

Chapter 2

Urbanization and Industrial Development in China

Kevin H. Zhang

Abstract Over the period 1978–2016, more than 550 million migrants moved to China’s cities, resulting in a large rise of urbanization from 18 to 57%. While urbanization is influenced by many factors, this study focuses on industrialization, a key structural determinant of urban development. How does industrial development affect China’s urbanization? Does China’s industrialization lead to its urbanization? Is China under- or over-urbanized? How does China manage urban development so that the virtuous circle between urbanization and industrialization could realize? This chapter offers explanations to the questions as follows: China’s rapid industrialization is the key driver of its urbanization; China’s urban development is at the right speed, avoiding many problems of over-urbanization in developing countries; and China successfully guided urbanization to promote economic growth through agglomeration and consumption effects.

Keywords Urbanization • Urban development • Industrialization • Industrial development

2.1 Introduction

China’s rapid urbanization and high economic growth for 38 years (1978–2016) have been unprecedented in human history. In 1978, less than one-fifth (17.9%) of China’s 975 million people lived in cities. But over the past 38 years, more than half a billion (558 million) people moved from rural areas to urban areas, seeking work in manufacturing and services as China industrialized its economy through developing special economic zones and export-oriented industries. This urban transformation, 57% of Chinese people in cities in 2016, has been mostly successful. Real per capita income increased by about 20 times in 1978–2016, lifting half a billion people out of poverty (World Bank 2017).

K.H. Zhang (✉)
Illinois State University, Normal, USA
e-mail: khzhang@ilstu.edu

Urbanization in China seems to be directly associated with industrial development. Industry, especially manufactures, has been viewed as an engine of economic growth for all economies. Unlike dependence on services in growth in India and on natural resources in Brazil and Russia, China's economic miracle is largely a manufacturing success. China's rapid industrialization since 1978 has increased incomes, raised living standards, and made China the world's largest manufacturer and exporter.¹ 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 (WB and DRCC 2014). With an annual average growth rate of over 9% for three decades, China became the world's second largest economy in 2010, and more than half of Chinese was urbanized as rural people moved to cities.

While there are many studies on China's urban development, several issues of the urbanization-industrialization link have been remained on debate (Gollin et al. 2016; WB and DRCC 2014; Zhang 2002). Does China's industrialization lead to its urbanization? Is China under- or over-urbanized? How does China guide urbanization to enhance its economic growth? Based on a solid theoretical framework and comprehensive international evidences, this chapter intends to offer explanations to the questions. The main conclusions can be summarized as follows. First, while international experiences suggest that urbanization could go with or without industrialization, China follows the standard approach of urbanization led by industrialization. In the last decades starting 1978, China's rapid urbanization is largely caused by its successful industrialization. Second, the fact that China's urbanization is lower than that of the world average at different income level is not a symbol of under-urbanization in China but over-urbanization in many developing countries. China managed well the speed of urbanization in order to avoid some of the common ills of urbanization that occurred in other developing countries, such as urban poverty, unemployment, and squalor. Third, China seems to have successfully guided urbanization to promote economic growth through agglomeration effects and consumption effects. This is vital for China's growth model transformation in the sense that China has to shift its exported-oriented to more domestic-consumption oriented economy, especially facing the anti-globalization challenge from the new president of United State in 2017.

¹Industrial development is desirable not only as a source of higher productivity growth and per capita income, but also to achieve greater diversity of the economic structure, which reduces a country's vulnerability to poverty and external shocks. Industry, especially manufacture, has long been considered a sector that plays a key role in economic growth for developing countries (UNIDO 2002, 2013; Zhang 2010).

2.2 Theoretical Framework of Urbanization-Industrialization Nexus

Three views on the urbanization-industrialization link may be identified from the literature (Alvarez-Cuadrado and Poschke 2011; Brückner 2012; Davis and Henderson 2003; Fay and Opal 2000; Glaeser 2013; Glaeser and Gottlieb 2009; Gollin et al. 2016; Hamer and Linn 1987; Lucas 2004; Michaels et al. 2012; Williamson 1988): urbanization led by industrialization; urbanization without industrialization; and a virtuous circle between industrialization and urbanization.

Urbanization Led by Industrialization Theoretical studies suggest several channels through which industrialization causes urbanization: industrialization leads to economic transformation of agriculture to industry and services; industry, especially manufactures, hires more rural people with higher wages; industry creates more jobs in services for rural people; and industrialization leads to rural-urban migration due to better life in cities than villages. In sum, industrialization results in the process of urbanization, in which urban population increases and rural population falls as industry and services expand.²

Urbanization is a natural and inevitable consequence of industrialization, because industrialization entails a massive shift of labor and other inputs from rural agricultural sectors to urban industrial sectors (Hamer and Linn 1987). The fall in agriculture's share of the labor force and the rise in industry's and services' shares during industrialization involve two phenomena: demand shifts and supply shifts. On the demand side, the share of income spent on food falls, and the shares spent on industrial products and services rise, as income increases. This process raises returns to labor and other inputs in industry and services relative to those in agriculture so that labor and other inputs are induced to move from rural agriculture to urban industry and services. On the supply side, the costs and prices of industrial products may fall relative to those of agricultural products, due to faster technical progress and larger benefits from capital accumulation, scale economies, and highly educated labor force in industry than in agriculture. Along with industrialization, cost reductions in industry are likely to cause large inflows of labor in that sector and thus increase urbanization (Williamson 1988).³

²Standard theories of development economics view urbanization and industrialization as essentially synonymous, reflecting a stylized development process in which the structural transformation from agriculture into manufacturing and services involves a shift of labor out of rural areas and into urban ones (Alvarez-Cuadrado and Poschke 2011; Brückner 2012; Michaels et al. 2012; Williamson 1988).

³Industrialization caused urbanization because it offered more jobs and attracted people to the city. The urbanization process typically begins when factories are established within a region and creating a demand for factory labor. Other businesses such as building manufacturers, retailers and service providers then follow the factories in order to meet the product demands of the workers. This creates even more jobs and demands for housing, thus establishing an urban area. As industrialization creates economic growth, the demand for the improved education and public works agencies that are characteristic of urban areas increases. This demand occurs because

The view of the urbanization led by industrialization emphasizes the role of sectoral labor productivity in driving structural change; i.e. the decline in agriculture, the rise and fall of manufacturing, and the rise of services. The “labor push” approach shows how a rise in agricultural productivity reduces the “food problem” and releases labor for the modern sector. The “labor pull” approach describes how a rise in non-agricultural productivity attracts underemployed labor from agriculture into the modern sector (Zhang 2002; Alvarez-Cuadrado and Poschke 2011).⁴

Urbanization without Industrialization A large endowment of natural resources in a country may lead to a strong income effect, shifting labor into urban areas, but as the relative productivity of the industrial sector has not increased this will result in urbanization without industrialization (Gollin et al. 2016). Urbanization thus is driven by the income effect of natural resource endowments: resource rents are disproportionately spent on urban goods and services, and the mix of workers is heavily skewed towards non-tradable services. This particular pattern of urbanization creates so called “consumption cities”, as their emergence is explained by the consumption of a resource rent in the form of urban goods and services. These cities consist mainly of workers in non-tradable services, while the industrial goods are mainly imported from abroad. Consumption cities involve a larger fraction of workers in non-tradable services such as trade and transportation, personal and government services (Glaeser et al. 2001; Duranton 2008; Glaeser 2013). Cities driven by industrialization have more workers in industrial sectors such as manufacturing and tradable services.

Feedback of Urbanization to Industrialization/Economic Development There is a virtuous circle between industrialization/economic development and urbanization, since they usually go hand-in-hand (Davis and Henderson 2003; Xie and Zhang 2004; Zhang 2002; Henderson 2003, 2010). High correlation of between the percent urbanized in a country and GDP per capita suggests a close interaction between them. Industrialization involves the transformation from an agricultural based economy to an industrial-service based economy. Production of manufacturing and services is much more efficient when concentrated in dense business-industrial districts in cities. As the process of growing share of national population living within urban settlements, urbanization has been a key force in economic development. Close spatial proximity, or high density, enhances economic growth through information spillovers amongst producers, more efficiently functioning labor markets, and savings in the transport costs.

(Footnote 3 continued)

businesses looking for new technology to increase productivity require an educated workforce, and pleasant living conditions attract skilled workers to the area.

⁴Urban areas under industrialization offer better opportunities for housing and education, and city living allows people to benefit from diversity and marketplace competition. Cities offer access to wealth and services that many rural areas lack. Rural inhabitants typically move to cities to exploit economic opportunities and improve their social mobility. The lack of specialist services in rural areas further stimulates urbanization.

There are varieties of channels through which urbanization can enhance economic growth (Glaeser et al. 1992; Glaeser and Gottlieb 2009). First, cities play a vital role in labor productivity by offering opportunities for education, employment and health services. Second, urbanization implies agglomeration of people and firms, which reduces production costs. Urbanization permits external scale and scope economies, reduces transactions costs, and allows specialization among firms leading to low costs of production. Third, urbanization is a key factor in entrepreneurship. Fourth, there are spillover effects or positive externalities of urban development on rural areas.

It is worth mentioning the positive feedback of urbanization to economic growth through agglomeration (Glaeser and Gottlieb 2009). As an important growth driver, urban areas offer positive agglomeration effects, including larger, more efficient labor markets, lower transaction costs, and easier knowledge spillovers. Agglomeration effects can also occur in smaller cities with sufficient specialization and transport linkages to larger urban areas. In the absence of sound public policy, however, those agglomeration effects may be easily outweighed by congestion costs—pollution, traffic congestion, and higher costs of living.

2.3 Worldwide Experience and International Perspective of Chins

Industrialization first sparked urban growth in United Kingdom in the late 18th century and throughout the 19th century in Europe and North America. Historically, pre-industrial societies were not urbanized. Urbanization rates of 15% (as opposed to 5%) characterized societies that were relatively developed for their time (UN 2011). The successful European and North American countries achieved high levels of urbanization (more than 50%) only in the course of industrialization. As these countries further developed, they saw a higher urbanization level (over 80%) due to marked expansions in services, in particular skill-intensive services.

Table 2.1 presents urbanization in China and the world in 1960–2015. In general, many countries, including China, conform to the standard view of urbanization led by industrialization through structural transformation, as suggested by the middle of the table in which urbanization is positively relation to income level by countries. Developing countries have urbanized dramatically over since 1960. Their urbanization process shares many similarities with developed countries in the past: urbanization is tightly correlated with income. This is confirmed by the positive relationship between urbanization and income per capita in 1960–2015 for country groups by income (Song and Zhang 2002; Zhang 2002, 2010).

Viewed from a global perspective, China's rapid urbanization is largely a case of norm rather than exception (UNIDO 2013; Song and Zhang 2002; Zhang 2002; Zhang and Song 2003). In line with global trends, although lagging behind initially but catching up lately, China's urbanization in 38 years (1978–2016) increased by

Table 2.1 China's urbanization relative to the world: 1960–2015

Region/Country	1960	1970	1980	1990	2000	2010	2015
China	16.2	17.4	19.4	26.4	35.9	49.2	55.6
World	33.6	36.5	39.3	42.9	46.5	51.5	53.9
<i>By income level</i>							
Low income	11.8	15.6	19.1	22.6	25.4	28.7	30.7
Lower middle income	19.7	22.5	26.2	29.9	32.9	36.8	39.0
Upper middle income	28.3	32.2	36.4	43.2	50.3	59.7	64.1
High income	63.8	68.9	72.0	74.5	76.8	79.9	81.1
<i>By developing regions</i>							
East Asia and Pacific	16.9	18.8	21.3	28.2	36.7	47.7	52.9
Latin America and Caribbean	48.4	56.3	63.7	69.9	74.9	78.2	79.6
Middle East and North Africa	35.0	42.7	49.6	54.9	58.6	62.5	64.2
Sub-Saharan Africa	14.6	18.0	22.2	27.0	30.8	35.2	37.7

Notes Not including high-income economies for East Asia & Pacific and Latin America & Caribbean

Sources World Bank (2016)

39% points (from 18 to 57%), with annual growth of 1.02% point. Although the rate is not extraordinary in light of the experience of the newly industrialized economies, the scale indeed is overwhelming. In the past three decades, urban residents in China soared by more than 550 million, 1.67 times of U.S. entire population (330 million). Now 775 million Chinese—i.e., roughly the total population of Europe—live in cities.

China has avoided some of the common ills of urbanization that occurred in other developing countries, such as urban poverty, unemployment, and squalor (UN 2011; WB and DRCC 2014). China's growth had been driven by investment rather than productivity, and investment has become less effective in generating growth at the national as well as the city level. Urbanization has relied excessively on land conversion and land financing, which is causing inefficient urban sprawl and, on occasion, ghost towns and wasteful real estate development. Barriers to migration have kept China's urbanization rate too low, thus underutilizing people's potential and exacerbating urban-rural income inequality. Unequal access to public services between citizens with urban household registration (*hukou* in Chinese) and those without, although diminishing, remains and is a barrier to mobility. At the same time, the large influx of migrants puts pressures on urban services, and urban citizens perceive an erosion of service quality. Rural-urban land conversion has been inequitable in the distribution of its gains, has added to wealth inequalities, and has fed social unrest among farmers whose land has been expropriated. Despite progress in environmental standards and policies, the cost of pollution to the nation's health is rising as China's population is increasingly concentrated in cities. And land-intensive urbanization has reduced the availability of farmland, is competing for scarce water resources, and is adding to pollution that affects the quality of farm produce and food production capacity.

The bottom part of Table 2.1 shows global regional pattern of urbanization in the developing world. Latin America & Caribbean and the Middle-East & North Africa are relatively more urbanized than Sub-Saharan Africa and Asia, with urbanization rates about 80 and 60% in 2015 respectively. In both Africa and Asia, the urbanization rate was only 10–15% in 1960, which is characteristic of preindustrial societies. It is now around 40%, as high as in developed countries after the Industrial Revolution. Asia and Latin America & Caribbean region are examples of the standard story of urbanization with industrialization. The successful Asian and Latin American economies typically went through industrialization, with urbanization following along as their economic activity shifted away from agricultural activities.⁵

While many developing countries have followed the typical pattern of urbanization with industrialization, a different pattern appears in a small group of countries that rely on resource exports. Urbanization in these countries has increased rapidly as well, but not been associated with industrialization. In these countries, urbanization is driven instead by the income effect of resource endowments. These countries include Kuwait, Gabon, Saudi Arabia, Libya, Algeria, Angola and Nigeria. They are as urbanized as East Asian economies like South Korea, Malaysia, and China, but their cities have never really achieved significant industrialization (Gollin et al. 2016). The relatively more urbanized countries export oil (e.g., Angola, Gabon and Nigeria), gold and/or diamonds (e.g., Botswana and South Africa), copper (e.g., Zambia) or cocoa (e.g., Ghana and Ivory Coast). Most of them export oil and are less industrialized than their Asian counterparts for the same income level.

2.4 Virtuous Circle Between Urbanization and Industrialization in China

China's urbanization since 1978 has been accompanied with its outstanding industrial performance (Zhang 2015a, b). Manufacturing jobs in China increased dramatically from 70 million in 1978 to 225 million in 2011, averaging a yearly growth rate of 3.6%; and that of the service sector from 49 to 273 million, averaging a yearly growth rate of 5.3%. Consequently, China became the world's manufacturing center, producing 85% of all TVs, 70% of all air-cons, 50% of all refrigerators, and 40% of all washing machines in the world. Such rapid industrial transformation has sustained high growth rates of the Chinese economy in the past three decades, and lifted 500 million people out of poverty. Per capita income in China in 1978 was a mere US\$155, but has since increased to US\$8280 in 2015, as

⁵A few exceptions are Brunei, Mongolia and Venezuela which were also heavily dependent on natural resource production post-1960. Some countries are both industrialized and resource-exporters, such as Chile, Indonesia, Malaysia, and Peru.

Table 2.2 China's position in the top 15 economies: 2015

Rank	Country	GDP (billions \$)	PPP GDP (billions \$)	Urbanization (%)	GDP per capita (\$)	PPP GDP per capita (\$)
1	USA	17,968	17,968	82	55,904	55,904
2	China	11,385	19,510	56	8280	14,190
3	Japan	4116	4842	93	32,481	38,211
4	Germany	3371	3842	75	41,267	47,033
5	UK	2865	2660	83	44,118	40,958
6	France	2423	2647	80	37,728	41,221
7	India	2183	8027	33	1688	6209
8	Italy	1819	2174	69	29,847	35,665
9	Brazil	1800	3208	86	8802	15,690
10	Canada	1573	1628	82	43,935	45,489
11	Korea	1393	1849	82	27,513	36,528
12	Australia	1241	1137	89	51,642	47,310
13	Russia	1236	3474	74	8447	23,744
14	Spain	1221	1636	80	26,327	35,270
15	Mexico	1161	2220	79	9592	18,335

Note According to International Comparison Program of World Bank (2015), China passed the US to become the world's number one economy in purchasing power parity (PPP) GDP in 2014

Sources World Development Indicators (World Bank 2015)

indicated by Table 2.2. History shows that no nation has been able to become high-income countries (i.e., when per capita income reaches US\$12,000) without successful urbanization (e.g., average urbanization of advanced economies is 76%), and China seems to be well on its way.

The overall trend of China's industrial performance since 1978 may be illustrated with Fig. 2.1. In 35 years (1978–2013), China's GDP grew 26 times over, but industry is a sector with fastest growth and the largest contribution (about 42 times of that in 1978). By 2014, China became the second largest economy in the world in current exchange rate, and number one in purchasing power parity value (World Bank 2016), as reported in Table 2.2. As the most populous country, however, China's GDP per capita lags far behind the US and other developed economies.

The position of China's industrial competitiveness (IC) is revealed in Table 2.3, which reports top 15 of the world IC ranking in 1992–2012.⁶ Among the most

⁶Based on the method developed by UNIDO (2013), a country's industrial competitiveness (IC) may be assessed with three indicators: industrial capacity, industrial intensity, and industrial quality. Industrial capacity, defined as the ability to produce and export manufactures, includes four indexes: manufacturing value added per capita, manufactured exports per capita, manufacturing value added share in world, and manufactured exports share in world. Industrial intensity denotes shares of manufacturing value added in GDP and manufactured export in total exports.

industrially competitive nations in the world, we find high income industrialized countries, as well as China ranked fifth in 2012. The top three positions are occupied by Japan, Germany, and the US, which have held top positions in the ranking since 1990. As the only developing country in the top 15 economies, China is obviously outstanding in industrial performance, especially the unbelievable rise in position. While some small East Asian economies (South Korea, Taiwan and Singapore) moved up their ranks by 2–13 positions, China gained 27 in merely 22 years, from the 32th in 1990 to the 5th in 2012, contrasting falls in many Western European economies.

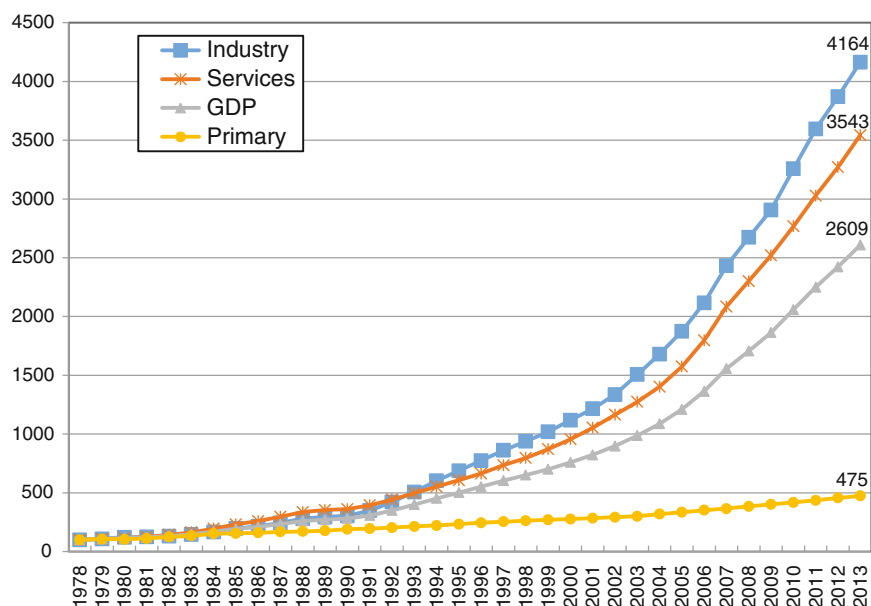
Figure 2.2 displays the overall trend of China's urbanization in 1949–2015, in which Chinese urban development underwent dramatic transformations as a consequence of two major systemic changes.⁷ During the first three decades (1949–1978), sustained low levels of urbanization and a brief episode of anti-urbanism accompanied centralized planning and city-based industrialization. Since 1978, Chinese urbanization has witnessed major economic and spatial shifts away from the socialist patterns (see Fig. 2.3). Among the many facets of urban transformation since 1978 are a more heterogeneous urban population, rural–urban migration, spatial reorganization through urban land-use change, new housing development, globalization, suburbanization, polycentric restructuring of urban form, and changes in the spatial/administrative systems of cities (Song and Zhang 2002; Zhang and Song 2003). The Chinese trajectory of urban development is seen as more different from than similar to the experiences of other economies (Gollin et al. 2016; WB and DRCC 2014).

It was not until the economic reform of 1978 that China's urbanization started to take off and, since then, the two processes have fed off each other (Xie and Zhang 2004; Zhang 2002, 2010, 2015a). With the introduction of market mechanisms in the 1978 reform, growth factors such as labor, land, capital and technologies (including vernacular techniques) could be mobilized for increased economic accumulation. The pace of China's urbanization has been much faster in 1979–2015 than 1949–1978. According to China's first Census in 1953, there were only

(Footnote 6 continued)

Industrial quality defined as technological deepening and upgrading in industries, includes medium- and high-tech manufacturing value added share in total and medium- and high-tech manufactured Exports share in total.

⁷China's statistics regarding urban population sometimes can be misleading because of the various criteria used to calculate urban population. In the 1953 census, urban essentially referred to settlements with populations of more than 2500, in which more than 50% of the labor force were involved in nonagricultural pursuits. The 1964 census raised the cut-off to 3000 and the requirement for nonagricultural labor to 70%. The 1982 census used the 3000/70% minimum but introduced criteria of 2500–3000 and 85% as well. In addition, in calculating urban population, the 1982 census made a radical change by including the agricultural population residing within the city boundaries. This explains the dramatic jump in urban population from the 138.7 million reported for year-end 1981 to the 206.6 million counted by the 1982 census. In 1984 the urban guidelines were further loosened, allowing for lower minimum population totals and nonagricultural percentages. The criteria varied among provincial-level units.



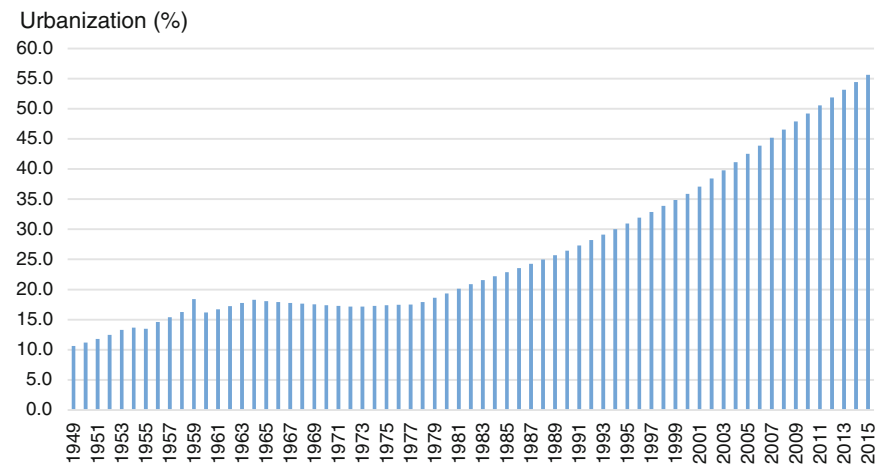
Source: *China Statistical Yearbook 2014* (NBSC 2014).

Fig. 2.1 Growth of industry as China's GDP component in 1978–2013 (1978 = 100). *Source* China Statistical Yearbook 2014 (NBSC 2014)

Table 2.3 Rank of Top 15 economies of industrial competitiveness: 1990–2012

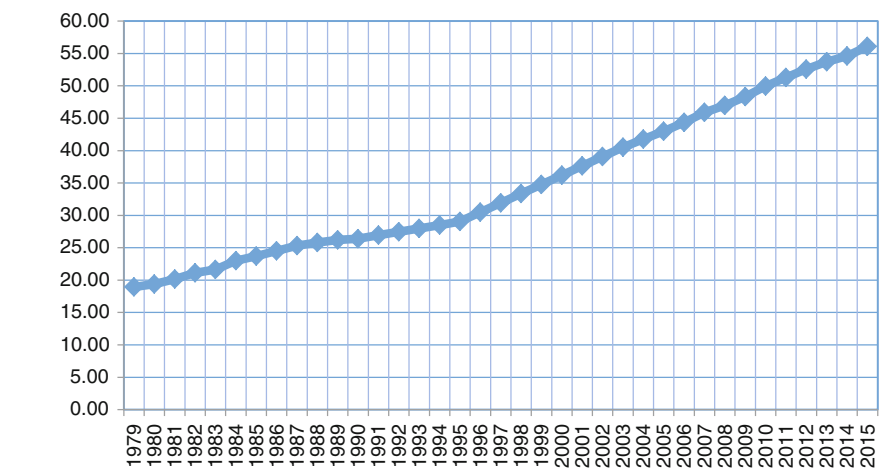
Economy	2012	2010	2005	2000	1995	1990	Changes in 1990–2012
Germany	1	1	1	2	2	1	0
Japan	2	2	2	1	1	2	0
USA	3	3	3	3	3	3	0
Korea	4	4	6	12	13	17	+13
China	5	7	19	22	27	32	+27
Switzerland	6	5	9	9	7	7	+1
Singapore	7	6	10	10	11	12	+5
Netherlands	8	8	11	13	10	9	+1
Belgium	9	12	5	8	8	8	−1
Ireland	10	11	12	11	17	19	+9
Taiwan	11	13	13	14	12	13	+2
France	12	10	7	6	6	6	−6
Italy	13	9	4	4	4	4	−9
UK	14	14	8	5	5	5	−9
Austria	15	16	16	17	15	11	+4

Source United Nations Industrial Development Organization Database (UNIDO 2015)



Source: China Statistical Yearbook 2016 (NBSC 2016).

Fig. 2.2 China’s urbanization: 1949–2015. *Source* China Statistical Yearbook 2016 (NBSC 2016)



Source: China Statistical Yearbook 2016 (NBSC 2016).

Fig. 2.3 China’s urbanization level (in percentage): 1979–2015. *Source* China Statistical Yearbook 2016 (NBSC 2016)

77.3 million urban residents, accounting for 13.3% of the total population (NBSC 2016). In three decades (1949–1978), the urbanization rate rose only 4.6% points (13.2–17.8%), with an average annual increase of 3.8 million urban people. Most of this modest increase in urban population occurred in the 1950s, when China had rapid industrial development. The period of 38 years (1978–2016) thus saw an

Table 2.4 Industrial competitiveness (*IC*) and urbanization (*U*) by region: 2005 and 2013

2005				2013			
Rank	Region	IC	U (Rank)	Rank	Region	IC	U (Rank)
1	Shanghai	0.942	0.89 (1)	1	Shanghai	0.955	0.90 (1)
2	Tianjin	0.800	0.75 (3)	2	Jiangsu	0.854	0.66 (6)
3	Guangdong	0.680	0.61 (4)	3	Tianjin	0.697	0.82 (3)
4	Jiangsu	0.658	0.51 (9)	4	Guangdong	0.667	0.68 (4)
5	Beijing	0.641	0.84 (2)	5	Beijing	0.569	0.86 (2)
6	Zhejiang	0.500	0.56 (6)	6	Chongqing	0.446	0.58(10)
7	Fujian	0.408	0.49(10)	7	Zhejiang	0.431	0.64 (7)
8	Liaoning	0.379	0.59 (5)	8	Liaoning	0.422	0.66 (5)
9	Shandong	0.313	0.45(14)	9	Fujian	0.401	0.61 (8)
10	Chongqing	0.263	0.45(12)	10	Inner Mongolia	0.381	0.59 (9)
11	Hubei	0.212	0.43(15)	11	Jilin	0.379	0.54(13)
12	Inner Mongolia	0.200	0.47(11)	12	Sichuan	0.367	0.45(24)
13	Hebei	0.195	0.38(19)	13	Hubei	0.339	0.55(12)
14	Ningxia	0.189	0.42(16)	14	Shandong	0.330	0.54(14)
15	Sichuan	0.185	0.33(26)	15	Hebei	0.282	0.48(21)
16	Hunan	0.183	0.37(22)	16	Shaanxi	0.265	0.51(18)
17	Anhui	0.169	0.36(24)	17	Hunan	0.244	0.48(22)
18	Jiangxi	0.163	0.37(23)	18	Jiangxi	0.233	0.49(19)
19	Jilin	0.156	0.53 (8)	19	Anhui	0.232	0.48(23)
20	Yunnan	0.148	0.30(29)	20	Ningxia	0.220	0.52(17)
21	Guangxi	0.146	0.33(25)	21	Henan	0.211	0.44(27)
22	Henan	0.140	0.31(27)	22	Guangxi	0.200	0.45(25)
23	Guizhou	0.137	0.27(30)	23	Hainan	0.196	0.53(15)
24	Hainan	0.133	0.45(13)	24	Shanxi	0.192	0.53(16)
25	Shaanxi	0.128	0.37(20)	25	Heilongjiang	0.185	0.57(11)
26	Gansu	0.123	0.30(28)	26	Gansu	0.144	0.40(29)
27	Heilongjiang	0.119	0.53 (7)	27	Yunnan	0.141	0.40(28)
28	Xinjiang	0.048	0.37(21)	28	Xinjiang	0.138	0.44(26)
29	Shanxi	0.000	0.42(17)	29	Guizhou	0.112	0.38(30)
30	Qinghai	0.000	0.39(18)	30	Qinghai	0.000	0.48(20)
31	Tibet	0.000	0.21(31)	31	Tibet	0.000	0.24(31)
	China	0.408	0.4299		China	0.454	0.5373

Sources Author's calculations based on the data from China Industrial Economy and Statistical Yearbook 2006 and 2014 (NBSC 2006–2014) and China Statistical Yearbook 2006–2014 (NBSC 2006–2014)

increase of 97% points (from 18 to 57%). The urban population increased from 185 million to more than 750 million, an average annual increase of 15 million, nearly four times of the rate of the pre-reform era.

China has successfully guided urban development to promote economic growth so that urbanization can support high growth and rapid transformation of the economy (WB and DRCC 2014). Rapid urbanization allowed people—among them some 260 million migrants—to move from agriculture to more productive activities. In the process, 500 million people were lifted out of poverty, and China managed unprecedented growth that averaged more than 9% a year for three consecutive decades. China's cities, with abundant labor, cheap land, good infrastructure, and competition among local governments to attract industry and investment, have created an environment that has been highly conducive to growth. Growing cities that have become increasingly connected with each other and with the rest of the world have added to productivity growth through agglomeration effects, and China's mega cities now have income levels comparable to some developed countries (Zhang and Song 2003; WB and DRCC 2014). As suggested in Table 2.4, there is an obvious virtual circle between industrialization and urbanization at China's regional level.

The concentration of economic activity in large cities is the most dynamic in the Chinese economy. Cities with a population of 2.5 million or more generate 95% of China's urban exports, and the GDP of top five cities (Beijing, Guangzhou, Shanghai, Shenzhen, and Tianjin) amounted to \$1 trillion in 2010—comparable in size to Korea's economy (WB and DRCC 2014). Incomes in these cities have climbed swiftly as well: between 2000 and 2010, per capita GDP rose from 35,000 yuan (Chinese currency) to 82,000 yuan in Shenzhen and from 32,000 to 66,000 yuan in Shanghai. Agglomeration effects became more important for China as the economy shifted increasingly to services. In China's richer cities, services will become more important as a share of GDP. Agglomeration effects play an even more important role in services than in industry. Close proximity also stimulates the growth of other specialized services such as legal, software, data processing, advertising, and management consulting firms. Urban density allows frequent face-to-face contact among employees, entrepreneurs, and financiers—contact that in turn promotes innovation and productivity.

2.5 Concluding Remarks

China's urbanization over the period of 1978–2016 has been unprecedented in scale: more than 550 million migrants have moved to cities from rural areas due to rapid industrialization, supporting the country's rapid economic growth and development progress. Despite the enormity of this transition, China has avoided some of the ills often associated with urbanization, particularly large-scale urban poverty and unemployment. While there are many studies on China's urban development, several issues of the urbanization-industrialization link have been remained on debate. Does China's industrialization lead to its urbanization? Is China under- or over-urbanized? How does China guide urbanization to enhance its economic growth?

Based on a solid theoretical framework and comprehensive international evidences, this chapter intends to offer explanations to the questions. The main conclusions can be summarized as follows. (a) While international experiences suggest that urbanization could go with or without industrialization, China follows the standard approach of urbanization led by industrialization. (b) In the last decades starting 1978, China's rapid urbanization is largely caused by its successful industrialization. (c) The fact that China's urbanization is lower than that of the world average at different income level is not a symbol of under-urbanization in China but over-urbanization in many developing countries. (d) China managed well the speed of urbanization in order to avoid some of the common ills of urbanization that occurred in other developing countries, such as urban poverty, unemployment, and squalor. (e) China seems to have successfully guided urbanization to promote economic growth through agglomeration effects and consumption effects. This is vital for China's growth model transformation in the sense that China has to shift its exported-oriented to more domestic-consumption oriented economy, especially facing the anti-globalization challenge from the new president of United State in 2017.

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