informality and the Development and Demolition of Urban Villages in the Chinese Peri-urban Area." *Urban Studies* (50): 1919.
- Wu, L. (2013): China's System of Municipal Finance: Origins, Impacts, and Agenda for Reform, unpublished.
- Zhao, P., B. Lu, and J. Woltjer. 2009. Conflicts in Urban Fringe in the Transformation Era: An Examination of Performance of the Metropolitan Growth Management in Beijing. *Habitat International* 33 (4): 347–356. doi: 10.1016/j.habitatint.2008.08.007
- Zheng, S., F. Long, C. Fan, and Y. Gu. 2009. Urban Villages in China: A 2008 Survey of Migrant Settlements in Beijing. *Eurasian Geography and Economics* 50 (4): 425–446.

Inclusive Urbanization and Rural-Urban Integration

Inclusive urbanization: Vision, major challenges, and key reforms

Introduction

China has undergone a remarkable transformation, with the movement of over 260 million migrants from rural areas to urban areas. Driven largely by this rural-to-urban migration, China's urban population is projected to reach 1 billion by 2030. These migrants have seized the opportunities offered by urbanization, leaving their agricultural jobs and taking up more productive and higher-paying jobs in cities. Through this process, China has managed to sustain high wage growth, achieve even higher productivity growth, and reduce poverty on an unprecedented scale (World Bank and DRC 2013).

However, two closely related sets of inequalities pose challenges to making urbanization inclusive: a new dualism within the urban population and the old dualism of urban and rural disparities. First, newcomers to the cities—the migrants with nonlocal *hukou* status—are often excluded from access to urban services because of their *hukou* status and may face greater financial and administrative challenges in accessing

quality services.¹ Second, large gaps exist in the quantity and quality of public services across provinces and between rural and urban areas. The challenges are intertwined, because if people move to the cities to receive better public services instead of moving to find productive jobs, congestion and unemployment result. Examples of this type of urbanization can be found around the world. Conversely, if people do not move even though there are jobs for them (for example, because they cannot afford essential services in urban areas even with better jobs), efficiency losses and slower growth result, and the human capital of citizens will be underutilized and underdeveloped (Cai and Wang 2010; Wang, Zhu, and Ma 2008).

China also faces the challenge of improving labor market integration and strengthening labor market institutions to help overcome the new and old dualisms. An inclusive and efficient labor market would allow migrants to find the best matches for their talents and would provide the supportive training and learning infrastructure to help them continue this productive matching as the economy evolves. Supportive labor market institutions would mediate the interests of diverse stakeholders in this market and would balance policy objectives with respect

to national social objectives and economic efficiency.

The Chinese leadership is well aware of these challenges and presented social policies to address them in the 12th Five-Year Plan (2011–15) and *China 2030* (World Bank and DRC 2013). The main social development challenges identified by the 12th Five-Year Plan include rising inequality of income and wealth, disparities in opportunities and in access to affordable and quality services, disconnected rural and urban systems, and poor quality and undersupply of basic public services for poor and vulnerable groups. In light of these challenges, the vision of the Five-Year Plan is to build, improve, and promote equalization of access to basic public services (that is, education, employment, health care, pension, social assistance, and housing) for all citizens, to build a harmonious society and maintain social justice and fairness. Similarly, *China 2030* (World Bank and DRC 2013) envisages promoting economic freedom through equal opportunities for all citizens to access quality public services (that is, not limited by place of birth, gender, or other factors) and basic security from deprivation to prevent any irreversible loss of human potential.

This report builds on the policy options laid out in these documents and attempts to translate them into actions, using the prism of addressing both the new and the old dualisms. It analyzes and provides policy alternatives to answer three interrelated questions that are key factors in advancing the inclusive urbanization agenda in the next decade:

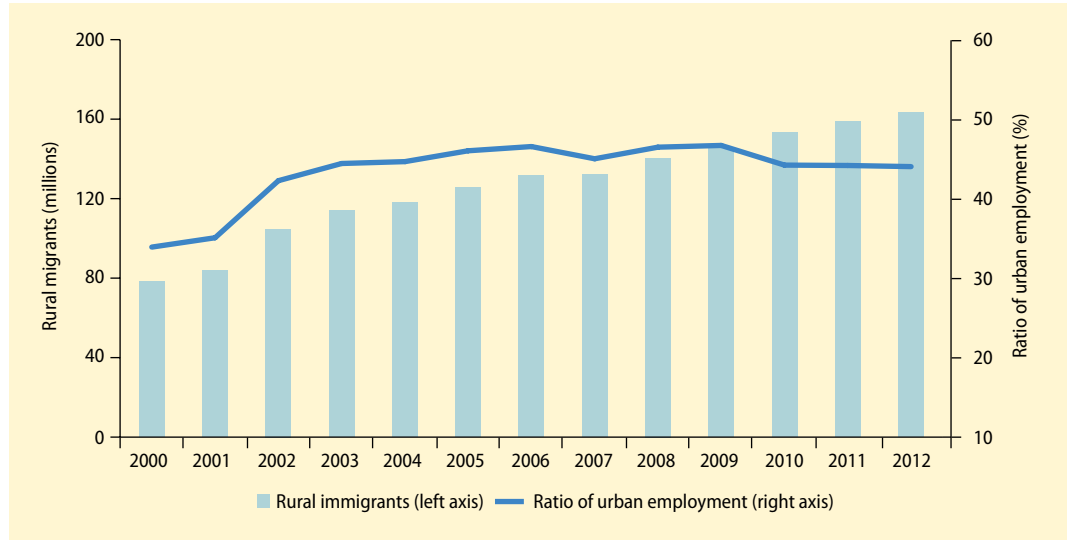
- How can access to basic social services in urban areas be equalized among migrants and local hukou holders?
- How should this equalization proceed across the vast and diverse spectrum of rural settlements; townships; counties; and small, medium, and large cities in China?
- What policies will support building a labor market that is productive and inclusive for all?

The structure of the report is as follows. The remainder of this section provides a brief overview of the current social context,

including demographic shifts and the profile of migrant workers, as well as opportunities and challenges for urbanization. It then describes the overall vision for inclusive urbanization and rural-urban integration, providing a picture of where China could be if the necessary reforms can be implemented successfully. The second section then focuses on the challenges and options in ensuring equitable access to social services in urban areas, starting with the shift from the hukou system to a modern residence-based system. That section looks at the current “urban standard” of social services in China’s urban areas (that is, education, health, pensions, social assistance, and welfare housing) by reviewing how services are financed and delivered as well as analyzing the cost of extending services to migrant populations. The third section takes a broader view of social policy reforms in China, discussing the need for rural-urban integration and equitable service delivery across the country. It covers the areas of education, health, pensions, and social assistance programs as well as addresses the cross-cutting issue of accountability in social services delivery. Finally, the fourth section focuses on reforms for ensuring an inclusive and productive labor market, specifically in the areas of skills accumulation (that is, technical and vocational education and training [TVET] and higher education) and key labor market institutions (that is, wage setting, labor taxation, labor law, and labor dispute mediation).

The social context and challenges and opportunities for urbanization

Over the past three decades, China has experienced the world’s largest internal migration in history, which has been instrumental to the country’s growth and poverty reduction. Employment of rural migrant workers, nearly all working in urban areas, more than doubled from 79 million in 2000 to 163 million in 2012. China also had 99 million local rural (nonagricultural) workers in 2012—together totaling 262 million migrant workers (NBS 2012a). By 2013, rural migrant workers accounted for 44 percent of total urban employment (figure 3.1). This labor migration

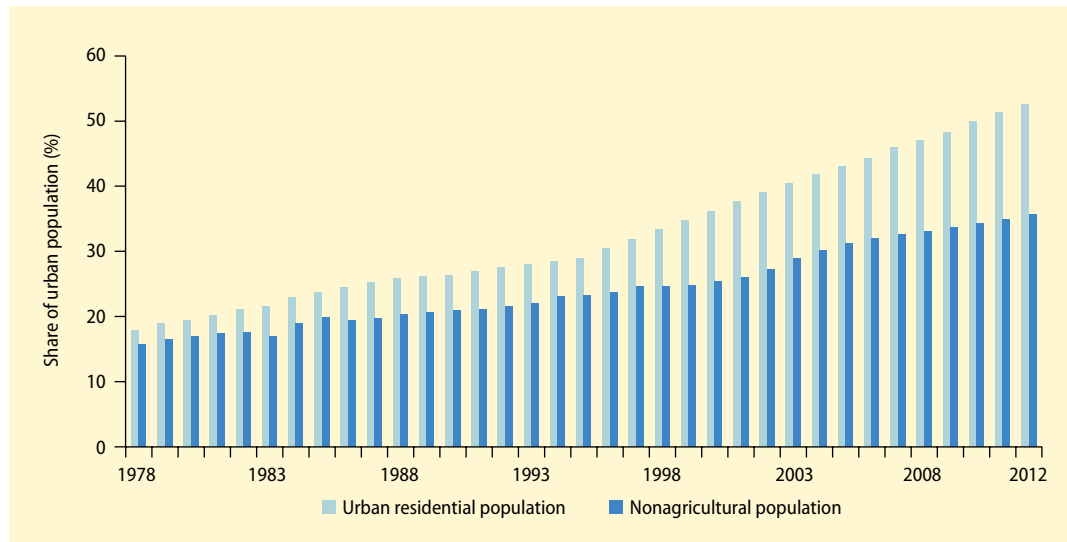
FIGURE 3.1 Rural-to-urban migration trends in China, 2000–12

Source: NBS 2012a, 2012b.

has contributed to the structural transformation of the economy and the integration of the labor market, and it has played an important role in reducing poverty and narrowing the income gap between rural and urban areas.

The hukou household registration system has given rise to unique characteristics in China's internal migration. In most countries, the processes of industrialization and urbanization have involved rural workers migrating

and settling down to become urban dwellers once they find jobs in cities. In the Republic of Korea, for example, rural-to-urban migrants become as socially mobile as urban natives within the first generation.² In contrast, China's rural migrant workers have behaved more like guest workers—accepting lower wages, migrating without their families, living in dormitories, and having limited access to urban public services (figure 3.2).

FIGURE 3.2 Trends in urban resident population and population with nonagricultural hukou, 1978–2012

Source: National Bureau of Statistics, various years.

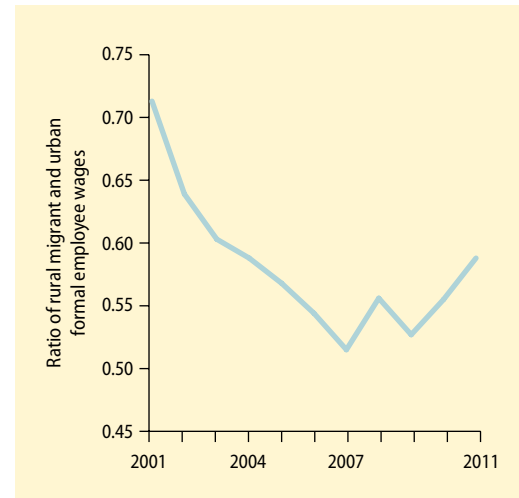
As China continues to urbanize rapidly, significant economic restructuring is taking place. China is reorienting its growth model from a capital-intensive and export-oriented one toward one driven more by deeper human capital and total factor productivity, increased domestic consumption, and movement up the value chain. On the demand side, many new jobs are now generated inland in response to industrial policy, reducing the cost of migration for new migrant workers. Economic restructuring and industrial upgrading have intensified the destruction of low-skilled jobs and the creation of semiskilled and skilled jobs, necessitating human capital development among the current workforce.

China's urbanization coincides with major demographic shifts that have significant implications for migrant workers as well as for the broader economy. In particular, the excess rural surplus labor is nearly exhausted—China is reaching its Lewis turning point. China is also experiencing rapid population aging, which will place greater strain on family support networks and challenge social programs, pensions, and health care. Population aging also has implications for the labor supply because the pool of available labor has begun to shrink.

In response to these economic and demographic trends, wages of migrant workers have started to increase rapidly. The end of so-called cheap Chinese labor has already been documented (Li and others 2012). The recent increase in relative wages of migrant workers marks a reversal from the pattern of 2001–07, when migrant wages substantially lagged those of urban formal employees. From 2007 to 2012, rural migrant wages increased by an average of 17.1 percent annually in real terms³ (figure 3.3).

Moreover, the wage differential between migrant and long-term urban resident workers that is unexplained by differences in human capital has diminished considerably, which suggests improved labor market integration. Results from the 2001 and 2010 editions of the China Urban Labor Survey (CULS) show that the negative impact on wages of being a rural migrant declined to just 13 percent in 2010 and disappeared after accounting for differences in their job

FIGURE 3.3 Relative wages of rural migrants and urban formal employees, 2001–11



Source: National Bureau of Statistics.

Note: Formal real wages are average urban wages reported in *China Statistical Yearbook* (2012); rural migrant wages are from National Bureau of Statistics' rural household surveys and rural migration monitoring surveys.

characteristics.⁴ This result means that by 2010, rural migrants were not systematically paid less within the same sector and ownership type. Instead, lower wages for rural migrants were due to migrants working in lower-paying sectors and ownership types.

The demographic profile of the rural migrant labor force is changing, with migrant workers generally being older and better educated than the overall rural labor force. The average age of rural migrant workers rose from 34.0 years in 2008 to 37.3 years in 2012. In terms of educational attainment (table 3.1), in 2012, 5.7 percent of rural workers had three-year college degrees or above, 4.7 percent had completed vocational high school, 13.3 percent had completed regular high school, and 60.5 percent had completed middle school. In comparison, only 1.4 percent of local farmers had three-year college degrees or above, 1.5 percent had completed vocational high school, 8.0 percent had completed regular high school, and 47.0 percent had completed middle school.

Migrants are increasingly bringing their children or their entire families with them when they migrate. The National Bureau of Statistics (NBS) monitoring survey of rural

TABLE 3.1 Educational attainment of rural workers in 2012

	Local farmers	Rural migrant workers	Local rural migrant workers	Rural out-migrant workers	Young migrant workers
No schooling	8.3	1.5	1.0	2.0	0.3
Primary school	33.8	14.3	10.5	18.4	5.5
Junior middle school	47.0	60.5	62.0	58.9	57.8
Senior middle school	8.0	13.3	12.8	13.8	14.7
Technical secondary school	1.5	4.7	5.9	3.3	9.1
College and above	1.4	5.7	7.8	3.6	12.6

Source: NBS, *National Monitoring Survey Report for Rural Migrant Workers 2012a*.

Note: Young migrant workers are those 30 years of age and below.

migrants reports that 20.7 percent of rural migrants left home with their entire families in 2012 (NBS 2012a). However, this figure does not capture the many cases in which multiple family members migrated while at least one family member stayed behind to farm the land or maintain the family's claim to collective land or other benefits. The CULS found that among the children of migrants enrolled in school, the share that went to school in the city increased from 41 percent in 2001 to over 70 percent in 2010.⁵

Although the majority of rural migrants are still concentrated in medium and large cities, intra-provincial migration has increased significantly. As shown in table 3.2, in 2012, 30.1 percent of rural migrants worked in provincial capitals or municipal provinces, and 34.9 percent worked in prefectural cities—about the same proportions as in 2009. Intra-provincial migration increased from less than 47 percent in 2009 to more than 53 percent in 2012. This increase could reflect the rapid development of second- and third-tier cities as well as greater diversity among migrants, including not only young, single people but also married and older individuals who may

have greater family ties or responsibilities that make them reluctant to migrate far away.

These trends point both to an opportunity and to an urgent need to reform hukou and other institutions that constrain mobility and impede access to social services, as well as to improve social service delivery across the entire country. For urbanization to succeed, people need to move freely, but the hukou system still defines their residence status and rights to access public services. China's decentralized fiscal system—in particular, the mismatch at the local level between resource availability and social spending responsibilities—also creates distortions because it does not allow money to follow people. A sustainable financing framework for local governments to provide mandated services, as in the case of providing education for migrants, is absent. Furthermore, fragmented social security arrangements that lack portability of benefits discourage both mobility and formalization in the labor market.

China's urbanization can create new opportunities for efficiency in social service delivery. With urbanization comes denser cities and the ability to provide services to more concentrated populations, which allows for efficient pooling and risk sharing for social services in urban areas. Cities also have a better pool of health and education providers, and the possibilities for knowledge networks within cities and learning externalities are much greater than in rural settings. Furthermore, the points of educational supply and labor market demand (firms) are closer, providing greater possibility of exploiting real-time feedback from the demand side. The potential for outreach is also higher,

TABLE 3.2 Distribution of rural-to-urban migrant workers by city level, 2009–12

City	2009	2012
Municipalities under the central government	9.1	10.0
Capital cities	19.8	20.1
Prefectural cities	34.4	34.9
County-level cities	18.5	23.6
Towns	18.2	11.4

Source: NBS, *National Monitoring Survey Report for Rural Migrant Workers 2009, 2012a*.

with shorter distances and connection times between facilities and their users. In addition, the natural risk pools of jurisdictions (which are more efficient for risk sharing across health and old-age insurance) are larger in urban areas, with fewer coordination challenges in moving to higher levels of pooling (for old-age security and pensions).

Urbanization can also foster greater labor market efficiency. In the labor market, a significant advantage of urban settlements is that the high agglomeration of activity provides workers and businesses with a wide range of options if they possess or require skills.⁶ Urban settings imply more formal sector employment than is found in rural areas, and the need for labor market institutions (wage setting and collective bargaining) is greater. A formalized labor market also allows for the development of more efficient social insurance institutions.

At the same time, urbanization brings the challenge of building cohesive communities in cities with more migrants. Higher demand has intensified the competition for urban services, and infrastructure pressures from expanding urban populations are more difficult to manage because of the cost of land and congestion. In addition, the types of people coexisting in cities have become much more diverse; for example, expanding urban areas have a diversity of dialects among migrants and differences in students' grade-level readiness as a result of varying educational quality in rural areas. Service delivery providers need to tailor their services to accommodate these diversities while keeping the quality of provision at a level acceptable to long-term residents. Notably, social conflicts have ignited in recent years; for example, labor disputes, largely involving migrant workers, nearly doubled between 2005 and 2012 (Gallagher and others 2013).

The vision for inclusive urbanization and rural-urban integration

China's vision for inclusive urbanization builds on two main principles:

- *Free movement of people to seek and maximize economic opportunities*, allowing people

and society to achieve maximum benefit from the human potential of China's population, and

- *Equitable access to basic social services and social protection across space*, allowing all citizens full integration into urban life.

To achieve China's vision for inclusive urbanization and rural-urban integration, social policy reforms will need to follow some cross-cutting guiding principles:

- *Provide appropriate incentives for citizens and service providers.* Residence rules should not encourage mobility that does not lead to higher productivity of working household members. Policies need to be consistent with the strong incentive to work and to build human capital across the life cycle, while discouraging welfare dependency. Service providers also need to be given the right incentives, with built-in checks and balances that conform to professional ethics. The current incentive structure in health and to some extent education encourages public providers to act as profit-maximizing private sector entities—for example, one-third of hospital admissions in China are considered unnecessary, and school selection fees drive a further funding wedge between “key schools” and regular schools. A workable incentive framework is needed for local authorities to provide equitable access to basic social services and social protection.
- *Redefine the roles of the state, private sector, communities, and households to support a successful transition.* The urbanization process is creating opportunities for the private sector to provide higher-end services financed through user fees and, in doing so, share the fiscal burden faced by local governments. Private provision and public-private partnerships could play a bigger role in education and health. The role of government would need to be recalibrated accordingly, with a transition from administrative measures to market measures in some domains and a more direct state role in others. Stronger state capacity to set policies, license, and regulate will be needed, along with greater attention to the

financing and provision nexus and potential unbundling of who finances and who provides. Governments at all levels will face challenges as they seek prudent balances between state- and market-based solutions.

- *Improve affordability and efficiency.* Reforms should be consistent with fiscal constraints and promote more efficient use of public resources. Social sector budgets will face increasing pressures as economic growth gradually slows, the population ages, and program coverage continues to rise. Addressing these challenges will require greater efficiency in service delivery and value for money in public spending, within a sustainable fiscal framework. Those changes, in turn, require new information and tools to assess efficiency and create new incentives through budgetary and other channels. Effective policies will increasingly need instruments for both the supply and demand sides of service delivery. Reforms should also promote greater accountability of administrative systems, service providers, and citizens to help ensure efficient use of public resources.
- *Develop an integrated approach to deepening social policy reforms.* Although a basic social service system has already been established in China, it is fragmented across space and rural and urban areas, in part because of the highly decentralized financing arrangements. Not only has this fragmentation caused barriers in access to urban public services and transfers of social entitlements, but it has also resulted in low pooling and inefficient financial resource management, threatening the sustainability of social services. As China continues to urbanize rapidly and move toward high-income status, further reforms need to focus on integration and harmonization of social policies and programs.

High-level mandates alone will be insufficient for achieving the desired outcomes. The 12th Five-Year Plan explicitly addresses social service provision for migrant workers and rural-urban integration, as well as setting quantitative targets for implementation. Nonetheless, policy-driven duality—whereby formal policies still treat long-term residents

and migrants differently—remains, along with some areas of divergence between official policy and its implementation on the ground (for example, the experience of urban schools that are mandated to accept migrant children). This divergence is related in part to the behavior, attitudes, and incentives of local actors; for example, the urban old-age security system is open to migrants and mandated under labor legislation, but migrants, employers, and providers often behave as if it is not available.

Policy and practice must focus increasingly on three different levels. First, high-level policies can promote more equal treatment of migrants and local hukou populations. Second, specific supporting reforms can facilitate the realization of high-level policies, such as reforms of intergovernmental finance. Third, nuts-and-bolts reforms of administrative systems and delivery platforms can aid in effectively implementing policy reforms.

Reforms needed to achieve China's vision

As discussed in the remainder of the report, key reforms related to the household registration system, public finance, service delivery, and labor market institutions are needed to achieve China's vision for inclusive urbanization and rural-urban integration. Realizing China's vision will require efforts to ensure equitable access to social services both within urban areas and across rural and urban areas nationwide as well as to foster an inclusive and productive labor market. Key reforms are summarized briefly below.

Ensuring equitable access to social services in urban areas

The key reform needed is a shift from the origin-based hukou system to a modern residence-based system for defining eligibility for basic services. This reform is critical to promoting inclusive urbanization. Making the residence-based system meaningful will involve providing current residents with access to the urban standard of social services, which includes nine years of free compulsory education, access to basic public

health care services, social security (medical and old-age pensions) for formal sector workers and for residents in rural and urban areas, a social assistance program for rural and urban areas, and some welfare housing system in urban areas.⁷ Although enacting this reform will require additional fiscal resources, the costs should be manageable. The lower bound of the annual cost estimates of extending this package to cover current rural migrants within the next one to two years is 1.22 percent of 2012 gross domestic product (GDP). The cost increases to 2.51 percent of 2012 GDP, under the assumption that all “left-behind” children move with their parents to the cities, and it increases to 3.14 percent of 2012 GDP if, in addition to the cash flow cost of extending the urban old-age security to migrants, the discounted accrued liability costs are accounted for. Accounting for both of these costs and changing the assumptions about the increase in medical cost and social housing coverage, the total cost could increase to 4.53 percent of 2012 GDP in 2015 and to 4.78 percent of 2012 GDP in 2020.⁸

Undertaking social policy reforms to foster rural-urban integration

To be truly consistent with the goals of efficient urban development and rural-urban integration, efforts must extend beyond equalizing access within urban areas, with a longer-term goal of equalizing access to basic social services across provinces and urban and rural areas. A national minimum package of social services and social insurance that is guaranteed by the central government would be a basis for this equalization. In the short term, higher levels of government could consider subsidizing cities for the increased costs of services to migrants. In the medium term, fiscal system reforms for both revenues and expenditures will be necessary to finance the national minimum package of public social services, irrespective of location. Such standards must be carefully calibrated to fit the fiscal resources China has available, and they should be phased in. At the same time, a gradual change in the intergovernmental fiscal system should provide the necessary resources

to localities with more expenditure needs than revenue capacity. Local authorities could top up this package for their residents, and the private sector could also help create fiscal space through high-end medical services, private third-pillar pensions, and private schools.

Sectoral policy reforms in health, education, pensions, and social protection, as well as cross-cutting reforms in accountability for service delivery, could help contain costs and increase the efficiency of service provision. Such reforms include the following:

- *Education.* Efforts are needed to narrow the disparities in the quality of basic education and to expand access to senior secondary and early childhood education. Financing reform would help set minimum standards for every level of education and ensure central transfers for equal access to quality education for poor rural localities and disadvantaged children. Demand-side mechanisms that stimulate competition and allow higher levels of private provision will also improve education access and quality. In addition, teachers’ incentives need to be realigned to improve quality of instruction and strengthen school management. Peer-tutoring programs, computer-assisted learning programs, after-school support, and support targeted to help migrant students and their families will further support the integration of migrant children.
- *Health care.* A stronger urban health care delivery system is needed to meet the expected increase in demand. This system could be achieved by improving primary health care services and coordination among providers; integrating and ensuring portability of health insurance to allow citizens to choose the best treatment; strengthening health promotion and illness prevention in urban settings; and implementing effective cost containment and quality improvement measures. Provider payment reform should replace the dominant fee-for-service payment system with a diagnosis-related group-based system, which has a proven track record internationally for containing the costs of inpatient care.
- *Pensions.* Pension reforms are required to facilitate labor mobility, narrow the gaps

in pension benefits, and cope with an aging population. In the short run, national guidelines could help make the transfer of pension rights and benefits easier between schemes and locations. In the long run, the urban workers' pension scheme could be reformed by introducing a notional defined-contribution (NDC) design while developing a financing strategy to resolve the legacy costs outside the reformed pension system. These reforms would lower the existing high contribution rates, provide stronger incentives for employers and employees to contribute, and realize the objective of a targeted replacement rate. Migrant workers with wage income and labor contracts can be encouraged to join the reformed urban workers' pension scheme to reduce the government subsidies needed for the rural residents' pension scheme. Pooling could begin first at the provincial level and then be expanded to the national level, supported by an integrated national data management system. Finally, gradual reforms in retirement age and indexation would help ensure the adequacy of pension benefits and sustainability of the pension system.

- *Social assistance.* Reforming China's social assistance program (*dibao*) and other social assistance programs requires consolidation, standardization across space, and harmonization with antipoverty interventions in poor counties and other social programs. Most high- and middle-income countries apply a unified formula for determining eligibility for national welfare programs while maintaining some flexibility, including regional cost-of-living adjustments. China could gradually move toward a more systematic approach in determining eligibility thresholds from county (city) to prefecture, from prefecture to province, and finally to a nationwide setting.
- *Accountability for service delivery.* More sophisticated service delivery and ambitious equalization goals call for greater accountability for outcomes, cost-effectiveness, and transparency. Three broad channels can be used to promote accountability: government, citizen based, and choice or market based. Government systems can encourage

better performance from service providers by linking budgetary transfers to the performance of subnational governments. Human resource management and compensation systems and facility-based management initiatives could also become more performance based. Regulation, accreditation, and licensing systems for providers are increasingly important tools and are expected to be core elements of the modern and diversified system of social service provision in China. Citizen-based channels could be strengthened by providing more public information on service delivery costs and performance and by harnessing information efforts to generate citizen oversight and feedback on service delivery performance. Another channel for citizen involvement is more direct incorporation into management and oversight institutions. Choice- and market-based channels will require greater reliance on demand-side financing of services where appropriate as well as greater public purchasing of social services.

Strengthening institutions for an inclusive and productive labor market

An inclusive and productive labor market for all will allow people to seek and maximize economic opportunities and will help unleash the potential of labor mobility. Geographic, occupational, and sectoral mobility could be supported by measures such as the following:

- *Building a modern system for upgrading the human capital of workers, both on the job and in learning institutions.* Investment in skills development should focus increasingly on lifelong learning and continuous upgrading of workers' skills throughout their careers. Policies should promote a more modular and competency-based technical and vocational education and training (TVET) system, broaden ongoing experiments with demand-side financing of training, encourage private sector training providers to enter the training market and provide a more level playing field for them, and build institutions for skills accreditation to make skills certification

more portable and relevant to employers. Tertiary education reforms should focus on increasing the labor market relevance of higher education. Such reforms would include greater autonomy and accountability for universities and would explore the potential for private provision and financing of higher education. An overarching reform needed across TVET and higher education is to increase articulation between the technical and academic streams so students can shift between them with due credit for competencies acquired in either system.

- *Strengthening labor market institutions that can facilitate efficient labor market transactions, balance wage and productivity growth, and mediate labor disputes.* As a starting point, the basic function of the minimum wage will need to be reoriented from a minimum income guarantee to an instrument of collective bargaining and administrative labor market policy intervention. Labor taxation reforms could help reduce the tax burden on workers and employers, and there is potential for reducing the pension, unemployment, and housing contributions. These measures would require accompanying reforms of the overall tax mix across factors of production and financing. Monitoring the medium-term impact of the Labor Contract Law will become meaningful to China's competitiveness and job creation. Legitimate interests of both workers and employers should enter the considerations of policy making and legislation so as to balance flexibility and security.

Inclusive urbanization can bring a range of positive economic and social benefits to China. Urbanization that is inclusive can help China rebalance its economy, maximize human capital to sustain its competitiveness, narrow welfare gaps, and promote social cohesion. In this context, inclusive urbanization is not only an issue of equity and social cohesion but also a crucial underpinning of the country's evolving economic model, which will depend on maximizing human resource potential to move China from middle-income status to high-income status.

Ensuring equitable access to social services in urban areas

To achieve China's vision for inclusive urbanization, the current urban standard of social services can be extended to migrant populations. This section discusses one of the most critical elements of the necessary reforms: the shift to a residence-based permit system that will delink access to social services from hukou. It draws lessons from local experience as well as international practices and lays out various considerations and policy options for adopting the residence permit system. The section then examines the barriers migrant populations face in accessing the current urban standard, focusing in particular on financing arrangements and delivery systems for compulsory education, health care and insurance, pensions, and social assistance and welfare housing. Finally, building on these findings, the section suggests a framework for cost sharing and incentives for municipal governments to integrate migrants into urban areas.

Context and challenges

For migrants and their families, access to publicly financed services in urban areas has been regulated by hukou, which has limited their mobility and reduced their welfare. The original rationale was that migration for work was temporary and that families of migrants would stay behind and access services in rural areas. Although this was true in the early stages of China's economic transition, the situation has changed dramatically over the past couple decades. Rural-to-urban migration has become more permanent, with the majority of migrants having no aspirations to return to rural areas (Cai and Wang 2010). In addition, a second generation of migrants, born and raised in cities, have no attachment to the rural areas from which their parents migrated.

Hukou reform has been undertaken gradually since the early 1980s in response to the evolving economic and social situation. In particular, since the late 1980s the mobility restriction function of hukou has largely been eliminated. Starting in 1997 and culminating

in a 2001 national policy, measures were gradually introduced to encourage selected rural migrants to apply for urban hukou in small cities and towns—the “small city free” policy (M. Y. Wang 2002). In 2006, the State Council promulgated a milestone document that provided a comprehensive policy framework for the fair treatment of rural migrant workers in cities with respect to their entitlement to social services, including employment, training, education, health, social insurance, housing, and family planning services. All fees levied on rural migrants were removed, such as temporary residence fees and management fees, family planning fees, urban expansion fees, and management and service fees (L. Wang 2010).

Most recently, the State Council formulated a national policy on hukou reform in 2011 and issued reform guidelines linked to the city’s administrative level.⁹ These guidelines set differential approaches to granting local hukou in cities, depending on a city’s administrative level. In towns and county-level cities, migrants can apply for permanent local hukou for themselves and family members (spouse, unmarried children, and parents) if they have legally stable employment and a residential apartment (including leased). Cities that are facing major strains on their overall carrying capacity can specify conditions for the scope and years of legally stable employment and designate places of dwelling. In prefecture-level cities, migrants can apply for permanent local hukou for themselves and family members if they had legally stable employment for over three years, lived in a legally stable place of residence, and contributed to social insurance for a certain number of years. These requirements can be lowered in central and western provinces if local conditions allow, and they can be increased in cities facing serious pressures on carrying capacity. In municipalities directly under central management, vice-provincial-level cities, and other large cities, strict quota control policies will continue (Wang, O’Keefe, and Song 2013).

The State Council also requested that the concerned institutions take steps to improve the registration of temporary populations in

cities and called for gradual rollout of the residence permit system. The unified national residence permit system will be residence based rather than origin based and will delink access to social services from hukou.¹⁰ If access to social services is delinked from hukou, then for rural migrants, the remaining function of their rural hukou is to show their rural land rights. This is an important and potentially lucrative right—rural land values in developed areas are high, and rural hukou holders could receive a windfall from land conversion.

These reforms are an important step toward rural-urban integration and equalization of access to social services across the country, which will improve the welfare of the population and benefit the economy as a whole. A residence-based approach for access to social services will encourage mobility and give workers an incentive to move to places where they can earn the highest returns on their labor, which will improve allocative efficiency in the labor market and help enhance productivity. At the national level, removing all mobility restrictions will play a major role in narrowing rural-urban and regional income gaps.¹¹ Furthermore, making social entitlements available to all workers and their families in their areas of their residence will help deepen the human capital base, promote a healthier workforce, and alleviate social tensions.

Although a residence-based system is a more efficient and fairer system for regulating access at the local level, the full benefits are realized at the national level, which may reduce local government incentives for such investments. The full benefits of increased population mobility, optimal allocation of labor resources, and improvements in the stock of human capital are realized at the national level, whereas the costs of providing these social services are largely borne by local governments in receiving areas. Moreover, the uncertainty of returns to investing in mobile workers further reduces the incentives for such investments. Local governments therefore have little incentive to provide free or subsidized services to migrant families under the current intergovernmental fiscal system.¹²

The introduction of a modern residence system needs to be national and unified, accompanied by a change in intergovernmental fiscal responsibilities that would promote fiscal sharing arrangements for social service provision for all residents. The reform needs to be led firmly by the national authorities and accompanied by change in the intergovernmental fiscal arrangements that would ensure funds for minimum standards of social service benefits. It should also hold local authorities accountable for providing services to all residents. The operating principle of such fiscal reform should be “money follows people” and could be implemented through a national net-settlement system or other reforms of intergovernmental fiscal responsibilities. This would encourage all cities to use residence-based rules for access to public resources through an incentive-based approach rather than through command and control.

The concerns of urban residents regarding eligibility for social services in the cities should also be taken into consideration. Urban residents are concerned about potential deterioration in service quality in cities if their localities must absorb the costs of service provision for migrant populations.¹³ Managing such perceptions may be a significant element of the reform agenda and will require actions to improve services for all.

A modern residence system—An institution to regulate access at the local level

The shift to a modern residence system will be a challenging process that could benefit from lessons of experience. This section highlights some relevant experiences with similar reforms to date, both within and outside China, to provide insight into the challenges in granting residency and to point to possible solutions. Building on these lessons, the section discusses some of the major elements to be considered for China’s residence permit system, including sequencing and phasing of reforms, political economy considerations, and other factors that may affect the reform process.

Local experiments and international practices

With encouragement from the central government, many provinces in China have piloted hukou reforms and, more recently, the parallel residence permits. One such reform has been the unification of hukou registration undertaken by 15 provinces by 2009. However, in the absence of supporting entitlement reforms, this reform has remained largely symbolic. Some provincial pilots have involved liberalization of hukou within their administrative jurisdiction, with or without exchange of rural and urban entitlements. Chongqing, for example, adopted the “exchanging three rural clothes for five urban clothes” policy—the rural clothes being homestead land, farmland, and contracted forestland, and the urban clothes being pensions, medical insurance, housing, employment, and education. A similar localized hukou conversion pilot in Chengdu did not require the exchange of rural and urban entitlements. In a number of large cities and provinces such as Shanghai, Shenzhen, Zhejiang, Guangdong, Jiangsu, Chongqing, and Chengdu, parallel residence permits have been adopted, linking provision of social services to these permits rather than to hukou status (World Bank and DRC 2013).

The conditions of the residence permit system differ across cities, as described in box 3.1. Some cities offer easier access to residence permits but more limited access privileges, whereas others offer a better package of entitlements but have stricter criteria for obtaining a residence permit (for instance, Shanghai). Other cities mix the two approaches for individuals with temporary residence permits and those with permanent and fuller entitlements (for instance, Zhejiang).

The experiences of other countries and the European Union (EU) during its enlargement provide useful insights on rules for establishing residence and the associated benefits. In the EU, a “right to reside” is linked to one’s employment status for the working age economically active population from EU member states other than the one where one is born. Workers and self-employed people have the right to reside without any conditions but must have the proper documentation

BOX 3.1 China's experience with residence permits

Guangdong is the largest migrant-receiving province, housing nearly 30 million migrant workers. The provincial government introduced the residence permit card in early 2010 to manage the floating population in all cities of the province. Guangdong also is the first province to replace the traditional hukou quota system with a point system for hukou conversion, gradually lowering the conversion criteria for migrants. The points are calculated based on education, vocational certificates and profession, years of social insurance contribution, charitable activities such as blood donation and volunteer work, and government awards. Between 2010 and 2011, about 696,000 migrants were converted through the point system.

In Shenzhen (one city in Guangdong), a permanent residence card is granted to nonlocal hukou residents over 16 years of age who are employed, have investments, own properties, are overseas returnees, or possess “creative talents.” A “temporary residential card” is granted to those who do not have jobs, investments, or private property in Shenzhen. Permanent residence cards allow migrant workers to enjoy the same housing, medical, educational, and pension benefits as those with local hukou. Shenzhen issued 5 million such cards by the end of 2008.

In Chongqing, a residence permit seeker must have a job and must have worked for five years in the central city of Chongqing or for three years in a township within the municipal boundary. They can become registered residents only in the places where they have been working. The package includes free access to compulsory schooling, the same subsidies for health and retirement insurance plans that urban residents

receive, unemployment insurance in the formal sector, and free or subsidized vocational training. Using a lottery, authorities in Chongqing give residence permit holders access to subsidized public housing rentals, with the subsidy covering about half of the market rental price. In the three rounds of lotteries to award subsidized public housing rentals, more than 100,000 people were granted subsidized rental units. These subsidized public rentals are also open to long-term residents who do not own residential property, allowing for the creation of mixed neighborhoods. At this time, only intraprovincial migrants are eligible for subsidized rental units.

Shanghai introduced a point system in 2013 to allow people with stable employment in the city to apply for a residence permit. Points are calculated based on the resident's age, years of experience, and social insurance contributions in Shanghai, as well as educational and technical qualifications. Residents who make a significant investment in Shanghai, or who otherwise contribute to boosting local employment, earn 100 points; those providing false information lose 150 points. Those residents who violate the family planning policy or have a record of criminal offenses are disqualified. A total of 120 points is required for a residence permit holder to be entitled to social benefits such as social insurance and to the right to have their children take the national college entrance exam in Shanghai. The health insurance subsidy and the subsidy for social housing are not automatically provided to residence permit holders.

In 2013 Tianjin promulgated its point system (to take effect in 2014), and Beijing announced that it will formulate its residence permit system in 2014.

Source: World Bank staff compilation based on policy directives and documents of various provincial authorities.

to prove their status, such as a certificate of employment or proof of self-employment.¹⁴ In the case of students or economically inactive individuals (for example, unemployed or retired), the right to reside involves proving that they have comprehensive sickness insurance as well as sufficient resources to not become a burden on the host EU country's social assistance system during their residence.¹⁵ The “right to permanent residence” requires five years of continuous legal residence in the host EU country, and once acquired, it is not subject to the conditions

mentioned above. One can lose the right to permanent residence only through an absence of more than two consecutive years, although the directive stipulates reasons for when such an absence is acceptable.

EU migrants to member states enjoy privileges such as access to social assistance, education, and health care, which make the residence rules meaningful. The general working principle is that EU citizens and their family members residing in the territory of another member state enjoy treatment equal to that of nationals of that host country. Box 3.2

provides details on the eligibility of EU migrants for various social benefits in member states.

In the United States, the *bona fide* and *durational* residence requirements regulate local access. Bona fide residency simply requires that the person establish residence

before demanding services that are restricted to residents.¹⁶ Durational residency obligates a person to show that, in addition to being a bona fide resident of the state, he or she has resided there for a stipulated period of time. For example, to be able to send their children to public primary and secondary

BOX 3.2 European Union migrants' eligibility for social benefits in member states

Goals set out in the European Union (EU) treaties are achieved by several types of legal acts, including regulations, directives, recommendations, and opinions. A *regulation*, such as a social security regulation, is a binding legislative act and must be applied in its entirety across the EU. A *directive*, such as the right to education, is a legislative act that sets a goal that all EU countries must achieve. However, deciding how to achieve that goal is up to the individual countries.

Right to education (under EU directive): Children of EU migrants are entitled to attend school in any member country under the same conditions as nationals of that country. They have the right to be placed in a class with their own age group, at the equivalent level to their class in the country of origin (regardless of language proficiency) and to receive free language tuition in both the language of the new country and the country of origin.

Right to health care (under EU regulations): Insured individuals moving temporarily to member states are entitled to necessary medical treatment upon presentation of a European Health Insurance Card, issued by the competent authority of their home country. Treatment is provided by public health care providers and is subject to the same user fees charged to local permanent residents of the host country. For those residing for longer periods of time, European Commission regulations on social security coordination provide that all insured persons are entitled to health care (including long-term care benefits) provided for under the legislation of the Member State in which they reside. These benefits are to be provided by the institution of the place of residence in accordance with their statutory conditions, procedures, and rates, as though the beneficiaries were insured under the host country legislation.

Right to social security or insurance (under EU law): Social security benefits have to be granted to people from other EU member states once their place

of "habitual residence" is confirmed in the host country. Such benefits (sickness, maternity and equivalent paternity benefits, old-age pensions, preretirement and disability benefits, survivors' benefits and death grants, unemployment benefits, family benefits, benefits in respect to accidents at work and occupational diseases) vary considerably from one member state to another. The EU provisions do not harmonize them but instead provide for their coordination, aided by establishment of common rules and principles that have to be observed when applying national laws. Every member state is free to decide who is to be insured under its legislation, which benefits are granted, under what conditions (for example, based on residence, employment or occupational activity, completion of certain periods of insurance), how these benefits are calculated, and what contributions should be paid. The principal rule is that employees (and the self-employed) are covered by the social security system of the country in which they are employed (work), irrespective of where they live or where the employer is based. For the unemployed (students, retirees), their right to social security is determined in accordance with the legislation of their country of residence.

Right to noncontributory social assistance and housing assistance: The EU rules on social security coordination do *not* apply to (a) social and medical assistance benefits normally granted on the basis of one's means, (b) taxation, and (c) certain special cash benefits that are noncontributory and aimed at ensuring minimum resources for those without other means of support. Such assistance is provided by and at the expense of the institution of the country of residence and in most cases is paid to people whose pension or income is below a certain level. The EU directive on equal treatment (2000/43/EC) applies to a wide range of spheres, including housing, and prohibits discrimination, but responsibility for implementing the directives in its legal framework is left to each member country.

Source: European Commission website, <http://ec.europa.eu>.

school for free, families must establish bona fide residence (actual physical presence plus intent to remain there) in the school district. However, for eligibility to pay lower in-state (resident) tuition at public higher education institutions and to access state education grants, most U.S. states enforce a durational residence requirement of at least one year (excluding any time as resident to enroll for the sole purpose of attending an educational institution).

Japan uses two distinct registry systems to manage citizen information: (a) the basic resident registry (*Jūminhyō*) and (b) the family registry (*Koseki*). The basic resident registry lists sociodemographic information (name, address, date of birth, gender, nationality, status of residence, and so on), along with information related to social benefits and insurance. Registering in the basic registry is required when accessing various social services, including registering children at a local school district or starting or renewing national health insurance membership. It basically serves as proof of residence, such as for opening a bank account or applying for government permits. Since 2002, *Jūminhyō* information has been available electronically through the *Jukinet* electronic registration system, which is used by more than 1,700 local governments in Japan. The system has helped simplify procedures for moving in or out of the country and for obtaining a residence registry card, and has eliminated the need to attach a copy of the resident's record in administrative procedures. In December 2008, it also eliminated the need for pensioners to annually confirm eligibility for benefits, because the basic resident registration network reports directly to the Japan Pension Service on behalf of the pensioner. In contrast, the *Koseki* is the formal record of a family's (rather than an individual's) history and is mainly used as proof of citizenship. It is not normally used to verify information or required to obtain government services (Sen 2014).

Lessons and concerns

China's pilots point to a number of challenges in granting residence, but the pilots and international experience also suggest

some solutions. The main lessons and issues include the following.

Large city bias

Rules for accessing residence permits are most restrictive in large cities, where rural migrants are concentrated. In large cities (Beijing and Shanghai are prime examples), strict conditions are imposed on the entry of migrants. At the same time, in small and medium cities, social services and social protection are less generous, contributing to the limited success of the policy in attracting migrants there.

Selection of migrants with desired characteristics

There are systematic differences in the treatment of migrants based on their socioeconomic status, which runs counter to the government's goal of reducing inequalities. This situation is especially true in larger cities, where reforms have generally focused on selecting migrants with the desired characteristics and on attracting high-skilled and wealthy individuals (B. Zhang 2012; Zhang and Tao 2012). In many cities, the result has been that mainly the better-off migrants are able to obtain local hukou, thus widening the welfare gap between local and nonlocal hukou holders. Poorer migrants are excluded in a variety of ways, in some cases by explicit entry barriers regarding skills, investments, or income. Other cities achieve rationing of hukou through strict interpretation of requirements for income or work and place of residence—for example, by excluding those renting apartments and those without formal employment. Other cities impose stricter time requirements for granting residence, for instance, five years of prior residence for low-income people versus two years or none for others.

Cities as welfare magnets

Local governments are concerned about becoming magnets for so-called benefits tourism. Local governments in richer areas or areas with higher-quality services fear that residents from other jurisdictions may move in to shop for benefits. Long-time residents show or prove their connectedness to the

local government by paying taxes and paying into the social insurance system, which also allows services to remain fiscally sustainable.

Internationally, the evidence of welfare benefit-induced geographic mobility is mixed. For example, little evidence has demonstrated that immigrants within the EU receive excessive welfare support relative to natives. The general findings are that immigrants are either as likely or less likely to be receiving support, and no strong link is seen between welfare generosity and immigration (Dustmann, Frattini, and Halls 2010). However, strong evidence from Brazil indicates that rural dwellers tend to move to the cities for better social services.¹⁷ Furthermore, strong evidence from the United States showed that rural-urban migration has net positive effects on cities, despite the initial concerns about fiscal costs and possible negative effects. In the United States in 1967, one of every five urban residents over age 14 had migrated from a rural area. Although such migration imposed short-term fiscal costs, in the long run, migrants paid more into the system than they had taken out of it (Petersen and Sharpe 1969). Their economic gains, though low during the migrants' first five years in cities, increased rapidly thereafter (Wertheimer 1970).

Social tensions and competition for urban services

Local urban residents in China have concerns about potential impacts on service quality if their localities must absorb the costs of service provision for migrant populations. One survey of local residents in Guangzhou shows that more than half of urban residents agree that rural migrants deserve the rights to enjoy health insurance, have compulsory education, join the labor union, and vote. However, about the same number are against migrants applying for unemployment compensation, dibao, and low-rent housing (Liu 2008). Another study, conducted in 2010 using the 2005 National Comprehensive Social Survey data, found that residents from places with better public service provision and higher public service quality tended to be more reluctant to accept migrants (L. Wang 2010). The study also found that urban residents

with lower socioeconomic backgrounds were more reluctant to accept migrants, as were residents of cities with higher employment pressures.

These concerns are not unique to China, and animosity toward migrants is documented across many societies.¹⁸ The United States and the EU, both large unions with diverse residents and high migration, had to manage these processes. These tensions often arise from the perception that migrants compete for scarce jobs and are a drain on resources in the form of publicly funded services. Conflicts between migrants and residents are likely to be more intense when the receiving area is ethnically homogenous and migrants and native populations are easily identifiable, when migrants dominate certain economic activities, and when migrants fare better than natives. Some findings also show that antipathy toward foreigners is correlated with the proportion of migrants in the population.

Managing these perceptions will be a significant element of reform for China. The national government has a distinct role in this process as a mediator of stakeholder interests. Some strategies for national and local governments include improving services for long-term urban residents and migrants alike, allowing private provision of high-end services within the appropriate framework, and encouraging remedial programs for migrants so they can join the mainstream.

Elements of the residence permit system for China

These experiences suggest that the shift from the hukou system to a modern residence system should be national and unified. It should be based on a phased strategy and involve consultations with various stakeholders to explain the strategy for reform. Some key steps and considerations in undertaking such reform are described below.

The shift from the hukou system to a modern residence system for defining eligibility for basic services will involve several steps. These steps include the following:

- *First*, the central government will need to define the principles and national frame-

work of the residence-based system, including the system by which local governments should grant residency to people living in a specific locality and the sequence of entitlements that accrue upon attaining a residence permit. It may not be practical to expect common levels of eligibility criteria in the short to medium term, but the central government should set minimum guidelines for local governments to follow and create a time-bound pathway for extending access privileges.

- *Second*, under the national framework, local governments can define the qualifying periods to move from one step of the entitlement sequence to the next. As discussed above, many localities have already implemented localized residence permit systems with different approaches and requirements. In the initial phases, it is unlikely that all social entitlements of current local residents could accrue immediately upon obtaining a residence permit, but for fundamental rights, the requirements should be very simple and low.
- *Third*, the conditions and requirements for obtaining a local residence permit should converge over time, supported by broader reforms such as fiscal and tax system reform, equalization of public services, and rural-urban integration.
- *Fourth*, the residence system should be facilitated by an information technology (IT) platform based on a set of national standards for exchanging population data across jurisdictions, building on the unique national identification (ID) and social security cards.

Although full convergence of residence permit policies may take a decade or more, establishing an elaborated national framework for residence permits is an urgent priority. Negotiations with subnational authorities will be required to balance the desire for common national standards with local discretion. Reforms also need to be accompanied by a change in intergovernmental fiscal responsibilities that would promote fiscal sharing arrangements for social service provision for all residents. The operating principle of such fiscal reform should be “money

follows people,” which could be implemented through a national net-settlement system or other reforms of intergovernmental fiscal responsibilities.

In developing this national framework, one important issue to consider is the extent to which it should have common standards for all types of urban settings. To date, the national authorities have promoted a variable strategy for obtaining hukou depending on city size and status. It could be argued that making acquisition of local hukou in smaller cities easier can help promote agglomeration effects in regions where market forces may not be as strong drivers as in more prosperous areas. However, global practice has shown that closer convergence of qualifying conditions for obtaining local residence permits across all types of cities would help achieve truly unified citizenship, although this is unlikely to be politically feasible in the short to medium term and is best considered a longer-run policy goal.

Another consideration is the core criterion to be used for determining residence when granting a residence permit. The key question is whether residency for a prescribed period should itself be sufficient or if some additional criterion should be applied, typically a period of employment. International experience is not definitive on this question, with variation across and even within countries and jurisdictions. For China, a residence permit system based purely on period of residence is unlikely to be workable in the short to medium term in larger and affluent cities for a number of reasons:

- *Political economy*. Local hukou residents and local authorities would be reluctant to accept such a mandate, particularly without an overhaul of the intergovernmental fiscal system to better match local revenues and fiscal transfers with the total population residing in a city.
- *Gaps in the current registration system for movement to or from different areas*. Although in principle migrants must register their new residence within three months, in practice, tracking such movements fully between areas and even within districts is difficult.

- *Incentive structure.* A purely residence-based system may weaken incentives for migrants to participate in formal sector employment and accompanying social security, labor protection, and other schemes.

For cities where demand for migrant workers exceeds supply, political economy factors will differ, and the desire to expand the local workforce may outweigh the second and third considerations.

If a permit system based purely on residence is not feasible for the foreseeable future in larger cities, an argument can be made to make some entitlements subject to a period of residence only (perhaps 6 to 12 months). The obvious entitlement that should be based on residence alone is basic education for children of migrants. This already has a clear basis in national policy, minimizes intergenerational transmission of inequality, has substantial lifetime externalities beyond the city, and would minimize the problem of left-behind children. Basic health care services is another example.

Beyond that very limited set of basic entitlements that should vest quickly and be based on residence only, other entitlements could be subject to a work requirement of some form. Formal sector social insurance schemes already link entitlements to contributions through the employer. The more complex entitlements are resident pension and health insurance schemes, dibao, and social housing. For migrant workers in formal employment, the issue is one of simply deciding the appropriate prior period of residence and employment and the extent to which that period differs across entitlements. Migrant workers in informal employment pose a more difficult case, as verification of employment is challenging.

Another consideration is the extent to which the national framework should prescribe the sequence for all cities to follow in granting entitlements to migrants and the criteria for prioritization. A case can be made for mandating a common national sequence for entitlement acquisition, rather than giving cities total discretion to specify conditions for acquiring certain entitlements. A common national sequence could be based on some

guiding socioeconomic principles, such as the following:

- *Entitlements that generate externalities beyond the individual city should be given priority.* As mentioned above, the most obvious example is basic education, given the national economic benefits of a well-educated population. Another example is the basic public health care package, as vector and disease control in one area has impacts beyond that jurisdiction, given the mobility of populations. A third example might be employment services, given the economic benefits of better matching workers and jobs.
- *Entitlements that increase the possibility for families to live together should also be prioritized.* Basic education is again an example. Evidence on crime rates and other socioeconomic issues among left-behind children is persuasive, as are the costs of divorce and family problems with split families. Facilitating family co-residence may also help address emerging challenges such as child care costs and the growing need for home-based care of elderly people.
- *Entitlements that are largely self-financing, such as urban worker pensions, health insurance, and unemployment insurance, should be immediately accessible to migrants.* Efforts will also be needed to promote their uptake among employers and migrant workers through policies and information systems that improve portability and accelerate higher-level pooling of contributions to lessen the spatial fragmentation of social insurance.
- *Entitlements that are primarily of a welfare nature should be considered later in the sequence, with the exception of short-term support, such as disaster relief or temporary social assistance, and probably specific groups such as people with disabilities.* The obvious examples of welfare entitlements are dibao and social housing. Although these entitlements should be part of the overall package associated with obtaining a local residence permit, for political economy, welfare dependency, and other reasons, policies may vest them only after a more extended period of residence and employment.

The rationale for including such prioritization in the national framework is to realize gains for the country that individual jurisdictions may not perceive as having socioeconomic benefits. Strong guidance to localities within the national framework would help promote fairness and common treatment countrywide. It would also prepare the ground for longer-run convergence across different types of cities in the detailed local criteria for residence permit acquisition. If the national authorities provide a fiscal transfer for a transitional period to assist cities in taking on enhanced responsibilities for basic services to migrants, adoption of the sequencing for entitlement acquisition could be a condition for cities to receive their central transfer.

Development of an IT platform will be important for providing quantitative information to facilitate fiscal allocations as well as for supplying data for monitoring and evaluation. Setting up the IT platform should start with establishing national standards for information systems and the exchange of data on mobile populations. A fully centralized national database seems overly ambitious at present, but a common platform will be essential. Such a system can serve as the information backbone of shared guidelines for social services, including a population registration system for the purposes of fiscal transfers. The system could rely on matching of the unique residence and individual identification, verification, and validation. Program eligibility can be consolidated to allow individuals to move and still receive benefits from another location, as well as to ensure that individuals are residents in only one place at a time. Box 3.3 describes current efforts to build China's resident population database.

Another factor that will influence hukou policy over the longer run is labor supply and demand. The discussion above assumes excess demand among migrants for local residence permits, at least in larger and more affluent cities. However, faced with a shrinking working-age population—and more specifically the shrinking pool of surplus rural labor—cities will increasingly compete to attract workers. If so, the conditions

for obtaining a local residence permit will become a potential source of competition between cities seeking to attract workers. This is already happening with respect to highly skilled or wealthy migrants, and recent experience in some Pearl River Delta cities suggests that similar labor market dynamics will increase competition for workers with midlevel and even lower skills over time.

In any reform of hukou policy, the set of complementary policies that will affect migrant demand for residence permits must also be considered. Perhaps the strongest is rural land policy and the implications of assuming the urban residence permit for land claims in areas of origin. Studies suggest that fear of losing rural land claims is a significant deterrent to migrants in converting their hukou.¹⁹ A range of other policies, such as portability provisions (or lack thereof) in pension and health insurance schemes, may also affect demand for residence permits. The interaction of such policies with the proposed residence permit reform will need close attention.

The current urban standard of social services: Financing, delivery, and the cost of extension to migrant populations

As China moves toward a modern residence permit system, it will be important to determine what the modality of service provision will be and to ensure adequate funding for the extension of services to migrants. Although providing the current “urban standard” of social services is critical to making urbanization inclusive, the costs of extending such services can place considerable strain on local government budgets. This section takes stock of progress in providing the urban standard of social services and describes the financing and delivery arrangements. It then proposes options for extending services to migrants and their families and provides indicative estimates of how much it would cost to equalize access to public resources within cities for residents with and without local hukou.

The current urban standard of social services, which goes beyond the current basic

BOX 3.3 China's resident population information system—Setting up a comprehensive population management information database

Currently, the collection and management of data on the resident population in China relies on several sources of information. These sources include the Population Census (including the small-scale census), the Population Sample Survey System, as well as the information collected by various administrative departments, including most notably the Department of Public Security (the police department) compiled into a basic population information database. Vast improvements in the accuracy and sharing of information will be needed before these can be used for building a resident population database.

In the past, the police department was in charge of all household registration, which included information on births, deaths, temporary registration, and household migration, according to the Household Registration Rules of the People's Republic of China released in 1958. After the 1980s, with more and more people not living in the place where their households were registered, the accuracy of this system came under question. The 2003 Administration Approval Law made it no longer mandatory for citizens to show their birth control certificate to apply for a temporary residence permit, and cities also lifted the registration fee levied on migrants. Registration of the migrant population dropped precipitously, so local governments attempted to reform their population registration system through issuance of residence permits. Although registration is not universal for migrants, it remains a valuable source of data on

the resident population in China. Other government departments, such as health, education, labor, tax, and finance, have also set up their own population information systems.

Recent national and provincial-level pilots can inform the next steps in setting up the resident population database. In 2002, the government released the “National Informatization Leading Group’s Guidance on How to Build E-government in China forwarded by General Office of CPC Central Committee and General Office of the State Council” and the “Special Plan for Informatization of the National Economy and Social Development,” recognizing the basic population information database as one of the four major national databases. In 2004, the State Informatization Office, Ministry of Public Security, Ministry of Labor and Social Security, State Taxation Bureau, and National Standardization Management Committee jointly launched the pilot integration of basic population information from these departments for select cities and provinces (Hunan, Shanghai, and Yangzhou). In June 2007, the Ministry of Public Security developed an “Online System for Checking Citizen ID,” offering ID services for banking institutions. In February 2009, the Ministry of Human Resources, Labor, and Social Security followed up by preparing to build a nationwide social security information inquiry system (using personal ID numbers as social security numbers) to help beneficiaries check their pension and benefits records at any time.

Source: B. Zhang 2010.

package of social services, varies by location. The current package of social services in urban China includes nine years of free compulsory education, access to basic public health care services, social security (medical and old-age pensions) for formal sector workers and for residents, a social assistance program, and a welfare housing security system. The 12th Five-Year Plan commits to a wide range of social services that go beyond the current package.²⁰ The current urban standard varies across China’s provinces, regions, and cities and is financed from different sources, both public (central and subnational) and private.

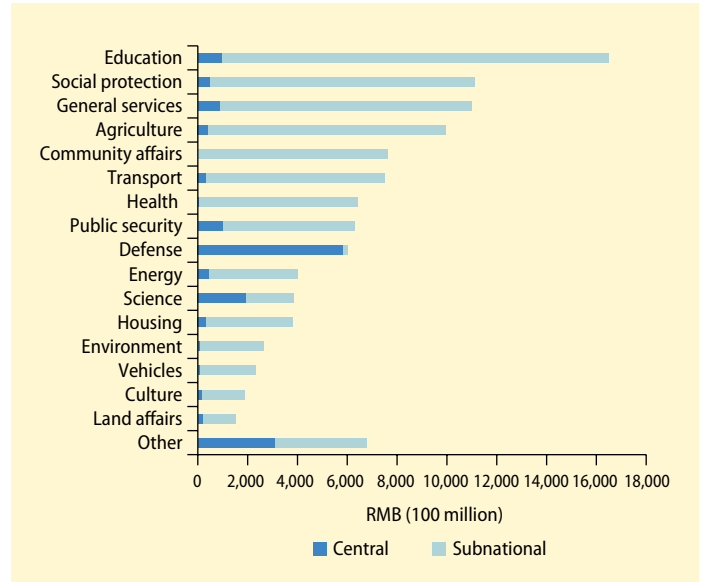
Financing of public social services is highly decentralized, with subnational governments accounting for 85 percent of total government spending. As shown in figure 3.4, China’s subnational governments dominate every major functional category of public sector expenditure except defense, accounting for at least 95 percent of spending for most major functions of government (education, social protection, and health). In comparison, the average proportion of financing by subnational governments is 26 percent in transitional economies and 32 percent in Organisation for Economic Co-operation and Development (OECD) countries.

The fiscal relationship between the central government and provincial governments is defined by a system of tax sharing and transfers.²¹ The fiscal relationship between the individual provinces and their subordinate units of administration (prefectures, counties, and districts) is complex. On the revenue side, each province has an arrangement for sharing certain taxes with its prefectures, which in turn have arrangements for sharing taxes with their counties. Responsibilities for providing social services are assigned to local governments at the subprefecture levels—counties and townships for rural schools and clinics, and districts and street offices for urban.

Until 2000, the system had no transfer mechanisms to ensure that local governments had sufficient resources to meet expenditure responsibilities, which amplified regional disparities. Subnational governments mobilized extrabudgetary resources to support continued service provision. Schools, hospitals, clinics, and other public service providers collected fees and donations and generated other revenues, including by running enterprises. Even in 2000, extrabudgetary resources financed as much as half of total expenditures in schools. Since fees and other extrabudgetary resources are tightly linked to per capita incomes, the high dependence on extrabudgetary financing has tended to widen regional disparities.²²

Reforms of the 2000s sharply increased the amount of central government resources for the social sectors. For example, budget expenditures for universal compulsory education increased seven-fold in real terms from 2000 to 2010.²³ An essential package of health care, delivered through primary health centers with funding from the central government, was introduced in 2009. A nationwide voluntary rural pension scheme was rolled out, and the broad design was replicated in mid-2011 for urban residents, both subsidized by the central government. To support these policies, the central government has greatly expanded general inter-governmental transfers and introduced many programmatic transfers, starting its efforts with the rural sector where financing problems had been the most acute.

FIGURE 3.4 Central and subnational expenditure by function, 2011

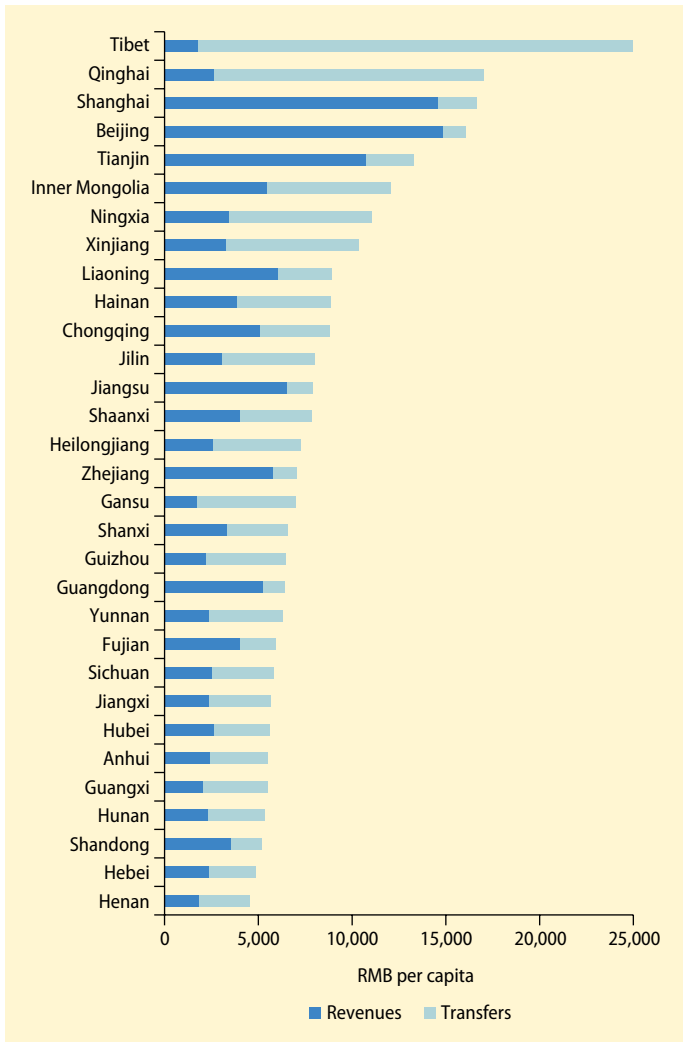


Source: NBS 2012 (China Statistical Yearbook 2012).

The large system of central-to-provincial transfers strongly targets resources for social services toward rural areas and the western and central provinces (figure 3.5). For example, for the Two Exemptions and One Subsidy (TEOS) program and the New Mechanism (described in box 3.4), the central government provides 80 percent of the costs for western provinces and 60 percent for central provinces but only a minor percentage for the eastern provinces except Beijing, Tianjin, and Shanghai. Differential treatment can also be seen in urban and rural compulsory education, with central transfers targeted almost entirely at rural schools. The universal exemption from miscellaneous fees was applied to rural schools starting in 2006 for the western provinces and in 2007 for all other provinces. In urban schools, the exemptions were mandated to begin in autumn 2008.²⁴ Notably, for urban schools, the cost of subsidies to offset revenue losses from fee exemptions are borne entirely by subnational governments, mostly at the lower levels (State Council 2008).

Therefore, left to manage within their own budget envelope, municipal governments in urban, migrant-receiving areas find it difficult to pay for social services for a floating population. These services are costly to

FIGURE 3.5 Per capita subnational revenues and transfers, by province/region, 2011



Source: NBS 2012c.

provide, and central government policies on social service provision for migrants are often considered to be unfunded mandates. In Hubei province, for example, education absorbed an average of 24 percent of county-level budgets in 2007. In Wuhan and Huangshi municipalities, education accounted for 25 and 26 percent of district expenditures, respectively, reaching as much as 37 percent in some districts.

The subsections that follow take a closer look at the different types of social services in the current urban standard and the costs

of extending them to the migrant population. The subsections elaborate on the system of delivery; the cost of extending services to the migrant population; and financing frameworks for compulsory education, basic public health care, social security (medical and old-age pensions), social assistance, and welfare housing.²⁵

Access to compulsory education

Current status and challenges

The current official policy on the right of migrant children to universal compulsory education is residence based, which represents a dramatic policy change that has taken place over the past two decades. In 2001, the State Council's "Decision on the Reform and Development of Basic Education" introduced the idea of the *two mainlys*: migrant children should be accommodated mainly locally and mainly in public schools. Several important policy documents followed in 2003 to 2005, starting with the Central Document No. 1 of 2003, issued jointly by the Communist Party of China Central Committee and the State Council, which emphasized the need to support the migration of farmers into cities and to ensure that their rights are respected and that discrimination ceases, which includes the right of their children to universal compulsory education. More recently, a 2008 State Council policy resolution extended free compulsory education to all schools and called on urban local governments to treat migrant children on the same basis as local children in allocating school expenditures, both for those enrolled in public schools as well as for those enrolled in *minban*²⁶ schools.

The urban local governments receiving migrants are required to establish a mechanism for guaranteeing funding for the schooling of migrant children and to provide financial assistance to schools that have enrolled more migrant children. In 2003, the Joint Notification issued by the Ministries of Finance, Labor and Social Security, Public Security, and Education, and the Family Planning Commission called for the establishment of a funding mechanism for public services for migrant workers by incorporating their

BOX 3.4 Central government resources for compulsory education

Education transfers. In compulsory education, the central government introduced a program to provide free textbooks, which became known as the Two Exemptions [of the textbook fee and miscellaneous fees] and One Subsidy [boarding subsidy] or TEOS. The government extended the TEOS to all rural students in compulsory education, beginning with the western provinces in 2006, then all provinces starting in 2007. To ensure adequate funding for schools, the government introduced a new transfer, the “rural education operating cost guarantee mechanism” (often called the New Mechanism). As a long-term framework for upgrading the quality of school buildings, the School Safety Program was introduced, under which the central government provides subsidies for a portion of agreed maintenance and construction costs of schools. Starting in 2006, the government also rolled out a program to help resolve the education debts of subnational governments that had

borrowed for school construction, including those for many village schools.

General transfers. In terms of general transfers, the central government increased support for universal compulsory education in rural areas by supporting salary payments. One of the most important transfers is the wage adjustment transfer (WAT). First introduced in 1999 and intended only to offset the cost of the wage increase mandated by the central government, the WAT has grown rapidly over the past decade as public sector wages have risen steeply. It now accounts for the vast majority of wage payments at the subnational level. In Hubei province, for example, because teachers make up 60 percent of public employees at the county level, this transfer is a principal source of central government financial support for rural universal compulsory education.

Sources: Chen 2005; interview with government officials from the Comprehensive Department, Ministry of Finance, March 2013; and “State Council Notification on Deepening Reform of New Mechanisms for Ensuring Funding of Compulsory Education,” State Council (2005) No. 43, December 24.

expenditure needs—including for educating their children—into the scope of recurrent budgetary expenditures (Ministry of Finance and others 2003). A 2003 State Council circular also directed that fee levels for migrant children should be reviewed and reduced to be more in line with those for local students. For children of low-income migrant workers with unstable jobs and residences, financial assistance should be provided to defray fees, provide free textbooks, and so on.

Many migrant-receiving cities appear to have made great strides in enrolling migrant children in their public schools over the past decade. A Ministry of Education (MOE) survey found that in 2009, nearly 80 percent of the 9.97 million migrant children enrolled in urban schools were in public schools, and in 19 provinces, this share reached more than 90 percent (Yuan 2013). Similarly, a 2009 survey of migrant populations in Beijing, Shanghai, Shenzhen, Taiyuan, and Chengdu by the Family Planning Commission found

that 98 percent of migrant children ages 7 to 14 were enrolled in school. Among them, 69 percent were enrolled in public schools, 25 percent in private schools, and only 6 percent in “schools for children of migrant workers.”²⁷ In 2010, Shanghai became the first municipality to declare that it had achieved the aim of providing universal compulsory education places for the city’s migrant children (Yuan 2013). Longitudinal data assembled by the Research Institute for Community Education show that in Beijing, the number of school-age migrant children nearly tripled during 2001 to 2010. The rapid increases in migrant children in Beijing and their public school enrollment are shown in table 3.3.

However, China still has many left-behind children who are not enrolled because they remained in the villages or have dropped out of school. In some cities, the proportion of migrant children enrolled in public schools has stayed roughly the same, for example, at about 40 percent in Guangzhou (H. Wang

TABLE 3.3 Enrollment of migrant children in universal compulsory education, Beijing municipality

	All students (number)	Migrant children (number)	Migrant children enrolled in public schools (number)	Migrant children as a percentage of all compulsory enrollment (%)	Share of migrant children enrolled in public schools (%)	Migrant children as a percentage of public school enrollment (%)
2001	1,338,904	150,000	99,571	11.2	66.4	7.8
2002	1,286,082	180,000	134,980	14.0	75.0	11.0
2003	1,239,976	240,000	170,839	19.4	71.2	14.8
2004	1,220,442	320,700	212,263	26.3	66.2	19.5
2006	1,121,033	370,000	255,846	33.0	69.1	25.9
2008	1,082,036	400,000	276,047	37.0	69.0	29.5
2010	1,058,998	438,000	306,668	41.4	70.0	33.7

Source: Yuan, Wang, and Ding 2013, table 2–3.

2013). Some indicative data in table 3.4 show the large gap between the potential number of migrant children who could be enrolled and the reported actual enrollment numbers.

Several barriers continue to keep migrant children out of the mainstream urban education system, including the following:

- *Capacity constraints in urban schools.*²⁸ Lack of capacity is a common reason given for not accommodating all migrant children in urban public schools. Migrant children are placed at the bottom of the waiting list for school places and are admitted only after urban (hukou-based) demands have been met. In cities with large migrant children populations, local officials cite the high cost of building new schools as a reason for not being able to absorb all migrant children.

- *High legal and regulatory barriers* (Montgomery 2012). In general, the procedure for migrant workers to enroll their children in a local school is complicated. They are required to submit many documents to the local education department—the typical number appears to be five, as reflected in the common reference to “the five documents,” although Foshan requires 16 and Ningbo requires 10 (Xinhuanet 2009). Table 3.5 summarizes some of the conditions for enrolling migrant children in public schools, including some hidden rules, such as having the necessary relationships or connections (*guanxi*). The common perception among migrants is that getting their children into urban public schools remains difficult.
- *High costs of schooling.* High costs continue to pose a barrier for many families. Despite the repeated calls to treat migrant children on an equal footing and abolish all “rental” and school selection fees, many public schools continue to levy them, often with local urban government approval. One recent survey on migrant education in Guangzhou found that annual costs were more than RMB 2,000 for over 60 percent of children in public schools, more than RMB 3,000 for 31 percent, and less than RMB 1,000 for only 15 percent (H. Wang 2013).²⁹ Migrant children who are not in public schools must usually pay tuition and other fees for the private schools they attend. Shanghai is the exception, with tuition exempted even in private schools (although only those approved by the government). Elsewhere, private schools receive little or

TABLE 3.4 Status of migrant children enrollment in universal compulsory education in selected cities, various years

City/year of reporting	Total population (million)	Migrants (million)	Enrollment of migrant children (thousand)	
			Potential ^a	Actual ^b
Shanghai (2012)	24.3	10.5	1,155.0	500.0
Beijing (2009)	19.6	7.1	775.0	393.1
Guangzhou (2011)	12.7	4.8	523.6	362.4
Ningbo (2012)	7.6	2.3	251.7	289.0
Chengdu (2010)	14.1	2.6	288.3	173.8
China	1,370.5	221.4	24,356.9	12,000.0

Source: 2010 Population Census. Shanghai figures are from Beijing Foundation 2013.

a. Based on the average 11.1 percent share of the population enrolled in universal compulsory education in 2011. This is likely an underestimate because rural migrants have a higher birth rate and hence a younger age structure than the overall population.

b. Estimated from reported shares of migrant children and various news reports.

TABLE 3.5 Conditions for migrant children's enroll in public schools, 2011

City	Share in public schools (%)	Eligibility requirements	Ease of enrollment	Hidden rules for enrollment
Shanghai	70	The five documents, including proof of immunization	Relatively difficult	Rely on <i>guanxi</i> (relationships)
Guangzhou	40	Residence for six or more months, stable job and income, graduated from local kindergarten	Very difficult	Large sponsorship fee
Kunming	55	Three documents, including Family Planning Certificate	Difficult	Rely on <i>guanxi</i> or large sponsorship fee
Beijing	70	The five documents, including a letter certifying that the child cannot be cared for in hukou jurisdiction	Relatively difficult	Good schools require large sponsorship fee

Source: Adapted from Yang 2011.

no government funding support, and the costs are borne largely by the students. In Guangzhou, where half of the enrolled migrant children are in private schools, a survey found that over 70 percent of them pay more than RMB 4,000 per year.

- *Policy requiring students to take university entrance exams in the province of their hukou.* The policy also discourages migrant children from enrolling in urban schools, especially junior middle school. Because schools' curricula differ across provinces, students who did not study in the local schools are often disadvantaged. As a result, migrant children may be kept in the cities through primary school but sent home for junior middle school.

In 2008, the central government introduced a program of fiscal incentives to reward provinces that have performed well

in providing free basic education to migrant children, although the subsidies seem small compared to the costs. The performance measures include total number of migrant children enrolled in school, proportion of migrant children who are enrolled in public schools, proportion of enrolled migrant children who are from outside provinces, and amount of fiscal input and subsidies provided. However, there is little information on how central subsidies for migrant children's education are distributed. Data from selected available reports are presented in table 3.6, which shows that financial assistance is available to the districts and counties that are the main recipients of migrant children, but that assistance covers only a minor portion of total costs.

Although reforms and increased central government injections have greatly improved the financing of universal compulsory

TABLE 3.6 Assistance in financing migrant children's education

City	Source of assistance	Amount of assistance (RMB)	Date	Share of cost per child
Jiangsu	Central government	671,000	2008/11	RMB 813 per child
Nanjing	Central government, province, and municipality	37,000	2012	RMB 523 per child
Guangdong	Central government	500,000	2012	RMB 140 per child
Ningbo	Central government		2012	2–3%
Chengdu	Central government	4,500	2012	5%
Beijing	Municipality	100,000	2009	3.3%
Shanghai	Municipality	2,000 per child enrolled	2012	10%

Sources: World Bank staff field visit May 2013; Beijing Foundation 2013; H. Wang 2013; Yuan 2013.

education, these changes have not created a sustainable financing framework because of insufficient local government funds. The financing framework provides little central government assistance to municipalities to fund the integration of migrant children. In most municipalities, nearly all of the responsibility falls on districts and counties, which often have inadequate resources and lack the motivation to comply with central policy. Moreover, the financing burden on grassroots subnational governments is heaviest in the rich, coastal provinces. Under the current financing framework, these subnational governments receive scant assistance from central government funds for universal compulsory education since they are predominantly urban and eastern. For them, the current policies on education of migrant children are costly but largely unfunded mandates.

In principle, the system could be adjusted to make the funding that is currently aimed at rural schools follow the children who migrate to cities to help finance their transfer to urban schools. The New Mechanism (for nonsalary operating costs) is well designed for this purpose, because the funds are allocated on a capitation basis by school enrollment. However, most of the central transfers go to salary payments and thus cannot be reallocated.³⁰

Another solution would be to revise wholesale the revenue and expenditure assignments for provinces and to give provinces a bigger role in both financing and managing service provision.³¹ The current system of central government transfers is complex and non-transparent, making it difficult to identify all the transfers provided for compulsory education. As a result, local officials either overestimate or underestimate the amount of assistance received. The system is also administratively cumbersome and imposes high costs for monitoring and supervision.

Considerations for next steps in urban inclusive education

Under the current delivery modality and cost structure of the urban school system, the cost of expanding access to compulsory education for migrant children who are in the cities with their parents is 0.98 percent of 2012

GDP. Under the assumption that all left-behind children will accompany their parents to the cities by 2020, the cost of extending compulsory education more than doubles to about 2.27 percent of 2012 GDP.

At present, public schools are qualitatively far superior to private schools in China, aside from the small number of elite private schools that most of the population cannot afford. This value is reflected in almost all conventional measures of inputs, such as school facilities and buildings, student-teacher ratios, and teacher qualifications. Numerous studies also confirm the superiority of public schools in educational outcomes. For example, Chen and Feng (2013) found that migrant students enrolled in private schools performed significantly worse than their public school counterparts in Chinese and mathematics.

In this context, improving access to public schools would certainly raise the quality of education for migrant children, but it is not the only way. Efforts to reform education services for migrant children need to include a mix of more concerted efforts to make public schools more accessible to migrant children as well as improve migrant schools to match public school standards. The relative importance of the two approaches will differ depending on current policies, status of integration, existing capacity of public schools, and so on. Political economy considerations are also important, and efforts will be needed to assuage the concerns of urban residents and the community at large and to address the unwillingness of public school officials to admit migrant children.

Some lessons for a more cost-effective solution to providing migrant children with access to education may be drawn from the Shanghai model, in which the government has actively provided financial and technical support. In 2008, when Mayor Yu Zhengsheng declared that Shanghai would strive to provide free universal compulsory education for all migrant children during the 11th Five-Year Plan period, the municipal government initiated a large program to build hundreds of new public schools. It also undertook a program to selectively purchase places in private schools to accommodate migrant children.³²

Although Shanghai is not alone in relying on private schools to absorb migrant children, what distinguishes it as a model is that the government has taken an active role in helping to upgrade the quality of private schools with financial and technical support.³³ These efforts made it possible for Shanghai to be first in declaring success in providing universal compulsory education places for all of the city's migrant children in 2010 (Beijing Foundation 2013).

In light of the difficulties with cost containment in the public school sector, the Shanghai model for private schools may be worth considering in the search for more affordable, cost-effective solutions. At present, the private schools in Shanghai remain a second-best solution, since they are qualitatively inferior to public schools and are supported at a fraction of the cost of public schools. With continued improvements in quality and conditions, they could perhaps be converted gradually to public schools. Alternatively, they could develop as a separate stream and impose competitive pressure to bring improvements in public schools.

Access to health care and insurance

Current status and challenges

During the past decade, China has launched two waves of reform to improve access to health care, which have important implications for any efforts to expand coverage to migrant populations. The first wave, initiated in the early and mid-2000s, expanded health insurance coverage through the creation of subsidized rural and urban insurance schemes. Building on these earlier reforms, the government unveiled a more ambitious and comprehensive program of health system reform in 2009. Any effort to expand coverage to migrant populations must be viewed in the context of the organizational, financial, and delivery arrangements put in place or planned under those reforms, particularly for basic care access and insurance coverage.

Urban residents are covered for health care through two financing arrangements. The first involves direct or budgetary subsidies allocated to facilities to cover operating costs (for example, staff salaries), equipment

purchases, and infrastructure investments, including the provision of an essential package of public health and basic medical services as described below. The second consists of two urban insurance schemes: (a) a mandatory urban employee scheme (UEBMI), which covers formal sector workers and is financed mainly through employer and employee contributions but with a small government subsidy and (b) a voluntary urban resident scheme (URBMI), which covers urban nonworking residents and those workers (typically informal) not covered by UEBMI and is heavily subsidized by different levels of government.³⁴ Most migrants with rural hukou are covered by the voluntary and subsidized national rural scheme, the New Cooperative Rural Medical Scheme (NCRMS).³⁵

The essential package of public health and basic medical services is delivered through community health centers (CHCs) to urban populations—including migrants—in their catchment areas. From the start, central government policy included migrants as recipients of the essential package of public health and basic medical services. The government specifies a national minimum standard for financing the public health and basic medical package. The package typically includes nine categories of services: health information system, health education, immunization, prevention and control of infectious diseases, child health promotion, maternal and geriatric health care, chronic diseases management, and the management of severe cases of mental health problems. The package has expanded over time to include interventions such as hepatitis B immunization, screening for cervical and breast cancer for women 15–59 years of age, and cataract surgery for poor patients.

The essential package is funded by a capitation grant based on the permanent population (including migrants) in the catchment area. On average, the capitation subsidy should be shared equally between central and local governments. In practice, however, the contributions of central, provincial, and local governments vary considerably.³⁶

Whereas some CHCs have been converted to “fully funded service units” and

receive budgetary support for personnel and capital expenditures, most still depend on fees charged to patients, which may hinder access for migrants. Local governments often receive little assistance in financing primary care, including the essential public health and basic medical package. The burden falls most heavily on the municipal, district, and county levels and even the street offices of towns and townships). Nearly all CHCs attempt to make up the financial shortfall by charging fees for many basic medical services rather than reducing benefits. Although the percentage of total revenues from fees has fallen with the increase in government subsidies, in 2010, 63 percent of CHC revenues were derived from “business income” (CCHDS 2011).

With respect to insurance coverage, despite the government’s policy of open enrollment, available data indicate that coverage of urban insurance schemes is low among migrants. Although migrant workers can in principle enroll in URBMI, in many cities URBMI does not cover informal workers or migrants and targets local residents, including the poor, elderly, disabled, and children. Some URBMI schemes cover migrant children but not the migrants themselves (Harris and Wang 2012). Migrants with permanent employee contracts are eligible for coverage under UEBMI and pay a reduced premium of 2 percent of salary. However, the benefit package is shallow, and reimbursement rates are low (World Bank 2011). In 2008, about 31.3 million migrants (or approximately 21 percent) were covered by UEBMI (World Bank 2009). In addition, some cities—Shanghai, Chengdu, Shenzhen, Zhuhai, and Beijing—have created special schemes for migrants, but coverage is also limited and often requires high copayments.

According to government data, the majority of migrants are enrolled in NCRMS, but they are less likely to enjoy NCRMS benefits compared to their counterparts who actually reside in rural areas. NCRMS, which charges lower premiums than URBMI and has deeper benefits, is county based, and reimbursement arrangements occur there and are not portable for most rural migrants. Enrollees would first have to pay for care (in

urban facilities) then seek reimbursement from NCRMS upon visiting their county of residence, usually during long holidays (Meng and others 2012). Few can afford to wait many months for reimbursement. Therefore, though many migrants are covered by NCRMS, they cannot realistically and conveniently take advantage of benefits under the scheme when they access health services in urban areas.

Proposed options and corresponding rationale for migrant conversion to urban health insurance schemes

Equalizing access to health care services for migrants in the cities implies incorporating them into one of the urban health insurance schemes. Although the 2010 insurance law calls for merging the three social insurance schemes into a single scheme, it is generally agreed that implementation will be a long-term endeavor, given the differences in institutional arrangements, benefit design, management systems, and risk pooling (World Bank 2011). Table 3.7 summarizes the major characteristics of the three schemes in terms of eligibility, sources of financing, fund management, and service packages.

The three health insurance schemes vary considerably in terms of fund collection and management, benefit package, health care utilization, and medical expenditures. As shown in table 3.8, UEBMI is the most generous, with premiums being seven times higher than in NCRMS and URBMI. Although co-insurance rates of the three schemes are similar, co-insurance levels and in turn out-of-pocket (OOP) spending as a percentage of total expenditures are much higher for NCRMS and URBMI. UEBMI has higher inpatient utilization, while outpatient utilization is similar across the schemes. Medical expenditures per outpatient visit under URBMI and UEBMI are two and three times higher, respectively, than those of NCRMS, while medical expenditures per inpatient visit are four times and five times higher, respectively.³⁷

This analysis considers two options for incorporating migrants into the urban insurance schemes: (a) converting all migrants to

TABLE 3.7 Summary of characteristics of the three health insurance schemes

Schemes	Eligibilities	Source of fund	Location of fund pooling	Service package
NCRMS	Registered rural population	Government subsidies and individual contributions	County	Inpatient and outpatient care
UEBMI	Urban employees	Employers and employees	Municipal (prefecture) city	Inpatient and outpatient care
	Self-employed workers	Individual premiums	Municipal (prefecture) city	Inpatient and outpatient care
URBMI	Urban nonworking residents	Government subsidies and individual contributions	Municipal (prefecture) city	Mainly inpatient care

Note: NCRMS = New Cooperative Rural Medical Scheme; UEBMI = mandatory urban employee scheme; URBMI = voluntary urban resident scheme.

URBMI and (b) converting workers with wage income to UEBMI and those with non-wage income to URBMI. Cost estimates for these options include the financial requirements to operate and maintain the urban network of mainly primary care facilities that are the main providers of the essential package of public health and basic medical care

and to expand migrant enrollment in urban health insurance schemes.³⁸ In 2011, about 42 percent of government subsidies were allocated to budgets (for example, direct subsidies) that supported program implementation and facility operations and investments, including provision of the essential benefit package. Nevertheless, health insurance

TABLE 3.8 Comparison of the three health insurance schemes

Arrangements	NCRMS	URBMI	UEBMI
Premium and fund pooling (2011)^a			
Per capita premium (RMB)	246	269	1,960
% from individuals	20	30	96.5 ^b
% from government subsidies	80	70	3.5
Fund pooling	County	Municipal	Municipal
Benefit package (2012)^c			
Number of types of drugs in the list	1,138	2,150	2,150
Deductibles (RMB)	600	1,300	1,300
Co-insurance (inpatient care) (%) (policy)	30	30	20
Co-insurance (outpatient care) (%) (policy)	50	50	30
Ceiling (RMB)	75,000	100,000	100,000
Health care utilization (2011)^d			
Outpatient utilization (% last two weeks)	15.2	14.8	13.9
Outpatient visits (number, per capita, last two weeks)	1.7	1.6	1.6
Hospitalization rate (%)	8.5	9.4	12.8
Unit medical expenditures (2008)^e			
Medical expenditure per outpatient visit (RMB)	72	150	200
% of out-of-pocket spending (generalized data)	65	60	30
Medical expenditure per inpatient (RMB)	1,440	4,000	6,000
% of out-of-pocket spending	67	50	36.8

a. World Bank staff compilation based on statistical yearbook and statement reports from the Ministry of Health and Ministry of Human Resources and Social Security.

b. In the total fund from individuals, 76 percent from employers, 20.5 percent from employees.

c. Estimated based on plans of the insurance schemes of selected counties and municipal cities.

d. Based on data from a nationwide household survey conducted by the Ministry of Health in 2011.

e. Based on data from the national health services survey in 2008. The figures are median.

schemes are absorbing an increasing share of government subsidies. In 2011, 45 percent of total government health subsidies were allocated to health insurance schemes and medical assistance funds. These subsidies are calculated by applying 7 percent and 9 percent annual growth rates in medical spending to estimate financial requirements for both 2015 and 2020.

Assuming 7 percent growth in medical spending, improving health care access and expanding insurance coverage for migrants will require additional government financing (budgetary and insurance subsidies combined) of 0.11–0.15 percent of 2012 GDP in 2015 and 0.27–0.37 percent of 2012 GDP in 2020, depending on the insurance option selected. Assuming 9 percent growth in medical spending, government financing of 0.12–0.16 percent of 2012 GDP in 2015 and 0.32–0.46 percent of 2012 GDP in 2020 will be required. As described earlier, implementing robust cost-containment measures will require deepening health sector reforms.

The central government can help facilitate and stimulate improved access and insurance coverage for migrants by setting targets for rural-to-urban conversion, with the aim of achieving full coverage of both the essential package and enrollment in an urban insurance scheme. For the essential package, CHCs can enroll migrants and their families in their catchment areas and use tracer indicators to measure the effectiveness of access to the essential package (for instance, vaccinations, prenatal and well-baby coverage, registration of the chronically ill in disease management programs, reduction in waiting times). For health insurance, the government can set annual enrollment targets under the selected option while also setting benchmarks for increasing depth of coverage (additional benefits such as ambulatory care and chronic disease coverage) and reducing reimbursement rates.

Old-age security

Current status and challenges

China's pension system has reached two milestones in expanding its coverage. China

started to reform its pension system in the mid-1980s and undertook a major structural reform of its urban pension insurance scheme in the late 1990s. By the mid-2000s, the traditional work-unit-based social insurance program was transformed into a multipillar system. In late 2009, starting with rural areas, China rolled out a nationwide voluntary pension scheme that combines a matching contribution subsidy to an individual account with a basic flat pension benefit after retirement for workers who have contributed for 15 years. By the end of 2012, the voluntary pension schemes were established in all counties and cities for rural and urban residents.

Currently, China's pension system comprises four types of saving schemes: (a) the urban worker pension scheme, (b) the rural and urban resident pension schemes, (c) schemes for public service unit (PSU) employees and civil servants,³⁹ and (d) voluntary enterprise and individual pension savings arrangements. As this report was being finalized, the Chinese government announced that it combined the rural and urban resident pension schemes and allowed for the transfer of individual contributions from the resident scheme to the urban worker pension scheme. The main characteristics of the current schemes are presented in table 3.9.

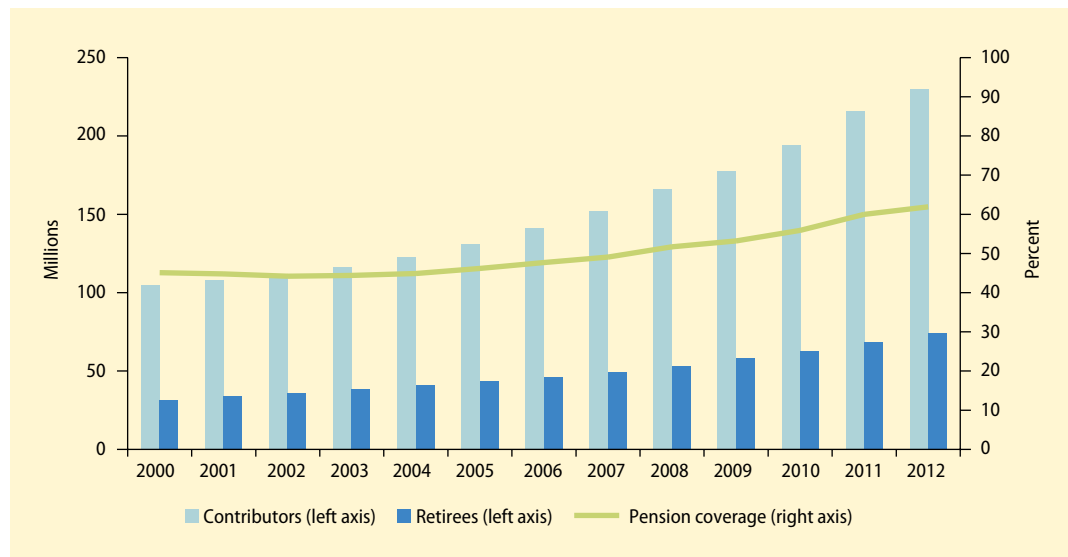
Pension coverage in urban areas increased significantly over the past five years. In urban areas, the number of contributors to urban employee pension schemes increased from 104.5 million in 2000 to 229.8 million in 2012 (figure 3.6). During the same period, total urban employment coverage increased from 45.1 percent to 61.9 percent. The number of urban retirees who received pensions also increased from 31.7 million in 2000 to 74.5 million in 2012. Among all urban workers who contributed, 16 million were from government and public organizations, accounting for 38.9 percent of total civil servants and PSU employees.

However, pension coverage among migrant workers, the self-employed, and workers in the informal sector has lagged. Based on administrative data from the Ministry of Human Resources and Social Security

TABLE 3.9 Summary of characteristics of the major pension schemes in China

	Urban Worker Pension Scheme (UWP)	Rural and Urban Resident Pension Schemes (RPS)
Eligibility/coverage	Urban enterprise employees (equivalent to formal sector workers, but excluding public sector workers), including migrant workers and the self-employed Participation is voluntary for urban workers in the informal sector, the self-employed, and rural migrant workers	Rural and urban residents 16 years of age and older, excluding students
Financing	Individual contribution plus employer contribution	Individual contribution plus government subsidies and/or subsidy from rural collectives
Participation	Mandatory	Voluntary
Contribution	Individuals contribute 8% to the individual account and employers contribute 20% of payroll to the social pooling account	RMB 100–1,000, 1,500, 2,000 annually
Government subsidy	Governments provide subsidies to fill in the shortfalls of pension benefit expenditure	RMB 30 matching contribution to the individual account annually; RMB 55 basic monthly pension
Benefits	Accumulation in the individual account divided by 139, plus a basic pension from the social pooling account	Accumulation in the individual account divided by 139, plus RMB 55 per month basic pension
Individual account	Accumulated benefits from the individual account	Annuity from the individual account
Social pooling	Basic defined-benefit pension	Basic flat benefit
Vesting	15 years	15 years
Fund management	Partially pooled at the provincial level through an adjustment fund	Specific account at the county level

Source: World Bank staff compilation based on various policy documents.

FIGURE 3.6 Pension coverage for urban workers in China, 2000–12

Source: NBS, *China Labor Statistical Yearbook* 2012; Ministry of Human Resources and Social Security (MOHRSS) *Statistical Bulletin of Human Resources and Social Security Development* 2012.

(MOHRSS), the number of rural migrants participating in the urban employee pension scheme increased from 14.2 million in 2006 to 45.6 million in 2012. This represents an increase in the coverage rate from 10.8 percent to 27.8 percent, but it remains less than half of the coverage rate of urban workers. Data from the 2005 and 2010 China Urban Labor Survey (CULS) confirms that, although migrant worker participation in the pension system roughly doubled between 2005 and 2010, it reached only about one quarter of migrants, much lower than the 80 percent participation among local workers.

Two factors explain the low participation rate of rural migrant workers in the urban employee pension scheme: First, high contribution rates discourage both employers and workers. China has some of the highest social insurance contribution rates and labor taxation in the world. Although participation in the urban employee pension scheme is mandatory under the 2011 Social Insurance Law, employers have limited incentive to make the required matching contributions for their employees (Gallagher and others 2013; Giles, Wang, and Park 2013). Instead, they often collude with local governments and offer differential wage levels with and without social insurance contributions. Because most rural migrant workers are quite young and have unstable employment, making contributions for old-age income support is not a high priority for them. Therefore, they tend to choose the higher wage levels offered by employers for not participating in urban social insurance programs rather than the lower wage levels offered for participating. Employers also avoid making social security contributions by hiring workers through subcontracting companies that are not subject to the same requirements.

Second, historically, full social insurance rights have not been portable. Rural migrant workers could only withdraw accumulated funds from their individual accounts if they left the city where they made contributions. In 2009, the State Council initiated measures supporting the transfer of pension rights and benefits across provinces for the urban worker pension scheme in order to improve portability, but its implementation has been limited so far.

Options for extending pension coverage to migrant workers and their cost and financing

In extending urban pension schemes to cover rural migrant workers, it is important to consider how the costs will be financed as well as how the legacy costs of the urban pension system will be addressed. Legacy costs are the costs associated with past service rights for civil servants and PSU workers who join the urban workers scheme (UWS) with accrued rights (the so-called *old men* and *middle men*). The legacy costs are financed from current contributions and necessitate large central government transfers to fill in gaps for provinces where the pension system runs deficits. From 2004 to 2011, government subsidies for the UWS increased from RMB 57 billion to RMB 207 billion, accounting for 2.0 percent of total general revenue and 0.5 percent of GDP in 2011. In 2011, 14 provinces could not cover their pension obligations and ran deficits (Zheng 2013). Following Dorfman and others (2013) and Wang and Dorfman (2014), this report recommends developing a financing strategy to resolve the legacy costs outside the reformed pension system.

Options for extending pension coverage to migrant workers could include participation in the urban employee pension scheme, the urban resident pension scheme (RPS), or some combination of both. Rural migrant workers are typically engaged in wage-based work with labor contracts or are self-employed. For wage-based rural migrant workers with labor contracts, it is reasonable to encourage them to participate in the existing urban employee pension scheme. Rural migrant workers who are not paid wages could perhaps join the urban resident pension scheme (that is currently being combined with the rural resident pension scheme).

Two types of costs are associated with rural migrant workers who join urban pension schemes:

- *Government subsidies for basic pension and matching contributions under the urban resident pension scheme.* Although the design of the urban resident pension scheme is similar to the rural resident pension scheme, local governments are encour-

aged to top up the pension subsidies based on local fiscal capacity. Wealthier cities tend to offer higher subsidies for basic pension and matching contributions. For each city, accepting nonwage rural migrant workers into the urban resident pension scheme requires additional subsidies from the city government.

- *Pension liabilities from social pooling accounts under the urban worker pension scheme.* The current design of the urban worker pension scheme has a larger social pooling account compared with the individual account in order to redistribute income across workers and between generations. Because the average wage of rural migrant workers is lower than the average wage chosen as a base for social insurance contributions, rural migrant workers would receive the benefits of income redistribution from the social pooling account. Given the pooling at city or county level and the pension account deficits in most cities, local governments would be responsible for those liabilities if the existing urban worker pension scheme does not change.

This analysis considers two options for incorporating migrants into urban pension schemes. In the first scenario, one-third of rural migrant workers participate in the UWS (the current baseline) and the rest participate in the urban resident pension scheme. In the second scenario, 80 percent of rural migrant workers participate in the UWS, and the rest participate in the urban resident pension scheme. The fiscal cost of integration under these scenarios is about 0.03 percent of 2012 GDP in 2015 and 0.06 percent of 2012 GDP in 2020. If both the government subsidies and future pension liabilities are annualized and discounted to their present values, in 2015 the cost increases to 1 percent of 2012 GDP in the first scenario and to 1.95 percent of 2012 GDP in the second scenario. In 2020, the cost would be 1.09 percent in the first scenario and 2.19 percent in the second scenario.

Access to social assistance and welfare housing

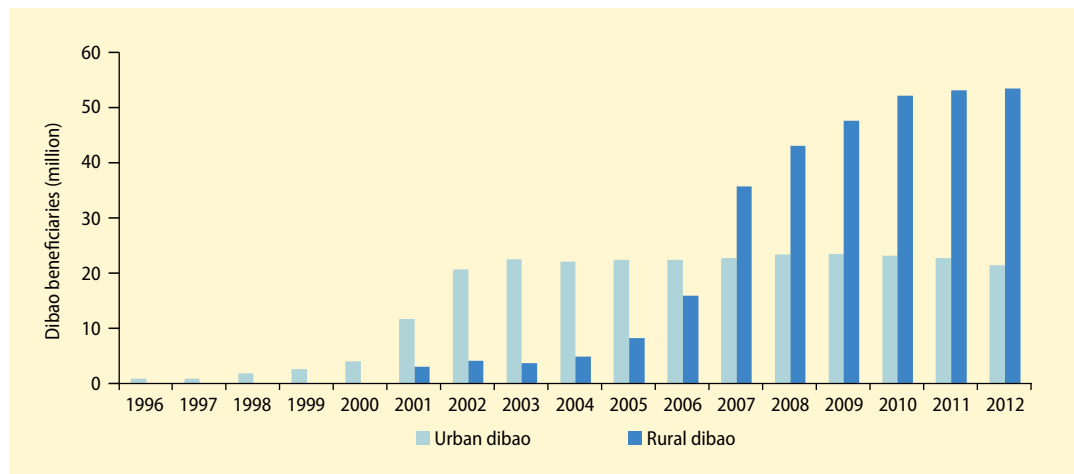
Although urbanization of poverty has been a policy concern for many countries, the massive internal migration in China has not

caused a rise in urban poverty. Studies show that in many countries in Latin America and South Africa (Ravallion 2002; Ravallion and others 2007), urbanization was accompanied by the increased prevalence of urban slums, crime, and violence (Rice 2008; Brenner and Theodore 2012). Using the CULS data in 2005, Park and Wang (2010) found that the difference in the poverty rates of migrants and local residents is relatively small in China. Including rural migrant families in urban dibao and welfare housing programs can help foster inclusive urbanization. The subsection following discusses the issues of eligibility and access to two welfare-enhancing programs: urban social assistance and welfare housing for the migrant population.

Social assistance

The dibao program has become the backbone of China's social safety net. Urban dibao was introduced in 1997 to assist in the reform of state-owned enterprises (SOEs) and provide income support for laid-off workers and their families, and then rural dibao was introduced as a national program in 2007. The dibao programs provide nonconditional cash transfers, with the aim to serve as the last resort of income support for poor households with per capita incomes below locally determined thresholds. The targeting approaches are based on an income-plus-asset test to measure actual household income, and the amount is determined such that it fills the gap compared with local dibao thresholds. By 2012, China had 23.4 million urban dibao beneficiaries, accounting for 3.0 percent of the urban residential population, and 53.5 million rural dibao beneficiaries, accounting for 8.3 percent of the rural population (figure 3.7).

From the perspective of local city governments, extending access to dibao and other social assistance programs poses an additional fiscal burden. Because these programs have been targeted at households with local hukou, rural migrants in cities are ineligible for the programs. Extending coverage to rural migrants after they meet eligibility and qualifying conditions should be considered, but the increased burdens on already stretched local government budgets will need to be addressed.

FIGURE 3.7 Urban and rural dibao beneficiaries in China, 1996–2012

Source: 2012 China Social Statistical Yearbook; Ministry of Civil Affairs 2013; 2012 Statistical Bulletin of Social Services Development.

Although central transfers for dibao have increased substantially, the amount varies significantly by province, with receiving areas for rural migrant workers getting no central budgetary allocations. The urban and rural dibao programs were financed largely by local governments in the initial stages, but the central government has increased its public inputs and fiscal transfers significantly since then. For urban dibao, the share of central transfers increased from 29 percent in 1999 to 65 percent in 2012. Notably, the coastal provinces—the receiving places for rural migrants—receive no central budgetary allocations, while both the central and western provinces—the sending places of rural migrant workers—do receive allocations. For example, in Zhencheng city in the Pearl River Delta area of Guangdong province, 95 percent of funds for urban dibao and 85 percent of funds for rural dibao came from local government in 2012. In contrast, in Heilongjiang province, 70 percent of funds for urban dibao came from the central government, 16 percent from provincial government, and 15 percent from local city government in 2012. Within a province, the richer prefecture cities normally receive no or small budgetary allocations from the central and provincial governments, and the central and provincial governments play a much more important financing role for cities in lagging areas.

Managing the inclusion of rural migrant families in urban dibao and other social assistance programs also poses a challenge for local governments. Program thresholds and benefits differ significantly between urban and rural areas. With higher benefits in cities, the inflow of poor rural migrant families would place greater pressure on urban finance and could threaten the urban social assistance system. If dibao eligibility is linked to a residence-based approach, clear rules are needed on some minimum duration of residence, such as three to five years), with or without additional criteria such as employment status or housing status to prevent families from moving simply to take advantage of social benefits. Verifying the income and assets of migrants can be difficult, adding to the challenge of program administration.

Cost estimates of the extra financial resources needed if cities extend urban dibao to rural migrant workers are based on the same coverage rate as for the urban population with nonagricultural hukou, which is 4.6 percent. The total annual cost of extending dibao to the eligible migrant population would make up about 0.04 percent of 2012 GDP.

Housing

Mainly as a result of the historical legacy, nearly 84 percent of urban households

holding local hukou live in homes they own, which is a very high rate of homeownership by international standards. This high level of home ownership is the result of government policies in the 1990s to liberalize the housing market by allowing occupants of work-unit housing to purchase homes at heavily discounted prices (Man, Zheng, and Ren 2011). Under the central planning system, housing was publicly owned and allocated through work units, resulting in low levels of investment in the housing sector, chronic shortages, substandard-quality housing stock, and poor living conditions for most urban residents, in part because the rent collected was not sufficient to cover maintenance costs (Y. P. Wang and Murie 1996). Not until 1998 did the direct production and allocation of housing by employers truly end, and even then, some employers continued to provide housing allowances so employees could purchase housing on the market. Gradually, housing was transformed from being a component of the basic social welfare package to which all urban employees were entitled to being a privately owned commodity largely supplied by the private sector (Man, Zheng, and Ren 2011).

With the market dominating housing production, housing prices have increased dramatically in recent years. The bulk of the housing supply is created through commercial housing development and is supplied through the private sector (figure 3.8). Returns on investment in the housing sector have been dramatic in the past 20 years, with prices across urban areas doubling between 1999 and 2010 and increasing by more than fivefold in cities like Shanghai and Beijing. These prices are fueled by rising land prices, which are the primary source of fiscal revenue for local governments. This trend has made the Chinese housing market severely unaffordable (Man, Zheng, and Ren 2011).

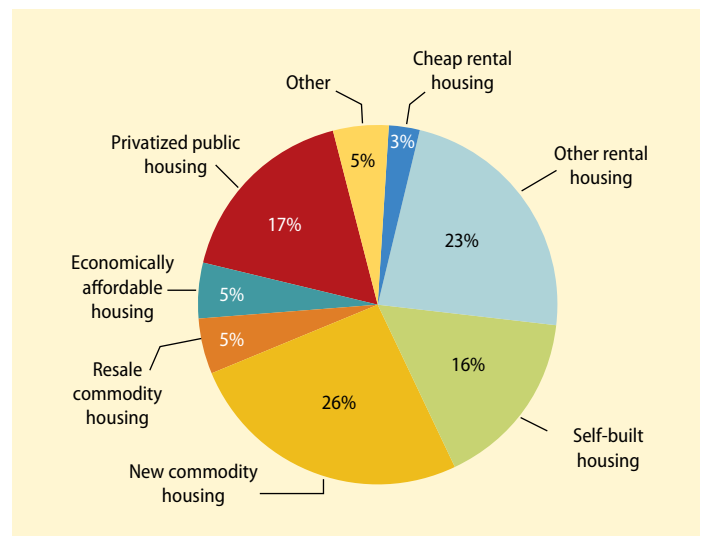
Affordability, rather than residence status, now poses the biggest barrier to having access to good-quality housing. People who did not benefit from privatization—such as the urban poor, young entrants into the labor market, and rural migrants—suffer most from the lack of affordable housing (Li 2012; Zhang and Chen 2013). Studies show that in

several large cities, such as Guangzhou and Shanghai, long-term urban residents and urban migrants have similar access to housing (Huang and Jiang 2009; Li 2012; Logan, Fang, and Zhang 2010; Zhang and Chen 2013), suggesting that hukou type matters less than income.

Privatized public housing accounted for the largest form of government assistance in access to housing, but since this form of housing is a matter of historical legacy, its impact will continue to decline over time. Although many of these privatized units are of low quality and will need replacing, many of the owners are unable to afford housing at current rates. In 2010, less than 10 percent of households had access to the subsidized home-ownership program—5 percent lived in homes purchased through the Economic and Affordable Housing Program, and 3 percent rented through the Low Rent Housing Program, which was meant to serve the poorest households.

The current investment in social housing is not reaching the intended beneficiaries. Government programs that aim to support home ownership have primarily benefited middle- and upper-income households. The recently introduced Public Rental Housing Program

FIGURE 3.8 Modes of access to dwellings in urban areas, by household



Source: NBS 2010.

is a government rental program explicitly open to migrants without a local hukou, but it has primarily been used to attract talented professionals and is not serving low-income wage earners or the poor.⁴⁰

The formal and informal rental markets provide an important source of housing, and their importance is likely to grow over time. Since housing is so unaffordable in many of China's large cities, the bulk of low-income housing is provided outside formally established government programs through collective housing (for example, dormitories provided by employers), private rental units in urban villages, or on the urban fringe. In Shanghai, for instance, only 5.5 percent of migrant households can afford to purchase commercial housing, and about 80 percent are renters.⁴¹ Although prices in the formal rental market have been increasing steadily, rental rates are still growing at a significantly slower rate than housing prices.

Although the informal rental market is vibrant, innovative, and diverse, informal rental markets are inherently risky because tenants lack security and have few protections. Half of China's estimated migrant population live in about 50,000 urban and suburban villages across the country. Pockets of urban villages, such as the Gaojiabang area in Shanghai, provide low rents (and low quality) in areas with spontaneously increased density (Wu, Zhang, and Webster 2013). This informal residential market has led to fast growth of so-called small-property-rights housing, although renters have no legal protections with such housing and the government has issued many documents prohibiting them. Another example of informal rentals is the secondhand rental of municipal public rental units, part of the old housing stock that could not be privatized because the government considered their quality to be too poor. Despite their poor condition, all these represent desirable options for many migrants because they are affordable and located within the urban core. However, these units are also primary targets for demolition under the inner city renewal programs.

A policy that focuses primarily on home ownership is neither fiscally possible nor economically desirable. By being more mobile,

renters contribute to the efficiency of the labor market. Research has shown that economies with small rental sectors tend to face higher migration costs and labor rigidity. Given China's fast rate of urbanization and economic development, it requires a more flexible and adaptable labor force. Renting provides tenants with the flexibility to adjust to employment and income changes and requires little or no savings.

A top-down approach to social housing policy exacerbates distortions in the housing market and results in a mismatch of supply and demand. A key challenge for local governments in China is that targets and objectives for social housing are determined by the central government. These policies outline the range and level of coverage and even stipulate planning, design, size, quality, and safety requirements, thereby creating a system of unfunded mandates for local governments. Moreover, the social housing that municipal governments provide in response to central government targets is not necessarily what is needed or demanded by households. In many large cities, this results in relatively high vacancy rates in suburban locations and lack of sufficient housing in more central areas.

Although the central government should provide incentives for local governments and developers, planning for housing should be done by local governments through careful analysis of local conditions. To better align housing supply and demand, market studies should be carried out to find alternatives to building by some formula. A "housing observatory" is needed to collect systematic information on housing markets and demographic and socioeconomic data to capture trends in housing affordability and finance. This information will enable local governments to define the nature and scope of policy interventions required to effectively align housing demand and supply. Without such ongoing monitoring, policy interventions may be misguided.

The development of a privately led rental market that serves different market segments (including low-income households) will enable the government to focus direct assistance on those who need it most. A well-developed and competitive rental market

will promote affordability for all income segments, whether local or nonlocal hukou holders. This market could be accomplished through the formalization of housing developments in urban villages, which could trigger higher investments and introduce better standards in housing for migrants.⁴² Urban villages offer affordable housing to migrants when urban governments fail to provide such housing, and they offer rural collectives new and significant income sources that often offset the negative impacts of the government's previous land requisition. Urban villages thus provide support to the two most vulnerable groups in China's urbanization: the migrant population and dispossessed farmers.

To address the housing needs of the lowest-income households, demand-side subsidies based on a means-tested targeting approach should be considered. Although national policies for housing often mention low-income housing, the reality is that only a small percentage of the allocation for new social housing is for low-rent housing. This low-income housing program is intended to serve households that do not qualify for a mortgage. A means-tested targeting system, which most likely would piggyback on the existing targeting process for dibao, would determine the level of support that will allow a household to rent through a private market. Rental vouchers could be used to implement the demand-side subsidies and will also help stimulate development of the rental market. The annual cost of this option is between 0.02 and 0.11 percent of 2012 GDP, depending on the assumptions regarding coverage and the amount of the subsidy.

International experience has shown that maintaining decent housing over the long term is almost impossible without such demand-side subsidies for a specific segment of the population. Although such incentives involve significant fiscal costs, they are much more efficient than supply-side incentives. Most countries with advanced housing and housing finance systems rely heavily on demand-side subsidies such as housing allowances, vouchers, or cash assistance to maintain affordability. It is extremely rare for a middle- or upper-income country to not provide housing payment assistance. For

example, the United States Department of Housing and Urban Development provides housing assistance to renters through a program commonly known as Section 8, which provides housing vouchers or direct payments to private landlords. Under the Section 8 program, tenants pay about 30 percent of their gross income for rent, with the remainder of the market-rate rent subsidized by the program.

Framework for cost sharing and incentives for municipal government to integrate migrants into urban areas

The annual cost of extending access to compulsory education, basic public health care services, social security (medical and old-age pensions), social assistance, and welfare housing to current migrants is estimated to be about 1.22 percent of 2012 GDP (table 3.10). The cost increases to 2.51 percent of 2012 GDP under the assumption that all left-behind children move with their parents to the cities, and it increases to 3.14 percent of 2012 GDP if, in addition to the cash flow cost of extending the urban old-age security to migrants, the discounted accrued liability costs are accounted for. Accounting for both of these costs and changing the assumptions

TABLE 3.10 Cost of extending urban social services to cover rural migrants

Percentage of 2012 GDP

	2015	2020
Education		
Migrant children currently in the cities	0.98	0.95
All left-behind children	2.27	1.97
Health services		
7 percent annual cost increase	0.15	0.37
9 percent cost increase	0.16	0.46
Old-age security		
Cash flow cost	0.03	0.06
Accrued liability cost	1.95	2.19
Social assistance	0.04	0.05
Housing		
2 percent coverage	0.02	0.02
10 percent coverage	0.11	0.11
Total		
Lower bound	1.22	1.45
Upper bound	4.53	4.78

Source: Wang, Wang, and Glinskaya 2014.

about the increase in medical cost and social housing coverage, the total cost could increase to 4.53 percent of 2012 GDP in 2015 and to 4.78 percent of 2012 GDP in 2020.⁴³

Although a transitional subsidy would help cities expand social service coverage for migrants, fiscal system reforms will be needed in the medium term to finance the national minimum basic package of social services. In the short term, a transitional subsidy to entice cities to deliver social services would help accelerate the integration of migrants. The overall cost is high but manageable, and some cities with large concentrations of migrants will have high expenditure needs. In the medium term, fiscal system reforms of both revenues and expenditures will be needed to finance the national minimum basic package of social services, which should be phased in and carefully calibrated to fit fiscal capacity.

To increase the willingness of local governments to provide social services to migrants, fiscal resources should follow people. The fiscal system should be closely linked to the new modern residence system—once people have moved to a new location, registration would increase the population count used for fiscal allocations. In addition to a gain in the tax base, local governments would receive larger transfers from the central government for delivery of the basic package. Such a link would help make receiving cities less resistant to providing services for new arrivals.

Social policy reforms and rural-urban integration

Beyond expanding access to services in urban areas, China faces the broader challenge of delivering services equitably across the entire country. In addition to the reforms discussed previously, wider sectoral and cross-cutting accountability reforms will be critical to improving equity and distributional outcomes. Such reforms would also promote greater efficiency and cost-effectiveness as well as quality improvements in services. Unlike in the previous section, which focused more narrowly on the modalities and costs of extending services in urban areas (and for

migrants, in particular), this section looks more broadly at issues of rural-urban integration in service delivery and overall sector reforms. Following a brief overview of the context and need for such reforms, it discusses specific reforms in the areas of education, health, pensions, and social assistance. The section then addresses the cross-cutting issue of strengthening accountability to improve social service delivery.

Context and challenges

The social policy vision for urbanizing China should have the goal of equalizing access to basic public services across provinces and across urban and rural areas. Such an approach is truly consistent with the goals of efficient urban development and rural-urban integration and supports the notion of equality of opportunity. The 2009 *World Development Report* introduced the idea of spatially blind institutions as the bedrock of an effective integration policy. Spatially blind policies—available to everyone regardless of location, but based on their attributes—should also be universal in coverage, particularly for regulations affecting labor and social services. Spatially blind social services are critical to rural-urban integration in ensuring that people are pulled to cities by agglomeration economies and not pushed out of rural areas by a lack of schools, health care services, and social security (World Bank 2009).

Although China has made remarkable progress in basic service provision in recent years, further improvements are needed in both the quantity and quality of services. China has achieved widespread access to a range of basic services: basic health insurance, compulsory education, postbasic education, and a rapidly expanding pension system. In both urban and rural areas, people increasingly expect not only quantity but also quality of service provision. The quantity challenge is not yet met (for instance, for early childhood development and migrant pension coverage), but the biggest challenges for now relate to ensuring quality and improved outcomes.

The foundation for rural-urban integration is a basic minimum package of social

services and social insurance that would promote equality of opportunity with basic security for all. Building on the “12th Five-Year Plan (2011–15): The National Basic Public Social Services System” (box 3.5), this package could include the following elements:

- An expanded cycle of quality general education that is accessible for all. Preprimary education would be available affordably to all, with subsidies for the neediest, and senior secondary schooling would be free of fees.
- Pension and health insurance systems that have full coverage and provide deeper and more uniform financial protection, integrating rural, urban, and migrant residents.
- A social safety net that is available for the poorest and most vulnerable and has greater coherence with different parts of the social protection system and across China.

Financing this type of basic minimum package across China will require a large amount of additional resources. In many localities—especially rural areas—the quality of services needs to be raised substantially.

Resources will also be needed in urban areas across the country to deliver services to the large number of new qualified users, while maintaining quality for all.

To make efficient use of these resources and to promote equality of opportunity, sectoral reforms and cross-cutting accountability reforms need to be deep and aim to affect the behavior of users and providers. In the case of users, reforms should target the incentives to co-finance. In many cases, the current institutional rules of service provision do not provide sufficient incentives for users to co-finance services (as in the case of old-age insurance, given the lack of portability) or to consume the appropriate level of services (as in the case of health care, with insurance payments favoring costly inpatient care). With regard to providers, reforms should not incentivize providers to induce demand (as is currently the case in health care) but should instead promote delivery of outcomes.

An important point to make is that providing services on an equitable basis does not require that services be equal for all citizens. Needs, resources, goals, and social values differ widely across China. Although all residents

BOX 3.5 12th Five-Year Plan (2011–15): The National Basic Public Social Services System: The basic package and beyond

The 12th Five-Year Plan identifies the lack of integration between systems of basic services in rural and urban areas as a major challenge, and it makes rural-urban integration and equalization guiding principles for future actions. Integration and equalization will be achieved by developing standards, implementing an integrated urban-rural basic public service facility, encouraging local areas to conduct pilot reforms, supporting rural basic public services (through greater investment in fixed assets and improvements in the professional capabilities of rural grassroots public service workers), and developing basic public service programs for the mobile population (particularly rural migrant workers).

The Plan also outlines sector-specific initiatives to promote rural-urban integration in education, health,

social assistance, and security. In education, for example, it talks about establishing mechanisms for co-development and sharing of compulsory education resources among urban and rural schools and one-on-one exchange and assistance systems. In health, it mentions expanding one-on-one urban-rural hospital assistance efforts. The Plan outlines tasks such as national coordination of pension insurance and integration of the basic health insurance system in urban and rural areas, as well as enhancement of the connection between urban and rural minimum security and unemployment insurance. In addition, the Plan stresses the need for greater sharing and integration of information resources and encourages the use of information technology to facilitate rural-urban integration in all public services.

Source: World Bank staff compilation based on the 12th Five-Year Plan (2011–15).

of a city should be given access to equal services, residents of different cities and urban and rural areas may be given different services.⁴⁴ The central government may wish to establish a basic minimum package of services that would be offered to all citizens, with nationally assured funding as needed for every jurisdiction to meet this standard. Beyond this basic package, provinces, cities, or towns may raise the standard for their jurisdiction but would be responsible for providing additional funding. They could raise the standard because they are more affluent, because their residents demand different or better services and are willing to pay higher taxes, or because they wish to attract new residents.

Education

Current status and challenges

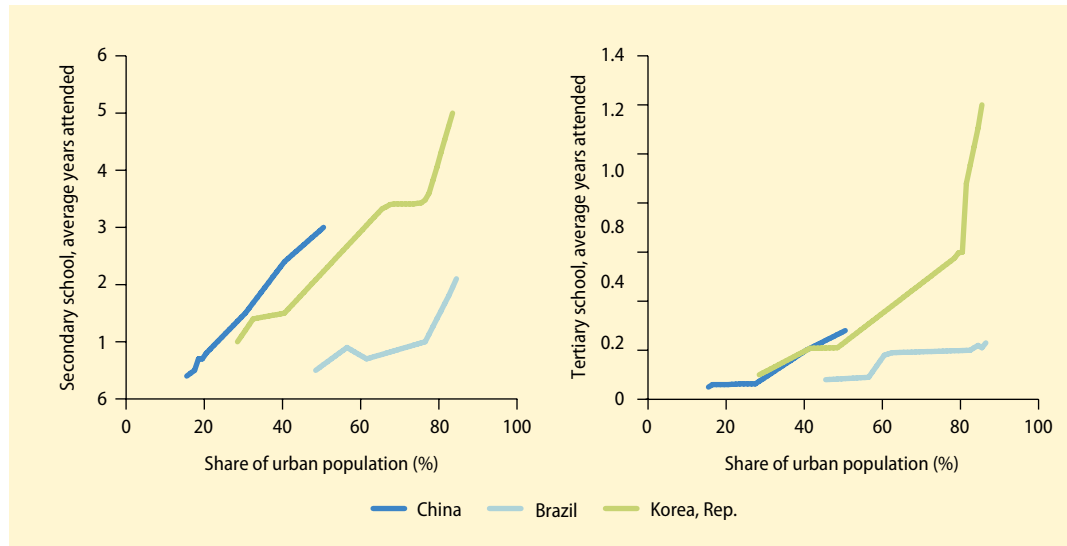
Although China has greatly improved its human resource endowment, challenges remain in improving educational outcomes across the country. Thanks to a positive policy environment and a high level of societal demand for education, China has universalized access to nine years of basic education, nearly universalized enrollment in junior secondary education, and increased enrollment in senior secondary education to almost 80 percent. Almost one-quarter of high school graduates are now going to university. Nonetheless, China's gross enrollment rates of 65 percent for preprimary education and 24 percent for tertiary education are well below the OECD averages of 90 percent and 68 percent, respectively.⁴⁵ Moreover, these national-level outcomes mask wide disparities across social strata, rural and urban areas, coastal and inland provinces, and migrant and local residents. At one end of the spectrum, Shanghai's star performance in the 2009 and 2012 international PISA tests captivated the world, as 15-year-olds in Shanghai ranked first in math, reading, and science relative to peers from 65 countries.⁴⁶ At the other end of the spectrum are school-age children in rural areas of Yunnan, Fujian, Hunan, and other poor parts of the country whose neglected diseases such as anemia, intestinal worms,

and nearsightedness have profound negative effects on their educational performance.⁴⁷

Middle-income countries that have transitioned to high-income status have invested heavily in education and human capital. When Japan and Korea were at China's current level of development, they had achieved universal high school education. In contrast, countries that have not escaped the "middle income trap," such as Argentina, Brazil, Mexico, Arab Republic of Egypt, and Iraq, have low human capital for their income (World Bank 2013). China has performed more like Korea than Brazil (figure 3.9), but further improvements will be difficult unless the population has access to higher-quality, free education.

Urbanization offers unprecedented opportunities to further this agenda but can lead to fierce competition for urban services if not managed properly. As mentioned in the first section, with greater urbanization comes denser cities and more people to service in concentrated masses, giving rise to economies of scale in service provision. However, denser cities will also place additional stress on existing education systems, as more migrants and their children become eligible for and demand equal access to quality education at all levels.⁴⁸ With the demand for services exceeding the supply, rationing will result when services are free, or prices (for instance, placement fees, informal payments to schools) will be introduced for what are nominally free services. In addition, the greater diversity in the types of people coexisting in cities today means that educational systems face a diversity of learners. All these are potentially at odds with the interests of long-term urban residents and can lead to conflicts if not managed properly.

Some educational challenges are becoming more prominent and demand more immediate policy attention as a result of urbanization. These challenges include defining a level and standards for providing minimum public education for all and developing financing and accountability measures to ensure provision to both rural and urban children. Integration will also require removing structural rigidities and abolishing the hukou

FIGURE 3.9 Share of urban population with secondary and tertiary education in China, Brazil, and Korea

Source: Barro and Lee 2001; World Bank staff calculations.

requirement for entrance into senior secondary education and higher education.

Since 2000, the public financing of universal compulsory education has undergone major changes. Under policies calling for improved public services, budget expenditures in education have increased rapidly, with an 8.6-fold increase in nominal terms and a 7.0-fold increase in real terms.⁴⁹ The composition of funding for universal compulsory education has also changed significantly:

budget appropriations constituted just over 50 percent of total funding in 1997, and by 2010, they made up more than 90 percent of total revenues (table 3.11). The acceleration of public spending became especially marked after 2006, when the new Compulsory Education Law (2006) stipulated that compulsory education would be “implemented free of tuition and fees.” The law also laid out a framework for financing to cover “the whole of universal compulsory education,” with

TABLE 3.11 Composition of funding in universal compulsory education, 1997 and 2010

Share of total	1997				2010			
	Junior middle school	Rural junior middle school	Primary school	Rural primary school	Junior middle school	Rural junior middle school	Primary school	Rural primary school
Budgetary appropriations	54.3	53.1	56.3	55.1	89.8	92.7	92.0	94.4
Earmarked taxes and surcharges	16.6	17.8	16.0	17.3	5.8	4.6	4.7	3.4
incl. urban education surcharge	4.7	1.1	2.7	0.7	4.3	3.1	3.5	2.4
incl. rural education surcharge	11.1	16.3	12.8	16.4	1.3	1.2	0.9	0.8
Other fiscal resources	0.6	0.4	0.4	0.3	0.3	0.3	0.2	0.2
Profits of school-run enterprises and services	3.5	2.9	3.3	2.7	0.1	0.1	0	0
Social contributions	10.3	12.7	10.0	11.4	0.9	0.7	0.8	0.6
Fees collected by schools	9.9	10.0	9.8	10.2	0	0	0	0
Other educational incomes	4.7	3.1	4.1	3.0	3.4	1.9	2.4	1.5

Source: MOE 1998, 2011.

funding to be shared by governments at all levels while responsibility for coordinating its implementation was assigned to the provinces.

Although the central government has greatly expanded intergovernmental transfers and introduced many funding programs, wide disparities remain both across and within provinces. Although central transfers have helped stem the trend of growing regional disparities, these disparities remain significant. In 2011, Beijing spent more than eight times as much per student in junior middle schools as Henan—nearly RMB 38,000 compared to RMB 4,600. Wide disparities can also be found across counties and districts within provinces. In Guangdong, for example, the 2012 provincial average was RMB 5,600 per student in primary schools, whereas the average for districts in Shenzhen municipality was RMB 16,000, and the province's poorest counties spent barely RMB 2,000.⁵⁰

Equality of quality in basic education across different areas, social categories, and income groups remains the key challenge. The equality of quality agenda is relevant to rural and urban areas in distinct ways:

- *Rural areas—and especially remote areas—face significant challenges* in the recruitment, compensation, and retention of quality teachers as well as gaps in the quality of educational infrastructure and learning inputs. Poor households also face the challenge of shouldering the nonfee costs of education, especially in the face of rising opportunity costs as real wages have risen.
- *In urban areas, disparities are evident among local children, migrants, and children from poor households and without social connections.* This can be seen in the differential enrollment rates of local, migrant, and poorer children in higher-quality “key schools” and regular schools and in indicators such as average class size and transition rates. The increased importance of family connections and placement fees to get children into elite urban public schools risks reinforcing existing social disparities. In megacities such as Beijing and Shanghai, key elementary and junior

high schools generally use exams to select their students. For example, a key primary school in Shanghai accepted 60 out of 3,000 six-year-old applicants through an intense one-hour exam consisting of 200 questions,⁵¹ despite the national policy set out in the Compulsory Education Law that entitles a child to attend a neighborhood school near home.

In urban areas, most of the privately operated migrant schools charge fees and lack proper accreditation from the government, qualified teachers, or adequate facilities. As of 2007, almost 80 percent of private migrant schools in Beijing were unlicensed (Tian and Wu 2010). Even among government-approved migrant schools, education quality is still not on par with that of public schools, as discussed previously. As the migrant population in urban centers continues to grow, unequal access to public education between migrant children and urban students will continue to be an acute issue.

In rural areas, a school merger policy is being implemented, with boarding schools becoming important providers of education services. Responding to demographic trends and out-migration, the Ministry of Education launched a School Merger Policy in 1999. Under the policy, education officials closed down small, remote schools and focused their attention on improving teaching and facilities for larger, centralized schools. The merger policy has improved the quality of education, at least in terms of the policy goals of hiring more qualified teachers and improving school infrastructure. One of the most notable problems with the merger policy was the dramatic increase in the distance between students' homes and schools. The government responded with a program to build dormitory facilities, and by the mid-2000s, most students who needed a place to board had access to dormitory rooms. Recent evidence shows that ensuring the provision of dietary quality in these establishments remains a challenge.

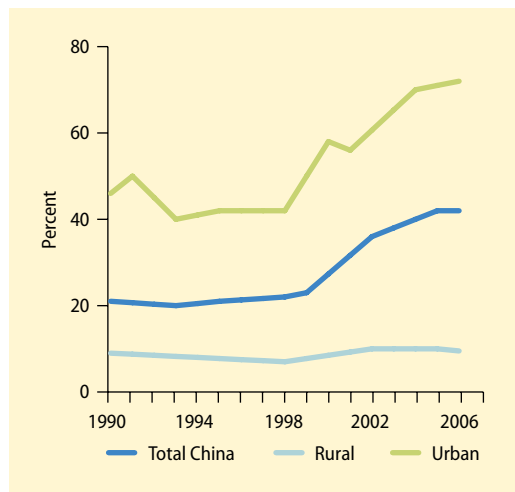
Beyond the compulsory education system, access to other levels of schooling remains problematic in rural areas, as in the following:

- *Senior high school.* Official data on the rate of graduation of rural children into the academic stream of the senior high school show that this rate remained almost unchanged between 1990 and 2006, increasing from 7 percent to only 9 percent. The newest estimates (taking into account rural children who go to school in urban areas) indicate that about 20–30 percent of rural children progress to senior academic schools, compared to 40–70 percent of urban children (figure 3.10). Drivers of low rural progression into the academic stream include the entrance exam, the high costs of secondary education, the perceived low quality relative to cost, and the opportunity costs for students and their families. In addition, the government policy direction to achieve a 50:50 ratio between academic and vocational enrollment might be pushing a higher proportion of rural graduates into the vocational track.
- *Preschool.* Only 30 percent of rural children attend preschools, compared to 80 percent of urban children. Among those who attend early childhood development and education (ECDE) in rural areas, half are in one-year-only programs. Furthermore, rural ECDE programs have higher pupils-to-teacher ratios and a lower percentage of

qualified teachers. Disadvantages accumulating at various stages of childhood development for rural children tend to manifest themselves in lower school readiness scores, as documented by a recent study comparing school readiness among rural and urban children. Stunting, which has negative impacts on cognitive development, affected over 20 percent of children under age five in poor rural counties, almost six times the national urban rate.

Migrant students also face difficulties in accessing public high schools. In urban areas, junior high school students must take a city-wide senior high school entrance examination as a prerequisite for entering any senior high school-level public institution (including regular senior high schools and vocational high schools). However, for migrant students, the local government in Beijing grants the opportunity to take the exam only for vocational high schools, and even then, they must meet numerous criteria. In 2012, the government of Shanghai also introduced a set of requirements that migrant parents would have to fulfill in order for their children to qualify for the exam for regular senior high schools. As a result of such policies, migrant students' access to high school education—especially regular high school education—is very limited in urban centers.

FIGURE 3.10 Official promotion rates from junior high school to academic high school, urban and rural, 1990–2006



Source: Rozelle 2011.

Note: Rural promotion rate includes promotions only in rural areas.

Proposed policy responses

The most critical area for reform is education financing. Financing reform should be implemented in a way that (a) facilitates the setting of minimum standards for every level of education and revises the revenue and expenditure assignments to ensure financing to meet those standards, especially for poor rural localities and disadvantaged children; (b) better defines fiscal and spending responsibilities among various levels of government; (c) experiments more with demand-side financing mechanisms to stimulate competition and choice that encourage higher levels of efficiency in public spending; and (d) explores higher levels of private provision and financing, in particular for upper secondary education.

Given the mounting evidence on glaring disparities in education quality, it is also imperative that the national government start defining clear quality standards for basic education. At a minimum, these standards should specify pupil-teacher ratios, per student public expenditure, and percentage of qualified teachers in each school. In the future, a desirable goal will be to introduce more advanced quality indicators, such as graduation rates and employment rates or even national and international test scores.

Improving quality will require focusing on teachers—teacher recruitment and career advancement, as well as allocation, compensation, and incentive policies. A combination of measures will be needed, including rotation mechanisms to promote programs in which quality teachers spend time in disadvantaged schools, twinning arrangements between stronger and weaker schools, stronger inservice training, incentives for hardship postings, and a more fundamental examination of teacher compensation.

For China to continue deepening its human capital base, senior secondary school completion rates must increase in the coming decades. China has already set a senior secondary enrollment target of 90 percent (with half in the academic stream and half in the vocational stream) by 2020, which is comparable to Korea's senior high enrollment rate in 2000. A case could be made for extending public free education provisions beyond basic education as conditions allow.

China will also need to improve the coverage of ECDE programs (particularly for the rural poor), for example, by increasing the level of public financing and using diverse delivery mechanisms. Preprimary education is the most underfunded education sector in China, accounting for 9 percent of the total number of students in the system but receiving only 1.3 percent of the budget. Internationally, preprimary education commonly claims 6 to 8 percent of the total education budget. Localities in China can use diverse mechanisms—including public-private partnerships, home-based care, or a combination—to deliver ECDE. In particular, public-private partnerships are worth exploring to diversify sources of funding and models of delivery and to create markets with new ECDE providers.

Some localities (particularly those with better economic conditions) are experimenting with free preschool or senior high school education. In more than 25 geographic areas across China, students now receive free preschool education, free senior high school education, or both (table 3.12). Most of these services are available only for children with local hukou. Certainly, each locality needs to develop a strategy for financing such an extension. For evidence-based policy making, more rigorous and continuous studies need to be conducted to determine the demand-side constraints to enrolling in preprimary and senior secondary education for rural children.

The government will benefit from setting clear expectations on the role of public

TABLE 3.12 Examples of extended free basic education in China, various years

Type of extended free basic education	Extension duration (year)	Length of free basic education (year)	Areas of implementation
Preschool	1	10	Xiamen (Fujian), Yan'an Zhidan (Shaanxi)
	3	12	Dongying Hekou (Shandong)
Senior high school	3	12	Zhuhai (Guandong), Wuqing (Tianjing), Ningbo Yinzhou (Zhejiang), Shanshan (Xinjiang), Haixi (Qinghai), Fuzhou Mawei (Fujian), Ankang Zhenping (Shaanxi), Xiangxi (Hunan), Yuxi Hongta (Yunnan), Zoucheng (Shandong), Nilka (Xinjiang), Inner Mongolia, Nansha (Guangzhou), Menghai (Yunnan), Linfen Gu (Shaanxi), Linfen Pu (Shaanxi), Linfen Ning (Shaanxi), Shuozhou Pinglu (Shaanxi)
Preschool + senior high school	3 + 3	15	Ankang Ningshan (Shaanxi), Wuqi (Shaanxi), Shenmu (Shaanxi), Fugu (Shaanxi), Yanzhou (Shandong), Changzhi (Shaanxi), Tibet

Source: World Bank staff compilations from various sources.

Note: The name of the province is indicated in parentheses.

financing in education. If current trends in China continue, demand for education will continue to rise. The Chinese society values education highly, and parents' demand for education for their children seems insatiable. Families should not face any barriers in seeking education beyond what the government provides for free. Demand is already high for private English language education, tutoring for college entrance exams, additional extracurricular activities, and tutoring for entrance into overseas universities. Over time, migrant families will have similar demands. The government will need to place greater emphasis on regulations and quality assurance to strengthen consumer protection in these areas and to ensure that all public and private money is spent efficiently.

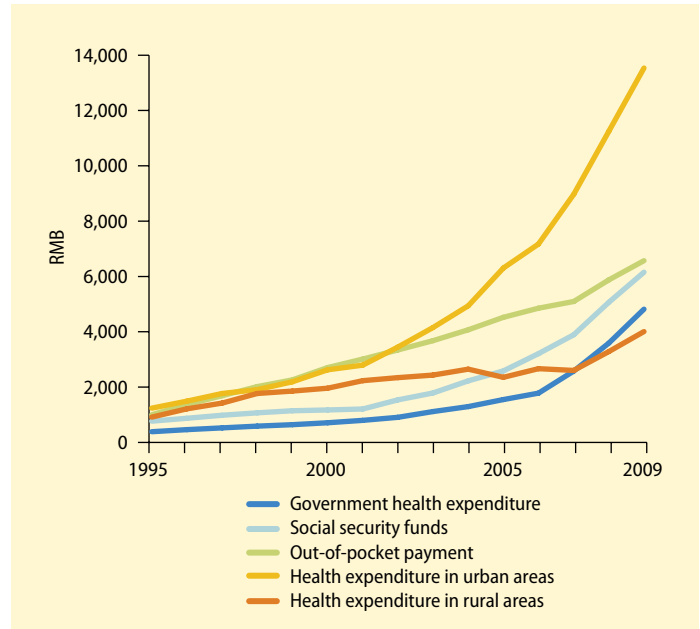
Making health services more equal and responsive to needs

Current status and challenges

Reforms in the past decade have greatly improved coverage and reduced out-of-pocket medical expenditures, but the current escalation in health spending raises questions about the long-term sustainability of China's health financing arrangements. As discussed earlier, China has launched two waves of reform in the past decade to improve access to health care. At the same time, between 2007 and 2010, real annual growth in health spending averaged about 15 percent, compared to annual GDP growth of approximately 8 percent. As shown in figure 3.11, the lion's share of spending occurs in urban areas, a trend that will probably continue for the foreseeable future as China urbanizes.

Urbanization and other demographic trends will continue to place greater pressure on the health care system. Rising incomes, an aging population, and an increasing burden of chronic diseases together will likely raise demand for health care in urban areas. The share of people age 60 years and over will increase rapidly in the coming decades, from around 12 percent in 2010 to almost 25 percent by 2030 and more than 33 percent by 2050. Another demographic challenge is the growing epidemic of noncommunicable

FIGURE 3.11 Health spending by source and location, 1995–2009



Source: MOH 2011.

diseases (NCDs), which account for more than 80 percent of the 10.3 million deaths annually and contribute to 82 percent of the total disease burden. A recent report shows that migrants and those with lower education levels tend to have a higher NCD burden, another indicator of urban dualism (World Bank 2011). Urbanization itself also leads to behavior change and exposure to risks that can increase demand for health care.

In terms of the health care delivery system, despite a massive expansion in grass-roots facilities and beds in both urban and rural areas, hospitals continue to gain an increasing share of both outpatient visits and inpatient admissions. Chinese health spending shows a strong hospital bias relative to OECD countries, with nearly half of total public health spending in China going to hospitals in 2010. This bias appears to be intensifying, and the system is becoming increasingly top heavy, which will escalate costs and contribute little to improved health outcomes. Between 2007 and 2011, the number of inpatients increased by 56 percent, compared to 33 percent for outpatients (MOH 2011). Moreover, it is estimated that nearly 30 percent of hospital admissions are unnecessary,

which can inflate spending because the average cost of an inpatient stay is nearly 37 times higher than an outpatient visit (MOH 2008, 2011). Another factor that increases costs is the average length of a hospital stay, which is double the OECD average.

The perceived poor quality of primary care providers and higher insurance reimbursement levels for inpatient care drive patients to upper-level health care facilities such as hospitals. Patient surveys found that only one-third of patients considered urban community health centers (CHCs) to provide adequate quality of care (Bhattacharyya and others 2011). Despite government training programs to upgrade these physicians and general practitioners and despite outreach technical support from hospitals, most residents prefer to travel longer distances and queue for specialty care in hospitals. One major challenge is that the primary care system in China is institutionally fragmented, with highly fragmented financing arrangements. The primary care system consists of many often-uncoordinated actors, including family planning agencies, maternal and child health programs, township health centers for primary and secondary care, village doctors, and public health agencies. Funding sources for primary care are also varied and include earmarked vertical program budgets, health insurance, central and local budgets, and user fees, all of which make financing highly fragmented and unequal across space and social groups. Yet another barrier to primary care is the low level of reimbursement for outpatient care. The insured have an incentive to seek inpatient admissions because insurance reimbursement levels for inpatient care are higher than for outpatient care.⁵²

Other factors also contribute to the hospital-centered health care delivery system, such as the following:

- *China has yet to systematically adopt coordinated care approaches to service delivery, which increasingly dominate the service delivery landscape in many OECD countries.* Coordinated care consists of a mix of measures that links professionals and organizations at all levels of the health system, emphasizes patient-centered care integration,

manages patient referral through the delivery system, and promotes follow-up care as well as the continuity of long-term service provision. The concept is often based on the strong role of primary care facilities in coordination functions. In China, however, very limited cross-referral takes place across the three tiers of health care facilities to ensure that health conditions are managed at the most appropriate and cost-effective level. Patients tend to go directly to hospitals even for outpatient care (about 53 percent of patients have their first contact with the system at a hospital), with little gatekeeping by lower levels.

- *The capital investment model for public hospitals is not conducive to rational hospital planning and may lead to excessive hospital capacity.* The model involves a strong reliance on bank lending and project cooperation, whereby third-party capital investors effectively take a role in management and even ownership. This has reinforced incentives for maximizing profits in public hospitals, led to unclear ownership and control of public facilities at times, and contributed to irregular practices. More broadly, capital planning in China may contribute to an oversupply of beds and facilities. International experience shows that excess beds are associated with overutilization of hospitals (Delamater and others 2013).

Providers have strong incentives to induce demand, leading to overservicing, which threatens the sustainability of the insurance and delivery systems. For all levels of care, the dominance of provider payment systems based on fee for service, emphasis on self-financing of facilities (for example, sales or business income represented over 90 percent of hospital revenue in 2010), and the link between hospital business revenue and physician income have encouraged unnecessary care and inefficiency in service production.⁵³ Distorted pricing for treatments has given health care providers strong incentives to generate demand for profitable high-technology services and drugs in place of unprofitable basic alternatives. Considerable evidence reflects cost-enhancing (and quality-impairing) provider behaviors in response to

these incentives, including extended lengths of stay and prolonged treatment, unnecessary admissions and complementary services (for instance, intravenous fluids), overuse of high-tech diagnostics, misuse of antibiotics, and overprescribing of drugs. In 2009, 43 percent of health spending in China was for pharmaceuticals, compared with 17 percent in OECD countries (Yip and others 2012).

In terms of China's health insurance system, the fragmentation of risk pooling poses a threat to long-term sustainability. Because insurance funds are pooled at the level of urban cities and rural counties, nearly 3,500 separate risk pools have been created for the various schemes. Compared to those in other countries, these risk pools are relatively small, limiting the ability of insurers to spread risk among the healthy and the ill and to provide adequate financial protection. Research also shows that NCRMS and URBMI face the problem of adverse selection (Chen and Yan 2012; Liu and Tsegai 2011), which, when combined with low levels of risk pooling and government subsidization, may compromise the institutions' long-term financial viability.

Lack of portability in the health insurance system is another concern. In general, benefits from URBMI and NCRMS are not portable when workers change jobs or switch residences between rural and urban areas. This lack of portability may impair labor mobility, access to health services, and continuity of care, especially for workers with chronic conditions. One possible barrier to portability is the lack of uniformity in benefits and reimbursements across schemes (for instance, higher out-of-pocket spending resulting from higher premium levels and copayments or lower reimbursement ratios), making enrollment in a new scheme unattractive.

The health insurance system also suffers from low capacity. Agencies responsible for operating insurance schemes generally lack sufficient staff, information technology, and managerial know-how to effectively manage and monitor the schemes, oversee providers, and navigate the increasingly complex array of norms and regulations (Yan and others 2011). The lack of integrated databases and management information systems impedes insurers' ability to monitor provider

behaviors and quality, coordinate care across different types of providers, and process claims reimbursements across provinces for migrants. Another capacity issue relates to the role health insurers could play in altering the behaviors of health care providers through effective purchasing strategies. Despite major increases in health insurance financing by the governments, health insurance agencies remain largely passive payers of claims.

The quality of the delivery system remains nearly forgotten. Many of the essential and systematic elements of quality improvement programs are still in their infancy in China, including continuous quality improvement programs, performance measurement, monitoring and benchmarking, provider accreditation, medical and nursing school accreditation, professional credentialing (and recredentialing), and disciplinary actions for malpractice. As in many countries, a lack of reliable data on quality of care, systematic measurement, and institutional infrastructure for quality monitoring and evaluation frustrates attempts to assess quality at any facility or level of care.

Proposed policy responses

China faces both new and unfinished reform agendas in addressing the health consequences of urbanization. As discussed in greater detail next, the new reform agenda involves the expansion of insurance to migrants, integration of insurance schemes, and promotion of healthy urban living. The unfinished reform agenda entails dealing with cost-inducing perverse financial and provider incentives, an unbalanced and uncoordinated delivery system, and quality of care.

New agenda

To increase equality and labor mobility, segmentation among the three health insurance schemes—URBMI, UEBMI, and NCRMS—must be reduced to create an integrated and seamless system. Notwithstanding expansion of insurance coverage to migrants as described earlier, continued efforts are needed to minimize differences in benefits, reimbursement rates, copayments, and deductibles among the three insurance schemes.

The schemes should also be integrated into a common institutional platform while raising the pooling level of the health insurance system to at least the provincial level. Although no blueprint is available for integrating insurance schemes, the most appropriate approach for the Chinese context may be the consolidation of multiple funds into a limited number of pools. Variants of this model can be found in Canada, the United Kingdom, Sweden, Korea, Colombia, Chile, and Norway.

In the medium term, China can build on the experiences of several of its own provinces in merging URBMI and NCRMS. Integration can start with merging organizational arrangements, including physical location; managerial, monitoring, and supervisory functions; and information systems. Chongqing, Guangdong, Ningxia, and Tianjin have vertically integrated these schemes, although the breadth and depth of integration varies. The next step would be to merge benefits, reimbursement rates, and provider payment systems. It will also be important to move away from the current model of individualized coverage in insurance schemes to household-based coverage, to promote administrative efficiency, and to facilitate portability of entitlements. Pending issues include selection of the government agency responsible for the new organization and establishment of the accountability arrangements for performance oversight.

In addition, reforms should recognize that healthy urban environments depend on having healthy urban design at the core of urban planning. International evidence shows that healthy urban environments promote healthy living by incorporating design elements such as pedestrian walkways, bicycle networks and infrastructure, parks, play areas and plazas, weekend pedestrian and cycling streets, pedestrian overpasses and traffic islands, and walking trails.⁵⁴ These strategies are typically supported by promotional or soft activities such as fitness events, childhood overweight and obesity programs, senior group exercise events, promotion of exercise facilities and use of stairs in the workplace, antismoking regulations and campaigns, access to mental health services, and community health fairs.

Unfinished agenda

Service delivery needs to be reoriented based on primary and coordinated care. An alternative care delivery model should be considered, one that would anticipate and shape patterns of care according to the projected health and medical needs of the population while boosting the role and quality of primary care. The model should involve significant strengthening of community-focused care, vertical and horizontal integration of facilities to provide comprehensive services along a continuum or chain of care, and use of primary care as the point of entry into the system. Recent OECD experience suggests using a coordinated care delivery model that emphasizes primary care as a gatekeeper and case manager, defined links among providers, and specialized outpatient and day surgical treatment, which reduces the need for inpatient beds. The international trend is toward transferring services currently provided by hospitals to community-based ambulatory centers or telemedicine clinics.

Pilot reforms to strengthen the role of primary care in China are already under way. Emerging experiences in Shanghai and Beijing demonstrate that CHCs are able to fulfill primary care provision and case management tasks when they are equipped with a new set of competencies and provided with professional support. For the past several years, Shanghai and Ningbo have also provided promising examples of a functional model using a family doctor. Beijing, Wuhan, and Shanghai are testing medical consortium models, which link CHCs, secondary hospitals, and tertiary hospitals in a two-referral system in which CHCs serve as entry points or gatekeepers. Specialists are also decentralized to CHCs.

To improve quality of care, China can implement several short- and medium-term measures that are already being undertaken in a number of cities, counties, and facilities. The first measure involves conducting an inventory of quality improvement initiatives in ambulatory units and hospitals, including any results of these initiatives. The second measure is to require all hospitals to report a set of quality indicators on high-volume

tracer conditions. Third, hospital eligibility for insurance financing should be linked to threshold requirements such as accreditation or certification that the hospital meets specified standards. A fourth measure entails providing financial incentives to improve quality, known as quality-based purchasing, which has become widely accepted in OECD countries. Under this approach, insurance schemes can use their purchasing power to stimulate quality improvement, data reporting on quality, and patient satisfaction.

China can learn from the lessons and emerging innovations of OECD and other middle-income countries that have an oversupply (or underutilization) of beds. OECD countries are adopting alternative planning approaches in the face of aging populations. They are applying coordinated, community-based medical models to address NCDs; rapidly advancing communication and telemedicine technologies; emerging noninvasive or minimally invasive therapies; pharmaceutical advances; miniaturization of sophisticated equipment; and increased use of ambulatory surgery, urgent care centers, and other forms of “day hospitals.” In doing so, these countries have redefined the role of hospitals and reduced bed-to-population ratios, lengths of stay, and ultimately the number of hospitals—almost all of which are steps that need to be taken in China.

In terms of health insurance reform, controlling utilization and provider cost escalation are essential to the financial sustainability of any insurance scheme. International experience shows that no single approach to cost containment can effectively slow the increase in costs over the long run. Used in combination, the following three approaches could contribute to effective cost containment in China:

- *Design and implementation of robust provider payment mechanisms.* These mechanisms are already in practice in China. Payment reform is essential to achieving the other components of the reform agenda, avoiding uncontrollable cost escalation, and restoring public trust in the health system. Some pilots with alternative provider pay-

ment systems are under way, and although the number of facilities involved in these experiments is small, preliminary assessments indicate progress in cost containment. For example, Hainan province introduced prospective global budgets in six hospitals, resulting in slower rates of cost inflation, lower copayments, and slower increases in expensive services compared with hospitals paid on a fee-for-service basis (Yip and Eggleston 2004). Expanding pilots to experiment with alternative payment methods will provide important information on which models work best in the Chinese context.

- *Adoption of managerial cost control measures.* Such measures will help control utilization or frequency of claims, lower spending for services provided, and detect and control fraud. Measures typically used by health insurers and purchasers include (a) inpatient management to reduce length of stay and avoid unnecessary admissions (for example, preadmission review, concurrent review, second opinion before surgery, discharge planning); (b) programs and incentives to encourage the substitution of outpatient care for higher-cost inpatient care and the identification of new and less costly treatments for high-cost conditions; (c) provider profiling to enable the analysis and characterization of providers according to utilization, costs, quality, and other performance-related features to help identify high-cost providers and providers with patterns of high utilization; (d) standard treatment guidelines and provider education programs to encourage cost-effective practice patterns; and (e) programs and incentives to promote the use of generic drugs and low-cost technologies.
- *Expansion of the institutional separation between revenues and expenditures.* Institutional separation is an operational feature of the current health reform, although uptake has been slow. Part of the objective is to delink incomes of facility staff from revenue generation. Chengdu, Hangzhou, and Beijing have applied this reform to urban CHCs. All revenues are placed into a special government account, then returned to the facility in the form of a negotiated

budget. The measure has reduced overtesting and overprescribing, thus breaking the link between sales of health care services and physician income. The cities are experimenting with contracts that specify and rationalize the mix of services provided.

As mentioned above, sound institutional purchasing can provide incentives to deliver more efficient, more appropriate, and higher-quality care. For health insurance agencies, moving from simply paying the bill to actively purchasing will help promote a system that puts patient care and cost-effectiveness above providers' focus on maximizing revenue. International experience shows that purchasers can do a great deal to incentivize providers to improve quality processes and results while contributing to cost containment. Explicit contracts linking payment to performance have been shown to be effective instruments for improving patient satisfaction, quality, and efficiency (Preker and Langenbrunner 2005). For example, in the Brazilian state of São Paulo, the state government crafted contracts with public and private hospitals that specified production targets for a large array of services, along with cost-based budgetary caps. The contract also mandated quality improvement measures and data reporting requirements. A portion of financing was tied to successful compliance with these mandates.

Deepening pension system reform

Current status and challenges

Deeper pension system reform is needed to achieve the goal of a "full coverage, basic protection, multilayered and sustainable" pension system outlined by the 18th National Congress of the Communist Party of China. As discussed previously, although much progress has been made in the past decade, China still has a large unfinished agenda, in part because of the rapid pace of reform to date. Given the major demographic changes discussed earlier, the pension system also faces the challenge of remaining fiscally sustainable while dealing with the dual challenges of handling a rapidly aging population and meeting the needs of an increasingly diverse

and mobile labor force. Addressing the historically low coverage of rural, migrant, and urban informal sector workers remains a challenge.

Structural issues in the current pension system must also be addressed to support rural-urban integration. These issues include the following:

- *Fragmented pension systems*, which result in low levels of pooling and limit portability. The urban worker pension scheme pools its contributions and payout responsibility at the municipal level, with only a partial adjustment fund established at the provincial level. Rural and urban resident pension schemes are pooled mainly at the county and city levels. The policy measure to allow for transfer of entitlements across pension schemes was announced in 2014, but the implementation modality still needs to be determined. The geographic fragmentation and multiplicity of urban pension schemes for workers, PSU employees, civil servants, and in some areas residents and migrants, as well as differences in parameters, create disparities in benefits and barriers to worker mobility across space and sectors.
- *The "legacy costs" of earlier, more generous urban worker pension provisions*, which are largely financed through current pension contributions, thus keeping contribution rates high and creating incentives for underreporting of wages and nonparticipation. These legacy costs are not affordable for many local governments.
- *Design weaknesses* in the pension system, such as a low retirement age and outdated annuity factors can affect incentives and fiscal sustainability.
- *Low returns on individual accounts*, such that pension replacement rates that have been significantly lower than anticipated when the system was developed in the 1990s.
- *Weak management and service delivery capacities*, particularly in the face of rapid pension system expansion.

Proposed policy responses

The proposed policy response is a design vision that aims to provide an integrated

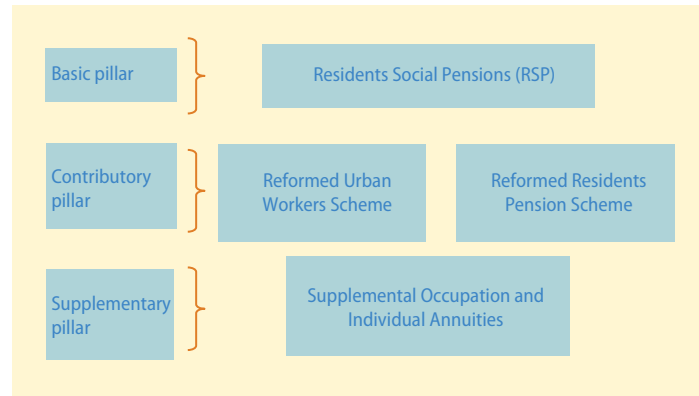
framework for pension policies, financing, and institutional development (Dorfman and others 2013). The policy framework supports a greater diversity of instruments for old-age income protection to better address coverage gaps, support an increasingly mobile and diverse labor force, and ensure fiscal sustainability. The proposed financing options would diversify the sources of financing, rebalance the level of risk sharing between the citizen and the state, upgrade financial and risk pooling at the central level to relieve local budgets of some spending obligations, and ensure that pension promises can be honored for China's growing population reaching retirement age. Achieving an integrated national pension system will also require substantial institutional reforms, including the development of a national information and communication system and changes in incentives and accountability for information sharing.

Moving to an integrated design for the pension system. An integrated pension system design would better address the needs of all workers and retirees while allowing for diverse circumstances. Such a design would no longer differentiate along urban and rural locational or hukou lines. It would ensure that pension provisions take into account the employment circumstances of workers, distinguishing among those who are formally employed and those who are self-employed and informal, and the capacity of individuals to make contributions.

The proposed reform provides an integrated framework of instruments supported by three pillars (figure 3.12). It uses a notional defined contribution (NDC) approach to anchor the design and the financing of contributory pensions. The three pillars are as follows:

- A *basic pillar*, which provides minimum elderly poverty protection through non-contributory resident social pension (RSP) benefits.
- A *contributory pillar*, with a mandatory NDC scheme for workers with wage incomes and with labor contracts (a modified current urban workers scheme [UWS])

FIGURE 3.12 Proposed overall design of the pension system



Source: Wang and Dorfman 2014.

and a voluntary defined-contribution pension savings scheme for the urban and rural populations with nonwage incomes (a modification of the current rural and urban resident pension schemes [RPS]).

- A *supplementary pillar*, which provides voluntary occupational and individual pension savings options that may supplement other pension benefits, building on the existing enterprise annuity scheme.

The three-pillar approach builds on features of the existing pension system while providing a common basis for addressing fragmentation, portability, pooling, and sustainability. For workers with wage incomes, the NDC design proposed for the UWS would provide stronger incentives for participation and will strengthen portability and financial sustainability.⁵⁵ For workers with nonwage income, the proposed RPS is similar to the current rural and urban resident pension schemes in its voluntary and defined-contribution design, while also sharing features of the reformed UWS, such as qualifying conditions and the benefit formula. These parameters could support the transfer of pension rights and benefits across the two schemes. The combination of the RPS and RSP mimics the design of the existing resident pension schemes but broadens the scope of benefits for all retirees and introduces a benefit adjustment factor to reduce the fiscal burden on a sustainable basis. The introduction of the RSP would help achieve the policy goal of full coverage.

Upgrading the pooling level. Although the initial aim should be to achieve provincial-level financial pooling, the long-term objective should be national-level pooling. As a starting point, financial pooling is needed at the provincial level, including consolidation of all contributions and (unified) benefits. Cross-subsidies between regions with net surpluses and those with net deficits are expected, as well as between regions with lower system dependency rates and those with higher ones.

Financial pooling of contributions and reserves helps smooth disparities and diversifies risks to members, but the level of pooling remains low across most of the country. Two types of financial pooling approaches are currently used in China: (a) full pooling of all contributions, accumulations, and disbursements and (b) partial pooling through the use of provincial adjustment funds aimed at redistributing a portion of contribution revenues. Among 31 provinces, Beijing, Tianjin, Shanghai, Chongqing, Shaanxi, Qinghai, and Tibet have realized full financial pooling at the provincial level, while the other provinces have partial pooling or no pooling. Transfers to provincial adjustment funds are levied based on total municipal or county wage payrolls, pension account balances, or budgetary contribution revenues. Table 3.13 indicates the proportion required to be transferred. Some provinces such as Guangdong have fully realized the financial pooling of pension contributions, accumulations, and disbursements at the prefecture city level, while a number of provinces have full financial pooling only at the county or city level.

Unification of parameters and pooling of data and management are essential for

financial pooling. A national pension system needs to be grounded in standardized policies for contributions, qualifying conditions, and benefits. Without unification of parameters, those communities with the lowest benefits can end up transferring resources to those with more generous benefits. Local consumption and poverty parameters should be used in determining the social pensions benefit level. Support for accounting, financial control, and accountability systems can help ensure the integrity of the financial pooling process. Unique identification, validation systems, data standards, and other policies are essential for recordkeeping and to enhance information flows across space.

A vertical management approach that builds on local capacity could help ensure provincial-level accountability. Under this approach, individuals in local social security and finance departments would be accountable to provincial (not municipal) authorities. However, even with vertical management, legal, regulatory, and supervisory mechanisms will be needed to ensure that national standards are applied at the local level (Wang and Dorfman 2014).

Achieving financial sustainability. Financing sources should be diversified from the current largely contribution-based financing to a greater mix of sources, with a rebalancing of the level of risk sharing between the citizen and the state (table 3.14). Social pensions and legacy costs would be financed from current government revenues, whereas the other schemes would be contributory, with either a pay-as-you-go or fully funded approach. A separate financing strategy is proposed to partially prefund future pension costs. Automatic benefit indexation using publicly disseminated indexes and GDP-linked rates of return shields workers and retirees from risk. Similarly, annuitization protects retirees from having to bear or pay for coverage of longevity risks.

Three policy measures would help achieve long-term financial sustainability and improve the incentives to participate:

- *Parametric changes*, to reduce long-term costs, including gradually increasing the minimum retirement age to 65, automati-

TABLE 3.13 Proportion of pension contributions transferred to provincial adjustment funds

Province	Proportion (%)	Province	Proportion (%)
Shanxi	3	Hubei	5
Inner Mongolia	2	Hunan	0.5
Liaoning	10	Guangdong	9
Jilin	5	Guangxi	1
Jiangsu	1.5	Hainan	1
Zhejiang	2	Sichuan	5
Jiangxi	3	Xinjiang	1

Source: World Bank staff compilation based on the latest provincial policy documents.

TABLE 3.14 Proposed financing arrangements for the pension system

Scheme	Financing approach	Sources of financing
Resident social pension	Noncontributory and unfunded	Government budgetary allocations
Urban workers scheme	<ul style="list-style-type: none"> • Contributory pay-as-you-go • Unfunded legacy costs • Separate external prefunding to address long-term demographic changes 	<ul style="list-style-type: none"> • Employer and employee contributions • Government budgetary allocations • Government external prefunding
Resident pension scheme	Contributory pay-as-you-go	<ul style="list-style-type: none"> • Workers • Matching contribution subsidies from government at different levels
Occupational and personal annuities	Contributory and fully funded	<ul style="list-style-type: none"> • Employers • Employees and self-employed

Source: Wang and Dorfman 2014.

cally adjusting the annuity factor to reflect the life expectancy at retirement age, and automatically providing hybrid indexation based on wages and per capita GDP growth.

- *A separate partial-funding strategy*, to address the future funding requirements that will arise as old-age dependency ratios increase and contribution revenues prove insufficient for benefits. Such a funding strategy would lead to the establishment and financing of buffer reserve funds on a provincial basis, based on projected cash flow needs.
- *Financing of legacy costs from general revenues*, rather than from pension contributions. Financing legacy costs from outside the pension system would reduce contribution rates, thereby substantially improving the affordability of contributions to the reformed UWS.⁵⁶

Sequencing of reform measures. To realize the policy goals of full coverage, equity, portability, and financial sustainability, the sequencing of pension reforms will be critical. Possible short-, medium-, and long-term measures are proposed below.

In the short term,

- *Initiating an increase in the UWS minimum age for receipt of benefits.* Given the need to do this gradually, initiating an increase in the pensionable age sooner rather than later seems advisable.
- *Implementing other parametric reforms of the UWS.* This measure would include eliminating the minimum wage subject to contributions, dramatically reducing the

vesting period, and initiating a process to reduce contribution rates (linked to financing of legacy costs from general revenues).

- *Increasing the matching contributions provided under the RPS while initiating measures to delink a basic monthly benefit social pension from a vesting period of contributions.* This reform can further improve coverage, particularly for younger workers and workers who may find it difficult to satisfy the current 15-year vesting requirement.
- *Taking preparatory design steps to integrate the PSU, civil servant, and urban workers pension frameworks.* Ultimately, the aim should be to fully integrate the PSU and civil servant schemes with the UWS. The key design question is how to integrate these workers into the UWS while avoiding a dramatic downward adjustment in replacement rates. This would in turn require integrating policy development of PSU and civil service pension reform with broader compensation reforms.

In the medium term,

- *Promoting greater harmonization across schemes and making progress on integration of schemes for different groups.* This includes (a) completing integration of PSU and civil servant workers into the reformed UWS and (b) integrating the rural and urban resident schemes and their management under one policy and institutional umbrella.⁵⁷
- *Putting in place the information systems to facilitate portability of pension rights and*

pooling. Common data standards and data sharing protocols under the leadership of MOHRSS are needed, along with development of a data management system strategy for phased convergence. Social insurance information systems within provinces also need to be integrated to prepare the way for eventual sharing of beneficiary data and financial information across provinces.

- *Separating legacy cost financing using a clearly defined financing strategy.* A framework for legacy cost estimation and identification needs to be developed and implemented. The legacy costs could be financed by the different levels of government.
- *Meeting prefunding targets under the overall financing strategy.* This measure would require effective supervision and oversight, including supervision of investment management.
- *Completing provincial pooling of pension funds.* This would require putting in place the incentive framework to implement provincial pooling of financial flows and provincial financial management.

In the long term,

- *Transitioning from provincial pooling and management to national-level pooling and management.* The nationally pooled and integrated system would need to be underpinned by an integrated national data management system.
- *Moving to a pension system that continues to distinguish between those with wage employment and those without it, such as self-employed and informal workers.* However, this could be undertaken as different programs come under a unified institutional framework.
- *Introducing funded defined-contribution pension instruments.* This funding would be done to the degree that the financial markets are liberalized, well regulated, well supervised, and well governed.

Social assistance

Current status and challenges

The social safety net in China consists of dibao and traditional social assistance pro-

grams and special/temporary social assistance programs. Traditional social assistance programs such as *wubao* in rural areas and the “three-no’s” program in urban areas were established to provide income support for those who do not have dependents, have lost their ability to work, and have no income sources. In 2012, *wubao* beneficiaries numbered 5.5 million in rural areas, and urban three-no’s beneficiaries numbered 99,000. China also has special/temporary social assistance programs such as medical financial assistance, education assistance, and housing and heating subsidies, which provide temporary cash and in-kind support for the poor and low-income families. Medical financial assistance is the largest of these programs, providing support for 84.5 million people in urban and rural areas in 2012. Table 3.15 shows the benefits and fiscal inputs for medical financial assistance and dibao, illustrating the relative scale of the programs. Other temporary assistance programs covered 2.6 million urban households and 3.8 million rural households in 2012.

Inclusion of migrants into the urban social safety net is an important policy objective, as discussed earlier; however, in addition, the social assistance system is also facing a second generation of issues that must be addressed to promote greater rural-urban integration. Second-generation challenges faced by the social assistance system include (a) developing a more systematic approach to determining dibao eligibility thresholds and

TABLE 3.15 Dibao and medical financial assistance in urban and rural China, 2012

	Urban areas	Rural areas
Dibao programs		
Thresholds (RMB/month)	330.1	172.3
Benefits received (RMB/month)	239.1	104.0
Total fiscal inputs (RMB, billion)	67.4	71.8
Medical financial assistance		
Medical cost reimbursement (RMB per capita)	858.6	721.7
Subsidies for medical insurance contributions (RMB per capita)	84.0	57.5
Total fiscal inputs (RMB, billion)	7.1	5.8

Source: Ministry of Civil Affairs 2013, 2012 Statistical Bulletin of Social Services Development, <http://www.mca.gov.cn>.

benefit levels across urban and rural areas and across provinces; (b) focusing on the primary objective of dibao; and (c) promoting greater synergies between social assistance programs and antipoverty interventions in poor counties. The high level of discretion in setting dibao thresholds compromises the goal of policy consistency in the area of social protection. Although the design and objectives of dibao programs are conceptually clear in targeting income poverty, in practice, dibao programs are used to target consumption poverty and even provide support for low-income families. The ambiguity that has arisen has resulted in low targeting efficiency. The protective versus promotional role of dibao will need to be clarified to refine the policy objective.

Proposed policy responses

Promoting integration of the rural and urban components of social assistance programs requires clearly defined financing roles and responsibilities of government at various levels. The increasing role of the central government provides a channel for standardizing and equalizing dibao programs. The central government could assume a bigger role in the dibao and temporary social assistance programs by ensuring fiscal inputs and income transfers to cover both developed and lagging areas. This approach would ease the fiscal burdens of city governments in coastal areas and provide incentives for them to treat long-term migrant families and urban residents equally.

To facilitate the convergence of approaches and equalization of dibao thresholds and benefits, the central government could upgrade the authority to establish dibao thresholds from the county (city) to the provincial level. Currently both the method of determining dibao thresholds and the levels themselves vary enormously, reflecting the highly decentralized nature of implementation. Developed countries often apply a unified formula for the threshold level for social assistance programs, taking into account regional cost-of-living differences. Similarly, China could gradually move the responsibility for setting thresholds from county (city) to prefecture,

from prefecture to province, and finally from province to the national level. A systematic approach is needed to ensure that the standard reflects the true cost of living and is adjusted accordingly over time. The authorities could also consider adopting a common benefit floor for all localities in China, while allowing local government to establish a higher level as capacities allow (Umapathi, Wang, and O’Keefe 2013). The Ministry of Civil Affairs has made progress in this direction, and its assessment of emerging experience can inform future policy development.

Improved targeting would help dibao and temporary assistance programs better use the limited public resources available. An additional consideration is the role of social assistance programs in addressing the equity issue between the poor and the near poor. Although the dibao program has performed well in excluding the nonpoor, its design raises risks of poverty traps for households just above the dibao eligibility threshold. Eligible households have their incomes topped up to the dibao threshold and also receive noncash benefits, including exemptions or reductions for education fees, subsidized health insurance, and public housing and subsidized utilities. As a result, they may be better off than households just above the dibao threshold that are not entitled to such noncash benefits but have only slightly higher incomes.

In parallel, deeper reform of the social assistance system is needed to help better achieve its poverty alleviation objectives and improve coherence with other programs. Additional resources will be needed to develop the information management system, increase staffing levels according to the population or families served, and develop business processes and performance standards. The reforms should also promote greater synergies and coherence among social assistance programs, social insurance schemes, labor market programs, regional antipoverty programs, and housing programs, as in the following:

- For *social insurance schemes*, with the expansion of basic pension benefits to rural and urban informal sector retirees in the

coming years, the interaction with measurement of household income for dibao needs to be examined closely. Currently, basic pension income is ignored in determining dibao eligibility, but in the longer run it may be necessary to look more closely at the rationale for such an approach as the pension system expands.

- For *labor market programs*, some cities provide job training for family members of dibao beneficiaries, encourage community works participation, and allow a gradual reduction of transfers after they find jobs. Those are good practices that could provide strong incentives for the poor to reenter the urban labor market.
- *Regional antipoverty programs* have been based on a regional development approach parallel to household-based social welfare support. More efforts are needed to facilitate greater convergence of social assistance, social services, and antipoverty programs, that is, building on the recent examples of prioritizing dibao and near-poor households in training under antipoverty programs.
- For *housing programs*, as discussed earlier, the government has placed greater emphasis on affordable housing for lower-income households and public housing for the poor. Although this is a welcome policy direction, it will also require more rigorous valuation of the implicit value of social assistance packages that include free or subsidized public housing and of the subsidies offered to households that are not receiving social assistance.

Accountability and social services delivery

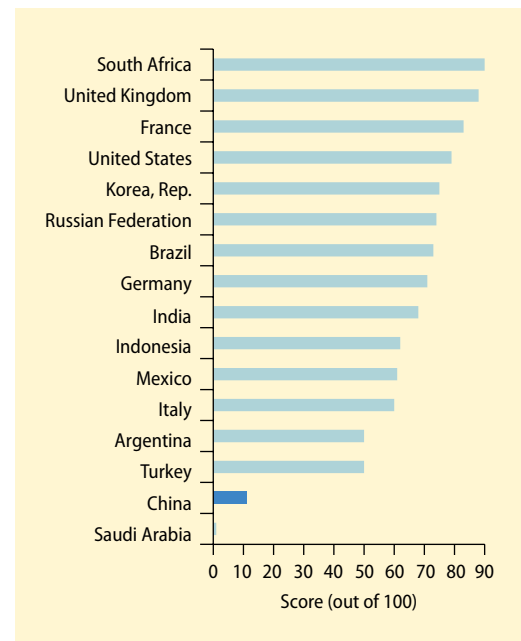
To improve results in service delivery across the social sectors, China faces the challenge of increasing accountability through three broad channels: government systems, citizen based, and choice based. Compared with most countries, China has traditionally placed less emphasis on citizen- and choice-based accountability channels in the social sectors. For citizen-based accountability, that reflects the lack of client voice in service delivery. Choice-based accountability is underemphasized because of the dominance

of public sector service provision, resulting in a lack of client choice and provider competition. The potential of each channel of accountability will vary according to the type of service considered, the nature of the market in which it operates, and the nature of outcomes and performance improvement to be promoted. The following sections discuss each of the three broad channels of accountability in turn.

Government systems and accountability to promote better service delivery

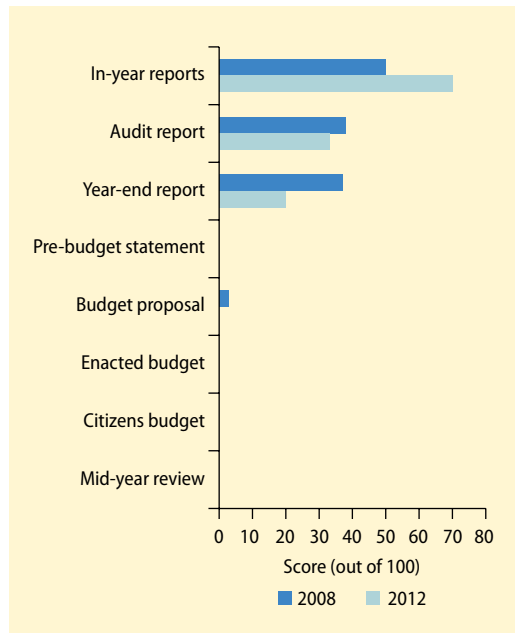
China's overall level of budgetary transparency is low by the standards of Group of Twenty (G20) countries and has fallen in recent years. Figure 3.13 shows China's overall rating on budgetary transparency compared with G20 countries, and figure 3.14 presents the individual elements of the budgetary system ratings for China in 2008 and 2012. Although some indicators such as in-year reporting are relatively high, others related to review and actual budget enactment are very low. Stronger performance on these

FIGURE 3.13 China and G20 fiscal transparency indicators, 2012



Source: Open Budget Survey 2012. <http://internationalbudget.org/what-we-do/open-budget-survey/>.

FIGURE 3.14 Elements of fiscal transparency indicators for China, 2008 and 2012



Source: Open Budget Survey 2012. <http://internationalbudget.org/what-we-do/open-budget-survey/>.

indicators will be needed to move from a budget compliance culture to a performance-oriented budgetary approach.

Although China has substantially increased central and provincial transfers to support social services in recent years, the majority of China's provincial and sub-provincial governments have a low level of fiscal transparency (OECD 2005). Information on actual expenditures, off-budget transactions, and government performance is particularly limited in the public sphere. Therefore, it is difficult to assess the differential impacts of central and even provincial spending on the outcomes that matter most or the efficiency in achieving desired outputs. Monitoring of outcomes for poor and vulnerable communities is a particular weakness.

The global trend for middle- and high-income countries has been toward increased emphasis on performance budgeting (Arizti and others 2010). Performance budgeting focuses on the results that are being delivered rather than just on the amount of money being spent, and it aims to strengthen resource allocation, effectiveness, efficiency,

and accountability. Over two-thirds of OECD countries now include nonfinancial performance information in their budget documents, drawing on sources such as strategic spending reviews, performance audits, and scorecards and benchmarking exercises.⁵⁸

Because performance-informed budgeting places new demands on budgetary systems, sectoral agencies, and service providers, the goals for making the budget process more performance oriented must be realistic and gradual. The outputs or outcomes measured should also be reasonably attributable to the service provider. The experience of Korea in introducing performance-related budgeting after the East Asian crisis is useful for understanding some of the risks. It also points to a need to focus initially on the quality of performance information and the capacity and willingness of both budgetary and line agencies to use the information generated in a manner that constructively focuses on sustained improvements in performance and is not overly mechanical in its application.

Just as budget systems aim to increase accountability for performance through various channels, human resource (HR) and compensation systems may do the same. The most obvious example is performance-related pay, and China already has significant elements of it in education and health care services. As of the mid-2000s, two-thirds of OECD countries had performance-related pay for public sector workers or were introducing it (OECD 2005; World Bank 2013). However, the evidence regarding its impacts is mixed. For example, studies in the United States have found no impact on learning outcomes of bonus schemes for teachers in New York City and Nashville schools. In contrast, recent evidence from developing country evaluations of bonus-pay incentive schemes for teachers suggests a more positive picture, although none of the evaluations to date have looked at long-term impacts.

However, performance-related pay has given rise to particular challenges in China's health sector. Although fee-for-service provider payments and a strong emphasis on profitability of individual providers closely link pay with performance, the performance indicators of volume and value of services

are not closely linked to quality and cost-effectiveness. As discussed earlier, overemphasis on volume and value indicators gives providers the incentive to more services than are necessary and sometimes even provide harmful treatment. Future payment systems need to focus much more on quality-related information (for example, infection rates, medical error rates, and adverse events) to assess provider and facility performance, which in turn requires improved facility information systems, improved measures of performance, and revised case-based payment systems that encourage efficiency.

China is gradually trying to strengthen its regulation, accreditation, and licensing capacity in the social sectors and beyond, but realizing the potential of such systems to drive quality improvements remains a challenge. The importance of more sophisticated regulation, accreditation, and licensing systems will increase as private and nonprofit providers become a more common feature of the service delivery landscape in the future. The health sector, in particular, has the potential to benefit substantially. Globally, accreditation systems are playing an increasingly important role in driving quality and efficiency improvements in hospital care. Although China accredits its hospitals, the underlying hospital information systems needed to generate the data for more effective accreditation are usually absent.

Citizen-based channels for enhancing accountability

In recent years, China has made efforts at the subnational level to improve the public finance information available to the public. Guangzhou was the first city to publish all budgets from 2009, and the practice subsequently spread throughout the province. China also has program-specific transparency initiatives such as the publication of dibao applicants for public scrutiny and new requirements for budgetary management of extrabudgetary funds.

Many countries, including OECD and G20 countries, have found that increasing the transparency of information on public service financing and delivery has created conditions

that are more conducive to improved service delivery performance. One tool, employed by about 26 countries by 2012 (including Brazil, Indonesia, Mexico, and Thailand), is a “citizen’s budget,” which presents basic revenue, expenditure, and fiscal data in a user-friendly format to communicate directly with the public. OECD practice is also promising—for example, Korea’s Web-based D-Brain system (<http://digitalbrain.go.kr>) offers real-time access to fiscal data and citizen participation throughout the budget process. Many OECD countries also have sector-specific report cards generated by government agencies on facility-level performance, particularly in the health sector but also in education.

The citizen scorecard or user satisfaction survey can provide useful quantitative feedback on citizen satisfaction with service delivery. Some hospitals in China undertake their own user satisfaction surveys in an effort to improve the efficiency of their facilities. Such a citizen report card was developed and provided the basis for a large-scale survey conducted in 2006 by the World Bank in partnership with the Government of China in five cities—Chengdu, Dalian, Shanghai-Pudong, Shenzhen, and Xi’an (Brix 2009). Globally, three broad models are used for such surveys: by fully independent third parties such as nongovernmental organizations (NGOs), by the service-providing government agencies themselves (who may contract out the survey but control the dissemination of findings), and by autonomous public agencies.

The social audit is a related tool that may be more integrated into the regular processes of service delivery programs. It allows citizens to review and cross-check information on a public program against user feedback and perceptions. The social audit can be useful where there is a solid authorizing environment (such as a requirement in program implementation regulations) and a clear channel for the findings and recommendations of the audit to feed into formal grievance and redress processes. Depending on the situation, facilitation of the social audit process by a neutral third party such as an NGO may be desirable. Perhaps the most famous example of a social audit is India’s National Rural Employment Guarantee Program.

Institutions have growing experience within China in incorporating citizens directly into management and oversight institutions for services, echoing experiences from other parts of the developing world.⁵⁹ The directions for enhanced citizen involvement in social services are also clear in some sectoral policies, such as the National Education Development Plan. Globally, countries have had positive experiences in incorporating client satisfaction information into formal accreditation systems for hospitals.

Chinese practice and global experience also point to the importance of a sound legal and administrative environment for authorizing citizen participation in oversight and management of social services. Unless citizens' roles are required rather than simply tolerated, and unless the redress mechanisms have firm legal backing to ensure that providers and administrators give authorized powers to citizens, such mechanisms will likely be simply cosmetic and will not fundamentally increase the accountability of providers to citizens. Some areas of China have already made efforts to address this issue: for example, Shandong province and Chengdu city have regulations that seek to clarify the scope of authority and the underlying processes of the councils to give them firmer jurisdiction.

Choice-based channels to promote accountability

To date, China has not fully exploited the potential of using client choice as a means of improving provider performance. Furthermore, the role of the private sector as a source of competition and quality comparison has been limited in China. However, by offering greater potential for agglomeration of service providers, urbanization offers potentially enhanced choice for clients.

A first step to enhance client choice and use it as a driver of performance improvement is greater reliance on demand-side financing of services where appropriate. China invests public resources overwhelmingly on the supply side of social services, with notable exceptions such as health insurance. Where feasible, some financing could be shifted to the demand side through direct payments to citizens who then exercise choice among

providers. A good example is the experiments in parts of China (for instance, Jiangsu, and Meizhou in Guangdong) with vouchers for skills training.

A second area in which much more can be done to leverage improved service delivery outcomes is public purchasing of social services. This channel for promoting accountability has the most obvious potential in the health sector and for any social services for which provision is outsourced. As discussed earlier, the dominant position of local health insurance agencies as purchasers provides an opportunity to improve provider performance. Considerable experience in shifting to more active purchasing can be found within the East Asia and Pacific region, such as Thailand and Cambodia (Langenbrunner and Somanathan 2011). In the education sector, Shanghai's experience in providing compulsory education for migrants as described earlier is also instructive.

A third major area for reform is leveling the playing field between public and private providers of social services in order to deepen choice and competition. There is a range of social services for which private providers could potentially compete for public funding, such as higher-end health care, elder and long-term care, higher education, skills training, and preschool education services. The government is looking to encourage greater entry of private providers, including international health care investors who can bring global best practices in facility management and quality assurance. Global practice offers lessons in contracting out management of public hospitals to nonprofit organizations, as has been done successfully in middle-income countries such as Brazil and a number of high-income countries.

Strengthening institutions for an inclusive and productive labor market

In addition to equitable access to social services, another critical component of inclusive urbanization and rural-urban integration is an inclusive labor market. Matching people to jobs where the private and social returns

on their labor and human capital are maximized is crucial for improving livelihoods and promoting economic growth. As urbanization proceeds, efficient job matching needs to be underpinned by geographic as well as sectoral and occupational mobility. Given the increasing demand for skilled workers, continued improvements are needed in the skills of workers to make them more adaptable to technological changes. This section looks at the remaining challenges in reducing barriers to labor mobility in China, with a particular focus on the areas of skills accumulation and labor market institutions (barriers such as hukou and lack of portability of social security were discussed in earlier sections). In the area of skills accumulation, this section assesses progress and proposes reforms in the technical and vocational education and training (TVET) system and higher education. It then examines the labor market institutions for wage setting, labor taxation, labor law, and labor dispute mediation.

Context and challenges

China has made encouraging progress in integrating migrants into the urban labor market in recent years. However, China still faces challenges, including the following:

- *Improving worker skills.* As discussed earlier, migrant worker wages have increased very rapidly in recent years, and the end of so-called cheap Chinese labor has already been documented (Li and others 2012).⁶⁰ When wage increases outstrip productivity increases, it affects firm profitability, and in fiercely competitive sectors, this condition can lead to failure or relocation to lower-cost countries. Workers must upgrade their skills so they can take up higher-skilled jobs, but rural migrants are considerably less educated than the urban workforce. With available jobs increasingly being generated at the higher end on the value chain, migrants will have difficulty finding and keeping jobs.
- *Strengthening labor market institutions.* Despite progress in enforcing the labor laws and expanding social insurance coverage, rural migrants are overrepresented in the

informal sector. In 2010, over 60 percent of migrant workers were in the informal sector, and their movement to the formal sector was very limited (Park and Cai 2011). Even when employed in formal sector jobs, migrants have weaker attachments to formal sector employment. This divide is likely driven by a combination of factors, such as migrants having shorter contracts and formal sector employment benefits being less attractive to younger migrants (Giles and others 2013).

Beyond the integration of rural migrants, China faces other labor market challenges. Labor force participation is low among local urban workers over age 50, especially women, in part because of low retirement age and limited possibilities for lifelong learning (Giles, Wang, and Cai 2011). At the same time, young college graduates are experiencing persistent unemployment (Bai 2006). Wage setting mechanisms have resulted in substantial wage premiums in the SOE and PSU sectors (World Bank 2013). Although China's urban labor market has a relatively low degree of informality, a high tax wedge threatens to push both migrant and low-skilled urban workers into the informal sector.

Policies must shape a labor market that is inclusive of migrants and efficient for all workers (Wu 2004). As mentioned earlier, an inclusive and productive labor market requires geographic, sectoral, and occupational mobility for workers. At the same time, worker skills need to be continually improved to meet the demands of a rapidly evolving economy. Labor market and related institutions must provide channels for lifelong upgrading of skills, as well as balance wage and productivity growth. These areas of reform are discussed in greater detail below.

Deepening the skills base

Although the overall quality of China's labor force has improved significantly since the 1980s, China remains a human resource-poor country compared to more developed

countries. Of the 761 million employed workers, only 114 million are considered high-skilled workers. Half the workers have attained only the nine-year compulsory education, and only 20 percent have attained an education at the upper secondary level or above, compared to an average of 74 percent for OECD countries and 47 percent in the United States (OECD 2013). According to the 2010 census, only about 10 percent of China's labor force is college-educated—a rate well below that of Korea, Japan, and the United States, where the college-educated share of the labor force is over 40 percent (OECD 2013). Among technical workers in China, only one-quarter are qualified as high-skilled workers with skills certifications.

Even in the less developed areas of the country, skills shortages and mismatches have begun to emerge. A 2012 survey in Yunnan province showed that as many as 28 percent of the firms identified worker skills and education levels as the most severe constraint to growth, the second most common of all factors.⁶¹ Lack of required skills was cited as the main problem encountered by firms hiring for managerial and professional positions as well as for operative skilled workers. Notably, among China's 253 million rural workers (including 159 million migrant workers), as many as 69 percent have not received any type of training (NBS 2012a).

International experience shows that when economies move up the technology ladder, their need for education and skills at all levels grows, particularly at the tertiary level. By providing high-quality skills relevant to current and future labor market needs, higher education systems can improve human capital formation and enable entrepreneurs, managers, and skilled workers to perform well, thus supporting technological mastery, productivity, and competitiveness. An effective higher education system can also help develop a country's technological capability by undertaking research, supporting technology transfer, and providing workers with skills for innovation. The subsections below discuss two important channels for skills accumulation in China: TVET and the higher education system.

Technical and vocational education and training (TVET)

Current status and challenges

China has made numerous achievements in strengthening its TVET system. These achievements include (a) dynamic school-industry collaboration at the majority of TVET schools and colleges, including student internships, customized training for enterprises, “factory in school” opportunities, establishment of training bases in industries for students and faculty, and even product research and development (R&D); (b) improved image and branding for TVET; (c) greater labor market relevancy of TVET curricula, along with more student-centered and hands-on pedagogy; (d) graduation of about 6 million students from secondary TVET schools annually, with a 95 percent employment rate since 2005, and about 10 percent continuing to tertiary-level studies; and (e) graduation of about 3 million students from tertiary TVET annually, with an employment rate of about 80 percent over the past few years.

However, a number of challenges still need to be addressed, such as the level of enrollment in TVET. As mentioned earlier in this report, the government set a policy goal for the enrollment ratio of TVET to academic programs to reach 50:50 at both the secondary and tertiary levels. Although the current ratios are very close to 1:1, it will be increasingly difficult to maintain a 1:1 ratio at the secondary level as parents continue to favor general high school over secondary TVET schools. Ultimately, it may not even be desirable to aim for a 50:50 ratio between the academic and vocational tracks. A large majority of TVET students are from rural, migrant, or otherwise disadvantaged or blue collar backgrounds, and the 50:50 target may have unfairly pushed more migrant and rural children into the vocational track. In several EU and middle-income countries,⁶² at least 60 percent of upper secondary students are enrolled in general programs, even though prevocational and vocational programs are offered. About 25 percent of total secondary enrollment in Singapore is in the TVET track, and in Korea, approximately 40 percent of

secondary students choose to enroll in TVET institutions (UNESCO-UNEVOC 2010).

Another challenge is the continued fragmentation of TVET governance, management, and provision across public sector agencies and a growing private sector. Both the Ministry of Education (MOE) and the Ministry of Human Resources and Social Security (MOHRSS) and their local departments are involved in TVET. For certain economic sectors such as transportation, health, and agriculture, line ministries share responsibility for delivering sector-specific training. No single government ministry or agency is in charge of TVET affairs in China, although MOE has been charged with a leading role in implementing TVET system reform under the direction of the Medium- and Long-Term Education Development Plan.

Quality assurance also remains a challenge. Reflecting the education and human resources dual-track provision of TVET, two parallel arrangements govern quality assurance for education and training providers in China. Standards developed by both MOE and MOHRSS tend to be input based, requiring a minimum level of school infrastructure, training facilities and equipment, number of majors, and qualifications of the institutional head and teachers. Occupations and the corresponding competencies required have been changing rapidly, and the classification and competency standards need to be updated accordingly with further input from industry. Because schools must rely on their own capacity to develop and modify training programs, the quality tends to be very uneven across schools. The general lack of up-to-date, industry-led, competency-based occupational standards seems to have affected the overall quality of training programs. China does not yet have third-party accreditation of TVET providers.

Allocation of TVET funding also needs to be improved. More than 80 percent of total TVET financing comes from the government. The allocation of public funds for TVET relies predominantly on a formula based on the number of students and a fixed, per student expenditure. Allocation remains primarily supply and input driven, with very few demand-side interventions, apart from

student subsidies and localized examples of vouchers such as in Jiangsu and in Meizhou city in Guangdong. With the current resource allocation, huge disparities exist in secondary TVET across cities and prefectures and between urban and rural areas. Special funds for TVET tend to disproportionately benefit schools that are already stronger.

In terms of adult and labor force training, although the government clearly considers such training to be a priority, the effectiveness and relevance of current government training programs need to be examined further. Training of surplus rural labor is critical for facilitating the movement of rural workers to the secondary and tertiary sectors of the economy and preparing them for migration. Recognizing the importance of such training, the government has invested in a number of national training schemes in recent years. Although evidence suggests that such training improves rural household income (Liang and Chen 2013), monitoring and evaluation of the various government training programs are lacking. Furthermore, the training programs often do not have clear links with employer demand.

Evidence indicates that work-based training is uneven across enterprises. The recent government requirement for enterprises to contribute 1.5 to 2.5 percent of the wage bill to training left implementation to individual enterprises. A recent study in Yunnan province found that whereas 90 percent of enterprises did provide some form of training, most provided training to less than 10 percent of their employees. Small and medium enterprises, in particular, face capacity constraints in forecasting and planning for employee training.

Proposed policy responses

The effectiveness and efficiency of the TVET system could be improved by greater coordination among government, education, and industry. In the short and medium term, the role of existing coordination mechanisms such as Interdepartmental TVET Coordination Committees could be strengthened for policy development, planning, and service delivery at both the provincial and local levels. In the long term, the government could

consider consolidating policy making, planning, financing, and service delivery for TVET into an agency such as a new skills development authority or into one of the existing ministries. This would eliminate the distinction between schools governed by the Department of Education and those governed by the Department of Human Resources and Social Security, as Shanghai has already done for its secondary TVET institutions. Consolidated governance and management will be even more critical for nonformal training, which appears to be even more fragmented and less structured.

Further efforts are needed to increase demand-side interventions and on-the-job training and to balance technical and non-technical skills training, as in the following:

- *Nonformal and rural training.* Public, private, and industry sources of funding for nonformal training could be consolidated into a single fund. A set of transparent criteria for disbursement of funds would be necessary and should be based on outcomes rather than input to ensure the quality of training. Training vouchers would be another option, creating a competitive market for nonformal training while giving participants more choice.
- *On-the-job training.* Employers are currently required to dedicate 1.5 to 2.5 percent of their total wage bill to training, but efforts are needed to ensure the effective implementation of that requirement. Other mechanisms that provide more incentives and quality assurance for work-based training should also be considered. In a few successful East Asian countries such as Korea, Singapore, and Malaysia, centrally pooled training funds have been used to improve the overall efficiency and equity of training.

Public investment in TVET could be improved further. More public resources could be directed toward promoting equity of financing and bridging gaps between rural and urban areas and between schools. Public finance should be targeted at helping TVET schools in disadvantaged localities, poor-performing schools with more resource constraints, and low-income families.

In addition to financial assistance, technical and institutional assistance would help facilitate the provision of work-based training, especially by small and medium enterprises. Technical assistance is particularly needed in the areas of needs assessment, training design and implementation, and monitoring and evaluation. Institutional support might include organizing groups of small and medium enterprises to reduce the cost of training design and delivery. The government can also systematically help firms build partnerships with training providers.

To enhance the relevance and effectiveness of TVET, the link between schools and enterprises need to be strengthened. Industry and employer involvement can play a key role in ensuring that the educational and training system, especially at the TVET level, is responsive to labor market demand. System- and school-level industry involvement should be legalized and institutionalized and its functions expanded to cover a range of policy issues, including setting skills development priorities, developing competency standards for skills certification, allocating resources, and monitoring performance.

The existing qualifications framework needs to be updated with standards and competencies that reflect labor market demand. In the long run, adoption of a common standard for assessing competencies would promote greater integration across the education system and with other countries. A national qualifications framework (NQF) could play an important role in this regard. Country-level frameworks have proved to be valuable in a number of countries, including the Russian Federation, the Netherlands, the United Kingdom, Ireland, and Australia. The EU has also established a voluntary European Qualifications Framework to promote mutual recognition of educational and skills qualifications. The potential benefits of such a system in China, with its diversity of institutional subsystems of education and training, are substantial and could contribute to needed improvements in educational quality and labor market relevance.

The TVET system could benefit enormously from greater private provision. To help encourage greater plurality in TVET

provision, the financing system for TVET would need to allow for public financing of nonstate provision, within a solid regulatory framework that would ensure that nonstate providers meet quality standards.⁶³ Licensing and accreditation for nonstate providers is very underdeveloped in China and would benefit from the experience of countries with well-developed training markets. For example, in Chile, the Servicio Nacional de Capacitación y Empleo (SENCE), a specialized agency of the Ministry of Labor, maintains no in-house capacity for training provision and procures training services from public and private providers.

Stronger monitoring and evaluation are needed to help ensure implementation of policies and gauge the effectiveness of TVET efforts. The existence of a functioning monitoring system creates an incentive for local authorities and schools to implement required policies and adhere to standards. Evaluation results can be further used to promote good practices within the system and replicate them on a wider scale.

An overarching reform needed across TVET and higher education is to increase articulation between the technical and academic streams. The objective would be to enable students to shift between streams

with due credit for competencies acquired in either system.

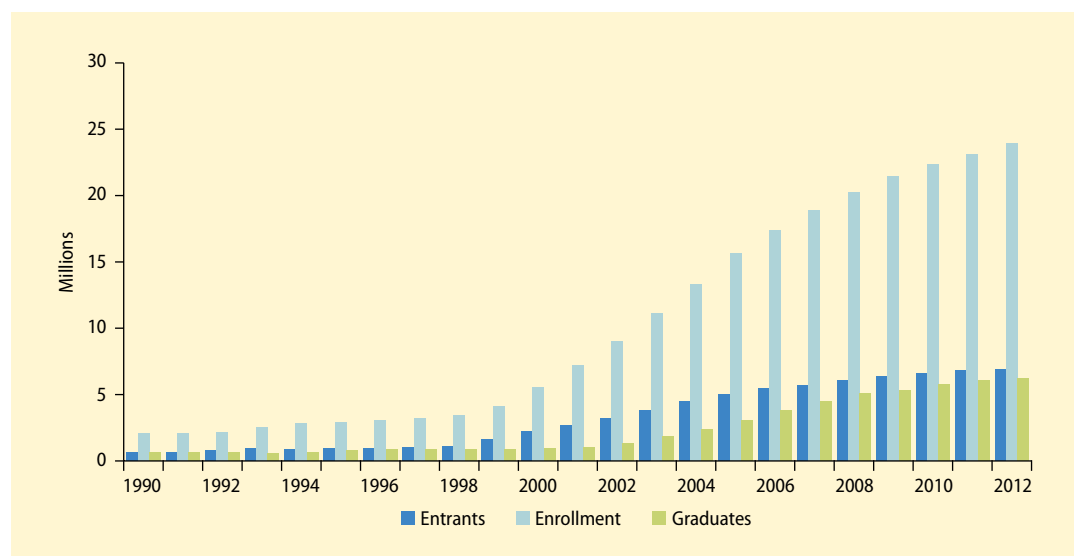
Higher education

Current status and challenges

Higher education in China has expanded rapidly since the late 1990s. Historically, it was an elite institution, with a gross enrollment rate of less than 10 percent. In 1998, the Chinese authorities made the decision to expand higher education, starting with a target of increasing the gross enrollment rate from 9.1 percent in 1997 to 11.0 percent in 2000.⁶⁴ Rapid expansion took place between 1999 and 2009, with annual growth of more than 20 percent for both college entrants and graduates (figure 3.15). By 2012, the gross enrollment rate reached 30 percent (Yue 2013). China aims to achieve a higher education gross enrollment rate of 36 percent in 2015 and 40 percent in 2020 (MOE 2010).

This rapid expansion of higher education has resulted in lower labor force participation among young people. With greater access to colleges, millions of youths have chosen to study longer and postpone their labor market entry, which is one reason for the emerging labor supply shortage in China. At the same time, college graduates appear to have

FIGURE 3.15 Expansion of higher education in China, 1990–2012



Source: NBS, China Statistical Yearbook, various years.

difficulty finding jobs—the employment rate measured at six months after graduation declined from 93.7 percent in 1996 to 73.0 percent in 2004 (Lai and Tian 2005). Evidence also indicates that the increased supply of graduates has had a downward effect on their wages (Y. Wu and Zhao 2010). Yet according to other sources,⁶⁵ sample surveys show that the employment rate of university graduates six months after graduation rose from 87.6 percent in 2008 to 91.5 percent in 2012, and the average initial monthly wage increased from RMB 2,133 to RMB 3,366 during the same period (table 3.16). Nonetheless, the same source estimates that underemployment (part-time work or working in an unrelated field) among university and college graduates six months after graduating was high at 14 percent in 2011.

Both supply and demand factors likely contribute to the difficulties college graduates face in finding attractive, well-paid jobs. College graduates now account for nearly half of new urban labor market entrants. On the demand side, the urban labor market needs time to generate opportunities for skilled workers and absorb them. Another possible contributing factor to higher unemployment among recent college graduates is that new graduates with high expectations for jobs may be willing and have sufficient resources to take time to find the right job.

Although China is home to world-class universities, the rapid expansion of higher education has led to a decrease in the average quality of graduates. China dominated the 2014 ranking of higher education institutions in BRICS and emerging economies, taking 23 slots among the top 100 universities, with Peking University and Tsinghua University ranked first and second.⁶⁶ On average, however, the rapid expansion of higher education has been accompanied by a decline in education quality. Li and others (2012) found a 26.4 percent return to attending an elite university for new graduates before controlling for student ability (proxied by examination scores) and a 10.7 percent return after doing so. Analyzing data from 2002, Zhong (2011) found that the difference in earnings between graduating from a high-quality university and a

TABLE 3.16 Trends in employment and wages of college graduates, 2008–12

Year	2008	2009	2010	2011	2012
Employment rate (%)					
University graduates	87.6	88.0	91.2	90.8	91.5
Vocational college graduates	83.5	85.2	88.1	89.6	90.4
Average	85.5	86.6	89.6	90.2	90.9
Monthly wage (RMB)					
University graduates	2,133	2,369	2,815	3,051	3,366
Vocational college graduates	1,647	1,890	2,142	2,482	2,731
Average	1,890	2,130	2,479	2,766	3,048

Source: China College Graduates Employment Report (MyCOS 2010, 2013).

Note: Employment rate is measured at six months after graduation; monthly wage is the average initial wage.

low-quality university was 28 percent, with the gap being larger for those who graduated later. These findings suggest that school quality (or rank) provides some information on graduate quality and subsequent returns, and it is likely that students enrolled in new expansion colleges may be perceived to be of lower quality.

Decentralized financing and allocation of budgetary resources is an important factor in the decline of higher education quality. Although the expansion of higher education enrollments is impressive, the budgetary expenditure per student dropped from RMB 8,529 in 1998 to RMB 5,941 in 2005 (Yue 2013). Most of the enrollment increase has come from universities run at the provincial level, but the allocation of budgetary resources is severely biased toward key universities and coastal provinces.⁶⁷ In 2011, although provincial universities accounted for 83.1 percent of total enrollments, the ratio of budgetary expenditures per student in key universities to those in provincial universities was 2:1.

Insufficiently qualified faculty and varying standards have also contributed to a decline in education quality. To meet the ambitious expansion targets, secondary vocational schools were often upgraded to vocational (three-year) colleges, and vocational schools were upgraded to four-year regular colleges without obvious improvements in the quality of instructional staff or facilities. Some colleges also expanded enrollments without matching the increases in student numbers

with comparable increases in teachers and facilities. From 1990 to 2007, the student-to-faculty ratio rose steadily from 5.2 to 17.3.

The mismatch between higher education institutions and the skills employers need is a critical issue for the quality of higher education.⁶⁸ The oversupply of college graduates for some majors partly reflects a disconnect with the urban labor market. Better matching of graduates to jobs may be greatly facilitated by reforms to increase the labor market relevance of higher education. In addition to the problem of finding workers with the right job-specific knowledge, a broader criticism is that the Chinese educational system—including its universities—still does not sufficiently equip students with some of the general skills desired by employers, such as leadership, creativity, teamwork, and communication.

The unfinished governance reform has profound implications for the administration of higher education institutions and the quality and relevance of higher education. China has taken a gradual approach to shifting from its traditional state-controlled model to a state-supervised model for universities (World Bank 1997). The autonomy of higher education institutions has increased with respect to curriculum development, faculty recruitment, and international exchanges, and oversight for the majority of higher education institutions has been decentralized from the central ministries to provinces. However, universities are far from autonomous in their administration and management (W. Wu 2011), and the roles of government and universities are not well defined.

Inequality in access to higher education is another significant challenge, in part the result of university enrollment quotas. University enrollment quotas for provinces have been used since the 1950s, with a higher quota for the host province or city. In the late 1990s, some key universities—largely financed by the central government—started receiving support from local governments and started returning the favor by providing even higher quotas to their host provinces or cities. As a result, the chance of getting into any university in Beijing is significantly higher for Beijing residents than for equally qualified nonresidents.

Another gap is evident in the enrollment disparities across different economic and social groups. Although more than 60 percent of the Chinese population resides in rural areas, some surveys of university enrollment in Beijing city in 2007 showed that only 29 percent of non-Beijing enrollment was from rural areas (X. Wang and others 2011; Li 2010). The percentage of parents in China with college and higher degrees is only 5 percent, but the same survey showed that 31 percent of enrollees had parents with college and higher degrees. Ethnic minorities generally have a lower participation rate in higher education than Han Chinese.

Proposed policy responses

Greater efforts are needed to increase the labor market relevance of higher education, for example, by strengthening the links between the higher education system and industry. Governments can improve their stewardship by ensuring that private and public providers of higher education complement each other, especially in meeting the skill needs of employers. They can ensure favorable policies, clear and efficient regulation and information, and better access to student loans for both public and private providers. Governments can also connect firms and providers of skills and research by sharing best practices—from collaborating in curriculum development to setting up university incubators—and by offering incentives to make these university-industry links work.

Increased resources and improved investment efficiency for higher education are needed, which includes tapping the potential of private provision and financing sources. More public financial resources should be considered to improve teaching conditions and facilities, especially in lagging regions. Greater efficiency means being more selective and performance based when allocating public funds across teaching and research institutions and targeting scholarships and loans more effectively. One option is to review the current financing approaches and resources for both recurrent and capital funding so as to reward efficiency. It is also important to encourage the expansion of private universities. Variable fee policies combined with

effective loan schemes are one effective way to mobilize private resources while protecting access for the poor and disadvantaged.

Within the system for managing public higher education institutions, universities should have greater institutional autonomy and accountability. An important aim will be to continue the transformation from a state-control model of higher education governance to a scenario in which the government plays the crucial role of planner, coordinator, and supervisor and is involved nationwide in quality assurance in terms of standards setting, monitoring, and evaluation. Further reforms include providing more institutional autonomy with clear accountability, a quality assurance and accreditation framework, a system of transfers of academic credits, strategic and equitable financing, better coordination in overall planning (including the possibility of setting up an autonomous higher education commission), more exchanges with world-class universities, and improved programs of student loans and scholarships.

The current provincial quota system among higher education institutions should be reviewed. Various proposals have suggested how to revise the current quota system, which tends to favor provinces with the most tertiary institutions. The most favorable proposal is to slowly increase the quota for more populous provinces rather than abolish the quota immediately, as the latter may result in increased inequity if admission is based only on college entrance exam results.

Aligning labor market institutions to better serve the needs of the urban labor market

Regulation of the employment relationship has evolved with the transition to a market economy, with China's legal labor standards becoming more protective over time. Box 3.6 provides an overview of some of the country's main labor laws.

Labor market institutions can have important impacts on labor mobility, income distribution, and social cohesion. These institutions are important for balancing the twin objectives of maximizing productivity and ensuring distributional fairness. This section

focuses on four key labor market institutions that have important implications for the urban labor market: wage setting (including minimum wage and collective bargaining), labor taxation, labor contract law, and labor dispute mediation.

Building a modern wage-setting mechanism

Real minimum wages have increased rapidly across China since the mid-1990s, as illustrated by figure 3.16. With the exception of 2009 (when in the wake of the global financial crisis no provinces adjusted their minimum wages), the number of provinces making upward adjustments has been increasing steadily (Du and Wang 2008; World Bank 2013). The average minimum wage as a percentage of the average urban wage increased from 22 percent in 2009 to 25 percent in 2012. According to the 12th Five-Year Plan, the policy goal is to increase the minimum wage by 13 percent annually, allowing the ratio of the minimum wage to the local average wage to reach more than 40 percent in most provinces. Looking internationally, the average ratio of minimum wage to national average wage ranges from 20 percent in Mexico to 50 percent in New Zealand, with an average of 37 percent in OECD countries (World Bank and DRC 2013).

Currently the minimum wage is not a wage that most workers face in the urban labor market, and it serves as a reference point in its relationship to the level of average wages and social benefits. Although minimum wages have adjusted sharply upward in recent years, the vast majority of formal and informal workers in urban areas have labor incomes above the official minimum. Empirical results reveal that almost all workers—migrant or local, men or women—receive labor income above the city-level minimum wage (Cai and Du 2011). The current minimum wage policy plays a significant function as a broader social policy tool, a device for signaling the government's concern for low-income workers, and perhaps also as an instrument of local industrial policy in terms of cross-prefecture competition.

The multiple policy objectives of the minimum wage in China may at times dilute its

BOX 3.6 The main labor laws in China

National Labor Law (1994): This first National Labor Law became a foundational law that set out key principles and institutions to guide the reform of labor relations in China, moving away from the previous system of state administration of employment, lifetime employment, extensive enterprise-provided welfare, and limited labor mobility. This law enshrined features such as a labor contract system that stipulates written contracts to establish a labor relationship; five types of social insurance that rely on employer and employee contributions to socialized pools; a system of labor dispute resolution that resolves labor conflicts via mediation, arbitration, and litigation; and legal standards for working hours and vacation time. In important contrast to the previous system, which institutionalized deep divides between workers based on work-unit and hukou status, the 1994 law also aspired to cover most workers in most types of firms. The law also contained articles on minimum wage regulation, although more detailed guidelines on minimum wage setting did not emerge until 2004 and 2007. The first provisions on collective contracts can also be found in the 1994 National Labor Law, and a series of guidelines and regulations have been issued periodically since then.

Labor Contract Law (passage in 2007/implementation in 2008): The Labor Contract Law was passed to enhance legal protection for China's workers, improve working conditions, increase wages, stabilize employment, and improve participation in social insurance programs. It mandated that companies sign open-ended contracts with employees after completion of two fixed-term contracts. It also provided the legal framework (supplemented by the 2010 regulations for the "Rainbow Plan" of MOHRSS)

for expansion of collective contracting in firms with trade unions. More recently, the National People's Congress has been working to close loopholes in the 2008 law related to labor subcontracting. The 2012 revisions to the Labor Contract Law placed new restrictions on labor subcontracting and introduced stricter regulations on the establishment of labor subcontracting agencies, including stipulating that labor subcontracting can only be used for workers who are "temporary," "auxiliary," or "substitutes" for workers on leave.

Labor Dispute Mediation and Arbitration Law (2008): This law changed some aspects of the resolution system considerably and expanded access to the labor dispute process for employees. It reduced the fees for going to arbitration and litigation, lengthened the statute of limitations for labor violations to one year (from 60 days), and simplified the dispute resolution process for some disputes, including making some disputes final at arbitration (without the opportunity for court hearings). The new law also placed more of the evidentiary burden on employers, even when the employee initiates the dispute. In short, it followed the general spirit of President Hu Jintao's administration in placing more emphasis on mediation as the primary and preferred way to resolve labor disputes.

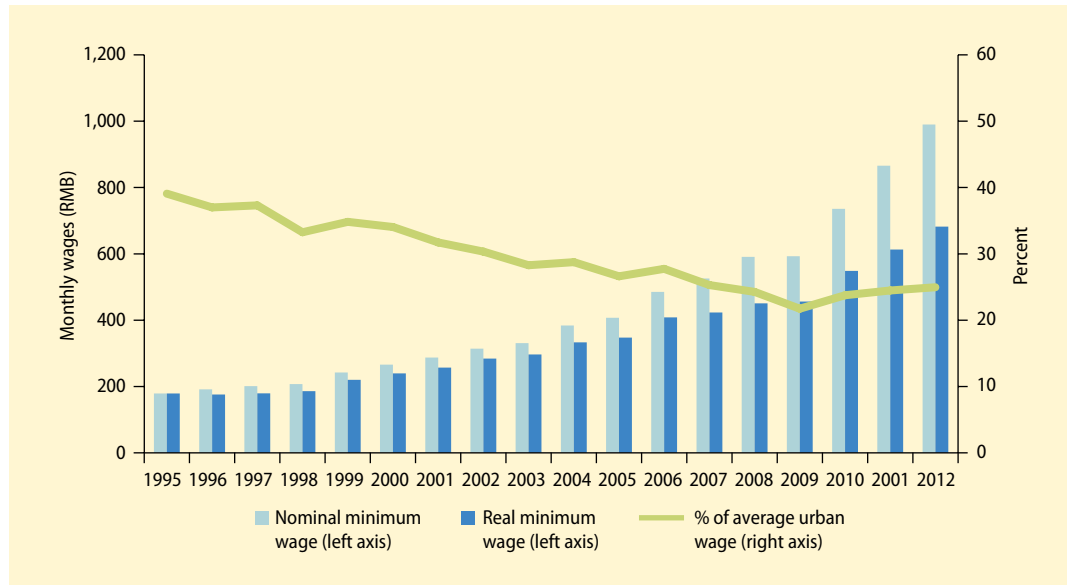
Other noteworthy laws that offer increased employment protection are the Employment Promotion Law (2008) and the Social Insurance Law (2010). The former strengthened restrictions on discrimination, and the latter extended social insurance to more workers and increased the likelihood of portability of insurance across administrative jurisdictions.

Source: World Bank staff compilations from various sources.

pure labor market function. The social policy trade-offs of these multiple objectives have been masked by a wide set of indicators and criteria in China's minimum wage guidelines and practice. To date, these trade-offs have perhaps not mattered because labor productivity has outstripped average wage growth and migrant and low-income workers have had to "catch up" after relative stagnation in their real wages in the 1990s. However, this period will not last forever, and it

may become necessary to adopt a different approach to minimum wage policy.

The basic function of the minimum wage should be reoriented, shifting from the current "living wage" approach to the "wage floor" approach, which is more common in OECD countries. The primary function of the minimum wage is to ensure that workers are not exploited as a result of their limited bargaining power and that they receive a wage that fairly reflects their contribution to

FIGURE 3.16 Urban minimum wage adjustments, 1995–2012

Source: World Bank staff calculations, based on minimum wage dataset from labor bureau and yearbooks.

productivity growth. The minimum wage is not intended on its own to keep families out of poverty, which is the purpose of other policies, particularly social protection programs. Placing too much emphasis on the poverty function of minimum wages can actually harm low-income workers by increasing unemployment or pushing them into the informal sector.

The major distinction between the living wage and wage floor approaches is that the wage floor approach uses some measures of productivity growth or competitiveness. Like the current approach, the wage floor approach takes numerous factors into consideration in determining the minimum wage, many of which are already reflected in China's minimum wage guidelines. Although price inflation and other factors remain important under the wage floor approach, the key distinction is adjusting minimum wages to reflect productivity growth. China has elements of this approach in its current policy, but the balance between a needs-based approach and a productivity-based approach is toward the former. Moreover, to shift toward a wage floor approach, the system of labor market statistics must be improved so that timely and reliable measures

of productivity are available to the authorities who set minimum wages. Deeper reforms of labor market statistics systems are needed, with regular surveys of representative samples of firms and workers.

More broadly, wage outcomes in the urban labor market indicate that varied mechanisms are driving wage setting. In the competitive and private sectors, positive signs indicate rapid wage convergence between migrant workers and between migrant and local workers, indicating that the labor market fundamentals of demand and supply are overcoming rigidities in wage-setting mechanisms. The convergence can be seen in the falling differential in average hourly wages in the 2000s and in the degree of difference that can be explained by observable individual and job characteristics.⁶⁹ In contrast, evidence on wages in monopoly sectors (mainly dominated by SOEs) shows that a high wage gap remained between SOE workers and those in competitive sectors. About half of that difference could not be explained by the human capital characteristics of workers in the monopoly and competitive sectors (Yue and others 2013).

Enforcing wage discipline in the SOE sector will be challenging but could yield

significant benefits for the Chinese economy and a more equitable distribution of wages across society. The current wage premiums of SOEs reflect underlying distortions in the operating environment of SOEs and are difficult to justify on efficiency or equity grounds. A robust and transparent system of benchmarking wages could be established to determine SOE wages by reference to relevant comparators in the wider labor market, rather than simply by the amount of profits available for distribution to workers. In the case of local monopolies, it would also be useful to benchmark their wages across regions to get a broad sense of within-industry comparability and identify outliers. Over the longer run, reforms could move toward having SOEs conduct collective consultation and bargaining in the same way as other firms under current labor legislation.

For the public sector, in which wage setting is determined separately, the main question is how and to what extent wages should be tied to performance and used to promote accountability. A big question for China is the extent to which performance-related pay should be used in setting wages for workers in the education and health sectors. As discussed earlier, pure performance-based pay based on volume and value is not suitable for teachers and health providers because of the perverse incentives that may result, so if it is to be applied, a base compensation with some degree of bonus would be more appropriate. International experience also suggests that a one-size-fits-all approach to performance-based pay should be avoided. The issues in wage setting for PSUs are somewhat distinct, with the additional challenge of promoting accountability of public sector workers while ensuring that they are compensated adequately. Given the unsystematic nature of PSU wage setting, a more desirable approach in the short to medium term would be to develop a national strategy for PSU wage-setting reform, including for social services.

Collective bargaining is still at an early stage of development and needs further reform to transition from wage consultation to true bargaining in the international sense.⁷⁰ Evidence shows that such

consultation has reduced labor confrontations in multinational corporations that have such mechanisms, but it is also clear from the rising incidence of labor disputes in China that much remains to be done. A key challenge in developing truly tripartite wage bargaining is the role of the All-China Federation of Trade Unions (ACFTU), which is still evolving toward a role as the representative of workers in wage discussions. Providing an effective voice for both workers and employers in the bargaining process is important for reaching a win-win situation.

Reducing labor tax

China taxes labor at a high rate, with five compulsory social insurance schemes and one urban compulsory housing fund program that require contributions. As shown in table 3.17, employers are required to contribute for all five insurance schemes (pensions, medical insurance, unemployment insurance, work injury insurance, and maternity insurance) and the housing fund program, and employees are required to contribute to three insurance schemes (pensions, medical insurance, and unemployment insurance) and the housing fund program. The rates of social contributions are high by any standard and vary considerably across cities and within provinces. Pensions dominate social insurance contributions, largely because of the high costs of funding legacy pension costs. Contributions for the housing fund, which aims to provide financial support when workers purchase new housing, are also high, and it is not clear that this program has significant benefits for middle- and low-income workers.

Furthermore, social insurance contributions are based on a notion of minimum payment that implies significantly higher contribution rates for low-income workers. The urban social insurance contribution requires a minimum payment for each employee equal to what would be paid in the case of a worker earning 60 percent of the local average wage, with a maximum payment of 300 percent of the average wage. Therefore, if a worker earns less than 60 percent of the local average annual wage, the worker

and the employer must still make the same minimum payment contribution. This non-linearity at low-income levels introduces a significant disincentive for low-wage workers—primarily part-time workers, migrants, and lower-income self-employed workers—to participate in social insurance. Studies show that about one-third of all workers fall below the minimum contribution base threshold (World Bank and DRC 2013).

An international comparison reveals that the tax wedge on workers in China is higher than in many OECD countries as well as other large middle-income countries (such as Brazil, India, Indonesia, Mexico, and South Africa) and East Asian regional comparators. Figure 3.17, which compares the tax wedge for a single worker earning the average wage in urban China, shows that China's tax wedge (including the housing fund contribution) was 42.4 percent in 2012—close to the average for OECD countries.⁷¹ Even when the housing fund contribution is excluded, China's tax wedge is still higher than in most comparator countries. The share of social insurance contributions in the total tax wedge is relatively high in China, because the tax wedge in most countries comprises social contributions and personal income tax. An average worker in China does not pay personal income tax.⁷²

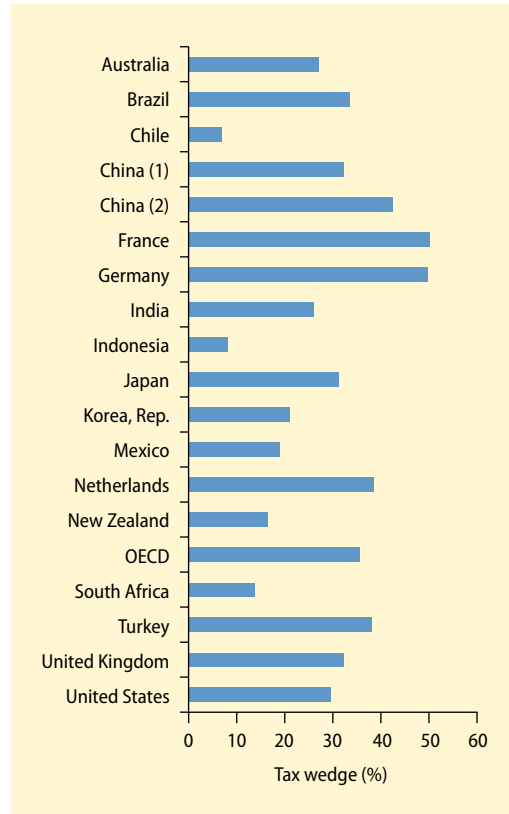
High labor taxation has implications for China's labor market dynamics and long-run competitiveness. It places heavy burdens on both employers and workers and likely encourages informalization of the labor market. Employers game the system in numerous ways, while workers have the incentive to opt out of participating in social insurance schemes. Responding to employer and employee preferences, local city governments may choose to treat social insurance and housing fund programs for local and migrant workers differently to avoid high labor taxation. For example, Shanghai applies only three social insurance schemes (pension insurance, medical insurance, and work injury insurance) to rural migrant workers. Notably, most urban social insurance funds continue to generate significant surpluses, a situation that is often observed in a maturing pension system but not for other forms of insurance.

TABLE 3.17 Social insurance and housing fund contributions in urban China, 2013

Type	Employer (%)	Employee (%)
Social insurance		
Pension insurance	Mostly 20 (10–22)	8 (no variation)
Unemployment insurance	Mostly 2 (0.5–2.5)	Mostly 1 (0.2–1.0)
Medical insurance	Mostly 8 (5–12)	Mostly 2
Work injury insurance	0.5–2	No contribution
Maternity insurance	0.5–1	No contribution
Subtotal	31–33	11
Housing fund contributions	Rough average 10 (5–20)	Rough average 10 (5–20)

Source: World Bank staff compilation based on various documents of Ministry of Human Resources and Social Security (MOHRSS) and the Department of Human Resources and Social Security (DHRSS).

FIGURE 3.17 An international comparison of the tax wedge, 2012



Source: Gandullia, Iacobone, and Thomas 2012; OECD 2013.

Note: Results for China (1) exclude housing fund contribution; and results for China (2) include a housing fund contribution, as calculated by the World Bank staff. Results for Brazil and India are for 2010; results for Indonesia are for 2009.

As in other countries, high mandated contribution rates provide a strong incentive for employers to avoid compliance by using labor dispatch services and underre-

porting employment and wages (Aterido and Hallward-Driemeier 2011; Gallagher and others 2013; Perry and Olarreaga 2007). This phenomenon is particularly pervasive among private enterprises and smaller businesses, but it occurs even among firms with considerable state or foreign investment. Although estimated evasion rates have fallen from a high of 41 percent in 2000 to 2.4 percent in 2010, this apparent improvement comes with caveats and should be interpreted with caution given the use of administrative data voluntarily provided by firms.

Evidence from the 2010 China Urban Labor Survey suggests that similar evasion may be occurring among workers. As discussed earlier, evidence suggests that employers and rural migrants may collude to avoid paying into social insurance programs in exchange for higher wages (Gallagher and others 2013; Giles and others 2013). This is likely related to a lack of confidence in the portability of these programs among young migrant workers. The limited portability options may lower the expected value of participating for migrants far more than for local hukou workers, given the high mobility of migrants.

As part of China's overall adjustment of the tax structure, the tax burden on labor should be lowered over time. Even within the current system, labor taxation could be reduced without unduly lowering the benefits that workers derive from their contributions. Another issue that could be addressed in such reforms is the high marginal contribution rate for low-paid workers, which would be important to consider as part of a wider strategy to create incentives for formal sector participation. More specific measures are discussed below.

The pension contribution has potential for reduction, although it is a more complex matter if worker benefits are to be protected.

Given the surpluses of those employment funds and the sustained low unemployment rate in China, another option is to reduce the unemployment insurance contribution. The combined employer-employee unemployment insurance contribution is 3 percent (see table 3.17). Currently, the surpluses are nearly RMB 300 billion, and much of the funds are

used for workers' training and related purposes (Chu 2013). Instead of using this source of funding, using general revenue financing for this purpose would improve the efficiency of resource utilization for training that is not currently promoted through the guaranteed revenue of the unemployment insurance contribution. Some cities, including Beijing, Hangzhou, Guanzhou, have already reduced contribution rates and used the surplus funds to provide training for workers.

Reduction of the housing contribution could also be considered. The high share of workers and employers who have already opted out of the housing scheme points to low demand for the program, in large part because of negative real returns, inadequacy of benefits, and inequitable use of funds (World Bank 2013). Although the housing policy for workers needs to be examined, housing funds have proved to be ineffective in providing the desired protection and may have helped inflate property markets by serving as a cheap source of liquidity for local authorities. The primary source of resistance to such a reform would thus likely be local authorities rather than workers or employers.

Implementing the labor contract law

Provisions of the 2008 Labor Contract Law (LCL) have reversed the trend toward informalization of China's labor market. The 2008 LCL introduced much more severe penalties for failure to sign a written contract in a timely fashion. Firms that do not sign written labor contracts after one month of employment must pay double wages for the time the worker was employed without a contract (article 82, LCL). The firm can also be forced to sign a non-fixed-term contract with an employee who works for one year without a written contract (article 14, LCL).

The LCL and the overall trend toward increased worker protections have benefited migrant workers. Despite weaker enforcement of the LCL after the onset of the global financial crisis in 2008, research shows that the proportion of workers with written labor contracts has increased significantly, particularly among migrant workers. The 2010

CULS found that the proportion of local resident workers with written labor contracts increased from 65 percent in 2005 to 71 percent in 2010, while the proportion of migrant workers with a contract increased from 12 percent to 34 percent. However, enforcement and compliance with the law varies significantly across regions. Social insurance participation has also improved since passage of the LCL, although the rates of participation are still much higher for local residents than for rural migrants (Freeman and Li 2013; Gallagher and others 2013).

The LCL's restrictions on the use of short-term contracts significantly raised costs for employers. Article 14 of the LCL states that a worker who has concluded two fixed-term contracts should be extended a non-fixed-term contract for the third extension of the labor relationship, and workers on these contracts can only be terminated with cause. Showing cause for termination is a lengthy process and usually requires significant documentation and justification. Furthermore, the earlier Labor Law required severance when contracts were terminated early for cause but not for expiration, but the LCL requires severance upon expiration, with one month of wages for every year of employment.

Given the reduced flexibility and added costs associated with open-ended contracts, the LCL created incentives for employers to expand the use of labor subcontracting. According to a report issued by the ACFTU, workers hired under labor subcontracts numbered 37 million, or 13.1 percent of the workforce, in 2011. The ACFTU found extensive use of labor subcontracting in large SOEs, many government and social organizations, as well as some foreign-invested and private enterprises (ACFTU 2012). Subcontracted workers usually earn less than formally employed workers and receive lower social insurance contributions.

Since 2008, the National People's Congress (NPC) has worked to close loopholes in the 2008 law related to labor subcontracting. The 2012 revisions to the LCL placed new restrictions on labor subcontracting and introduced stricter regulations on the establishment of labor subcontracting agencies. While the revisions went into effect

as of July 2013, the MOHRSS has yet to release detailed guidelines on the maximum proportion or number of workers that may be employed through labor subcontracting. After the 2012 revisions to the LCL were passed, companies began looking for other ways to avoid open-ended contracts, such as using outsourcing companies. Authorities in some localities (that is, Jiangsu) have responded by restricting the use of outsourcing companies.

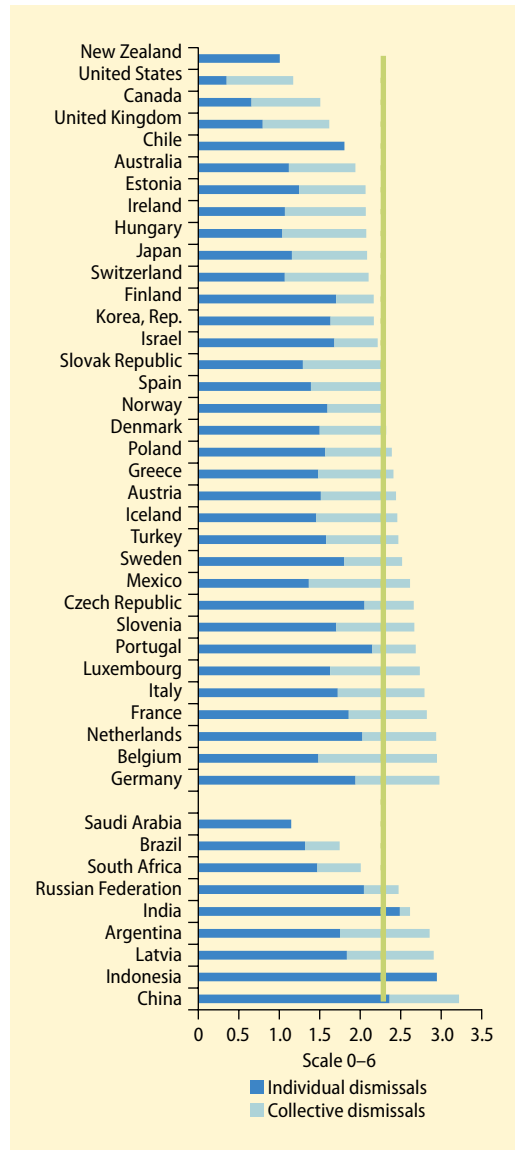
China's labor laws now considerably exceed the OECD average for employment protection (figure 3.18). In areas such as individual dismissal and collective dismissal, China's protections exceed those of many other developing countries and those of all OECD countries. According to the OECD Employment Protection Indicator, in 2008 the average rate of protection for OECD countries was 2.25 (on a scale of 0 to 6). Among the 10 developing economies examined in the report, only Indonesia exceeded China's protection level. Both Indonesia (3.0) and China (2.75) were considerably higher than the OECD average.

The medium and long-term impacts of enforcing the LCL should be carefully monitored so that improvements and amendments can be made as needed. With enforcement of the LCL, raising labor costs would reduce profit margins and might weaken the competitiveness of China's companies. Therefore, monitoring the medium-term impacts of the LCL will support China's competitiveness, job creation, and employment protection. As international experience shows, legitimate interests of both workers and employers should enter the considerations of policy making and legislation so as to balance flexibility and security.

Mitigating labor disputes

The number of labor disputes has exploded since passage of the Labor Dispute Mediation and Arbitration Law in 2008. As described in box 3.1, this law changed some aspects of the resolution system considerably and expanded access to the labor dispute process for employees. As shown in figure 3.19, labor disputes nearly doubled in 2008 and continued to

FIGURE 3.18 Protection of permanent workers against individual and collective dismissals, 2013



Source: OECD Employment Protection Database, 2013, update.
<http://www.oecd.org/employment/protection>.

Note: Data refer to 2013 for OECD countries and Latvia, 2012 for other countries. The figure presents the contribution of EPR against individual dismissal and additional provisions for collective dismissal to the indicator of employment protection for regular workers against individual and collective dismissal. The height of the bar represents the value of the EPRC indicator. EPR = employment protection for regular workers against individual dismissal; EPRC = employment protection for regular workers against collective dismissal.

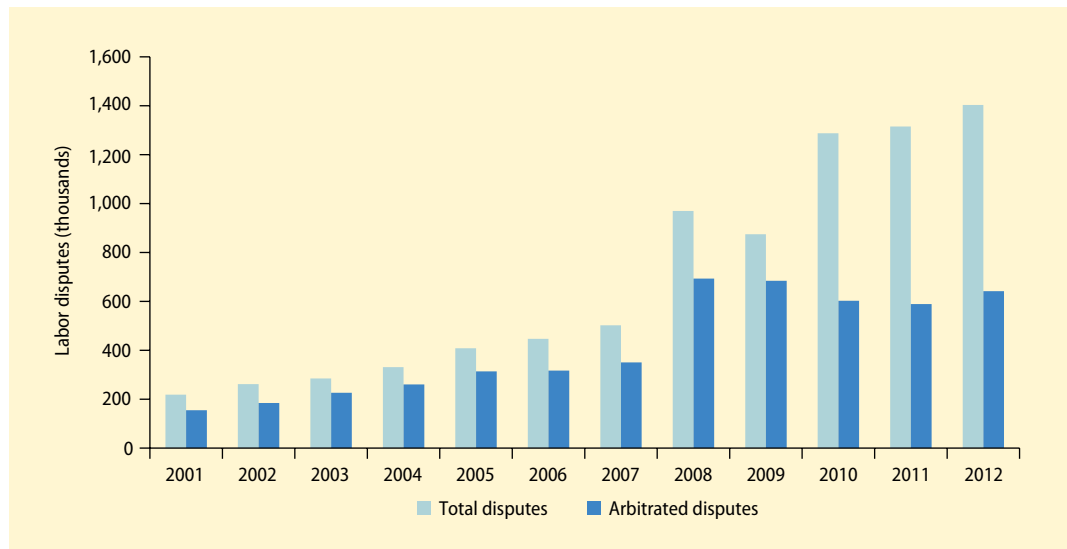
rise. In 2011, 34 percent of all arbitrated disputes were about compensation; 25 percent were about social insurance; and 20 percent were contract termination disputes. About 53 percent of all social insurance disputes were

about work injury insurance. Rural migrant workers are involved in the majority of labor disputes (Gallagher and others 2013).

Labor disputes are becoming more complex, more difficult to resolve in a timely fashion, and more likely to have large impacts on public opinion and social stability (China Labournet 2010). The dispute process can be long and complex, particularly for workers with lower levels of education and little legal assistance. Enforcement of arbitrated and litigated judgments can be difficult, especially when they require action on the part of employers, such as reinstatement and job reassignment. Aggrieved workers, while continuing to make use of the resolution process and the courts, are also becoming more strategic in their use of the media, social media, and public opinion to garner sympathy and put pressure on the government, judicial institutions, and their employers to reach favorable decisions.

A large number of disputes are settled through mediation before reaching arbitration, but the number of cases proceeding to arbitration is still rising as a result of the total increase in disputes. In 2012, there were about 1.4 million labor disputes, with 54 percent resolved by mediating units before reaching arbitration. Despite the push for more mediation, the number of suits going to the courts has increased sharply. Arbitration is compulsory, so all disputes after mediation must go through arbitration. However, arbitration is not necessarily final because either side may appeal and proceed to civil court for a new hearing on the case. In 2005, more than 35 percent of all arbitration judgments in Shanghai were appealed in court (Dong 2008).

Many local governments have lacked the capacity and expertise to handle the large increase in disputes since 2008 efficiently and effectively. China's recent promotion of mediation is unusual in that it relies on non-specialists, local government officials or cadres, and neighborhood volunteers to resolve complicated employment issues. Local courts report very large caseloads, long wait times, and frustrated litigants (Zhao 2008). The wait time for an arbitration hearing has lengthened to several months, and workers

FIGURE 3.19 Total disputes and disputes settled through arbitration, 2001–12

Source: NBS, *China Labor Statistical Yearbook 2012b*; MOHRSS, *Statistical Bulletin of Human Resources and Social Security Development 2012*.

who appeal rulings to civil courts often face a one- or two-year wait for final resolution (Gallagher and others 2013). To manage large labor conflicts that threaten social stability, local governments have developed cross-unit stability preservation committees.

Although the resolution system may be effective in the short term, it carries the risk of inefficiency and creates incentives for escalation. The current strategies for dispute resolution are very reactive to problems as they occur, and they fail to prevent disputes from arising in the first place. They lead to the loss of economic gains for employers and employees and also rely heavily on government staffing and resources. Furthermore, in the context of large conflicts—sometimes involving thousands of workers—there are strong incentives for extreme action to draw the attention of the public and the media and to put pressure on the government.

China's system of labor dispute resolution is much more centralized than the systems of the United States, Japan, and the United Kingdom. When disputes are numerous, as they have been since 2008, this centralized system places great strain on arbitration committees and local civil courts. China's labor inspection system is much less central to the dispute resolution process, unlike in the

United States and Japan, where administrative agencies play an important role in investigating and handling statutory violations. China's system is also more open-ended than processes in many other countries, which can lead to a very lengthy resolution process.

The current dispute resolution system is organized to settle rights disputes but not interest disputes.⁷³ As Chinese workers' consciousness of protections has increased, and with tight labor markets putting upward pressure on wages for migrant workers and manufacturing workers in general, an increasing number of disputes in China are interest disputes rather than rights disputes. Some of the recent high-profile collective work actions in China (such as the 2010 Guangzhou Honda strike) involved such interest disputes, but China's system of labor dispute resolution does not include structures to resolve interest disputes. This institutional vacuum may partly explain why collective work actions such as strikes and demonstrations have increased in recent years.

Developing a system to mediate and negotiate interest disputes is a pressing priority. Because enterprise trade unions in China do not serve as strong representatives of the workforce, interest conflicts are often managed reactively, after workers have

spontaneously protested by striking or taking some other kind of industrial action. Reactive settlement leads to loss of production for the company and loss of wages for the workers.

Notes

1. The *hukou* is a population registration system that defines people's residence status. It classifies the population into rural (agricultural) and urban (nonagricultural) according to their place of birth, and it defines people's access to public services based on this classification. Apart from the system's basic registration function, it provides the framework for managing population flows and defines entitlements for a range of social services, including employment, education, training, health, housing, and social protection programs.
2. Lee and Phillips (1997) show that in the Republic of Korea, migrants to metropolitan areas had earnings 32 percent higher than rural nonmigrants. Although migrants to Seoul had a 5 to 11 percent earnings disadvantage on arrival compared with Seoul natives, after 15 years migrant earnings converged completely. Although in 1970 more than 60 percent of urban household heads were rural migrants, by 1994 those migrants had become full-scale urbanites with equal wages.
3. The rate of increase in rural migrant real wages was lower than that of urban formal employees from 2001 to 2007. Since then, it has been higher in every year except 2009, when 20 million migrants lost their jobs after the onset of the global financial crisis.
4. See Giles and Park (2014). These results are based on the Oaxaca-decomposition equation, using data from the 2001 and 2010 China Urban Labor Survey. The wage penalty for rural migrants increased from 24.1 percent in 2001 to 42.2 percent in 2005, but then it declined to 13.1 percent in 2010. These findings contrast with studies of earlier periods that found strong evidence of differential treatment of migrants within occupations and sectors (Zhang and Meng 2007).
5. According to the Dynamic Monitoring Survey of Floating Population in Urban China conducted by the National Population and Family Planning Commission in 2011 (128,000 migrant households, 31 provinces), 78 percent of rural migrants were married, and 74 percent had at least one child. Of those with children, 72 percent had at least one child living in the city (Démurger, Li, and Xu 2013).
6. Glaeser and Kerr (2009) found that industries employing the same types of workers tend to co-agglomerate. This behavior is advantageous to workers and firms: people can move among employers without retooling, and businesses have access to a deep pool of labor with the skills they need.
7. See 12th Five-Year Plan for National Basic Public Social Services System.
8. For more details, see Wang, Wang, and Glinskaya (2014).
9. See "A Notice on Actively and Stably Pushing Forward the Hukou System Reform," announced by the State Council in March 2011 (the full text was released in March 2012). As this Urban China report is being prepared, the Ministry of Public Security is formulating a roadmap for hukou reform, aiming for implementation by 2020. The December 2013 Urbanization Work Conference of the central government also called for an "orderly conversion" of rural migrants and proposed a numerical target of 100 million long-term rural migrants to be converted to urban hukou holders. These measures are to be supported by investments to renovate shantytowns and urban villages in central and western regions. See the media interview with Vice Minister Min Huang, "Establishing a New Type of *Hukou* System by 2020," December 17, 2013, <http://www.newhuanet.com>.
10. A typical notion of "residence" defines the jurisdiction under which laws and regulations a person has rights and responsibilities with respect to taxation and qualification for benefits and social services. Rights to vote and hold office are often also linked to legal residence. A first residence is acquired when people are born and are registered with the population registration system. A residence system is defined by (a) a framework and standards for eligibility for a residence permit and (b) the extent of access privileges offered once a residence permit is obtained, as well as the sequencing of such privileges.
11. Completing hukou reform can have a dramatic equalization effect between rural and urban incomes. See Zhai, Hertel, and Wang (2003) and Whalley and Zhang (2004), which used computable general equilibrium (CGE) models to explore the impacts of removing all migration restrictions, as well as Zhu and Luo (2010) for a study of Hubei province on the positive distributional effects of labor mobility. In addition, Zhang and Zhao (2013) show that hukou restricts people from moving to the places they would be most productive.

12. See supporting report 6, "Financing Urbanization," for a more extensive discussion of inter-governmental fiscal relations.
13. Numerous sociological studies find that urban residents are concerned about migrant workers compromising the quality of services (Watson 2009; Liu 2008; and L. Wang 2010).
14. According to the European Parliament and Council Directive (2004/38/EC), every EU citizen has the right to move and reside freely within the territory of another member state for up to three months without any conditions or formalities, other than the requirement to hold a valid identity card or passport. The objective of residence or status (for example, employed, self-employed, tourist, student, retiree) has no bearing on this right during this time period. Jobseekers benefit from the right to reside without any conditions and formalities for a period of six months, and even longer, if they continue to seek employment in the host EU country and have a genuine chance of getting work.
15. The general rule is that EU citizens have sufficient resources if the level of their resources is higher than the threshold under which a minimum subsistence benefit is granted in the host EU country.
16. Overall, residency is determined differently for different purposes, and the criteria often vary by state. Also if a person has conducted a substantial amount of business in a state, some states will recognize that person as an actual resident and grant them certain advantages of residency. <http://legal-dictionary.thefreedictionary.com/residency>.
17. Lall, Timmins, and Yu (2009) evaluated the relative importance of wage differences and public services in migrants' decisions to move in Brazil. Their findings showed a distinction in preferences according to income level: for relatively well-off people, basic public services were not important in the decision to move, but for the poor, differences in access to basic public services did matter.
18. See World Bank (2013), based on World Values Survey (2005–08).
19. This is discussed in supporting report 3, "China's Urbanization and Land: A Framework for Reform," including recent indications from the Third Plenum meeting about willingness to undertake rural land reform.
20. Although seemingly generous, it falls quite short not just when compared with the OECD benchmark but also when compared to the BRICS countries, with only India having lower social sector spending than China. The latest available estimates from OECD (2011) indicate that public social sector spending (as a proportion of GDP) in 2007 was 16.3, 12.0, 8.1, 6.5, and 4.6 in Brazil, Russia, South Africa, China, and India, respectively. According to World Bank (2011), Brazil and Russia allocate more than 60 and 50 percent of their total government spending to the social sectors, respectively.
21. See supporting report 6, "Financing Urbanization," for further details.
22. See NBS (2011), *China Statistical Yearbook 2011*, China Statistics Press.
23. See NBS (2011).
24. In some coastal cities, exemptions began in 2006 with local funding from the municipal governments (Hu 2009).
25. Detailed cost calculations are presented in Wang, Wang, and Glinskaya (2014).
26. *Minban* are private schools which charge fees and typically operate at much lower standards than public schools.
27. The third category comprises schools that cater to migrant workers' families and charge low fees. They are often substandard and have not been approved by the local education bureaus.
28. Planning urban schools based on the hukou population and limited resources, such as land, contribute to the capacity constraints of urban schools.
29. Nanfang Dushi Bao 2010. In Zhuhai (Guangdong), for example, it was reported that public schools charged migrant children a school selection fee of RMB 5,000–10,000 as of 2011. In Hubei, the Provincial Education Department sets the school selection fees, currently at RMB 7,200 in primary schools (field visit, March 19, 2013). In Chengdu, school selection fees are RMB 2,000–5,000 (field visit, May 31, 2013). Once the children are in public school, numerous costs associated with extra-curricular activities and tutoring lessons add to the financial burden.
30. Among the main transfers, the wage adjustment transfer (WAT) and rural fee and tax reform transfer are devoted wholly to salaries. The compulsory education transfer (CET) goes not only to funding the New Mechanism but also to performance pay for teachers (Li, Chen, and Jiang 2011). Under the assumption that performance pay made up just one-third of the CET in 2011, support for salary payments was nearly two-thirds of central transfers for universal compulsory education.
31. This wholesale revision approach also would mitigate the considerable resistance that would

- arise if the government were to withdraw current central transfers from lower-income provinces such as Henan, Guizhou, Gansu, and Sichuan in the central and western regions and give them to richer provinces like Guangdong, Beijing, and Shanghai.
32. The government conducted a full audit of the more than 270 existing migrant schools and chose more than 100 of them for the municipally supported private school program. Another 60 were selected for upgrading under a three-year plan, during which they received funding, personnel, and other support from the government. By 2010, 162 private schools had been approved for enrolling migrant children under government supervision, and these schools receive financial support based on enrollment.
 33. Once selected into the program for private schools, each school receives a capital grant of around RMB 500,000 from the municipality and is eligible to apply to the district government for supplemental funds. Thereafter, the schools receive grants for operating costs of up to RMB 5,000 for every migrant student enrolled. With this support, the schools are able to stop collecting tuition and many other fees, pay teachers a decent salary and provide them with social security, and improve facilities.
 34. Unlike URBMI, UEBMI also contains a medical savings account, which beneficiaries use to pay for copayments and uncovered services.
 35. NBS (2012b) reports that population coverage of UEBMI increased from 34 percent in 2003 to 70 percent in 2011, and population coverage of URBMI reached 82 percent by the end of 2011.
 36. Yip and others 2012, and team field visits in May 2013.
 37. Financial inequalities are partly reflected in per capita health spending data. In 2010, total health expenditure per capita was RMB 666 for rural residents compared to RMB 2,315 for urban residents (China National Health Development Research Center 2012).
 38. "Programs and facilities" refer to funding requirements for operating costs (for instance, salaries), specific public health programs (including the essential package), and construction and equipment. The main sources of financing for these items are direct budgetary allocations and fees.
 39. The schemes for PSU employees and civil servants are defined benefit schemes, with a generous replacement rate financed from government revenues. A reform program with a framework similar to the urban employee pension scheme was introduced for PSU employees in 2009 but is yet to be fully implemented, pending a separate reform to reclassify PSUs.
 40. For Beijing: http://news.xinhuanet.com/2011-03/16/c_121196129.htm; for Shanghai, <http://news.ehomeday.com/2012-11/201211183205.htm>.
 41. See <http://www.labour-daily.cn/web/NewLabourElectronic/newpdf/PdfNews.aspx?Calendar=2011-9-24>.
 42. Supporting report 2, "Planning and Connecting Cities for Greater Diversity and Livability," provides further insights into the development of the urban rental market in China.
 43. Supporting calculations are presented in a background paper, "Costing Out the Residence-Based Access to Urban Social Services in China."
 44. Similarly, the "Basic Public Service Equalization Five-Year Plan (2011–15)" refers to the concept that every citizen should have equal opportunity of access to basic public services, not necessarily that all services should be the same.
 45. World Bank Data <http://data.worldbank.org/indicator/SE.TER.ENRR/countries/DE--XSOE-US?display=graph>.
 46. For 2009 PISA results, see Shanghai government website, <http://www.shanghai.gov.cn/shanghai/node27118/node27818/u22ai74238.html>; for 2012 results, see OECD, <http://www.oecd.org/pisa/keyfindings/pisa-2012-results-overview.pdf>.
 47. Large-scale national survey conducted by the Chinese Ministry of Health from 2001 to 2004. For Yunnan, see Steinmann and others (2008).
 48. According to the 2010 census, there are more than 20 million school-age (6–14 years of age) children of nonlocal hukou migrants in urban areas. This does not include a significant reservoir of left-behind migrant children who stay behind with relatives in rural areas as their parents migrate for work but who could potentially move if hukou restrictions are lifted.
 49. In particular, budget expenditures in education increased from RMB 96.5 billion in 2000 to RMB 828.8 billion in 2010 (see *Education Finance Statistical Yearbook*, 1997 and 2010).
 50. See MOE 2012, *China Education Finance Statistical Yearbook*, and 2013 *Guangdong Statistical Yearbook*.
 51. See *China Youth Daily*, July 11, 2012, http://zqb.cyol.com/html/2012-07/11/nw.D110000zgqnb_20120711_3-09.htm.

52. Reimbursement rates are directly related to a hospital's level of classification, providing an incentive for hospitals to upgrade to achieve a superior classification and thus gain higher reimbursement while building their reputation to attract more patients.
53. Tam (2008) reports that hospitals or hospital departments often set up off-the-book accounts, known as "little treasuries," in which sales revenues are placed for distribution to physicians. Hospital authorities set revenue targets for clinical departments, although the clinical departments may also be held accountable for unpaid bills of the patients they treat.
54. See supporting report 2, "Planning and Connecting Cities for Greater Diversity and Livability," for more details.
55. Combining the UWS with an occupational annuity scheme can provide options for integrating civil servants and PSU employees into the reformed UWS.
56. Simulations suggest that an average contribution rate of 28 percent could be reduced to 16 percent with the same approximate replacement rate for a full-term worker, provided that the retirement age was increased to age 65 (see Dorfman and others 2013).
57. To date, 12 provinces have integrated rural and urban resident pension schemes.
58. See OECD, International Budget Practices and Procedures Database, <http://www.oecd.org/gov/budget/database>; Arizti and others 2010.
59. See Gong and Yu (2011) on election of school principals by parents, students, teachers, and experts (Kunming); school councils (Nanjing and Shandong); and medical disputes councils with citizen representation (Nanjing).
60. For more on whether China has entered the Lewis turning point, see Cai (2010); Wang (2009); Yao and Zhang (2010); and Zhang, Yang, and Wang (2009). At present, the consensus in the literature is that rural surplus labor in China is depleted.
61. The results also revealed that in professional and managerial occupations, 34 percent of the firms consider leadership skills to be most important, followed by job-specific technical skills and communication skills. For front-line operational occupations, communication skills, job-specific technical skills, and numeracy skills were most commonly cited as the most important job-related skills. See Liang and Chen 2013.
62. Brazil, Canada, Chile, Estonia, Greece, Hungary, Iceland, India, Indonesia, Ireland, Israel, Japan, Korea, Mexico, New Zealand, Portugal, and the United Kingdom.
63. On the supply side, this could be achieved by allowing public financing of accredited non-state training institutions. On the demand side, public funds could be used to provide vouchers to students who could freely choose among public and nonstate institutions. Local-level experiments with training vouchers in China (for instance, Meizhou in Guangdong, Jiangsu province) can provide lessons for potential demand-side interventions.
64. See Ministry of Education (1998).
65. See MyCos (2012).
66. The World University Rankings, published by *Times Higher Education*. <http://www.timeshighereducation.co.uk/world-university-rankings/>.
67. Ministry of Education (2011), *China Education Statistical Yearbook*, People's Education Press, and Ministry of Education (2012), *China Education Finance Statistical Yearbook*.
68. Differences in employment outcomes could also reflect differences in the ability of students studying different majors or the quality of colleges from which they graduated. Wage regressions conducted by scholars at Tsinghua University based on surveys of college graduates from 19 colleges in 2010 found that recent college graduates with majors in engineering had the highest starting salary. The other types of majors and their wage penalty relative to engineers were other social sciences (not including economics) and liberal arts (3.4 percent), law (3.5 percent), natural sciences (8.1 percent), management (9.2 percent), education (12.9 percent), economics (17.1 percent), and agricultural sciences (26.7 percent).
69. See Giles and Park (2014).
70. See Shen and Benson (2008) for a useful comparison of Chinese wage consultations and typical International Labour Organization (ILO) standard wage bargaining. Bai (2011) discusses the role of ACFTU and interactions with the interests of capital and labor.
71. The tax wedge is a percentage calculated as $(\text{total labor cost} - \text{net take-home pay}) / \text{total labor cost}$. Consider an example for China: assume payroll = RMB 100, then total labor cost $(100 + 42) = 142$; net take-home pay $(100 - 22) = 78$; and tax wedge $= (142 - 78) / 142 = 45.1$ percent. For many countries, one would also calculate the personal income tax levied after deduction of social insurance contribution; OECD also allows for transfers from the state (for instance, income tax cred-

- its). In China, neither of these is included in the calculation for the average urban worker who falls below the personal income tax threshold. See OECD for data across countries. <http://www.oecd.org/tax/tax-policy/taxing-wages.htm>.
72. China raised the monthly deduction for personal income tax relief from the minimum level of RMB 2,000 (2008–10) to RMB 3,500 in 2011. When applying the new standard, and given that the average taxable earnings were lower for all provinces in 2012, personal income tax does not need to be paid.
 73. Rights disputes are disputes that involve statutory or contractual claims, and interest disputes are disputes over interests (for example, wages, work conditions, and work organization) that do not involve allegations of violations of minimum legal standards or contractual obligations.
- ## References
- ACFTU (All-China Federation of Trade Unions). 2012. "Current Situation of Labor Subcontracting in China." *China Labor* 5: 23–25.
- Arizti, Pedro, Jim Brumby, Nick Manning, Roby Senderowitsch, and Theo Thomas. 2010. *Results, Performance Budgeting and Trust in Government*. Washington, DC: World Bank.
- Aterido, R., and M. Hallward-Driemeier. 2011. "Does Expanding Health Insurance beyond Formal-Sector Workers Encourage Informality? Measuring the Impact of Mexico's Seguro Popular." Policy Research Working Paper 5785, World Bank, Washington, DC.
- Bai, L. 2006. "Graduate Unemployment: Dilemmas and Challenges in China's Move to Mass Higher Education." *China Quarterly* 185: 128–44.
- Bai, R. 2011. "The Role of the All-China Federation of Trade Unions: Implications for Chinese Workers Today." *WorkingUSA* 14 (1): 19–39.
- Barro, R. J., and J. W. Lee. 2001. "International Data on Educational Attainment: Updates and Implications." *Oxford Economic Papers* 53 (3): 541–63.
- Beijing Foundation for the Research of Long-Term Economic Strategy. 2013. "Public Financial Support for the Equitable Education of Migrant Children (draft)." No. 79. Beijing Foundation, Beijing.
- Bhattacharyya, O., Y. Delu, S. T. Wong, and C. Bowen. 2011. "Evolution of Primary Care in China 1997–2009." *Health Policy* 100 (2): 174–80.
- Brenner, N., and N. Theodore. 2012. "Cities and the Geographies of 'Actually Existing Neoliberalism.'" In *The Urban Sociology Reader*, edited by Jan Lin and Christopher Mele, 138–47. Florence, KY: Routledge.
- Brixi, Hana. 2009. "China: Urban Services and Governance." Policy Research Working Paper 5030, World Bank, Washington, DC. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1471128.
- Cai, Fang. 2010. Demographic Transition, Demographic Dividend, and Lewis Turning Point in China, *China Economic Journal* 3 (2): 107–19.
- Cai, Fang, and Y. Du. 2011. "Wage Growth, Wage Convergency and Lewis Turning Point in China." *China Economic Review* 22 (4): 601–10.
- Cai, Fang, and Meiyang Wang. 2010. "Urbanisation with Chinese Characteristics." In *China: The Next Twenty Years of Reform and Development*, edited by Ross Garnaut, Jane Golley, and Ligang Song, 319–40. Canberra and Beijing: Australian National University E Press, Brookings Institution Press, Social Sciences Academic Press.
- CCHDS (China Center for Health Development Studies). 2011. "Management of the Demand for Medical Services Is the Critical Path to Solve the 'Difficult and Expensive To Get Medical Service.'" *Health Development Outlook* <http://www.cchds.pku.edu.cn/attachments/article/105/Health%20Development%20Outlook-2.pdf>.
- Chen, G., and X. Yan. 2012. "Demand for Voluntary Basic Medical Insurance in Urban China: Panel Evidence from the Urban Resident Basic Medical Insurance Scheme." *Health Policy and Planning* 27 (8): 658–68.
- Chen, Yuanyuan, and Shuaizhang Feng. 2013. "Access to Public Schools and the Education of Migrant Children in China." *China Economic Review* 26: 75–88.
- Chen, Zhili. 2005. "Step-by-Step Elimination of Fees and Increasing Funding (abstract)." Speech at a Meeting on the Reform of the Funding Mechanism for Rural Compulsory Education." *People's Daily*, December 27. <http://edu.people.com.cn/GB/3976821.html>. Accessed February 24, 2011.
- China Labournet. 2010. "2010 Statistical Analysis of the National Labor Dispute Resolution Situation" [2010 nian quanguo laodongrenshizhengyi chuliqingkuang tongjifenxi]. <http://www.labournet.com.cn/ldzy/ckzl/t21.htm>.
- China National Health Development Research Center. 2012. "Abstract of *China Total Health*

- Expenditure.*" Ministry of Health, People's Republic of China.
- Chu, Funing. 2013. *2012 China Social Security Development Index Report*. Beijing: Economic Science Publishing Press.
- Delamater, Paul L., Joseph P. Messina, Sue C. Grady, Vince WinklerPrins, and Ashton M. Shortridge. 2013. "Do More Hospital Beds Lead to Higher Hospitalization Rates? A Spatial Examination of Roemer's Law." *PloS One* 8 (2): e54900
- Démurger, S., S. Li, and H. Xu. 2013. "Internal Migration, Family Living Arrangements and Happiness in China." Paper presented at *IAS Program on 'Human Resources and Economic Development' Seminar*, Hong Kong University of Science and Technology, Hong Kong SAR, China, July 17.
- Dong, Baohua, ed. 2008. *Research on Labor Dispute Settlement System*. Beijing: China Labor and Social Security Publishing House.
- Dorfman, Mark, Robert Holzmann, Philip O'Keefe, Dewen Wang, Richard Hinz, and Yvonne Sin. 2013. *China's Pension System: A Vision*. Directions in Development series. Washington, DC: World Bank.
- Du, Yang, and Meiyan Wang. 2008. "The Implementation of the Minimum Wage System and Its Impact in China." *Journal of Graduate School of Chinese Academy of Social Science* 6: 56–62.
- Dustmann, Christian, Tommaso Frattini, and Caroline Halls. 2010. "Assessing the Fiscal Costs and Benefits of A8 Migration to the UK." *Fiscal Studies* 31 (1): 1–41. <http://www.ucl.ac.uk/~uctpb21/Cpapers/DustmannFrattiniHalls2010.pdf>.
- Freeman, R. B., and X. Li. 2013. "How Does China's New Labor Contract Law Affect Floating Workers?" NBER Working Paper 19254. National Bureau of Economic Research, Cambridge, MA.
- Gallagher, Mary, John Giles, Albert Park, and Meiyang Wang. 2013. "China's 2008 Labor Contract Law: Implementation and Implications for China's Workers." Policy Research Working Paper 6542, World Bank, Washington, DC. <https://openknowledge.worldbank.org/handle/10986/15902>.
- Gandullia, Luca, Nicola Iacobone, and Alastair Thomas. 2012. *Modelling the Tax Burden on Labour Income in Brazil, China, India, Indonesia and South Africa*. Tax Policy Working Paper No. 14. Paris: OECD Publishing.
- Giles, John, and Albert Park. 2014. "Labor Mobility in China and Implications for an Inclusive Labor Market." Background paper for Urban China report, Beijing.
- Giles, J., D. Wang, and W. Cai. 2011. "The Labor Supply and Retirement Behavior of China's Older Workers and Elderly in Comparative Perspective." Policy Research Working Paper 5851, World Bank, Washington, DC.
- Giles, John, Dewen Wang, and Albert Park (2013). "Expanding Social Insurance Coverage in Urban China." *Research in Labor Economics* 37: 123–79.
- Glaeser, E. L., and W. R. Kerr. 2009. Local Industrial Conditions and Entrepreneurship: How Much of the Spatial Distribution Can We Explain? *Journal of Economics and Management Strategy* 18 (3): 623–63.
- Gong, Sen, and Dong Yu. 2011. "Cases of Public Participation for People's Well-being (in Chinese)." Development Research Center, Beijing.
- Harris, D., and J. Q. Wang. 2012. "Political Economy Realities in the Chinese Health Sector: Health Financing Reforms for a Mobile Society." *Public Management Review* 14 (2): 217–37.
- Hu, Yaozong. 2009. "Analysis of the Free Urban Compulsory Education Policy." *Issues in Education Development* 5: 22–30.
- Huang, Y., and L. Jiang. 2009. "Housing Inequality in Transitional Beijing." *International Journal of Urban and Regional Research* 33 (4): 936–56.
- Lai, Desheng, and Yongpo Tian. 2005. "An Explanation for 'Educated Unemployment' in China." *Journal of Economic Research* 11: 111–19.
- Lall, Somik V., C. Timmins, and S. Yu. 2009. "Connecting Lagging and Leading Regions: The Role of Labor Mobility." *Brookings-Wharton Papers on Urban Affairs* 151–74.
- Langenbrunner, John, and Aparnaa Somanathan. 2011. *Financing Health Care in East Asia and the Pacific: Best Practices and Remaining Challenges*. Washington, DC: World Bank.
- Lee, Song B., and Phillips, J. M. 1997. "The Earnings Experience of Rural-Urban Migrants in Korea." *International Economic Journal* 11 (4): 85–101.
- Li, Chunling. 2010. "Higher Education Expansion and Unequal Access to Education—College Expansion Equalizing Effect Test." *Sociological Study* 3: 82–113.
- Li, Hongbin, Lei Li, Binzhen Wu, and Yanyan Xiong. 2012. "The End of Cheap Chinese Labor." *Journal of Economic Perspectives* 26 (4): 57–74.
- Li, L., Q. Chen, and Y. Jiang. 2011. "The Changing Patterns of China's Public Services." In *Pop-*

- ulation Aging and the Generational Economy: A Global Perspective, edited by Ronald Demos Lee and Andrew Mason, 408–19. Cheltenham, U.K.: Edward Elgar.
- Li, Si-Ming. 2012. “Housing Inequalities under Market Deepening: The Case of Guangzhou, China.” *Environment and Planning A* 44: 2852–66.
- Liang, Xiaoyan, and Shuang Chen. 2013. *Developing Skills for Economic Transformation and Social Harmony in China: A Study of Yunnan Province*. Washington, DC: World Bank. <https://openknowledge.worldbank.org/handle/10986/16197>
- Liu, D., and D. Tsegai. 2011. “The New Cooperative Medical Scheme (NCMS) and Its Implications for Access to Health Care and Medical Expenditure: Evidence from Rural China.” ZEF Discussion Papers on Development Policy No. 155, Bonn, Center for Development Research.
- Liu, Linping. 2008. “Interaction and Attitude: Migrant Peasant Workers in the Eyes of Urban Citizens: A Survey of the Guangzhou Citizens.” *Journal of SunYatsen University Social Science Edition* 48 (2): 183–92.
- Logan, J. R., Y. Fang, and Z. Zhang. 2010. “The Winners in China’s Urban Housing Reform.” *Housing Studies* 25 (1): 101–17.
- Man, Joyce Yanyun, Siqi Zheng, and Rongrong Ren. 2011. “Housing Policy and Housing Markets: Trends, Patterns and Affordability.” In *China’s Housing Reform and Outcomes*, edited by Joyce Y. Man, 318. Cambridge, MA: Lincoln Institute of Land Policy.
- Meng, Qun, Xu Ling, Zhang Yaoguang, Qian Juncheng, Cai Min, Xin Ying, Gao Jun, Xu Ke, J. Ties Boerma, and Sarah L. Barber. 2012. “Trends in Access to Health Services and Financial Protection in China between 2003 and 2011: A Cross-Sectional Study.” *Lancet* 379: 805–14.
- Ministry of Civil Affairs. 2013. *2012 Statistical Bulletin of Social Services Development*. <http://www.mca.gov.cn>.
- MOE (Ministry of Education). 1998. “China’s Education Revitalization Action Plan toward 21st Century.” http://www.moe.gov.cn/public_files/business/htmlfiles/moe/moe_177/200407/2487.html.
- . 2010. “China’s Medium and Long-Term Education Reform and Development Plan 2010–2020.” http://www.china.com.cn/policy/txt/2010-03/01/content_19492625_3.htm.
- . 2011. *Chinese Education Statistical Yearbook*. Beijing: China Statistics Press.
- . 2012. *Chinese Education Finance Statistical Yearbook*. Beijing: China Statistics Press.
- Ministry of Finance, Ministry of Labor and Social Security, Ministry of Public Security, Ministry of Education, and Family Planning Commission. 2003. “Joint Notification on Incorporating the Costs of Managing Migrant Workers and Associated Expenditures into the Budget,” December. <http://www.moh.gov.cn/ldrks/s7846/201306/742e8c2d0ea944908077049871a624f7.shtml>.
- MOH (Ministry of Health). 2008. *Report on National Health Service Survey in China, 2008*, Beijing: Ministry of Health.
- . 2011. *2011 China Health Statistical Yearbook*. Beijing: Peking Union Medical College Press.
- MOHRSS (Ministry of Human Resources and Social Security) 2012. *Statistical Bulletin of Human Resources and Social Security Development*. <http://www.mohrss.gov.cn/SYrlzyhshbzb/zwgk/szrs/ndtjsj/tjgb/>.
- Montgomery, Jessica. 2012. “The Inheritance of Inequality: Hukou and Related Barriers to Compulsory Education for China’s Migrant Children.” *Pacific Rim Law and Policy Journal Association* 21 (3): 591–22.
- MyCOS (My China Occupational Skills). 2010. *2010 China College Graduates Employment Report*. Beijing: Social Science Literature Press.
- . 2013. *2013 China College Graduates Employment Report*. Beijing: Social Science Literature Press.
- Nanfang Dushi Bao. 2010. “Migrant Children Need to Pay Extra to Public Schools.” <http://gz.aoshu.com/201005/4bf09fe7b82ee.shtml>.
- NBS (National Bureau of Statistics). 2009. “National Monitoring Survey Report for Rural Migrant Workers 2009.” <http://wenku.baidu.com/view/065bc38a6529647d27285255.html>.
- . 2012a. “National Monitoring Survey Report for Rural Migrant Workers 2012.” http://www.stats.gov.cn/tjsj/zxfb/201305/t20130527_12978.html
- . 2012b. *China Labor Statistical Yearbook 2012*. Beijing: China Statistics Press.
- . (Various years). *China Statistical Yearbook*. Beijing: China Statistics Press.
- . 2012c. *Finance Yearbook of China 2012*. China Financial and Economic Publishing House.
- OECD (Organisation for Economic Co-operation and Development). 2005. *Governance in China*. Paris: OECD. <http://www.oecd.org/gov/governanceinchina.htm>.
- . 2011. *Society at a Glance 2011*. Paris: OECD. <http://www.oecd-ilibrary.org/social->

- issues-migration-health/society-at-a-glance-2011_soc_glance-2011-en.
- . 2013. *Education at a Glance 2013—United States*. <http://www.oecd.org/edu/United%20States%20EAG2013%20Country%20Note.pdf>.
- Park, Albert, and Fang Cai. 2011. “The Informalization of the Chinese Labor Market.” In *From Iron Rice Bowl to Informalization: Markets, State and Workers in a Changing China*, edited by Sarosh Kuruvilla, Ching Kwan Lee, and Mary E. Gallagher, 17–35. Ithaca, NY: Cornell University Press.
- Park, Albert, and Dewen Wang. 2010. Migration and Urban Poverty and Inequality in China. *China Economic Journal* 3 (1): 49–67.
- Perry, G., and M. Olarreaga. 2007. “Trade Liberalization, Inequality, and Poverty Reduction in Latin America.” In *Annual Bank Conference on Development Economics*, 103–51. Washington, DC: World Bank.
- Petersen, Gene B., and Laure Sharpe. 1969. “Southern Migrants to Cleveland. Work and Social Adjustment of Recent In-migrants Living in Low-Income Neighborhoods.” Bureau of Social Science Research, Washington, DC.
- Preker, A. S., and J. Langenbrunner, eds. 2005. *Spending Wisely: Buying Health Services for the Poor*. Washington, DC: World Bank.
- Ravallion, M. 2002. “On the Urbanization of Poverty.” *Journal of Development Economics* 68 (2): 435–42.
- Ravallion, M., S. Chen, and P. Sangraula. 2007. “New Evidence on the Urbanization of Global Poverty.” *Population and Development Review* 33 (4): 667–701.
- Rice, J. 2008. “The Urbanization of Poverty and Urban Slum Prevalence: The Impact of the Built Environment on Population-Level Patterns of Social Well-Being in the Less Developed Countries.” *Research in the Sociology of Health Care* 26: 205–34.
- Rozelle, Scott. 2011. “China’s Human Capital Challenge and Investment in Education, Nutrition and Health.” Background paper for *China 2030*, Beijing.
- Sen, S. 2014. “International Comparison of Residence Rules and Eligibility for Social Benefits and Services.” Background paper for the Urban China report, Beijing.
- Shen, Jie, and John Benson. 2008. “Tripartite Consultation in China: A First Step Towards Collective Bargaining?” *International Labour Review* 147 (2–3): 231–48.
- State Council. 2008. *Notice on Implementing Well the Exemption of Tuition and Fees in Urban Compulsory Education*, August. http://www.gov.cn/zwggk/2008-08/15/content_1072915.htm
- Steinmann, P., Z. W. Du, L. B. Wang, X. Z. Wang, J. Y. Jiang, L. H. Li, H. Marti, and J. Utzinger. 2008. “Extensive Multiparasitism in a Village of Yunnan Province, People’s Republic of China, Revealed by a Suite of Diagnostic Methods.” *American Journal of Tropical Medicine and Hygiene* 78 (5): 760–69.
- Tam, Wei-Keung. 2008. “Failing to Treat: Why Public Hospitals in China Do Not Work.” *China Review* 8 (2): 103–30.
- Tian, H. S., and N. Wu. 2010. *A Research on Migrant Children’s Education: Based on Investigations of the Situations, Problems and Countermeasure Analysis of 12 Cities*. Beijing: Educational Science Publishing House.
- Umapathi, Nithin, Dewen Wang, and Philip O’Keefe. 2013. “Eligibility Thresholds for Minimum Living Guarantee Programs: International Practices and Implications for China.” Discussion Paper No.1307, Social Protection and Labor, World Bank, Washington, DC.
- UNESCO-UNEVOC (United Nations Educational, Scientific, and Cultural Organization and the International Centre for Technical and Vocational Education and Training) 2010. TVETipedia. “Information on TVET in the Republic of Korea.” http://www.unevoc.unesco.org/tvetipedia.0.html?&tx_drwiki_pi1%5Bkeyword%5D=Republic%20of%20Korea.
- Wang, Dewen. 2009. “China’s Lewisian Turning Point: Characteristics and Implications.” *Population Studies* 2: 54–58.
- Wang, Dewen, and Mark Dorfman. 2014. *China: Deepening the Pension System Reform through an Integrated Design*. World Bank, Washington, DC.
- Wang, Dewen, Philip O’Keefe, and Jin Song. 2013. “Understanding the Hukou System through Quantifying Hukou Thresholds.” Background Paper for 2013 *World Development Report*, World Bank, Washington, DC.
- Wang, Dewen, Changyou Zhu, Rongtang Ma. 2008. “Social Security of Rural Migrant Workers: Current Coverage, Institutional Designing and Policy Suggestions.” Working Paper, International Labour Organization (ILO), Geneva.
- Wang, Hong. 2013. “Investigation of the Status and Finances of Migrant Children Education in Guangzhou.” In *Issues of Providing Compulsory Education for Migrant Children and Public Finance*, edited by Yuan and others, Beijing: Beijing Normal University Press.

- Wang, Liejun. 2010. "Experiences of Hukou Reform and Overall Strategy for Next Step Reform." *Social Sciences of Jiangsu*, No. 2.
- Wang, Mark Yaolin. 2002. "Small City, Big Solution? China's Hukou System Reform and Its Potential Impacts." *Planning Review* 38 (151): 23–29.
- Wang, Xiaoxia, Chengfang Liu, Linxiu Zhang, Renfu Luo, Thomas Glauben, Yaojiang Shi, Scott Rozelle, and Brian Sharbono. 2011. "What Is Keeping the Poor Out of College? Enrollment Rates, Educational Barriers and College Matriculation China." *China Agricultural Economic Review* 3 (2): 131–49.
- Wang, Xiaoxia, Dwen Wang, and Elena Glinskaya. 2014. "Costing out China's Residence-Permit Reform." A background paper for Urban China report, Beijing.
- Wang, Y. P., and A. Murie. 1996. "The Process of Commercialisation of Urban Housing in China." *Urban Studies* 33 (6): 971–89.
- Watson, Andrew. 2009. "Social Security for China's Migrant Workers: Providing for Old Age." *Journal of Current Chinese Affairs* 38 (4): 85–115.
- Wertheimer, R. F. 1970. "The Monetary Rewards of Migration within the US." Urban Institute, Washington, DC.
- Whalley, John, and Shunming Zhang. 2004. "Inequality Change in China and (Hukou) Labour Mobility Restrictions." NBER Working Paper 10683, National Bureau of Economic Research, Cambridge, MA.
- World Bank. 1997. *China: Higher Education Reform*. World Bank: Washington, DC.
- . 2009. *From Poor Areas to Poor People: China's Evolving Poverty Reduction Agenda—An Assessment of Poverty and Inequality*. Washington, DC: World Bank.
- . 2011. *Global Development Horizons 2011*. Washington, DC: World Bank.
- . 2013. *Inclusion Matters: The Foundation for Shared Prosperity*. Washington, DC: World Bank.
- World Bank and Development Research Center (DRC) of the State Council, the People's Republic of China. 2013. *China 2030: Building a Modern, Harmonious, and Creative Society*. Washington, DC: World Bank.
- Wu, F. 2004. "Urban Poverty and Marginalization under Market Transition: The Case of Chinese Cities." *International Journal of Urban and Regional Research* 28 (2): 401–23.
- Wu, Fulong, Fangzhu Zhang, and Chris Webster. 2013. "Informality and the Development and Demolition of Urban Villages in the Chinese Peri-urban Area." *Urban Studies* 50 (10): 1919–34.
- Wu, Weiping. 2011. "Skills and Innovation in Globalizing Cities: The Role of Higher Education." Paper prepared for Global Cities Research Seminar, East China Normal University, Shanghai, June 10.
- Wu, Yaowu, and Quan Zhao. 2010. "Higher Education Expansion and Employment of University Graduates." *Journal of Economic Research* 9: 93–108.
- Xinhuanet. 2009. "Migrant Children Needs 10 Documents for Accessing Urban Education, Including No Crime Records of Their Parents." June 18. http://news.xinhuanet.com/edu/2009-06/18/content_11558353.htm.
- Yan, F., J. Raven, W. Wang, R. Tolhurst, K. Zhu, B. Yu, and C. Collins. 2011. "Management Capacity and Health Insurance: The Case of the New Cooperative Medical Scheme in Six Counties in Rural China." *International Journal of Health Planning and Management* 26 (4): 357–78.
- Yang, Zili. 2011. "A Comparison of Some Models for Solving the Problem of Educating Migrant Children." *China Human Rights Biweekly*, September 14. http://www.zhuanxing.cn/html/yfr_student/715.html.
- Yao, Yang, and Ke Zhang. 2010. "Has China Passed the Lewis Turning Point? A Structural Estimation Based on Provincial Data" *China Economic Journal* 3 (2): 155–62.
- Yip, Winnie C., and K. Eggleston. 2004. "Addressing Government and Market Failures with Payment Incentives: Hospital Reimbursement Reform in Hainan." *China Social Science & Medicine* 58: 267–77.
- Yip, Winnie C., William C. Hsiao, Wen Chen, Shanlian Hu, Jin Ma, and Alan Maynard. 2012. "Early Appraisal of China's Huge and Complex Health-Care Reforms." *Lancet* 379 (9818): 833–42.
- Yuan, Liansheng. 2013. "The Development and Reform of Policies in Financing Compulsory Education for Migrant Children." In *Issues of Providing Compulsory Education for Migrant Children and Public Finance*, edited by Yuan and others, 87. Beijing: Beijing Normal University Press.
- Yuan, Liansheng, Hong Wang, and Yanqing Ding. 2013. *Issues of Providing Compulsory Education for Migrant Children and Public Finance*. Beijing: Beijing Normal University Press.
- Yue, Changjun. 2013. "Looking at the Equity of Opportunities of Higher Education from the Perspective of Financial Inputs." *Guangming Daily*, July 24, 2013.

- Yue, Ximing, Shi Li, and Terry Sicular. 2010. "A Study on High Earnings in the Monopoly Sector." *China Social Sciences* (43) 77–99.
- Zhai, Fan, Thomas Hertel, and Zhi Wang. 2003. "Labor Market Distortions, Rural-Urban Inequality and the Opening of China's Economy." GTAP Working Paper 27. Lafayette, IN: Purdue University.
- Zhang, Bingzi. 2010. "The Current Status of China's Statistics on Resident Population and Reflections on the Adjustment of the Related Regulations." In *People's Livelihood: Social Policies of Promoting Inclusive Growth*, Sen Gong and Yang Su, eds. Beijing: Social Science Literatures Press.
- Zhang, Dandan, and Xin Meng. 2007. "Assimilation or Disassimilation? The Labour Market Performance of Rural Migrants in Chinese Cities." Paper presented at the 6th Conference on the Chinese Economy, CERDI-IDREC, Clermont-Ferrand, France, October 18–19.
- Zhang, Junfu, and Zhong Zhao. 2013. "Measuring the Income–Distance Tradeoff for Rural-Urban Migrants in China." IZA discussion Paper No. 7160, Bonn, Germany.
- Zhang, Li, and Li Tao. 2012. "Barriers to the Acquisition of Urban Hukou in Chinese Cities." *Environment and Planning A* 44: 2883–2900.
- Zhang, Xiaobo, Jin Yang, and Shenglin Wang. 2009. "China Has Reached the Lewis Turning Point." *China Economic Review* 22 (4): 542–54.
- Zhang, Yina, and Jie Chen. 2013. "The Changing Prevalence of Housing Overcrowding in Post-Reform China: The Case of Shanghai, 2000–2010." Paper prepared for the Inter-University Seminar on Asian Megacities (IUSAM): "Asian Urbanism and Beyond," Hong Kong SAR, China, August 15–17.
- Zhao, Lei. 2008. "China's Busiest Court." *Southern Weekend*, December 4.
- Zheng, Bingwen. 2013. *China Pension Report 2012*. Beijing: Economy and Management.
- Zhong, H. 2011. "Returns to Higher Education in China: What Is the Role of College Quality?" *China Economic Review* 22 (2): 260–75.
- Zhu, Nong, and Xubei Luo. 2010. "The Impact of Migration on Rural Poverty and Inequality: A Case Study in China." *Agricultural Economics* 41 (2): 191–204.