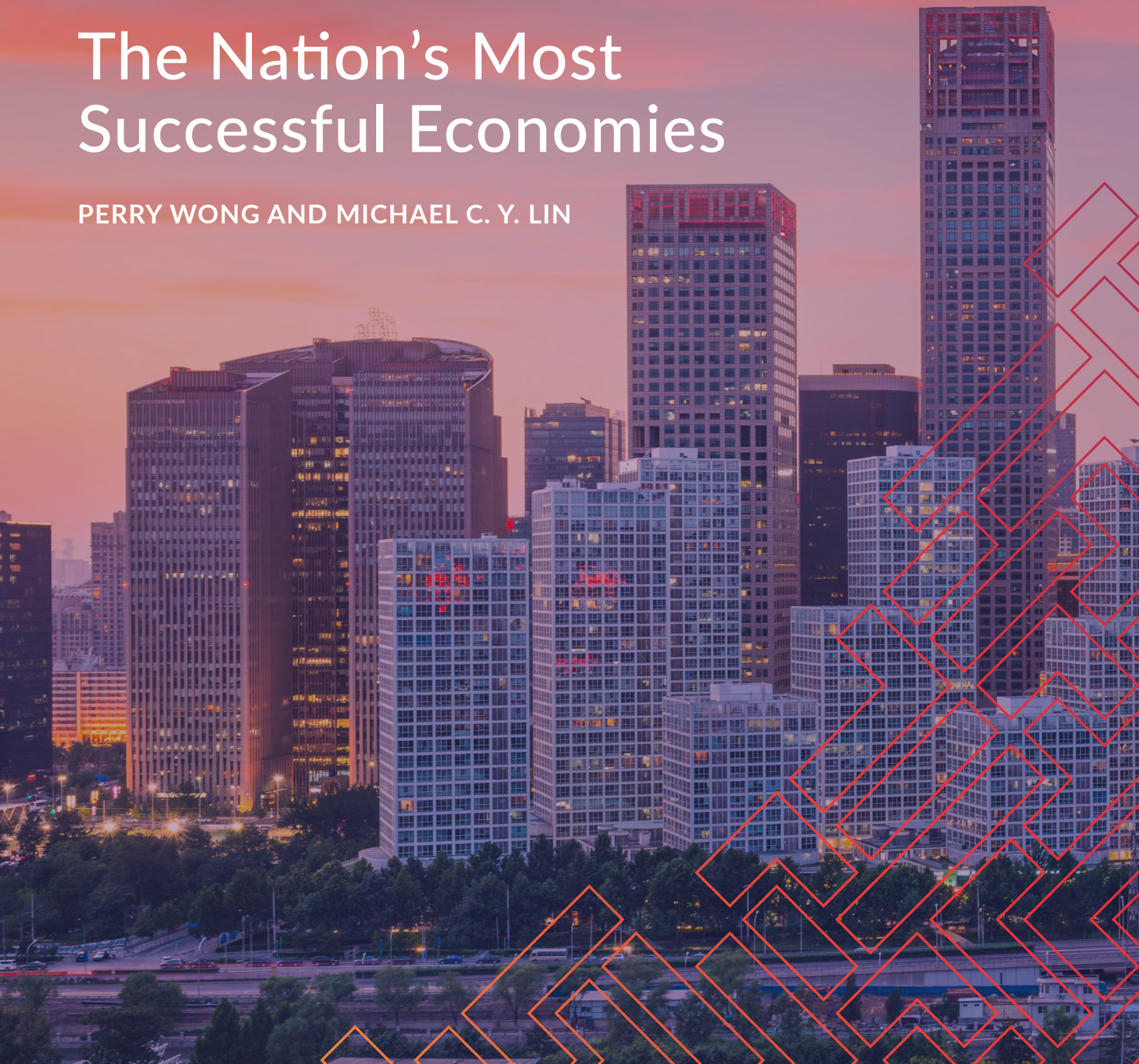# MILKEN INSTITUTE

Best-Performing Cities China 2021

The Nation's Most Successful Economies

PERRY WONG AND MICHAEL C. Y. LIN

About the Milken Institute

The Milken Institute is a nonprofit, nonpartisan think tank. We catalyze practical, scalable solutions to global challenges by connecting human, financial, and educational resources to those who need them.
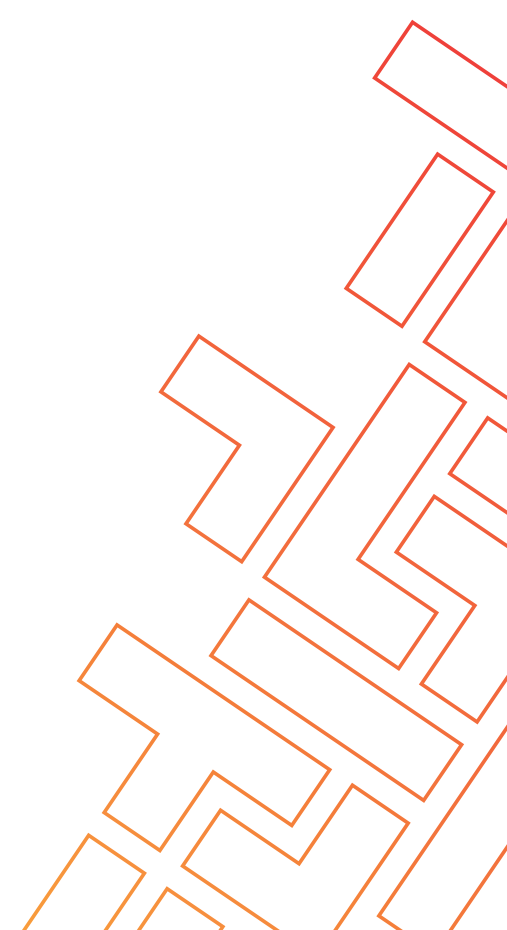
We leverage the expertise and insight gained through research and the convening of top experts, innovators, and influencers from different backgrounds and competing viewpoints to construct programs and policy initiatives. Our goal is to help people build meaningful lives in which they can experience health and well-being, pursue effective education and gainful employment, and access the resources required to create ever-expanding opportunities for themselves and their broader communities.

About the Asia Center

The Milken Institute Asia Center extends the reach and impact of Milken Institute programs, events, and research to the Asia-Pacific region. We identify opportunities to leverage the Institute's global network to tackle regional challenges integrate the region's perspectives into the development of solutions to persistent global challenges.

CONTENTS

INTRODUCTION

As the world's second-largest economy after the US, China has attracted numerous businesses to vie for its sizable and fast-expanding markets. In recent years, these businesses have extended their footprints beyond the major Chinese cities to capture untapped opportunities in smaller cities.

Despite China's promising markets, both international and domestic forces have been reshaping the Chinese urban landscape and business environments. Recent events such as the US-China trade war in 2018, the COVID-19 outbreak in late 2019-early 2020, and, more recently, the Chinese government's wealth redistribution under the "common prosperity" banner and crackdown on some businesses have created both challenges and opportunities for investors. These events, on the other hand, have also intensified competition among Chinese cities and urban clusters in an ever-changing environment.

This report aims to provide businesses, investors, policymakers, and many others with a tool for better understanding and evaluating the economic development of China's cities and regions to guide decision-making. This study uses official data from the year 2019—the latest available—to assess the economic performance of cities in China that are at or above the prefecture level. It sorts 238 Chinese cities into two groups: the largest-cities group, with 33 first- and second-tier cities; and the small and medium-sized group, with 205 third-tier cities. The two groups are ranked separately based on economic performance.

The index measures growth in jobs, wages, and per-capita gross regional product (GRP) over one-year (2018–2019) and five-year (2014–2019) periods. The one-year measurement is intended to capture the most recent economic dynamics, whereas the five-year measurement attempts to adjust for extreme variations in the recent business cycle. Moreover, this index takes into account the actual use of foreign direct investment (FDI) during the 2016–2019 period and its share over GRP in 2019. In addition, it incorporates the location quotient (LQ) for high value-added industry employment in 2019. High value-added industry is typically considered a major driving force for the future growth of a local economy and is defined as the sectors of manufacturing; transport, storage, and post; information transmission, computer services, and software; financial intermediation; real estate; and leasing and business services.[1]

The report first reviews China's recent economic conditions. Next, it describes three key determinants driving China's regional economic development in the past decade or so. The last section focuses on the top 10 large and small cities in our rankings. The Appendix presents full ranking tables and more details on data and methods for this ranking report.

CHINA'S ECONOMIC OVERVIEW

From the 1980s into the 2000s, China was viewed as the "world's factory" thanks to rapid urbanization, the transformation of economic and industrial production bases, and maintenance of relatively low production costs. The nation's average decennial gross domestic product (GDP) growth rates from the 1980s to 2010s were phenomenal, registering at 9.7 percent, 10 percent, and 10.4 percent, respectively. In the most recent decade, however, China has faced various challenges and has gone through a dramatic structural change in its economy. The nation's GDP growth rate during the period 2010–2019 was 7.7 percent. The growth rates reached 5.9 percent in 2019, which was the lowest point since 1990. The rate further dipped to 2.3 percent in 2020 due to the pandemic. This rate was the worst number since 1976 (-1.6 percent) (Figure 1).[2]

Figure 1. China's GDP Growth Rates (1978–2020)
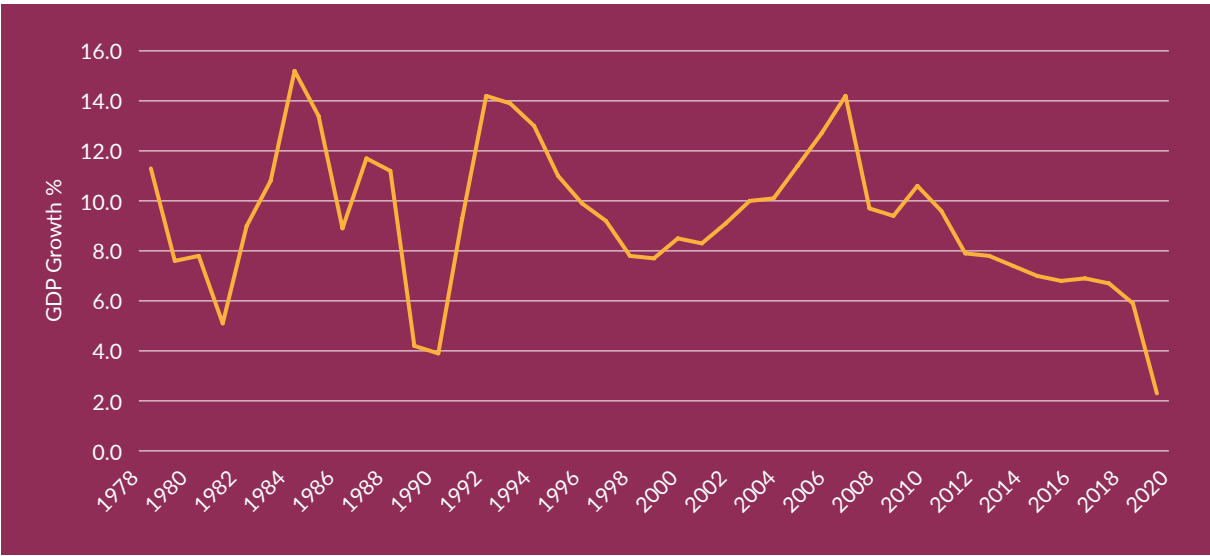
Source: The World Bank (2020)

To grapple with challenges (e.g., rising costs of domestic production factors) with a "new normal" for the Chinese economy during the 2010s, China has proposed several major strategies. First, the country proposed the One Belt, One Road initiative in 2013 to expand China's international trade. Second, the nation intended to reignite its growth engine by implementing innovation-driven development strategies. Specifically, the central government proposed the Mass Entrepreneurship and Mass Innovation initiative in 2014 to help entrepreneurs and startup companies with their business and innovation activities. More importantly, this initiative is "imperative for economic structure transformation and further development."[3] Third, in 2015 it released the Made in China 2025 initiative to upgrade the nation's manufacturing sector and cultivate its high-tech industries (e.g., robotics). More specifically, it aims at fostering domestic companies' innovation capacity instead of over-relying on foreign technologies.[4]

Despite these grandiose plans laid out in the first half of the 2010s, China faced several new challenges towards the end of the most recent decade. The US-China trade conflict starting in 2018 has impeded China's progress toward becoming a world tech giant. The US ban on exports of chips and other high technologies to China has vexed the country's high-tech (semiconductor in particular) sector. The trade restriction has even expanded from semiconductor and communications industries into others, including commodities and clean-tech. On top of the trade restriction, American investment on potential military and civilian dual-use production is not allowed. In addition, the recent COVID-19 pandemic has further disrupted the supply chain for both China's and the global economies.

In response to these new challenges, China has adopted a new economic development model of "dual circulation" in 2020. For "internal circulation," the nation seeks to boost domestic consumption. The "common prosperity" agenda supplements this approach by redistributing wealth and narrowing the gap across various social classes. This approach also intends to further domestic innovation capacity. China's recent move to further build a self-sufficient semiconductor ecosystem and pour more resources into biomedicine (e.g., vaccines for COVID-19) emphasizes the nation's efforts. As for "external circulation," the country intends to continue facilitating international trade. The new establishments of pilot free-trade zones (FTZs) in Beijing, Anhui, and Hunan, and the expansion of FTZ in Zhejiang announced by the Chinese government in 2020, demonstrate this ambition.[5]

In 2021, the Chinese economy climbed out of the pandemic-induced shock. With viral infection case-tracing and monitoring at the community level, a very restrictive public health policy has facilitated domestic economic recovery and reignited commercial activities. The nation's GDP growth for the first three quarters was 18.3 percent, 7.9 percent, and 4.9 percent, respectively.[6] Top-line economic indicators appear to confirm that a sustained recovery is in place. Year-over-year growth in consumer-goods retail sales for the period January–September 2021 rose by 16.4 percent.[7] The nation's exports and imports recorded strong growth, of 22 percent and 32 percent, respectively, in November 2021.[8] It appeared that the 2020 policies enabled the domestic economy to rebound effectively. Nonetheless, China's GDP growth in the third quarter of 2021 signaled a slowing down of the world's second-largest economy, despite supportive fiscal policies and long-term growth plans. The unaccounted-for factors continuing to impact the Chinese economy are rounds of community infection (due to new variants of the novel coronavirus) and the weakened global economic system.

REGIONAL ECONOMIC DEVELOPMENT

In the past decade, three factors have largely shaped China's regional economic development. The first is the growth of existing regional clusters and the formation of new regional clusters. The Yangtze River Delta and the Pearl River Delta used to be recognized as two major regional clusters in China. More recently, several regional clusters have emerged, including the Jing-Jin-Ji (JJJ) cluster, the Diamond Economic Zone, and the Greater Bay Area (GBA). The JJJ cluster, located in northeastern China, consists of Beijing, Tianjin, and Hebei provinces. The Diamond Economic Zone is the extension of the Western Development strategy and includes Xi'an, Chengdu, Kunming, and Chongqing. GBA can be considered as the restructuring of the Pearl River Delta and comprises nine cities in Guangdong province, Hong Kong, and Macau. The integration of urban economies helps promote and facilitate coordination of large urban areas, achieve more efficient use of resources, address structural challenges such as inequality and excess capacity, and eventually contribute to economic growth.[9]

The second factor is the expansion and improvement of transportation infrastructure (high-speed rail [HSR] networks in particular) in the past decade. Since 2008, China has built more than 37,900 kilometers (about 23,500 miles) of HSRs. By 2020, HSRs had reached about three-fourths of Chinese cities with a population of 500,000 or more.[10] HSR networks initially connected major cities but later reached smaller cities such as Ji'an in Jiangxi province, which holds seventh place in our rankings. HSR has greatly reduced commuting times between small and large cities, rural and urbanized regions. The expansion of HSR networks has facilitated regional economic development.[11]

The third factor shaping regional economic development is the recent five-year plans (FYPs). The central government releases the master FYP, and each province and city follow by developing its own FYP. The 13th Five-Year Plan (2016–2020) sets up two major goals related to economic development. The first was that China should aim to double its total GDP with reference to the 2010 level and its per-capita GDP compared with the 2016 level. The second goal was to facilitate innovation to transform the breakdown of industries into higher value-added composites. These two goals guided many small cities, such as Chuzhou (ranked first) and Fuyang (ranked second), in reaching high rates of growth in per-capita GRP.

These three factors keep driving current regional development in China. Almost all of the top-10 large cities in our rankings are parts of major urban clusters. In particular, the Chinese government has recently poured more resources into the GBA, where Guangzhou, Shenzhen, and Hong Kong (the three major economic powerhouses in Southern China) are key localities shaping the development of the region.[12] In 2020, China released the "Implementation Plan for the Comprehensive Reform of the Pilot Demonstration Zone for Building Socialism with Chinese Characteristics in Shenzhen (2020–2025)." This plan grants Shenzhen even more autonomy in planning, experimenting, and reforming social and business operations. Its main goals include enhancing business and economic environments, improving environmental and urban governance, and promoting technological innovation.[13]

Rural regional development and the elimination of extreme poverty policies have been the central themes in the last two five-year plans. As such, the Chinese government announced in early 2021 that China had eliminated extreme poverty after decades of effort.[14] Massive infrastructure building, particularly on highways and HSRs, laid a solid foundation that helps integrate urban and rural areas. According to the Chinese government, impoverished areas had gained 1.1 million kilometers of reconstructed highways.[15] By the end of 2019, China boasted 35,000 kilometers of HSR.[16] Moreover, improvements in power supply, housing, and modern telecommunications have facilitated entrepreneurial activities and improved living standards in impoverished rural areas. Many top-ranked small cities in our ranking reports have benefited from these improvements.

The State Council formally adopted the 14th Five-Year Plan in March 2021. The plan calls for further integration and coordination of existing super-regional clusters in the next five years. There will also be a greater focus on leveraging central cities' economic and industrial strengths to promote economic growth opportunities in fringe areas of these superclusters. In this year's ranking, there is evidence illustrating coordination of policies to link the more-developed central cities to less-developed rural fringe economies.

BEST PERFORMERS

This section reports our rankings' top 10 performers for both the large- and small-city groups.

Table 1. Best-Performing Cities China 2021

Rank	First- and Second-Tier Cities
1	Haikou, Hainan (海南省, 海口市)
2	Guangzhou, Guangdong (广东省, 广州市)
3	Xi'an, Shaanxi (陕西省, 西安市)
4	Chengdu, Sichuan (四川省, 成都市)
5	Shenzhen, Guangdong (广东省, 深圳市)
6	Shanghai (上海市)
7	Wuhan, Hubei (湖北省, 武汉市)
8	Beijing (北京市)
9	Changsha, Hunan (湖南省, 长沙市)
10	Zhengzhou, Henan (河南省, 郑州市)

Rank	Third-Tier Cities
1	Chuzhou, Anhui (安徽省, 滁州市)
2	Fuyang, Anhui (安徽省, 阜阳市)
3	Dongguan, Guangdong (广东省, 东莞市)
4	Jiaxing, Zhejiang (浙江省, 嘉兴市)
5	Xuancheng, Anhui (安徽省, 宣城市)
6	Zhuhai, Guangdong (广东省, 珠海市)
7	Ji'an, Jiangxi (江西省, 吉安市)
8	Bozhou, Anhui (安徽省, 亳州市)
9	Lijiang, Yunnan (云南省, 丽江市)
10	Maanshan, Anhui (安徽省, 马鞍山市)

Source: *Milken Institute (2022)*

Top 10 Best Performers
(First- and Second-Tier Cities)

1. HAIKOU

Haikou, Hainan province, tops the first- and second-tier cities. In 2018, China's President Xi Jinping announced that the country will build its first socialist system-based free trade port (FTP) in Hainan province. A key goal of this initiative is to facilitate international trade and investment in the entire province. This initiative will enable Hainan to advantage "Free Trade" among all provinces in the nation. As the provincial capital, Haikou already boasts one of the key business parks of the Hainan FTP in its Haikou Jiangdong New Area (HJNA). HJNA has offered various policy measures such as low corporate tax rates, investment funds, and streamlined processes for setting up business establishments. Haikou has recently witnessed an influx of international investment and ranked first among all Chinese cities in 2016–2019 FDI growth in our index.[17] On the strength of the Jiangdong New Area FTP development, the central government extended the FTP for the entire province and issued a Master Plan of Hainan Free Trade Port for Hainan Province in 2020.[18] As an essential post in 21st-century China's Maritime Silk Road, the city—and to a large extent the entire province—has focused on cultivating the resources for exhibition and trade, services, tourism, and seaport-related businesses. The city, as well as the entire island province, will be a zero-tariff jurisdiction in China for many business and commercial activities.

2. GUANGZHOU

Guangzhou secures the second position in our index ranking. It ranks first among all large Chinese cities in one-year employment growth and one- and five-year wage growth in our index and places second and fourth in the indicators for five-year employment growth and LQ for high value-added industry employment, respectively. According to the 2019 GRP, Guangzhou had the fourth-largest economy (2.4 trillion yuan[19]) among all the cities in China after Shanghai, Beijing, and Shenzhen. Traditionally, automobiles, electronics, and petrochemicals have been the three pillar industries for the city.[20] Nonetheless, as the core city in both the Pearl River Delta Economic Zone and the Greater Bay Area, the city has diversified and strengthened its industrial composition. New information technologies, artificial intelligence, biomedicals, new energy, and new materials have become more important to the city's economy. Their contribution to Guangzhou's industrial output jumped from 40.2 percent in 2011 to 49 percent in 2019.[21] In 2019, the municipal government presented 59 measures, including tax reduction and subsidies, to promote the manufacturing sector.[22]

3. XI'AN

Xi'an in Shaanxi province takes third place among the large cities. It performs well in several indicators, including one-year employment growth (No. 7), one- and five-year wage growth (No. 6 and No. 4, respectively), three-year FDI growth (No. 6), FDI/GRP ratio (No. 3), and LQ for high value-added industry employment (No. 10). From 2016 to 2019, the GRP of Xi'an increased by around 0.1 trillion yuan each year, and the city's GRP reached nearly 1 trillion yuan in 2019.[23] As one of the key posts of the One Belt, One Road initiative, the city's ability to attract FDI has been noticeable. In addition to being a well-known tourist spot, thanks to its historical legacy including the Terracotta Army, Xi'an has recently cultivated high value-added industries including aerospace, new energy, and semiconductor sectors. Xi'an is one of China's aerospace powerhouses, with a development zone for the aerospace sector and several major research institutions, including the China Aerospace Science and Industry Corporation, China Aerospace Science and Technology Corporation, the School of Aerospace Engineering at Xi'an Jiaotong University, and the Xi'an Aerospace Propulsion Institute. In the fourth quarter of 2018, BYD announced that it will build a new battery factory in the city.[24] In 2019, Samsung announced that it will pump $8 billion to expand its production of NAND flash memory chips in Xi'an.[25] All these factors have contributed to the city's recent strong economic performance. Nevertheless, the recent lockdown due to the pandemic in December 2021 has somewhat dimmed the prospects for Xi'an's economy (particularly the transport-equipment manufacturing and semiconductor sectors), and the full impact of the pandemic remains to be seen.
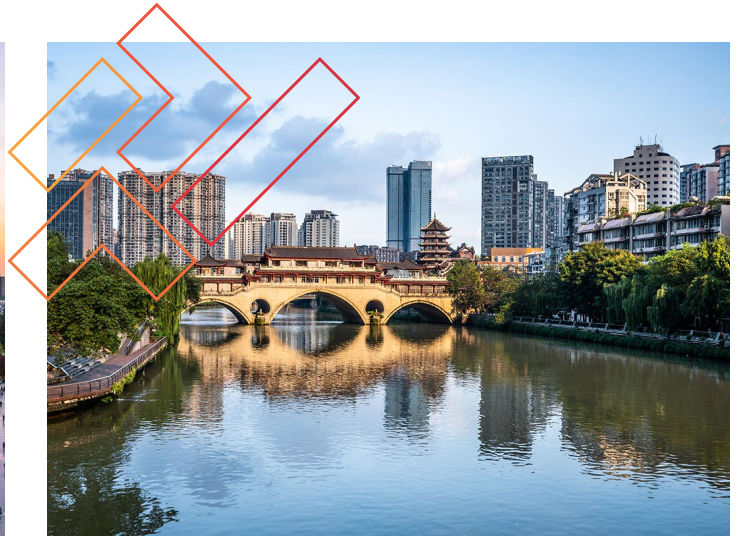
4. CHENGDU

Chengdu in Sichuan province is No. 4 among first- and second-tier cities. It posts highest in five-year employment growth and FDI/GRP ratio, and performs outstandingly well in the other indicators for five-year wage growth (No. 5) and three-year FDI growth (No. 2) in our index. The city has long been known as an industrial and manufacturing base, especially for the national defense sector. However, this historic city has recently transformed itself into a creative and innovative hub.[26] In recent years, both the provincial and municipal governments presented policies that foster the technology-related sector. For instance, the Sichuan government took measures in its 13th Five-Year Plan (2016–2020) to facilitate the commercialization of scientific and technological research outcomes.[27] In 2019, the municipal government announced that it would offer subsidies of 3 million yuan to companies in the artificial intelligence field as a means to promote technology-driven entrepreneur growth.[28] Chengdu has also attempted to strengthen its biomedical sector. In 2019, the West China Hospital/West China School of Medicine of Sichuan University signed an agreement with Arizona State University to create the Biodesign Institute China, West China Hospital, for the prevention of cancer and infectious diseases.[29]

5. SHENZHEN

Shenzhen in Guangdong province holds fifth place in our ranking. The city scores particularly well in five-year employment growth (No. 8), one- and five-year wage growth (No. 7 and No. 2, respectively), and LQ for high value-added industry employment (No. 1). As one of China's first special economic zones, designated in 1979, and one of the core members of both the Pearl River Delta Economic Zone and the Greater Bay Area, its economic development has been phenomenal. From 1979 to 2019, the city's per-capita GDP jumped from 606 yuan to 203,489 yuan.[30] Although both Beijing and Shenzhen in Guangdong province are dubbed the Silicon Valley of China, the former is focused more on software and the latter is better known for hardware. Shenzhen is home to many well-known Chinese tech companies, including DJI, Huawei, and Tencent. Shenzhen and its neighboring manufacturing subcenters—which include Dongguan, Foshan, and Huizhou—have formed an ecosystem for hardware development and efficient manufacturing. All these make the city an unrivaled high-tech hub, which is also reflected in our LQ indicator. As the city leads in economic and commercial development in China, the "Implementation Plan for the Comprehensive Reform of the Pilot Demonstration Zone for Building Socialism with Chinese Characteristics in Shenzhen (2020–2025)," released by the central government in 2020, reconfirms the city's pioneering role in China's political and economic experiments.

6. SHANGHAI

Shanghai places sixth in our ranking, holding strong positions for one-year employment growth (No. 4), one- and five-year GRP growth (both No. 6), FDI/GRP ratio (No. 6), and LQ for high value-added industry employment (No. 5). In 2019, the city was the largest urban economy in China, registering 3.8 trillion yuan of GRP.[31] Situated in the Yangtze River Delta, the city has long served as China's financial center. Nonetheless, modern Shanghai has a diversified industrial mix, with automobile, aviation, biomedicine, electronics and information, logistics, petrochemicals, services, and trade. During the past decade, Shanghai has been the world's largest port, with a yearly 43.3 million TEUs (20-foot equivalent units) of container in 2019.[32] Despite the US-China trade war, the city has strived to boost its economic development. In 2019, Shanghai launched the Science and Technology Innovation Board (also known as STAR Market), a Nasdaq-equivalent tech board, to help high-tech companies raise funds. The same year, the city implemented policies, such as optimizing supply and hosting China Brand Day, aimed at stimulating consumption in the city and helping to expand domestic consumption.[33]

7. WUHAN

Wuhan takes seventh place among large cities. The Hubei provincial city fares well in our three-year FDI growth indicator (No. 7), particularly for FDI/GRP ratio (No. 2). The city is a well-known national and regional hub for industry and transport. Wuhan is particularly known as a center for automotive and auto-parts manufacturing. The Chinese and Japanese joint-venture Dongfeng Honda Automobile (headquartered here), the Chinese-US joint-venture SAIC-GM, the French Valeo, and the Chinese-French joint venture Dongfeng Peugeot Citroën Automobile Co. (DPCA) all have factories in the city. Dongfeng Honda Automobile manufactures approximately 1.25 million cars annually.[34] In 2019, DPCA revealed its "YUAN" strategic plan to boost auto sales.[35] Wuhan has also entered the digital economy. In 2019, SAP, the German tech giant, opened an office in Wuhan to facilitate the success of the city's small and mid-size enterprises (SMEs) in the digital era.[36] The outbreak of the COVID-19 pandemic in late 2019 struck a severe blow to Wuhan's economy, which may take some time to recover.

8. BEIJING

Beijing, the fulcrum city of the JJJ urban cluster, is eighth among top-tier cities, ranking in the fifth spot for one- and five-year per-capita GRP growth and posting strong LQ for high value-added industry employment (No. 8). The nation's capital city has a diversified mix of industries but is known particularly for the government and high-tech sectors. Representative internet/software-related companies headquartered in the city include Baidu, DiDi, JD.com, Microsoft Asia-Pacific R&D Group, and Sohu.com Ltd. In addition to Beijing's well-established industrial base, the city has recently benefited from new urban development. Since 2017, the municipal government has relocated some of its employees to a subcenter called Tongzhou district. Moreover, the city opened a second international airport: Beijing Daxing International. These recent developments have refueled Beijing's economic growth.

9. CHANGSHA

Changsha in Hunan province is in ninth place among large cities. The city is in the top five in one-year wage growth and FDI/GRP ratio, and most notably in the No. 2 position for one-year employment growth. Changsha is known for its engineering machinery industry. Several world-leading manufacturers of high-end equipment are headquartered here, including China Railway Construction Heavy Industry Corporation, SANY Group, Sunward Intelligent Equipment, and Zoomlion. The city also harbors a cluster of the electronic information sector. In addition to Changsha-based Lens Technology, multinational companies such as Cisco, Dell, Microsoft, and Motorola all have a presence in Changsha. Moreover, the city has recently promoted intelligence manufacturing, particularly for the transportation industry.[37] For instance, the Schaeffler Group established a facility for intelligent driving and the second R&D center for Schaeffler Greater China in Changsha in 2019.[38] Further, the city has also made efforts to enlarge its profile on the international stage. In 2019, for instance, Changsha promoted a province-led initiative that helped local enterprises expand their global reach.

10. ZHENGZHOU

Zhengzhou in Henan province rounds off our top 10 large-cities list. This is the third time Zhengzhou ranked among the top-10. According to our rankings, the city shows strength in five-year wage growth (No. 3) and one- and five-year per-capita GRP growth (both No. 8) indicators. Zhengzhou is known as a major hub for food production and heavy industry (e.g., auto manufacturing), as well as being the world's largest production base for iPhones. Some of China's major auto manufacturers, including Zhengzhou Nissan Automobile and Yutong Bus, are headquartered in this city. In the last decade, the city enjoyed great economic growth and became widely known after Foxconn started its operation in 2010. The city has received central government policy support, including the establishment of Zhengzhou Airport Economic Zone in 2013 and a free trade zone in 2017. Zhengzhou is expanding its inner-city light-rail networks with a five-year plan running from 2019 to 2024. Given the impact of the COVID-19 pandemic and a recent flood, it may take some time for the city to revive its economic momentum.

Top 10 Best Performers
(Third-Tier Cities)

Five out of the top 10 cities in the third-tier city groups are from Anhui province. They are Chuzhou (No. 1), Fuyang (No. 2), Xuancheng (No. 5), Bozhou (No. 8), and Ma'anshan (No. 10). These cities are part of the Yangtze River Delta economic cluster, and they have recently benefited from the development of their neighboring major cities, including Nanjing and Hefei. For instance, in 2011, Fuyang and Hefei co-established the Fuyang Hefei Modern Industrial Park to co-facilitate the economic development of the two cities. In 2019, the GRP growth rate for Anhui province was 7.5 percent, ranked seventh in the country.[39] The strong economic performance of Anhui and its cities may have partly to do with the goals of the 13th Five-Year Plan (2016–2020), which was intended to end extreme poverty, and the regional integration development plan for the Yangtze River Delta (the outline was issued in 2019 by the State Council). The regional integration plan aims to expedite economic development among underdeveloped cities within the Yangtze River Delta.

Two cities—Dongguan (No. 3) and Zhuhai (No. 6)—are located in Guangdong province with close proximity to Hong Kong and Macau. They are an integral part of the Pearl River Delta and the Greater Bay Area.

Dongguan has long been referred to as the "factory of the world," a manufacturing powerhouse for consumer goods ranging from shoes and toys to electronic devices. Wage rises starting in 2015 and the US-China trade war combined to make an adverse impact on the city's economic development. Despite this setback, Dongguan's cultivation of the robotics industry starting in 2014 and the establishment of Huawei's R&D department in 2018 have transformed the city's economy from a low-cost manufacturing sector to a high value-added one. This is reflected in Dongguan's LQ for high value-added industrial employment, which tops our third-tier city group. Zhuhai, as one of the earliest special economic zones in China, has six pillars of industries, including electronic information, home appliances, electricity and energy, biopharmaceuticals and medical devices, petrochemicals, and precision machinery.[40]

Jiaxing in Zhejiang province (No. 4), Ji'an in Jiangxi province (No. 7), and Lijiang in Yunnan province (No. 9) are the remaining third-tier cities in our top 10 list. Jiaxing's proximity to Shanghai and its cultivation of a digital economy have contributed to the city's strong economic development. In 2019, core industry related to the digital economy increased by 43.8 billion yuan and accounted for 8.2 percent of the city's GRP.[41] Ji'an appeared several times in our Best-Performing Cities top 10 lists. It is located in a pivotal position, facilitating connections with established manufacturing hubs in Guangdong, Jiangsu, and Zhejiang provinces. In 2019, the Nanchang-Ganzhou HSR opened. This railroad passes through Ji'an and has greatly cut the commuting time between Ji'an and other localities. Lijiang is a historic and a world-renown tourist town close to several Southeast Asian countries, including Myanmar. To promote the tourism industry, Lijiang has built its 5G network.[42] This group benefits from close proximity to major cities and urban clusters as well as the improvement of transport infrastructure.

APPENDIX
Appendix A. Full Ranking Tables

Table A1. Large Cities

2021 Rank	2020 Rank	Rank Change	City	Province	1-Year Employment Growth (2018–2019)	5-Year Employment Growth (2014–2019)	1-Year Wage Growth (2018–2019)	5-Year Wage Growth (2014–2019)	1-Year GRP Per-Capita Growth (2018–2019)	5-Year GRP Per-Capita Growth (2014–2019)	3-Year FDI Growth (2016–2019)	FDI/GRP (2019)	LQ for High Value-Added Industry (2019)
1	20	19	Haikou	Hainan	12	17	18	20	11	17	1	11	18
2	6	4	Guangzhou	Guangdong	1	2	1	1	25	26	11	17	4
3	4	1	Xi'an	Shaanxi	7	11	6	4	14	16	6	3	10
4	3	-1	Chengdu	Sichuan	11	1	12	5	12	13	2	1	22
5	2	-3	Shenzhen	Guangdong	18	8	7	2	18	22	15	19	1
6	13	7	Shanghai		4	20	13	24	6	6	19	6	5
7	11	4	Wuhan	Hubei	17	12	10	14	17	12	7	2	19
8	7	-1	Beijing		27	13	22	10	5	5	18	10	8
9	22	13	Changsha	Hunan	2	15	5	21	24	23	9	5	20
10	19	9	Zhengzhou	Henan	24	24	15	3	8	8	17	13	16
11	18	7	Jinan	Shandong	3	18	2	7	26	24	10	22	21
12	14	2	Nanchang	Jiangxi	9	19	23	19	19	18	12	4	27
13	17	4	Hangzhou	Zhejiang	15	22	8	17	13	14	23	12	15
14	15	1	Guiyang	Guizhou	19	16	4	16	20	11	5	8	31
15	5	-10	Fuzhou	Fujian	23	3	27	12	4	1	26	24	28
16	24	8	Ningbo	Zhejiang	13	28	14	26	16	15	25	23	3
17	21	4	Nanning	Guangxi	6	5	9	11	10	19	4	28	32
18	16	-2	Shijiazhuang	Hebei	5	10	11	15	29	28	8	20	17
19	10	-9	Hefei	Anhui	28	4	33	6	3	2	13	14	26
20	12	-8	Qingdao	Shandong	21	21	21	23	27	25	24	7	7
21	9	-12	Nanjing	Jiangsu	30	30	25	8	15	9	14	18	11
22	31	9	Kunming	Yunnan	31	23	20	9	1	3	22	25	29
23	29	6	Urumqi	Xinjiang	10	7	19	25	9	20	33	33	24
24	8	-16	Xiamen	Fujian	33	25	32	22	2	4	21	16	6

Table A1. Large Cities *(cont.)*

2021 Rank	2020 Rank	Rank Change	City	Province	1-Year Employment Growth (2018–2019)	5-Year Employment Growth (2014–2019)	1-Year Wage Growth (2018–2019)	5-Year Wage Growth (2014–2019)	1-Year GRP Per-Capita Growth (2018–2019)	5-Year GRP Per-Capita Growth (2014–2019)	3-Year FDI Growth (2016–2019)	FDI/GRP (2019)	LQ for High Value-Added Industry (2019)
25	34	9	Hohhot	Inner Mongolia	8	9	3	18	28	30	27	27	23
26	25	-1	Chongqing		16	6	28	27	7	7	20	9	33
27	1	-26	Lanzhou	Gansu	29	14	29	13	21	21	16	31	30
28	33	5	Shenyang	Liaoning	22	32	17	31	23	32	3	21	12
29	32	3	Tianjin		14	29	16	30	33	33	30	15	9
30	27	-3	Dalian	Liaoning	20	31	24	32	30	31	28	26	2
31	23	-8	Taiyuan	Shanxi	26	26	31	29	22	10	29	32	25
32	30	-2	Changchun	Jilin	25	27	26	28	32	27	32	30	13
33	26	-7	Harbin	Heilongjiang	32	33	30	33	31	29	31	29	14

Source: Milken Institute (2022)

Table A2. Small Cities

2021 Rank	2020 Rank	Rank Change	City	Province	1-Year Employment Growth (2018–2019)	5-Year Wage Growth (2014–2019)	1-Year GRP Per-Capita Growth (2018–2019)	5-Year GRP Per-Capita Growth (2014–2019)	3-Year FDI Growth (2016–2019)	FDI/GRP (2019)	LQ for High Value-Added Industry (2019)
1	4	3	Chuzhou	Anhui	34	1	137	7	1	1	61	22	24
2	21	19	Fuyang	Anhui	19	2	42	4	2	2	16	80	103
3	10	7	Dongguan	Guangdong	2	8	4	16	55	48	176	89	1
4	13	9	Jiaxing	Zhejiang	121	96	118	6	83	60	39	7	6
5	6	1	Xuancheng	Anhui	94	5	123	8	30	29	49	6	45
6	18	12	Zhuhai	Guangdong	125	56	8	38	75	71	108	10	7
7	35	28	Ji'an	Jiangxi	8	18	26	62	25	28	65	16	25
8	11	3	Bozhou	Anhui	88	15	141	18	3	4	56	19	68
9	27	18	Lijiang	Yunnan	186	160	155	44	4	10	1	173	197
10	16	6	Maanshan	Anhui	133	10	189	55	82	76	71	1	34

Table A2. Small Cities *(cont.)*

2021 Rank	2020 Rank	Rank Change	City	Province	1-Year Employment Growth (2018–2019)	5-Year Employment Growth (2014–2019)	1-Year Wage Growth (2018–2019)	5-Year Wage Growth (2014–2019)	1-Year GRP Per-Capita Growth (2018–2019)	5-Year GRP Per-Capita Growth (2014–2019)	3-Year FDI Growth (2016–2019)	FDI/GRP (2019)	LQ for High Value-Added Industry (2019)
11	55	44	Huzhou	Zhejiang	60	64	28	70	56	61	18	15	27
12	22	10	Huizhou	Guangdong	38	26	38	24	141	110	132	68	4
13	28	15	Ganzhou	Jiangxi	57	50	93	60	14	6	57	17	70
14	54	40	Wuxi	Jiangsu	18	65	10	84	126	94	106	44	8
15	24	9	Luzhou	Sichuan	3	12	6	28	17	33	17	112	184
16	31	15	Jiujiang	Jiangxi	59	103	70	78	47	17	63	8	65
17	151	134	Yueyang	Hunan	1	76	2	72	70	107	37	78	93
18	25	7	Jingmen	Hubei	78	32	35	35	73	58	60	63	29
19	40	21	Suzhou	Jiangsu	93	95	39	99	129	104	137	65	3
20	47	27	Changde	Hunan	16	20	51	36	90	87	32	32	97
21	45	24	Yichun	Jiangxi	111	54	77	61	16	16	68	40	58
22	41	19	Yongzhou	Hunan	50	48	75	29	60	64	47	13	165
23	99	76	Quzhou	Zhejiang	26	63	7	20	103	32	70	133	46
24	61	37	Huangshan	Anhui	29	17	79	15	28	55	55	57	145
25	5	-20	Wuhu	Anhui	183	38	181	50	79	73	83	4	15
26	73	47	Anshun	Guizhou	13	9	98	19	85	15	138	91	71
27	93	66	Zhuzhou	Hunan	37	87	69	108	54	108	45	23	53
28	194	166	Hebi	Henan	12	174	76	180	49	93	104	2	56
29	51	22	Chizhou	Anhui	139	60	125	31	23	56	91	24	64
30	118	88	Yulin	Shaanxi	9	13	11	88	94	101	7	159	174
31	12	-19	Jiangmen	Guangdong	168	67	103	59	89	82	24	58	11
32	23	-9	Yibin	Sichuan	79	30	139	32	10	9	33	165	75
33	26	-7	Bengbu	Anhui	91	53	194	37	27	19	121	12	88
34	33	-1	Sanya	Hainan	118	11	108	17	58	39	76	33	155
35	52	17	Chenzhou	Hunan	43	51	121	53	146	130	51	3	136
36	49	13	Yingtan	Jiangxi	151	37	176	33	52	70	67	36	22
37	46	9	Xiaogan	Hubei	99	41	91	76	21	22	111	79	52
38	75	37	Luoyang	Henan	102	89	85	115	88	80	102	18	47

Table A2. Small Cities *(cont.)*

2021 Rank	2020 Rank	Rank Change	City	Province	1-Year Employment Growth (2018–2019)	5-Year Employment Growth (2014–2019)	1-Year Wage Growth (2018–2019)	5-Year Wage Growth (2014–2019)	1-Year GRP Per-Capita Growth (2018–2019)	5-Year GRP Per-Capita Growth (2014–2019)	3-Year FDI Growth (2016–2019)	FDI/GRP (2019)	LQ for High Value-Added Industry (2019)
39	36	-3	Huanggang	Hubei	92	7	114	1	53	44	163	166	86
40	37	-3	Ezhou	Hubei	62	21	58	23	51	30	185	142	48
41	127	86	Wenzhou	Zhejiang	160	82	22	81	78	68	9	96	66
42	62	20	Anqing	Anhui	130	35	185	34	15	11	25	90	67
43	129	86	Ya'an	Sichuan	24	19	25	58	62	49	19	177	150
44	180	136	Xinyu	Jiangxi	14	109	15	106	174	171	69	21	40
45	86	41	Bazhong	Sichuan	10	3	47	42	34	27	172	181	192
46	69	23	Shangqiu	Henan	116	28	131	79	18	20	86	85	62
47	121	74	Suizhou	Hubei	54	94	17	49	48	45	62	86	94
48	NA	NA	Yan'an	Shaanxi	5	61	13	140	96	149	4	171	186
49	32	-17	Xiangyang	Hubei	33	16	130	151	63	67	85	72	39
50	106	56	Shangrao	Jiangxi	61	105	61	105	57	43	64	20	138
51	30	-21	Shiyan	Hubei	86	23	80	64	40	25	178	138	42
52	216	164	Jiaozuo	Henan	22	163	73	156	37	84	105	43	18
53	56	3	Changzhou	Jiangsu	150	110	113	118	114	74	109	37	10
54	64	10	Nanchong	Sichuan	108	57	68	2	38	41	30	148	171
55	104	49	Hezhou	Guangxi	28	22	27	11	44	69	140	178	181
56	159	103	Erdos	Inner Mongolia	6	29	3	45	169	187	147	41	140
57	63	6	Zhongshan	Guangdong	100	134	19	127	189	174	84	76	2
58	85	27	Shaoyang	Hunan	46	70	104	46	19	23	40	84	175
59	128	69	Zhoukou	Henan	36	99	95	130	24	31	88	74	73
60	169	109	Hengyang	Hunan	23	118	43	94	76	97	53	25	173
61	161	100	Qinzhou	Guangxi	11	44	12	22	117	66	97	100	185
62	107	45	Guangyuan	Sichuan	49	34	41	39	31	40	42	163	196
63	119	56	Bayannur	Inner Mongolia	39	27	32	120	91	176	23	47	111
64	87	23	Lincang	Yunnan	175	104	146	9	22	38	5	192	178
65	29	-36	Tongren	Guizhou	48	14	161	47	36	3	35	174	199
66	15	-51	Luohe	Henan	203	126	198	128	11	37	101	14	12

Table A2. Small Cities *(cont.)*

2021 Rank	2020 Rank	Rank Change	City	Province	1-Year Employment Growth (2018–2019)	5-Year Employment Growth (2014–2019)	1-Year Wage Growth (2018–2019)	5-Year Wage Growth (2014–2019)	1-Year GRP Per-Capita Growth (2018–2019)	5-Year GRP Per-Capita Growth (2014–2019)	3-Year FDI Growth (2016–2019)	FDI/GRP (2019)	LQ for High Value-Added Industry (2019)
67	122	55	Xining	Qinghai	35	45	40	30	131	145	129	123	61
68	60	-8	Liuzhou	Guangxi	27	47	53	3	135	111	181	153	110
69	91	22	Guigang	Guangxi	77	78	37	14	97	75	29	143	168
70	98	28	Zhangjiajie	Hunan	4	33	60	51	172	118	46	55	201
71	70	-1	Xuchang	Henan	129	92	89	112	148	119	94	51	19
72	80	8	Loudi	Hunan	58	66	119	119	104	117	38	34	104
73	59	-14	Lishui	Zhejiang	66	25	84	26	109	109	151	109	79
74	68	-6	Zhaoqing	Guangdong	172	141	129	124	136	147	13	28	21
75	76	1	Tongling	Anhui	42	6	173	25	195	205	27	29	31
76	112	36	Zhaotong	Yunnan	128	31	158	5	5	18	130	204	205
77	144	67	Zhangjiakou	Hebei	20	93	29	65	140	154	113	46	120
78	137	59	Yiyang	Hunan	17	91	57	95	134	95	43	73	130
79	97	18	Shanwei	Guangdong	170	172	63	143	35	72	22	114	17
80	57	-23	Xiangtan	Hunan	115	190	101	87	120	100	44	11	119
81	164	83	Ningde	Fujian	81	97	72	117	12	14	188	183	72
82	34	-48	Qingyuan	Guangdong	161	55	116	71	86	102	78	113	35
83	96	13	Qinhuangdao	Hebei	132	155	134	158	159	124	58	9	59
84	42	-42	Zhoushan	Zhejiang	67	205	74	89	121	122	15	35	37
85	94	9	Xianning	Hubei	72	115	59	67	33	36	154	172	89
86	176	90	Leshan	Sichuan	113	106	16	97	43	59	48	144	142
87	130	43	Jingzhou	Hubei	98	124	50	102	20	12	171	175	85
88	167	79	Huaihua	Hunan	15	74	14	74	100	115	34	141	190
89	14	-75	Neijiang	Sichuan	71	39	44	21	132	136	119	154	109
90	48	-42	Taizhou	Zhejiang	165	153	100	125	112	79	20	94	23
91	148	57	Maoming	Guangdong	30	24	9	40	123	123	173	187	169
92	1	-91	Heyuan	Guangdong	152	43	167	54	95	103	123	110	26
93	8	-85	Zhangzhou	Fujian	190	73	187	75	26	7	162	95	30
94	145	51	Yunfu	Guangdong	55	132	34	110	87	114	110	134	63

Table A2. Small Cities *(cont.)*

2021 Rank	2020 Rank	Rank Change	City	Province	1-Year Employment Growth (2018–2019)	5-Year Employment Growth (2014–2019)	1-Year Wage Growth (2018–2019)	5-Year Wage Growth (2014–2019)	1-Year GRP Per-Capita Growth (2018–2019)	5-Year GRP Per-Capita Growth (2014–2019)	3-Year FDI Growth (2016–2019)	FDI/GRP (2019)	LQ for High Value-Added Industry (2019)
95	141	46	Xingtai	Hebei	31	128	20	113	157	131	75	42	148
96	89	-7	Foshan	Guangdong	163	123	175	139	113	121	156	116	5
97	133	36	Beihai	Guangxi	75	81	87	48	106	89	152	103	96
98	134	36	Changzhi	Shanxi	32	46	30	123	152	140	128	61	147
99	188	89	Fuzhou	Jiangxi	41	111	36	126	80	92	118	52	182
100	118	18	Yulin	Guangxi	63	136	66	98	124	141	6	131	163
101	125	24	Zhumadian	Henan	173	133	92	104	45	42	89	81	82
102	90	-12	Huangshi	Hubei	101	113	153	114	64	88	41	92	76
103	105	2	Rizhao	Shandong	95	75	24	86	186	148	177	101	33
104	88	-16	Sanming	Fujian	89	40	105	69	74	51	186	189	105
105	84	-21	Nanping	Fujian	126	71	117	63	66	46	158	140	102
106	72	-34	Yichang	Hubei	146	84	122	111	77	96	136	117	55
107	132	25	Suqian	Jiangsu	159	159	145	160	59	47	115	87	20
108	110	2	Jinzhong	Shanxi	25	36	82	109	147	106	150	88	162
109	111	2	Weifang	Shandong	104	58	94	100	179	150	141	93	36
110	66	-44	Hanzhong	Shaanxi	134	90	136	129	108	52	12	149	143
111	142	31	Cangzhou	Hebei	53	114	56	83	158	162	72	71	124
112	131	19	Jincheng	Shanxi	51	68	110	173	149	128	36	67	123
113	2	-111	Baoji	Shaanxi	105	62	115	101	156	113	166	132	49
114	114	0	Yuxi	Yunnan	205	195	204	155	8	35	2	196	133
115	124	9	Weihai	Shandong	157	135	164	153	194	169	114	31	9
116	139	23	Xinyang	Henan	97	138	152	142	42	54	95	70	141
117	38	-79	Jiamusi	Heilongjiang	144	4	5	13	190	175	195	202	180
118	67	-51	Shantou	Guangdong	180	83	166	73	99	62	92	145	60
119	115	-4	Shaoguan	Guangdong	120	122	54	77	163	158	31	121	90
120	78	-42	Chongzuo	Guangxi	106	77	99	27	196	160	8	115	160
121	NA	NA	Yuncheng	Shanxi	44	88	133	96	128	129	133	179	80
122	102	-20	Meizhou	Guangdong	140	69	126	43	98	120	148	157	107

Table A2. Small Cities (cont.)

2021 Rank	2020 Rank	Rank Change	City	Province	1-Year Employment Growth (2018–2019)	5-Year Employment Growth (2014–2019)	1-Year Wage Growth (2018–2019)	5-Year Wage Growth (2014–2019)	1-Year GRP Per-Capita Growth (2018–2019)	5-Year GRP Per-Capita Growth (2014–2019)	3-Year FDI Growth (2016–2019)	FDI/GRP (2019)	LQ for High Value-Added Industry (2019)
123	147	24	Xinzhou	Shanxi	74	86	21	80	138	86	124	155	200
124	165	41	Pingdingshan	Henan	85	127	140	164	67	90	81	69	122
125	138	13	Tangshan	Hebei	112	146	90	138	154	167	77	56	69
126	213	87	Puyang	Henan	96	149	71	133	166	133	99	27	176
127	170	43	Pingxiang	Jiangxi	103	152	128	122	181	172	73	26	98
128	116	-12	Baoding	Hebei	68	165	144	150	130	142	28	45	108
129	95	-34	Yantai	Shandong	166	156	165	166	162	134	120	60	13
130	74	-56	Longyan	Fujian	174	59	138	66	61	34	184	176	126
131	198	67	Hegang	Heilongjiang	64	139	18	52	29	99	200	198	202
132	65	-67	Deyang	Sichuan	158	145	159	134	111	63	112	128	54
133	NA	NA	Pu'er	Yunnan	193	117	191	10	6	8	190	185	183
134	83	-51	Quanzhou	Fujian	178	151	178	169	32	24	167	119	32
135	195	60	Huai'an	Jiangsu	131	201	120	196	92	57	125	53	51
136	157	21	Sanmenxia	Henan	124	178	174	193	173	153	100	5	115
137	182	45	Xianyang	Shaanxi	162	162	143	183	177	143	3	137	144
138	190	52	Guilin	Guangxi	82	102	49	90	115	165	168	156	135
139	3	-136	Xinxiang	Henan	171	196	149	186	46	77	79	30	132
140	203	63	Jiuquan	Gansu	7	116	46	148	127	177	205	205	106
141	177	36	Handan	Hebei	109	166	106	145	142	164	82	39	146
142	136	-6	Bijie	Guizhou	73	42	86	56	155	85	182	169	204
143	156	13	Laibin	Guangxi	69	85	88	41	175	157	144	170	172
144	120	-24	Jinhua	Zhejiang	197	182	1	176	68	105	146	135	99
145	162	17	Binzhou	Shandong	107	147	148	162	176	170	153	102	14
146	202	56	Ulanqab	Inner Mongolia	56	79	33	92	105	182	197	160	179
147	108	-39	Chaozhou	Guangdong	169	157	150	135	139	125	80	146	57
148	44	-104	Heze	Shandong	156	107	154	85	69	83	134	124	188
149	149	0	Weinan	Shaanxi	110	52	142	149	116	126	143	197	134
150	173	23	Chengde	Hebei	80	108	64	103	153	166	179	147	137

Table A2. Small Cities (cont.)

2021 Rank	2020 Rank	Rank Change	City	Province	1-Year Employment Growth (2018–2019)	5-Year Employment Growth (2014–2019)	1-Year Wage Growth (2018–2019)	5-Year Wage Growth (2014–2019)	1-Year GRP Per-Capita Growth (2018–2019)	5-Year GRP Per-Capita Growth (2014–2019)	3-Year FDI Growth (2016–2019)	FDI/GRP (2019)	LQ for High Value-Added Industry (2019)
151	191	40	Jingdezhen	Jiangxi	188	185	179	163	81	139	74	59	43
152	186	34	Panjin	Liaoning	138	150	111	178	110	178	14	38	203
153	179	26	Zhenjiang	Jiangsu	127	176	157	189	133	132	161	83	38
154	43	-111	Mianyang	Sichuan	185	130	201	161	13	13	117	120	91
155	101	-54	Yangzhou	Jiangsu	182	170	184	137	101	50	87	66	128
156	126	-30	Zigong	Sichuan	119	112	171	131	137	135	116	190	112
157	103	-54	Yangjiang	Guangdong	76	142	48	141	170	168	155	161	121
158	163	5	Wuwei	Gansu	84	80	135	91	119	144	160	182	193
159	123	-36	Anyang	Henan	153	143	78	132	178	138	93	62	187
160	20	-140	Putian	Fujian	196	100	200	152	39	21	174	130	44
161	140	-21	Linfen	Shanxi	65	72	151	107	145	151	192	193	154
162	201	39	Huainan	Anhui	145	154	170	179	50	163	50	64	170
163	217	54	Benxi	Liaoning	52	198	23	198	168	200	139	126	28
164	39	-125	Baoshan	Yunnan	204	129	203	57	9	5	175	199	117
165	208	43	Chifeng	Inner Mongolia	40	121	81	167	72	181	189	194	177
166	143	-23	Liaoyang	Liaoning	137	125	169	174	167	189	135	111	41
167	209	42	Fangchenggang	Guangxi	148	168	102	68	150	161	165	125	159
168	48	-120	Taizhou	Jiangsu	194	120	197	171	143	65	98	49	125
169	117	-52	Liupanshui	Guizhou	47	49	127	82	191	146	204	203	194
170	174	4	Xuzhou	Jiangsu	191	187	180	191	107	98	52	48	114
171	50	-121	Nantong	Jiangsu	199	180	199	121	65	26	90	50	149
172	154	-18	Liaocheng	Shandong	155	131	55	93	200	186	103	152	78
173	160	-13	Datong	Shanxi	135	101	156	181	125	127	170	127	153
174	199	25	Jinzhou	Liaoning	114	189	147	194	183	192	11	122	87
175	NA	NA	Anshan	Liaoning	90	202	62	204	144	198	142	180	16
176	NA	NA	Shuozhou	Shanxi	83	98	96	175	151	173	157	136	189
177	222	45	Baotou	Inner Mongolia	122	144	112	168	182	199	183	118	50
178	175	-3	Jining	Shandong	181	158	65	159	185	159	126	98	129

Table A2. Small Cities *(cont.)*

2021 Rank	2020 Rank	Rank Change	City	Province	1-Year Employment Growth (2018–2019)	5-Year Employment Growth (2014–2019)	1-Year Wage Growth (2018–2019)	5-Year Wage Growth (2014–2019)	1-Year GRP Per-Capita Growth (2018–2019)	5-Year GRP Per-Capita Growth (2014–2019)	3-Year FDI Growth (2016–2019)	FDI/GRP (2019)	LQ for High Value-Added Industry (2019)
179	200	21	Huaibei	Anhui	149	186	177	199	84	112	164	54	127
180	158	-22	Linyi	Shandong	184	175	172	177	165	137	26	107	100
181	150	-31	Shaoxing	Zhejiang	176	177	183	170	102	116	131	97	113
182	189	7	Dongying	Shandong	87	161	52	157	202	191	96	108	84
183	77	-106	Yancheng	Jiangsu	202	188	195	144	118	78	66	82	81
184	NA	NA	Heihe	Heilongjiang	195	204	162	12	41	81	199	195	191
185	197	12	Suihua	Heilongjiang	147	137	45	116	193	180	198	191	152
186	226	40	Tieling	Liaoning	70	167	31	192	122	196	169	151	195
187	210	23	Tongliao	Inner Mongolia	154	164	160	172	164	201	21	168	131
188	193	5	Fuxin	Liaoning	164	192	193	201	71	190	10	139	158
189	NA	NA	Tonghua	Jilin	21	199	83	200	187	197	194	150	77
190	196	6	Daqing	Heilongjiang	142	119	107	147	180	202	187	158	156
191	153	-38	Dezhou	Shandong	192	183	188	165	184	155	59	129	92
192	207	15	Jilin	Jilin	45	148	97	154	205	204	196	164	83
193	172	-21	Qujing	Yunnan	200	191	202	136	7	53	193	201	166
194	223	29	Tai'an	Shandong	117	197	67	202	198	185	127	77	116
195	171	-24	Nanyang	Henan	167	171	205	205	93	91	107	75	118
196	215	19	Zaozhuang	Shandong	143	179	124	187	201	188	54	106	157
197	184	-13	Hulunbuir	Inner Mongolia	141	140	163	188	171	193	145	167	198
198	NA	NA	Yangquan	Shanxi	177	169	190	185	160	156	191	162	161
199	155	-44	Zibo	Shandong	179	173	186	190	199	184	159	104	74
200	146	-54	Ziyang	Sichuan	187	200	109	182	197	183	122	105	151
201	205	4	Mudanjiang	Heilongjiang	136	181	168	195	203	194	201	188	101
202	211	9	Jieyang	Guangdong	201	203	192	203	161	152	149	184	95
203	214	11	Baicheng	Jilin	189	184	182	146	192	195	203	200	164
204	181	-23	Qiqihar	Heilongjiang	198	194	196	184	188	179	180	99	139
205	228	23	Liaoyuan	Jilin	123	193	132	197	204	203	202	186	167

Source: *Milken Institute (2022)*

Appendix B. Data, Variables, and Methods

Our main data sources were the *China City Statistical Yearbook* for 2015, 2017, 2019, and 2020. Each yearbook publishes data from the year before (e.g., the 2020 edition provides data for 2019). In this section, we first describe how we identified and processed missing data and outliers. Next, we talk about the variables and methods we used to arrive at our rankings.

Data

CLASSIFICATION AND DESIGNATION OF CITIES

Cities in China vary dramatically in population size, geography, strategic significance to the national economy, and central government policy influence. Under the central planning regime, cities can also differ from one another in development, according to the influence of various government policies and industry legacy. Hence, this ranking report classifies Chinese cities into three categories—first-, second-, and third-tier cities—that follow the conventional designation and hierarchy of cities in China.

There is a broad consensus, but no universal agreement, as to which cities sit atop this hierarchy in the first tier. This ranking report focuses on cities classified as prefecture-level cities or above.[43] It defines first-tier cities as the municipalities directly governed by the Chinese central government (Beijing, Chongqing, Shanghai, and Tianjin). The second-tier cities consist of the capital cities of provinces and

five cities (Dalian, Ningbo, Qingdao, Shenzhen, and Xiamen) with special plans approved by the Chinese central government.[44] The rest of the cities in our sample naturally fall into the third-tier city category. It is widely accepted that first- and second-tier cities have typically received more resources from the Chinese central government, are shaped more heavily by central policies, and hence tend to possess more economic power than the third-tier cities. Therefore, to make cities more comparable with their peers, we rank the first- and second-tier cities as one group and the third-tier cities as a separate group.

MISSING DATA: IDENTIFICATION AND HANDLING

There were 298 cities in our original dataset. We identified 49 cities, accounting for 16.4 percent of all data, with missing values. Among cities with missing data, about three-fourths (75.5 percent) lack one or two indicators. Nine cities have values missing for more than half of the indicators (Table B1).

Table B1. Overview of Missing Data

No. of Missing Indicators	No. of Missing Indicators / No. of All Indicators	Count (Share) of Cities with Missing Data in All Missing Data	Share of Cities with Missing Data in the Dataset
1	11.11%	13 (26.53%)	4.36%
2	22.22%	24 (48.98%)	8.05%
3	33.33%	1 (2.04%)	0.34%
4	44.44%	2 (4.08%)	0.67%
5	55.56%	5 (10.20%)	1.68%
7	77.78%	2 (4.08%)	0.67%
9	100.00%	2 (4.08%)	0.67%
Total		49 (100.0%)	16.44%

Source: Milken Institute (2022)

We dealt with missing values with the following steps. First, we eliminated the nine cities (Sansa in Hainan province; Laiwu in Shandong; Changdu, Linzhi, Naqu, Shannan, and Rikaze in Tibet; Hami and Tulufan in Xinjiang) with five or more missing indicators. They account for 3 percent of our original data. This process yielded 289 cities. Next, we consulted both provincial (i.e., annual *Statistical Yearbook* products) and municipal (i.e., annual *Economic and Social Development Bulletins*) statistical publications. If we were able to find data, we imputed missing data with data from these local official data sources. We were able to impute missing values for seven cities including Daqing, Harbin, and Heihe in Heilongjiang province; Changchun and Tonghua in Jilin; Anshan in Liaoning; and Yan'an in Shaanxi. Finally, we removed the remaining 33 cities (Baiyin, Dingxi, Jiayuguan, Jinchang, Longnan, Pingliang, Qingyang, Tianshui, and Zhangye in Gansu; Zunyi in Guizhou; Danzhou in Hainan; Hengshui and Langfang in Hebei; Jixi, Qitaihe, Shuangyashan, and Yichun in Heilongjiang; Lianyungang in Jiangsu; Guyuan, Baishan, Siping, and Songyuan in Jilin; Shizuishan, Wuzhong, and Zhongwei in Ningxia; Haidong in Qinghai; Ankang, Shangluo, and Tongchuan in Shaanxi; Lvliang in Shanxi; Dazhou

in Sichuan; Lhasa in Tibet; Karamay in Xinjiang) with missing values. This yielded 256 cities (34 and 222, the large and small city groups, respectively) in our dataset.

OUTLIERS: DETECTION, ADJUSTMENT, AND REMOVAL

After imputing and removing missing data values and making corrections for data points, we performed Rosner's test in RStudio to identify potential outliers in the datasets for both large- and small-city groups. For all outliers, we cross-checked data from both the provincial and municipal publications and news. If there was no way to verify the validity of data, we removed cities with outliers. From the large-city group, we removed one city: Yinchuan in Ningxia province. This yielded 33 cities in our large-city group. From the small-city group, we removed 17 cities (i.e., Lu'an and Suzhou in Anhui province; Zhanjiang in Guangdong; Baise, Hechi, and Wuzhou in Guangxi; Kaifeng in Henan; Wuhai in Inner Mongolia; Chaoyang, Dandong, Huludao, Fushun, and Yingkou in Liaoning; Guang'an, Meishan, Panzhihua, and Suining in Sichuan). This yielded 205 cities in our small-city group.

Variables and Methods

VARIABLES

The Best-Performing Cities China composite index consists of nine indicators, which include seven growth measures and two stock measures. Specifically, the index measures the growth in jobs, wages, and gross regional product per capita over one- (2018–2019) and five-year (2014–2019) periods. These six growth measures are commonly used to measure the performance of various economies. The one-year growth measures are intended to capture recent dynamics for Chinese cities, whereas the five-year growth measures are aimed at tracing a longer economic-development trajectory and adjusting for variations in business cycles. The seventh growth measure in the index is for three-year FDI growth (2016–2019). An existing body of research suggests that foreign direct investment (FDI) plays an essential role in recent economic development in China.[45]

Our index thus incorporates two measures that depict the amount of foreign capital actually used: In addition to the three-year FDI growth measures, which reflect each city's economic openness and past economic performance while indicating its future growth potential, the index includes cities' FDI/GRP ratio, which measures the use of foreign capital for local economic development.

The ninth and final component of the index is the location quotient (LQ) for high value-added industry jobs in 2019. This report defines the following categories as high value-added industries: manufacturing; transport, storage and post; information transmission, computer services and software; financial intermediation; real estate; and leasing and business services. LQ is a ratio that compares the concentration of a resource or activity—in this case, employment—in a defined area to that in a larger area. In this index, an LQ greater than 1 indicates that a city's high value-added industries have a greater share of the local area employment than other Chinese prefecture-level-and-above cities as a whole. Conversely, an LQ of less than 1 indicates a smaller share of employment. This ratio intuitively

measures the ability of cities to generate greater economic benefits (such as profits and wages) for future development.

METHODS

This report adopts a weighted z-score approach with five steps. First, we calculated the arithmetic mean and the standard deviation for each indicator. Second, we took the value for each indicator and subtracted from it the arithmetic mean for that indicator and divided this differential by the standard deviation, yielding a z-score. Third, we assigned weights for each of the nine indicators (Table B2). In our index, we allocate more weight toward FDI and LQ variables, given that various theoretical and empirical studies suggest that these two sets of indicators have played a critical role in driving China's economic development and growth. Multiplying the z-scores for each indicator for all cities by assigned weight for each indicator yields the weighted z-scores. Fourth, we summed up the z-scores associated with each of the nine variables for each city, giving us a sum of weighted z-scores for each city. Finally, based on the total weighted z-scores, we ranked 33 first- and second-tier cities in one group and 205 third-tier cities in another group.

Table B2. Indicators and Their Respective Weights

Indicator	Weight
1-year job growth (2018–2019)	0.100
5-year job growth (2014–2019)	0.100
1-year wage growth (2018–2019)	0.100
5-year wage growth (2014–2019)	0.100
1-year GRP per-capita growth (2018–2019)	0.100
5-year GRP per-capita growth (2014–2019)	0.100
3-year FDI growth (2016–2019)	0.125
FDI/GRP (2019)	0.125
LQ for high value-added industry employment (2019)	0.150

Source: Milken Institute (2022)

ENDNOTES

1. For more information on data and methodology, please see Appendix B.

2. All data cited in this paragraph come from the "GDP Growth (Annual %)—China," World Bank, accessed February 22, 2022, https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?locations=CN.

3. Jian Gao and Rui Mu, "Mass Entrepreneurship and Mass Innovation in China," *Oxford Handbook of China Innovation* (in Xiaolan Fu, Bruce McKern, and Jin Chen, eds.). New York: Oxford University Press. 2021. p268.

4. For an overview of Made in China 2025 initiative, visit "Made in China 2025 Explained," China Innovation Project at Harvard University, accessed February 22, 2022, https://projects.iq.harvard.edu/innovation/made-china-2025-explained.

5. "Comprehensive Plans of Pilot Free Trade Zones in Beijing, Hunan, and Anhui and Expansion Plan of Pilot Free Trade Zone in Zhejiang," State Council of the People's Republic of China, August 30, 2020, http://www.gov.cn/zhengce/content/2020-09/21/content_5544926.htm (in Chinese).

6. "Preliminary Accounting Results of GDP for the Third Quarter of 2021: The Y/Y Growth Rate on GDP," National Bureau of Statistics of China, October 20, 2021, http://www.stats.gov.cn/english/PressRelease/202110/t20211019_1823616.html.

7. "Total Retail Sales of Consumer Goods in September 2021," National Bureau of Statistics of China, October 19, 2021, http://www.stats.gov.cn/english/PressRelease/202110/t20211019_1823034.html.

8. "China's Exports and Imports Hit New Records on Strong Demand," *Bloomberg*, December 6, 2021, https://www.bloomberg.com/news/articles/2021-12-07/china-s-exports-expand-to-new-record-on-strong-trade-growth.

9. Andrew Sheng and Xiao Geng, "China Is Building 19 'Supercity Clusters'., World Economic Forum, September 3, 2018, https://www.weforum.org/agenda/2018/09/how-cities-are-saving-china; Ying Wang, "City Clusters Driving Growth as Urbanization Shifts Gears in China, Say Experts," *China Daily*, October 22, 2019, https://www.chinadaily.com.cn/a/201910/22/WS5dae6a3ca310cf3e35571dbf.html; Stephen P. Groff and Stefan Rau, "China's City Clusters: Pioneering Future Mega-Urban Governance," *American Affairs* 3, no. 2 (2019), https://americanaffairsjournal.org/2019/05/chinas-city-clusters-pioneering-future-mega-urban-governance/.

10. Ben Jones, "Past, Present and Future: The Evolution of China's Incredible High-Speed Rail Network," *CNN*, May 26, 2021, https://www.cnn.com/travel/article/china-high-speed-rail-cmd/index.html.

11. Shujie Yao, Fan Zhang, Feng Wang, and Jinghua Ou, "Regional Economic Growth and the Role of High-Speed Rail in China," *Applied Economics* 51, no. 32 (2019): 3465–3479, https://www.tandfonline.com/doi/abs/10.1080/00036846.2019.1581910.

12. *The Outline Development Plan for the Guangdong–Hong Kong–Macao Greater Bay Area and a Three-Year Action Plan for Building the Guangdong–Hong Kong–Macao Greater Bay Area* (Constitutional and Mainland Affairs Bureau of Hong Kong, accessed February 22, 2022), https://www.bayarea.gov.hk/filemanager/en/share/pdf/Outline_Development_Plan.pdf.

13. *New Reforms to Build a Shenzhen Pilot Demonstration Zone and Boost Development in the Greater Bay Area* (KPMG, December 2020), https://home.kpmg/cn/en/home/insights/2020/12/new-reforms-to-build-a-shenzhen-pilot-demonstration-zone-and-boost-development-in-the-greater-bay-area.html.

14. "Poverty Alleviation: China's Experience and Contribution," *Xinhua Net*, March 6, 2021, http://www.xinhuanet.com/english/2021-04/06/c_139860414.htm.

15. "Rural Highways Are Real Megaprojects," *People's Daily*, January 12, 2021, https://wap.peopleapp.com/article/rmh18083161/rmh18083161 (in Chinese).

16. "The Power of China's High-Speed Railways," The State Council of the People's Republic of China, January 8, 2020, http://www.gov.cn/xinwen/2020-01/08/content_5467562.htm (in Chinese).

17. One of the achievements the Hainan government boasts is that the Chinese unicorn ByteDance opened an office in Haikou in 2019. See "Number of Foreign-Invested Enterprises in Haikou Increases by 82.6 Percent," *China Daily*, April 3, 2020, http://www.ehainan.gov.cn/2020-04/03/c_468829.htm for more detail.

18. State Council, People's Republic of China, June 2020.

19. 2021 *China City Statistical Yearbook*.

20. Zoey Ye Zhang, "Guangzhou: Industry, Economics, and Policy," *China Briefing*, June 19, 2019, https://www.china-briefing.com/news/guangzhou-industry-economics-policy/.

21. 2020 Guangzhou High-Tech, High-Growth Top 20 Companies and Guangzhou Emerging Stars Report (Deloitte, November 2020), https://www2.deloitte.com/content/dam/Deloitte/at/Documents/Tax/Chinese%20Services%20Group/at-doing-business-china-2020.pdf (in Chinese).

22. "Guangzhou Boosts Manufacturing," *Greater Bay Insight*, June 10, 2019, www.bayareaeconomy.org/files/pdf/BayToBay-UnderstandingChinasGBAPlan.pdf.

23. We make calculations on GRP growth using data from the 2020 *China City Statistical Yearbook*. In fact, according to Xi'an Government, Xi'an's GRP surpassed 1 trillion yuan in 2020, which made the city the first in China's northwestern region to reach the 1 trillion milestone. See "Xi'an Makes List of Top 10 Attractive Cities for a Good Life," *China Daily*, April 25, 2021, http://en.xa.gov.cn/news/3157.htm for more information.

24. Hamid Moaref, "BYD Planning New Factory to Increase Battery Production," *Tires & Parts News*, September 26, 2018, https://tiresandparts.net/news/parts/byd-planning-new-factory-to-increase-battery-production/. Also see Eric Ng and Daniel Ren, "China's EV War: Warren Buffett-Backed BYD Goes After Market Left Open by Tesla with Four Cheaper Models for Budget-Conscious Buyers," *South China Morning Post*, April 8, 2021, https://www.scmp.com/business/companies/article/3128742/chinas-ev-war-warren-buffett-backed-byd-goes-after-market-left for BYD's operation in Xi'an in 2019.

25. Hwang Soon-min and Cho Jeehyun, "Samsung Elec Embarks on $8 BN Expansion in Xian Flash Memory Fab," *Pulse*, December 13, 2019, https://pulsenews.co.kr/view.php?year=2019&no=1044837.

26. Simina Mistreanu, "Why Chengdu Beat Out Beijing and Shenzhen as China's Best Performing Manufacturing City," *Forbes*, December 31, 2019, https://www.forbes.com/sites/siminamistreanu/2020/12/31/why-chinas-best-performing-manufacturing-city-banks-on-creativity/?sh=32741540270e.

27. "Tech Innovation Drives Development of Chengdu-Chongqing Economic Circle," Cision PR Newswire, March 11, 2021, https://www.prnewswire.com/in/news-releases/tech-innovation-drives-development-of-chengdu-chongqing-economic-circle-817427660.html.

28. Jill Shen, "Chengdu Offers AI Startups RMB 3 Million Subsidies as Race for Talent Heats Up," *TechNode*, February 18, 2019, https://technode.com/2019/02/18/chengdu-embrace-ai-3-million/.

29. Dianne Price, "Biodesign Institute Launches Partnership with China's No. 1 Biomedical Research Complex," *ASU News*, September 30, 2019, https://news.asu.edu/20190930-biodesign-institute-launches-partnership-china-biomedical-research-complex.

30. "40 Years On, Shenzhen Still China's Reform and Opening-Up Paragon, *Xinhuanet*, August 26, 2020, http://www.xinhuanet.com/english/2020-08/26/c_139320084.htm.

31. 2021 *China City Statistical Yearbook*.

32. "JOC Global Port Rankings: Asian Ports Grew Fastest in 2019," *JOC.com*, August 18, 2020, https://www.joc.com/port-news/joc-global-port-rankings-asian-ports-grew-fastest-2019_20200818.html; "Shanghai's GDP Grows over 6% in 2019," *China Daily*, January 15, 2020, https://www.chinadaily.com.cn/a/202001/15/WS5e1e6d87a31012821727117e.html.

33. Yuan Luhang, "Shanghai's GDP Rose by 6 Percent in 2019," *Shine*, January 21, 2020, https://www.shine.cn/biz/economy/2001210259/.

34. "Shutdown Impacts Global Chain for Auto Industry," *BBC News*, February 14, 2020, https://www.bbc.com/zhongwen/trad/business-51499203 (in Chinese).

35. "About Us," Stellantis, accessed February 22, 2022, https://www.groupe-psa.com/en/automotive-group/international-presence/china-south-east-asia/.

36. "SAP Opened an Office in Wuhan," *SAP*, September 17, 2019, https://news.sap.com/china/2019/09/.

37. Zhang Jiaqi, "Changsha Strives to Be Central City of Intelligent Manufacturing," *China.org.cn*, January 7, 2019, http://www.china.org.cn/business/2019-01/07/content_74349141.htm.

38. "Changsha: Intelligent Manufacturing on the Fast Track," Cision PR Newswire, May 19, 2020, https://www.prnewswire.com/news-releases/changsha-intelligent-manufacturing-on-the-fast-track-301060712.html.

39. "2019 Anhui Economic and Social Development Bulletin," *China Economy Net*, March 20, 2020, http://district.ce.cn/newarea/roll/202003/20/t20200320_34531772.shtml (in Chinese).

40. "GBA Cities—Zhuhai," Greater Bay Area, accessed February 22, 2022, https://www.bayarea.gov.hk/en/about/zhuhai.html.

41. "2019 Jiaxing Economic and Social Development Bulletin," *TJCN*, March 19, 2020, http://www.tjcn.org/tjgb/11zj/36221.html (in Chinese).

42. "Technologies Have Made Lijiang Chill," *Sina Finance*, March 26, 2019, https://finance.sina.com.cn/roll/2019-03-26/doc-ihsxncvh5736346.shtml (in Chinese).

43. These cities include prefecture-level cities, vice-provincial cities, and municipalities directly under the central government.

44. These cities are so-called "cities with special plans" (in Chinese).

45. A recent study by Zeng and Zhou (2021) provides empirical evidence of a positive impact of FDI on China's economic growth. See Shihong Zeng and Ya Zhou, "Foreign Direct Investment's Impact on China's Economic Growth, Technological Innovation and Pollution," *International Journal of Environmental Research and Public Health* 18, no. 6 (2021): 2839, https://www.mdpi.com/1660-4601/18/6/2839.
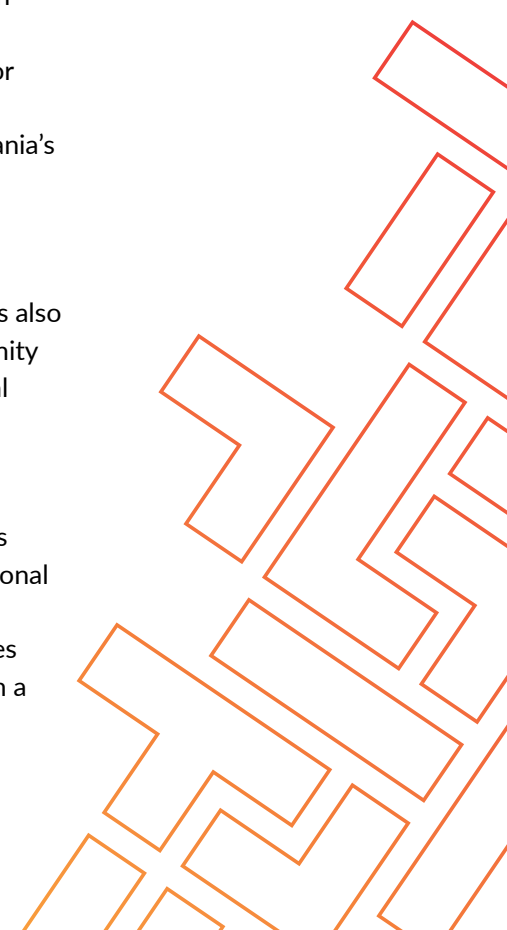
Acknowledgments

About the Authors

Perry Wong is managing director, China at the Milken Institute. He is an expert in regional economics, development, and econometric forecasting and specializes in analyzing the structure, industry mix, development, and public policies of a regional economy. He designs, manages, and performs research on labor and workforce issues, the relationship between technology and economic development, and trade and industry, with a focus on policy development and implementation of economic policy in both leading and disadvantaged regions. Wong is actively involved in projects aimed at increasing access to technology and regional economic development in California and the rest of the United States. His work extends to the international arena where he is involved in regional economic development in greater China and other parts of Asia. Before joining the Institute, Wong was a senior economist and director of regional forecasting at Global Insight Inc. (formerly Wharton Econometric Forecasting Associates, Inc), where he managed regional quarterly state and metropolitan area forecasts and provided consultation. There, he designed regional modeling systems and contributed to regional economic impact studies on such topics as budget reduction and healthcare reform. Wong has conducted many research studies regarding regional economic development and policy impacts on the public and private spheres. These include the impact of US budget and trade policy on key US industries and regions, healthcare reform and its implications for the federal budget, the Kyoto Agreement and its impact on the well-being of US regional economies, and the pharmaceutical industry's contribution to Pennsylvania's economy.

Michael C.Y. Lin was a regional economist at the Milken Institute's Research department. His research focuses on evaluating urban and regional economic performance and exploring the determinants of their growth and decline. He was also involved in writing several policy reports on green buildings, sustainable community development, and informal housing. He published an article in Annals of Regional Science, and two book chapters in community planning and shrinking cities. He has also been participating in peer reviews for various academic journal articles. Dr. Lin has also been teaching students statistical and econometric analysis and machining learning using Python, R, SAS, SPSS, and STATA. He holds a bachelor's degree in architecture and a master's degree in urban design, both from the National Taipei University of Technology in Taiwan. He also has a certificate in real estate with a concentration in investments from the University of California, Los Angeles (UCLA) Extension Program and a Ph.D. in policy, planning, and development with a specialization in urban development from the University of Southern California.