

Beijing
Shanghai
Hong Kong
Guangzhou

Shenzhen
Hangzhou
Chengdu
Wuhan

Xiamen
Nanjing
Xi'an
Changsha

Suzhou
Zhengzhou
Qingdao
Jinan

Tianjin
Macao
Ningbo
Kunming

Chongqing
Fuzhou
Dalian
Zhuhai

Hefei
Foshan
Wuxi
Urumqi

Shenyang
Haikou
Taiyuan
Zhongshan

Guiyang
Shijiazhuang
Harbin
Baoding

Lanzhou
Tangshan

Chinese Cities of Opportunity 2019



普华永道



中国发展研究基金会
China Development Research
Foundation



Meeting opportunities and challenges: Realising high-quality urban development

The Chinese economy has entered a critical phase of moving towards high-quality growth. Nearly 60% of China's population lives in urban areas, while the primary industry accounts for just 7% of GDP, indicating a vast majority of economic activity and innovation takes place in cities. Therefore, the transition to "innovative, coordinated, green, open and inclusive" development is largely driven by cities. Urban development is of great significance in driving the quality development of the entire economy, building new momentum for growth, as well as coping with the downward pressures of the domestic economy and the uncertainties of the international environment.

Large cities and city clusters that surround them play a central role in urban systems. At the global level, the emergence of city clusters has become a striking economic and geographical phenomenon. City clusters have transformed into the growth poles and innovation hubs of national and regional economies, as well as an important source of economic competitiveness. China has made it clear in the National New-type Urbanisation Plan (2014-2020) that city clusters will be a major

form of the new-type urbanisation and has included a total of 19 city clusters in the 13th Five-Year Plan. Since 2018, China has successively issued a number of key measures to promote the development of city clusters, approving the Xiong'an New Area Master Plan (2018-2025). The integration of the Yangtze River Delta has become national strategy, while the Outline Development Plan for the Guangdong-Hong Kong-Macao Greater Bay Area was released last month. The formation of city clusters is accelerating, reflecting the urgent need for quality urban development.

In order to successfully put these grand development strategies into practice, it's necessary to assess the conditions, development levels and progress of each city and city cluster in a timely and comprehensive manner, which can be used as reference for improving policy and practice. Jointly published by the China Development Research Foundation and PwC, this year's Cities of Opportunities report has established an evaluation index system for urban development according to China's domestic conditions, from perspectives such as the economy, society and

living standards. Since 2014, Cities of Opportunity has issued six consecutive editions, widely impacting society and receiving widespread attention and recognition from all spheres. The number of cities assessed in this year's report has increased from last year's 30 to the current 38. Many large and medium-sized cities in the Guangdong-Hong Kong-Macao Greater Bay Area, as well as the Beijing-Tianjin-Hebei city cluster have also been included in the assessment. The relevant analysis should therefore be of value to the study of Chinese city and city cluster development.

Here, I would like to take this opportunity to express my appreciation and admiration for PwC's abiding sense of social responsibility as well as how their wisdom has contributed to China's development. I am grateful to the PwC and China Development Research Foundation teams, and look forward to continued close cooperation between both sides to jointly contribute valuable knowledge resources to society.

Lu Mai
Vice Chairman and Secretary General
China Development Research Foundation

China's city cluster development and Greater Bay Area plan to further promote economic growth in Asia Pacific



Cities demonstrate all of the humanity's greatest achievements, along with its host of problems. At the beginning of the 19th century, just 10% of the world's population lived in cities. A century later, that figure jumped to a quarter of the world's population. By the dawn of this century, urban residents accounted for about half the world's population. The pace of population growth has only accelerated with economic growth and technological progress. By 2030, two out of every three people in the world will be living in urban areas. China's new urbanisation development strategy promises to make major contribution to this transformation.

The formation of Chinese cities differs markedly from that of Europe and America by following its long history, cultural aspects and own development over the centuries. The rapid growth of cities in modern China has been underpinned by more than thousands of years of intellectual ideas and illustrious culture. China has shown confidence and wisdom in the face of a changing international environment in recent years. That is what multinationals are continuing to learn as they grow, add value to their stakeholders and contribute to society.

Since China's 19th National Congress, a series of urban development strategies have lit the way for development in the coming years, including the development strategies of the Belt and Road Initiative, Beijing-Tianjin-Hebei Region, the Yangtze Economic Zone and the Guangdong-Hong Kong-Macao Greater Bay Area, which have also been echoed by arrangements highlighted in Premier Li Keqiang's government work report recently released during the "two sessions". This strategic position will play a crucial role in promoting the development of China's market economy in the face of potential major changes within the international environment.

The development plan for Guangdong-Hong Kong-Macao Greater Bay Area reveals an element of the grand vision for China's economic growth and social progress. Under the premise of maintaining the existing system by inheriting the concept of "one country, two systems" formulated by Mr. Deng Xiaoping and President Xi Jinping's leadership, Hong Kong and Macao will strengthen coordination and synergised efforts with the nine cities in Guangdong with distinctive characteristics by leveraging their own advantages. This will not only contribute to the flow of

resources, but also help improve urban governance of cities in mainland China, helping the market economy to mature and further promote China's opening up. PwC here and in China will follow the implementation and progress of the Greater Bay Area plan with great interest as the implications are far and wide and the potential positive contribution will be a role model for others to follow.

In fact, PwC has always played a role in China's modernisation drive. Since its entry into China in the late 1970s, PwC has grown alongside China's reform and opening up. Our operations in China have now become one the most important components of our global business. That's also the starting point for why we've focused on city research in China.

I'd like to thank the China Development Research Foundation for their generous commitment to collaborating with us in studying the cities of China, and affording PwC the privilege of jointly publishing the report at the China Development Forum. It is our hope that our work will be of benefit to the development of China's new type of urbanisation.

A handwritten signature in black ink that reads "Bob Moritz". The signature is written in a cursive, flowing style.

Robert E. Moritz
Global Chairman, PwC

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Overview

Cities have long been the epitome of economic development and social advancement. The development of a city is the symbol of economic growth and social progress, and one might suggest that major cities are a representation of a nation's stage of development. Committed to the health and growth of the market economy, PwC has carefully observed in recent years the global state of urban development. The Cities of Opportunity report is one result of this work.

Project background

Since 2008, PwC has been conducting assessments in 30 major cities around the world and making continuous efforts towards publishing the Cities of Opportunity survey report. To date, seven issues have been published, which have featured three Chinese cities: Beijing, Shanghai and Hong Kong. From 2014 onwards, PwC China has marked several Chinese cities for further research, collaborating with the China Development Research Foundation to release the annual report, Chinese Cities of Opportunity, at the China Development Forum. This year's report is our 6th edition.

Survey methodology

The methodology used in Chinese Cities of Opportunity is consistent with that of previous reports, employing PwC's assessment tools in examining the selected cities. These tools have two characteristics: First, the targets are observed from 10 dimensions, from economic growth to social services, infrastructure to industrial structure, resident sentiment to investor concerns, and the natural environment, business environment and urban impact. Like a prism, these perspectives have many sides and layers to illuminate the fullness of urban development. Second, each dimension is further subdivided into a number of variables, enriching each dimension.

Due to city size variance, we select relative data such as GDP per capita and per square kilometre as our variables. This enables a single platform to compare cities at varying degrees of development. Each variable is weighed equally. Every city has a ranking against each variable. This "score by rank" principle is used to order the results. When

the sample cities are ranked for each variable, one point is accumulated for each place in the ranking. Thus, the top ranking city accumulates 38 points and the last accumulates 1 point. Those with the same scores accumulate the same number of points. The ranking of 38 cities within each indicator is based on the total points each city accumulates in all variables of that dimension, while the final rank of all cities is determined by comparing the sum of all the total scores of each city for every dimension.

In reality, our social lives are vibrant and complex. Cities are unlike one another, with varied landscapes, historical contexts, cultural traditions and industrial layouts that present us with complex and fluctuating phenomena. PwC's assessment tools seek to capture as many observational factors as possible in the variety of aspects and diversity of life. A summary of the data from a range of aspects ensures that the cities comparison comes as close to our visual impression as possible. Nevertheless, the results of our observations are pretty close to reality due to our comprehensiveness. At the same time, cities that have a relatively low overall rank can still excel in certain areas.

City selection and data sources

In the years from 2014 to 2018, the city sample sizes were 15, 20, 24, 28 to 30, respectively. This year, we've expanded our target set to 38 cities. Compared with 2018, we've retained the foundation of our former observational targets this year, and selected several relatively important cities in terms of regional development in the Beijing-Tianjin-Hebei Region, the Yangtze River Delta, and the Pearl River Delta regions

and Hainan International Tourist Island, and in particular the two special administrative regions of Hong Kong and Macao (regarded as two cities). Not only have we sustained the consistency of previous reports, we've also increased its scope and injected new perspectives.

The 38 cities of 2019 Cities of Opportunity are as follows (roughly correlating from North to South, West to East): Harbin, Shenyang, Dalian, Urumqi, Lanzhou, Xi'an, Taiyuan, Beijing, Tianjin, Shijiazhuang, Tangshan, Baoding, Jinan, Qingdao, Zhengzhou, Nanjing, Wuhan, Wuxi, Suzhou, Shanghai, Hangzhou, Ningbo, Hefei, Fuzhou, Xiamen, Changsha, Guangzhou, Shenzhen, Foshan, Zhongshan, Zhuhai, Chengdu, Chongqing, Kunming, Guiyang, Haikou, as well as Hong Kong and Macao.

Due to the enlargement of the scope of selected cities and the issue of comparing data from differing market conditions, we have adjusted the design of the variables accordingly, while limiting the number of variables. The total number of variables in the Cities of Opportunity 2019 is 50. Due to this change, the relative position of cities in the ranking will differ from that of previous reports, and cannot be compared. However, we remain highly cautious of our data sources. As in the past, our data are chiefly derived from public sources, including data from the 2018 National Bureau of Statistics, statistics from government departments, city statistical yearbooks and bulletins, as well as research data from authoritative think tanks, universities and research institutes. The data point-in-time for this report is the end of 2017.

Observations

As Hong Kong and Macao have been added to the 2019 Cities of Opportunity list, the number of variables were reduced to ensure their alignment with cities in mainland China. At the same time, we enlarged the scope of our study of mainland cities, widening our field of view by about 27%. This means that the overall rankings in the study are not comparable with that of previous years, apart from certain individual dimensions. The outcome

of this report is a comparatively independent study.

According to the study results, the top 10 cities are: Beijing, Shanghai, Hong Kong, Guangzhou, Shenzhen, Hangzhou, Chengdu, Wuhan, Xiamen and Nanjing. The second tier of 10 are: Xi'an, Changsha, Suzhou, Zhengzhou, Qingdao, Jinan, Tianjin, Macao, Ningbo and Kunming. The remaining 18 cities are: Chongqing, Fuzhou, Dalian, Zhuhai, Hefei, Foshan, Wuxi, Urumqi, Shenyang, Haikou, Taiyuan, Zhongshan, Guiyang, Shijiazhuang, Harbin, Baoding, Lanzhou and Tangshan.

Among them, Beijing and Shanghai are China's megacities, and reflect China's urban agglomeration image abroad. Although Hong Kong's size is much smaller than that of Beijing and Shanghai, its No. 3 ranking is undisputed due to its status as an international financial centre and its developed market economy. Guangzhou and Shenzhen both have near-comparable overall scores, and rank fourth and fifth, respectively. These five cities differ in scope, status and development history, and have played to their respective advantages since China's reform and opening up. Shenzhen, in particular, developed from a fishing village to an internationally renowned metropolis, joining the ranks of Beijing, Shanghai, Hong Kong and Guangzhou as the most developed cities in China. Subsequently, Hangzhou, Chengdu, Wuhan and Nanjing rank, as expected, within the top set. Xiamen's growth, however, is of particular interest. Xiamen's long-standing focus on the environment, the green economy, urban-rural integration and attention to market development immediately comes to mind, and its top ranking in PwC's comprehensive measurement methodology is an objective outcome.

Most noteworthy in the comprehensive ranking is the several cities located in the Guangdong-Hong Kong-Macao Greater Bay Area. In the relevant dimensions, the Greater Bay Area rank comparatively high. We have further observations in our analysis.

In addition, several cities draw our attention in terms of dimension rankings. Zhuhai ranks first in the dimensions of “transportation and urban planning,” maintaining its leading position. Haikou was only added to the scope of the study this year, but ranks first in the dimension of “sustainable development and natural environment,” reinforcing its status as the International Tourism Island. Macao ranks first in the dimension of “culture and residential life.” Its physical size may be small, but its reputation for leisure tourism makes Macao’s top ranking natural. In the dimension of “cost,” Baoding ranks first, indicating that the city carries the lowest overall cost. Baoding’s development has become a focus of attention lately, due to the construction and special positioning of the Xiong’an New Area development. In the other dimensions, Beijing, Shanghai, Shenzhen and Hong Kong top the list.

Due to the enlargement of our study scope, we only briefly comment on the leading cities. Readers who are interested can refer to the accompanying dimension tables and analysis.

In-depth interviews

For the 2019 Chinese Cities of Opportunity, two special guests were invited to participate in in-depth interviews. This includes an interview with Liu Shijin, Vice Chairman of the China Development Research Foundation, which reflects the importance paid to urban development by leaders of the national think tank, as well as the China Development Research Foundation’s direct support of the Chinese Cities of Opportunity research report. His topic is “The urban agglomeration effect of city clusters & urban-rural integration”.

Another guest is Zhang Yueguo, President and Secretary of the Leading Party Members’ Group of the Guangzhou Academy of Social Sciences, who participated in a portion of the report’s research work. His topic is “Exploration in practice: A coordinated and integrated development among cities in the Guangdong-Hong Kong-Macao Greater Bay Area”.

Chinese Cities of Opportunity 2019 is also honored to invite, a selection of scholars, entrepreneurs, and city managers to participate in interviews. These include, respectively:

Meng Jianmin, Member of the Chinese Academy of Engineering and Chairman of the Shenzhen General Institute of Architectural Design and Research Co., Ltd. Leveraging his experience through in-depth thinking and practical experience, he has contributed “Several issues for consideration in China’s urban development planning”.

Wang Sizheng, Inspector of the Shanghai Municipal Development and Reform Commission, submitted “Opportunities and challenges for Shanghai to becoming a world-leading city”, drawing from his years of experience in macroeconomic decision making, as well as coordination and management.

Chen Ying, Professorate Senior Engineer, Chairman of the China Construction Fangcheng Investment & Development Co., Ltd. interprets urbanisation from the perspective of enterprise. His topic is “Expanding the space of happiness and building a first-class urban development operator in China”.

Dr. David Chung Wai-keung, JP, Under Secretary, Innovation and Technology Bureau, HKSAR Government, shares a forward-looking and enlightened perspective in “Some thoughts concerning how Hong Kong can become a global innovation and technology hub”.

As an expert on free trade areas, Dr. Zhang Yong, Executive Member, Secretary of the Board and Associate Researcher at Minsheng Insurance, elaborates on “Promoting high-quality development through greater openness: Enlightenment of free trade zones in China’s urban development”.

Our report was created from the standpoint of building social responsibility, and all participating interviewers share this vision. Their wisdom and insights have broadened our field of vision and deepened our understanding when writing this report.

Comparison and analysis of ranking

	Intellectual capital and innovation	Technical maturity	Major regional cities	Health, safety and public security	Transportation and urban planning
1 Beijing	166	101	182	166	133
2 Shanghai	151	93	184	192	113
3 Hong Kong	110	64	181	207	85
4 Guangzhou	144	105	172	158	159
5 Shenzhen	113	113	157	152	151
6 Hangzhou	124	96	142	137	140
7 Chengdu	127	84	153	145	136
8 Wuhan	147	69	136	116	116
9 Xiamen	99	76	107	118	145
10 Nanjing	151	81	124	122	165
11 Xi'an	129	69	129	119	163
12 Changsha	151	66	89	125	119
13 Suzhou	97	89	114	98	129
14 Zhengzhou	115	62	89	140	117
15 Qingdao	95	46	117	125	133
16 Jinan	118	60	83	125	112
17 Tianjin	115	59	126	111	131
18 Macao	74	30	115	180	85
19 Ningbo	56	85	77	77	93
20 Kunming	85	46	106	138	101
21 Chongqing	106	65	158	78	111
22 Fuzhou	71	66	76	91	117
23 Dalian	88	26	103	123	115
24 Zhuhai	69	80	62	111	174
25 Hefei	105	59	63	53	127
26 Foshan	73	69	48	93	138
27 Wuxi	72	48	45	101	129
28 Urumqi	63	18	57	112	110
29 Shenyang	89	37	104	111	86
30 Haikou	44	15	46	118	124
31 Taiyuan	87	21	48	149	88
32 Zhongshan	48	86	32	99	136
33 Guiyang	85	39	75	91	106
34 Shijiazhuang	81	28	36	88	110
35 Harbin	99	24	82	57	63
36 Baoding	92	16	34	85	66
37 Lanzhou	86	18	34	79	100
38 Tangshan	45	14	23	62	73

Sustainable development and natural environment	Culture and quality of life	Economic clout	Cost	Ease of doing business	Total
123	84	170	60	144	1329
122	106	152	50	165	1328
103	135	155	5	210	1255
122	72	133	31	155	1251
147	76	154	24	161	1248
103	90	152	55	170	1209
126	64	137	99	101	1172
122	102	128	103	131	1170
136	87	114	95	181	1158
75	95	113	81	150	1157
88	62	133	110	104	1106
100	106	96	75	143	1070
81	84	104	87	145	1028
103	74	96	102	110	1008
84	85	101	95	124	1005
99	73	100	104	117	991
60	63	116	92	104	977
122	145	76	15	123	965
89	94	114	89	173	947
83	72	96	129	76	932
53	38	123	113	83	928
85	104	89	99	124	922
53	80	85	137	107	917
96	76	85	58	103	914
102	53	93	131	118	904
146	56	57	86	120	886
77	86	82	118	121	879
84	82	78	140	130	874
90	70	61	146	71	865
154	94	72	101	92	860
44	74	101	154	83	849
130	81	24	93	115	844
111	62	64	138	68	839
86	66	56	161	90	802
70	57	87	142	75	756
88	40	37	177	55	690
88	47	58	105	71	686
61	40	76	158	103	655



1. Intellectual capital and innovation

The “intellectual capital and innovation” dimension includes five variables: The first variable measures the city’s intellectual capital from the perspective of education and the level of educational attainment of the employed population, which is described in three variables: “turnover rate of full-time teachers of middle and primary schools”, “scale of higher education students”, and “educational level of employed population”. The second observes the innovation investment and potential of the city, which are observed through “State key laboratories” and “City Innovation Index”.

The results show that Beijing, Shanghai, Nanjing, Changsha and Wuhan rank in the top five of this dimension. From sixth to 10th place is Guangzhou, Xi’an, Chengdu, Hangzhou and Jinan, while Urumqi, Ningbo, Zhongshan, Tangshan and Haikou place in the bottom five.

The “turnover rate of full-time teachers of middle and primary schools” demonstrates the rigid population demands on middle and primary school teachers, with the four cities of Xiamen, Shenzhen, Suzhou and Zhuhai ranking first. In this variable, the top four are essentially emerging cities with greater population immigration and faster development. China’s cities exist in a critical period of industrial transformation, with the rapid development of modern service industry, and cities have increased their demand for better education talent. As a result, we’ve changed the variable this year to “scale of higher education students” instead of last year’s “scale of secondary vocational education”, in order to meet the new

needs of this urban development. Wuhan, Guangzhou, Beijing, Shanghai and Zhengzhou are the five cities with the largest scale of higher education students among the 38 cities. Shijiazhuang, Harbin, Wuhan, Lanzhou and Changsha place in the top five for variables such as “educational level of employed population”. In this variable, the most advanced were old-school heavy industrial cities, most of which host large state-owned enterprises, with relatively little change in the knowledge levels of the employed population compared with that of the coastal areas. The lower-placed cities host mainly small and medium-sized enterprises, with developed processing industries. Because the processing industry has driven demand for a large number of operational jobs, the southeastern coastal cities have a large population of less-educated employed workers, driving the growth of the highly educated population in the southeastern coastal cities. Yet the variables reflecting the knowledge levels of the employed population are still lower than that of the northern cities. The top five “State key laboratories” are Beijing, Shanghai, Wuhan, Nanjing and Hong Kong. As an important component of the national scientific and technological innovation system, State key laboratories is an important base for organising high-level fundamental research and applied fundamental research, gathering and training outstanding scientific and technology personnel, carrying out high-level academic exchange and hosting the most advanced scientific research equipment. It plays a driving role in the development of

the discipline, and provides important intellectual support for a city’s scientific and technological innovation. The “City Innovation Index” is a compound variable. Hong Kong, Beijing, Shanghai, Shenzhen and Hangzhou are at the top of the list, showing that their investment in the development of technological innovation is comparatively high, and also reflects their great potential for technological innovation.

Seven cities in the Guangdong-Hong Kong-Macao Greater Bay Area were selected in this ranking. Because of industry and employed population knowledge levels, their rankings are not comparatively high. However, the cities in the Greater Bay Area show greater strength in most areas except for “educational level of employed population”. Intellectual capital is abundant here especially when we widen our viewing scope and conduct field observation : Guangzhou has a good foundation in higher education with more than 80 colleges and universities such as Sun Yat-sen University and South China University of Technology, and the scale of its students in higher education is second only to Wuhan. Hong Kong has high educational attainment for its employed population, with world-class universities such as the University of Hong Kong, the Chinese University of Hong Kong and the University of Science and Technology of Hong Kong. The teaching system of Macao is in line with international standards, with renowned universities such as the University of Macao. In recent years, education in Shenzhen and Zhuhai has developed rapidly. These

two cities place second and fourth respectively in the turnover rate of middle and primary school teachers. In higher education, Tsinghua University, Peking University, Harbin University of Technology and other domestic first-tier universities have established graduate schools in Shenzhen, while

Sun Yat-sen University and Jinan University have built new campuses in Zhuhai. In terms of technological innovation, Shenzhen particularly focuses on the transformation and application of theoretical work, with high-tech enterprises such as Tencent and Huawei. Hong Kong,

Guangzhou and Macao focus more on fundamental scientific research. Cities in the Greater Bay Area can therefore complement each other in scientific and technological innovation and form synergies in building a robust world-class region.

	Turnover rate of full-time teachers of middle and primary schools	Scale of higher education students	Educational level of employed population	State key laboratories	City Innovation Index	Total
1 Beijing	23	36	32	38	37	166
2 Shanghai	20	35	23	37	36	151
2 Nanjing	25	30	29	35	32	151
2 Changsha	34	28	34	27	28	151
5 Wuhan	6	38	36	36	31	147
6 Guangzhou	22	37	20	32	33	144
7 Xi'an	19	31	26	31	22	129
8 Chengdu	31	32	6	29	29	127
9 Hangzhou	27	20	12	31	34	124
10 Jinan	24	27	28	18	21	118
11 Zhengzhou	28	34	24	10	19	115
11 Tianjin	12	26	22	28	27	115
13 Shenzhen	37	3	5	33	35	113
14 Hong Kong	18	13	7	34	38	110
15 Chongqing	10	33	13	25	25	106
16 Hefei	21	24	19	18	23	105
17 Xiamen	38	8	8	19	26	99
17 Harbin	1	29	37	25	7	99
19 Suzhou	36	12	9	10	30	97
20 Qingdao	16	16	25	18	20	95
21 Baoding	33	23	16	18	2	92
22 Shenyang	2	19	33	22	13	89
23 Dalian	7	14	31	25	11	88
24 Taiyuan	13	21	27	18	8	87
25 Lanzhou	3	18	35	27	3	86
26 Guiyang	30	17	14	18	6	85
26 Kunming	14	25	18	18	10	85
28 Shijiazhuang	4	22	38	2	15	81
29 Macao	32	1	2	22	17	74
30 Foshan	29	6	4	22	12	73
31 Wuxi	17	4	17	18	16	72
32 Fuzhou	11	15	11	10	24	71
33 Zhuhai	35	7	3	10	14	69
34 Urumqi	9	10	30	10	4	63
35 Ningbo	15	11	10	2	18	56
36 Zhongshan	26	2	1	10	9	48
37 Tangshan	8	5	21	10	1	45
38 Haikou	5	9	15	10	5	44



Liu Shijin

Vice Chairman of the China Development Research Foundation



The urban agglomeration effect of city clusters & urban-rural integration

Since China's reform and opening up, industrialisation and urbanisation have emerged and developed rapidly. In recent years, the most prominent characteristic of urbanisation is the formation of the city clusters. Leading the way are the three city clusters of Beijing-Tianjin-Hebei, the Yangtze River Delta and the Greater Bay Area. The formation of these city clusters is in line with a general rule in developing countries. The most prominent feature in the development process of developed countries is also the rise of the city clusters. From a city perspective, the development of city clusters is the urban agglomeration effect of cities, concentrating resources and allocating them more efficiently to improve productivity.

What we can see in the changes of recent years is the concentration of resources in the city clusters. First, people, especially the young, tend to flock to the city clusters, and housing prices have risen as a result. In contrast to the rise of city clusters, Chinese cities have begun to polarise. While the rise of the city clusters has accelerated, the development of some cities in the Midwest and Northeast of China for instance has slowed down. Such a broad pattern will affect China's overall development going forward. Within a decade or so, at least 70% of industries will transform and upgrade. We'll see new, innovation-driven growth momentum, new economic growth and other phenomena in the city clusters, which will play a leading role in China's future development. As a result, the future of China's economy will rely chiefly on how these city clusters develop, how resources are allocated and how efficiencies are optimised.

Although all city clusters are developing, their formation mechanisms vary. Their own vitality, their ability to centralise resources or the overall development outcomes that result from them, however, it's the market that plays a key role in resource allocation. Comparatively, the Guangdong-Hong Kong-Macao Greater Bay Area and the Yangtze River Delta rely more on the market, while administrative forces play a more central role in the Beijing-Tianjin-Hebei Area. As the capital, Beijing enjoys a large amount of resources and special advantages, including national ministries and commissions, SOEs, large financial institutions, headquarters and foreign exchanges.

I remember 10 years ago, on my trip from Guangzhou to Shenzhen I saw a continuous stream of lights. These lights came from the factories and residential areas, illuminated like a ribbon. The urbanisation connections between Beijing and Tianjin have not yet taken shape. The major difference between Beijing-

Tianjin-Hebei Area and the other two city clusters is that the link between cities had not yet formed through market forces. Beijing-Tianjin-Hebei Area's coordinated development can make more use of market forces to enhance the links between cities.

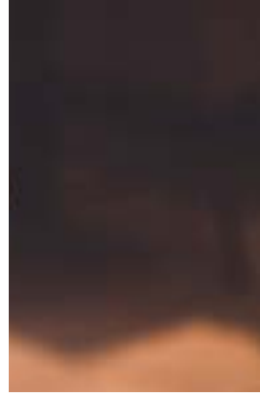
In addition to the three city clusters, the new urban areas in China are also growing. While many places still wishing to rely on administrative forces to push for urban development, local governments also want to follow the general trend and promote development through market forces. The development of a city in fact follows its own rules, which represent the space forms of market development. Cities can make plans and local governments can have their own ideas, but they still should follow the laws of market development. Only in this way can mature and dynamic cities develop. Though China's resources are currently mainly focused on the city clusters, other regions still have opportunities to develop. These regions will gradually grow their economies to be less dependent on urban agglomeration, forming rural villages, small towns and tourist destinations—each with their own unique advantages.

In the process of urbanisation, therefore, both urban agglomeration and dispersion are needed to give full play to the advantages of each area and region, all of which are unique. Every area in any country cannot develop at the same pace. City clusters will certainly develop faster than others. Take the United States as an example, with New York experiencing a difference development pace from the West. Urban development is, however, intrinsically about human development. When we look at human mobility and income per capita, although total economic output among regions may differ, income per capita will also change alongside migration. From the perspective of economic development, we should strive to narrow the gap in per capita income and achieve an overall balance. What must be distinguished here is that we want to promote human mobility through human development to ultimately minimise the gaps in income per capita between the metropolitan areas and other cities. The existence of the city clusters is necessary, but it's impossible for all regions to keep up with their pace. Ultimately, each area must play to their own strengths and characteristics, and human mobility

will then narrow the gap in income per capita. We can't therefore require all places to be the same.

At the same time, we should consider the integration of urban and rural areas. In the future, villages and rural areas will be modernised through reform, and their modes of production and lifestyles will align with that of urban areas. Not only will people drive cars and have running water, they'll also live in a better environment. Their industry will form another classification of our national economy: modernised agriculture. In the future, the city and countryside will integrate. Some villages will revitalise, but location plays a key role. Some historic cities in China are rapidly shedding their population and the cities themselves are declining day by day for a number of reasons. China has historically been an agricultural civilisation, and its people are chiefly the descendants of farmers. With urbanisation, the rural population will inevitably migrate to cities. With the development of information, digitisation and transportation, distances between urban areas have shortened. Future metropolitan areas may cover hundreds of kilometres and countless villages, meaning the current rural areas will form small towns where city dwellers may migrate, revitalising them. Great changes will take place in the rural areas, with the lifestyles of current villages modernising and aligning with that of urban areas.

At this stage, it is very difficult for scattered villages to reach the same standard of modernisation. In the future, small towns will therefore merge with larger cities to reduce costs. In my view, China's agricultural development should focus on regional bases with advantages and high production capacities to guarantee high yields in the region. At present, the rapid development of digitisation and area migration brought about by high-speed rail has offered great conveniences and efficiencies to people's work and communication. At the same time it has also greatly impacted and changed China's historically farming and agricultural civilisation. However, cultural preservation does not conflict with modernisation— they are mutually inclusive and should develop hand in hand. Substantial reform in China needs to ensure its growth potential can be fully realised. Only by integrating urban and rural areas, developing them in different ways and diversifying our culture can we achieve this goal.



2. Technical maturity

“Technical maturity” and the previous dimension of “intellectual capital and innovation” are concerned with the performance of cities in innovation development and levels of technology. The difference between the two is that intellectual capital and innovation focus on examining a city’s level of accumulated human capital and fundamental scientific research, which forms the basis for the pooling of intellectual capital, while technical maturity focuses on mature technologies that can be industrialised or put to use right now. This dimension of technical maturity encompasses three variables: “Internet Plus Index”, “e-commerce development Index” and “number of granted patents”. As we are constrained by a lack of statistical data, the number of variables in this dimension is small. To address this, we chose “Internet Plus Index” and “e-commerce development Index” as a holistic index generated through comprehensive calculations. There are multiple angles to this approach, which can, to a certain extent, make up for deficiencies in the statistical data.

Shenzhen, Guangzhou, Beijing, Hangzhou and Shanghai rank in the top five for this dimension, which is essentially consistent with perceptions

among the general public. As the important “capital of innovation” and the forefront of China’s reform and opening up, Shenzhen takes “sustainable global innovation city” as its long-term development goal, ranking first, first and second in the three variables of “Technical maturity”, while enjoying distinct advantages over all other cities. Guangzhou follows close behind, delivering outstanding performance in the two variables of “Internet Plus Index” and “e-commerce development Index.” Beijing is a national science and technology innovation centre and enjoys absolute advantages in the area of fundamental research in science and technology innovation. However, in the dimension of “technical maturity”, particularly in “e-commerce development Index” variable, Beijing slightly underperforms Shenzhen and Guangzhou. With its reliance on the e-commerce and Internet industry, Hangzhou has turned in outstanding performance in recent years, leading to an improvement in the overall level of technology innovation. Compared with other first-tier cities, Shanghai is slightly behind in technological innovation. However, with continuous investment, support and the introduction of key

industries in recent years, this gap may gradually narrow.

Relatively prominent cities in this dimension are Zhongshan and Ningbo. Zhongshan ranks 7th, following Guangzhou, Shenzhen and Hangzhou in the north, which is far above its overall ranking of 32nd. Ningbo ranks 8th in this dimension and is similarly much higher than its overall placement of 19th. The outstanding performance of these two cities in this dimension is credited to their higher rankings in “e-commerce development Index” and “number of granted patents”. Zhongshan, especially, has accelerated its building as a regional scientific and technological innovative centre in recent years and achieved remarkable results. According to Zhongshan’s statistics from 2017, the number of patents granted in Zhongshan City increased by 24% year over year. Of these, the number of patents granted for invention increased by 23.7% year over year. This has allowed it to place first among “number of granted patents” variable.

“Technical maturity” rankings show an obvious pooling effect among urban agglomerations. The performance of cities in Pearl River Delta and the Yangtze River Delta is generally superior, while the internal differences

are not significant. For example, Guangdong, Zhejiang, Shanghai, and Jiangsu generally score higher in “e-commerce development Index”, while Zhongshan, Shenzhen, Zhuhai, Guangzhou ranks first, second, third and eighth respectively in “number of granted patents” variable. Suzhou, Ningbo, Hangzhou, Nanjing, Shanghai and Hefei in the Yangtze River Delta

are ranked 4th, 6th, 7th, 9th, 11th and 12th, respectively, while their levels of development are relatively balanced. In contrast, only Beijing in the Beijing-Tianjin-Hebei region ranks third in this dimension, whereas the other cities place far behind that of the capital. The coordinated development of Beijing-Tianjin-Hebei puts special emphasis on inter-regional connectivity,

complementary advantages and resource sharing. In the future, efforts should be made to strengthen the spread and application of innovative technologies within city clusters, and fully realise Beijing’s strong advantages in scientific research and innovation, driving the integrated and coordinated development of the entire city cluster.

	Internet Plus Index	E-commerce development Index	Number of granted patents	Total
1 Shenzhen	38	38	37	113
2 Guangzhou	37	37	31	105
3 Beijing	36	31	34	101
4 Hangzhou	31	33	32	96
5 Shanghai	35	30	28	93
6 Suzhou	26	28	35	89
7 Zhongshan	14	34	38	86
8 Ningbo	20	32	33	85
9 Chengdu	34	26	24	84
10 Nanjing	22	29	30	81
11 Zhuhai	8	36	36	80
12 Xiamen	23	24	29	76
13 Wuhan	33	14	22	69
13 Foshan	28	35	6	69
13 Xi'an	25	19	25	69
16 Changsha	29	16	21	66
16 Fuzhou	24	23	19	66
18 Chongqing	32	18	15	65
19 Hong Kong	30	25	9	64
20 Zhengzhou	27	15	20	62
21 Jinan	16	21	23	60
22 Tianjin	21	12	26	59
22 Hefei	12	20	27	59
24 Wuxi	13	27	8	48
25 Qingdao	19	22	5	46
25 Kunming	17	11	18	46
27 Guiyang	6	17	16	39
28 Shenyang	15	5	17	37
29 Macao	18	1	11	30
30 Shijiazhuang	11	10	7	28
31 Dalian	9	4	13	26
32 Harbin	10	2	12	24
33 Taiyuan	7	13	1	21
34 Urumqi	2	6	10	18
34 Lanzhou	1	3	14	18
36 Baoding	5	8	3	16
37 Haikou	4	7	4	15
38 Tangshan	3	9	2	14



3. Major regional cities

To measure the development of a city, we must pay attention not only to its internal level of development, but also measure its level of external relations as a gateway city and its ability as a central city to project its influence to surrounding regions. This dimension measures the degree and influence of the city's external relations through five variables, including "star-graded hotels", "length of stay per capita of international inbound visitors", "inbound and outbound flights", "passenger capacity" and "exhibition/convention economy development Index".

Shanghai, Beijing, Hong Kong and Guangzhou rank in the top four in this dimension, followed by Chongqing, Shenzhen, Chengdu, Hangzhou, Wuhan and Xi'an. The ranking of the major regional cities bears great similarity to their overall rankings. The top 11 cities in the overall rankings, aside from Xiamen and Nanjing, also rank in the top 10 for this dimension. It is therefore not difficult to see that cities with greater overall strengths perform better at promoting international exchange as global gateways and driving coordinated regional development as

central cities of their respective regions. Shanghai ranks first in this dimension, and its influence on China's economy and ability to project influence are more than justified by its economic output, industry and international exchange. With the successful hosting of the first China International Import Expo and the establishment of the new high-tech board at the Shanghai Stock Exchange, Shanghai will play a major role in connecting China to the world in even more areas going forward.

Chongqing is a particularly outstanding performer in this dimension. Compared with its 21st placement over all, Chongqing ranks 5th among major regional cities, due mainly to its number of "star-graded hotels" and outstanding performance in numerous variables, such as "length of stay per capita of international inbound visitors", the volume of "inbound and outbound flights", and "passenger capacity". As a critical international transportation hub city in the southwest of China, Chongqing has always been at the forefront of our rankings of major regional cities. With the support of the Yangtze Golden Waterway, the

Central-Europe Railway Express, and the Chongqing Jiangbei International Airport, Chongqing has built an integrated transportation network connecting inland river ports, railways and airlines. The city has become a crucial external gateway as well as an important calling card for participating in global affairs and economic cooperation.

As the number of cities increases, the population density in cities also rises, especially in the three regions of Beijing-Tianjin-Hebei, the Yangtze River Delta and the Pearl River Delta. The ranking of certain cities will also be affected by surrounding cities. Take Zhuhai and Foshan as an example. Zhuhai is close to Macao and can share in the international passenger flow brought by Macao. That's why it ranks 13th in "length of stay per capita of international inbound visitors" variable. Foshan is balanced in all variables, but ranks last in "inbound and outbound flights", due to its close proximity to Guangzhou. The integration of Guangzhou and Foshan city allows Foshan to directly benefit from the transportation convenience

of Guangzhou Baiyun International Airport, therefore relying less on its local airport. With the development of the Guangdong-Hong Kong-Macao Greater Bay Area, the Pearl River Delta regional airport or Guangzhou new airport will be

located in Foshan, which should help Foshan play a more important pivotal role in the region.

With the execution of the Belt and Road Initiative, the accelerated development of the Guangdong-Hong Kong-Macao Greater Bay

Area, the further deepening of China's reform and opening up, and the closer integration of regional economies, China's cities will have more opportunities to develop their global economic exchanges and regional influence.

	Star-graded hotels	Length of stay per capita of international inbound visitors	Inbound and outbound flights	Passenger capacity	Exhibition/convention economy development Index	Total
1 Shanghai	36	35	38	38	37	184
2 Beijing	38	34	37	37	36	182
3 Hong Kong	37	38	35	33	38	181
4 Guangzhou	34	33	36	34	35	172
5 Chongqing	35	30	30	35	28	158
6 Shenzhen	30	36	33	25	33	157
7 Chengdu	28	25	32	36	32	153
8 Hangzhou	33	24	29	29	27	142
9 Wuhan	22	28	25	31	30	136
10 Xi'an	21	23	31	30	24	129
11 Tianjin	25	32	22	26	21	126
12 Nanjing	23	21	28	23	29	124
13 Qingdao	29	22	24	11	31	117
14 Macao	31	37	5	8	34	115
15 Suzhou	26	29	4	32	23	114
16 Xiamen	16	31	26	14	20	107
17 Kunming	19	18	34	19	16	106
18 Shenyang	24	19	16	27	18	104
19 Dalian	32	20	18	16	17	103
20 Changsha	13	11	23	17	25	89
20 Zhengzhou	2	12	27	22	26	89
22 Jinan	15	10	15	24	19	83
23 Harbin	17	8	17	18	22	82
24 Ningbo	27	17	6	15	12	77
25 Fuzhou	6	27	12	21	10	76
26 Guiyang	7	6	19	28	15	75
27 Hefei	11	9	9	20	14	63
28 Zhuhai	19	26	8	6	3	62
29 Urumqi	9	13	21	5	9	57
30 Taiyuan	13	7	13	2	13	48
30 Foshan	20	16	1	7	4	48
32 Haikou	3	3	20	13	7	46
33 Wuxi	5	14	3	12	11	45
34 Shijiazhuang	15	5	11	3	2	36
35 Lanzhou	4	1	14	10	5	34
35 Baoding	10	4	10	9	1	34
37 Zhongshan	1	15	7	1	8	32
38 Tangshan	9	2	2	4	6	23



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Several issues for consideration in China's urban development planning

China's urban and rural landscape has changed drastically over the past 40 years of reform and opening up. This change can be viewed from an architectural perspective, which reveals the changing course of architectural design ideas. I am an architect, and from my own perspective, I divide the development of those insights over the past four decades into three stages, with each stage lasting over a decade.

The first stage was a period of imitation. When China first opened up, Chinese architects didn't know much about foreign architectural concepts. There was a process of searching for subjects worth studying for their theory and craftsmanship. At that time, China's construction technology was undeveloped compared with that of foreign countries. We unreservedly and wholeheartedly absorbed any knowledge we could, to the point of not distinguishing the good from the bad.

The second stage was a period of reflection. After the experience and study from the imitation stage, Chinese architectural design entered a stage of reflection when Chinese architects began to digest these ideas and innovate in their practices, while at the same time continuing to study Western ideas. Chinese architects synthesised the knowledge accumulated from that previous stage and began to explore the possibility of personal development. At this stage, Chinese architects had yet to form a complete architectural system, yet realised that in order to develop an architecture industry, there should be a consideration of characteristics such as China's regional differences, its development environment and elements of its traditional culture. It was during this period that the awareness of bringing China's architectural concepts into actual practice began to take shape.

The third stage was a period of confidence. After the first two stages of experience and practice, Chinese architects by and large began to mature. They faced broader possibilities and larger opportunities than their counterparts in developed countries, due to China's urgent need, with its rapid development, to build modern cities. At this stage, not only were Chinese architects able to match Western architects in terms of creativity, they also developed a sense and vision to position themselves and a need to construct their own systems. However, in terms of its social and cultural foundations as well as economic



and technological factors, when compared with Europe and the United States, China was still in a development stage in formulating its own systems. The integrity of its buildings in general was uneven, while the investment and the standards were not uniformed. Therefore, I proposed a theory system called “primary design,” which incorporated the three elements of health, efficiency and humanism.

Health is the most fundamental element in architecture. During a relatively long period, Chinese architectural design had a tendency towards formalism, with too much attention paid on appearance. Some superficial, exaggerated and unrealistic architectural designs were deployed, with user convenience was overlooked. However, functionality is the heart of architecture. Paying excessive attention to exteriors and personal glory yet overlooking key elements such as interior environments and health safety standards is tantamount to putting the cart in front of the horse.

The second element is efficiency. Issues such as low building usage rates and illogical pathway layouts were not rare in certain architectural designs. More specifically, efficiency should factor in both cost control and user convenience. Efficiency should be taken seriously regardless of building size, so that multi-functionality could be achieved while meeting basic human needs.

The third element is humanism. While aesthetic, cultural and spiritual issues are all embedded in humanism, I’m chiefly focused on holistic humanistic concerns. For example, the design of the Hong Kong University-Shenzhen Hospital, a project in which I participated, our orientation for this hospital was eco-friendly. Underground was a sunken courtyard, lighting and ventilation systems. The rooftop, roof, ground and underground all highlighted the advanced ecological environment, while seamless connections were used in traffic. In addition, this hospital was an important practice for humanistic care. There were many people in the hospital, including doctors, nurses, administrators, logistic personnel, security

guards, clerks, interns and patients. We treated each group separately, balancing the distribution of resources between different groups. We paid special attention to the physically impaired and vulnerable groups such as low-income residents, the elderly, women and children, providing them with customised facilities.

This concept of primary design was based on the experiences of Chinese architectural practice, including learnings derived from my own mistakes. I feel all architects should engage in sober reflection and return to the roots of architecture design. They should pay attention to interiors, as well as what makes them valuable to its residents. When taking part in the demonstration of the development plan of Xiong’an, I suggested that the population distribution of a city should follow that of an ecosystem. Beyond the needs of the elites and large enterprises, we should also show concern for grassroots communities. The lower income population is large, and daily living support infrastructure such as medical care and education must be provided accordingly.

The primary design concept emphasises holistic thinking, end-to-end integration of processes and collaboration among all professions. At present, most of China’s architectural management systems are fragmented and sectional: architecture design, construction, interior design, lighting and landscape design are carried out by different companies. As a result, these companies shift blame when problem crop up. Regardless of urban planning, urban design and architecture design, unified coordination should be mandated. There must be a chief designer responsible for the entire process. The Shenzhen Bay Super Headquarters Base Project for which I am responsible is the implementation of this chief designer system, and has gained strong support from the Shenzhen municipal government. This is an important reform for this space. Under the new planning system, this project will form the pinnacle of the world-class city cluster in the Guangdong-Hong Kong-Macao Greater Bay Area.



Zhang Yueguo

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“ Exploration in practice: A coordinated and integrated development among cities in the Guangdong-Hong Kong- Macao Greater Bay Area

The outline of the development blueprint for the Guangdong-Hong Kong-Macao Greater Bay Area was released on 18 February by the Party Central Committee and the State Council. The Greater Bay Area development plan is a national strategy personally devised, planned and driven by President Xi Jinping. Not only is it a key development strategy in the country's reform and opening up in the new era, it's also a further step in enriching the practice of "one country, two systems."

The Guangdong-Hong Kong-Macao Greater Bay Area, already ranked among the world's four major bay areas, has shown very positive development and prospect. Not long ago, the Chinese Academy of Social Sciences confirmed this with its Report on the Impact of the Four Major Bay Areas (2018): New York, San Francisco, Tokyo, and Guangdong-Hong Kong-Macao. Over all, the Guangdong-Hong Kong-Macao Greater Bay Area is showing encouraging performance. At the same time, we should seriously study the advantages and disadvantages of the Guangdong-Hong Kong-Macao Greater Bay Area and plan for its next stage of development.

Compared with other bay areas in the world, the Guangdong-Hong Kong-Macao Greater Bay Area has its own unique advantages and distinctive features, of which the most prominent lies in the diversity, pluralism and richness of its cities in form and characteristic, creating an ecosystem of urban agglomerations of different levels, structures and functions. Meanwhile, what makes the Greater Bay Area distinctively different from the other three bay areas are the three major institutional differences in the political, regional and legal systems, which creates a large space and potential for the free flow of resources within the area.

The Guangdong-Hong Kong-Macao Greater Bay Area is indeed very special. This area is geographically connected, with shared humanities, language and culture. However, it's also a region of "one country, two systems", three legal systems and three customs zones. The differences in institutions as well as the different characteristics of the cities, I believe, can be treated as unique advantages of the Greater Bay Area, rather than obstacles. The cities complement and support each other with these differences. For instance, Guangzhou should learn from Hong Kong in terms of its level of globalisation. Hong Kong is the gateway for other cities within the region for going abroad. In terms of internal cooperation within the region, we should not ignore Hong Kong's advantages. Meanwhile, Guangzhou's apparent advantages are economic output, population size, industry and market depth, which undoubtedly offers much room and strategic depth when the Greater Bay Area is integrated into the overall development of our country. In the course of

the national transition to modern governance, I believe that a strong government is very important. The social mobilisation, social organisation and resource integration abilities of our cities, when condensed into institutional and organisational advantages to do great things, will amplify when they cooperate. We should, in following market principles, look for our own comparative advantages so that the unique advantages of the Guangdong-Hong Kong-Macao Greater Bay Area can be fully realised.

The development of the high-end service industry may bring breakthroughs. The Guangdong-Hong Kong-Macao Greater Bay Area should be developed into the largest international free trade area in China, with the free flow of goods, services and people fully integrating with the global economic system and new international practices. At present, the services trade is hindered by bottlenecks, a key for the Guangdong Free Trade Zone, consisting of Shenzhen Qianhai, Zhuhai Hengqin and Guangzhou Nansha, in making substantial breakthroughs. Through bold exploration and experimentation within the Free Trade Zone, we can uncover problems and make timely adjustments. With a subsequent recap of the pilot's success, we can provide a new model for the country to create a new landscape in opening up and a new system for the open economy.

On the occasion of the 40th anniversary of reform and opening up, President Xi Jinping visited Guangzhou and delivered an important speech. While in Guangzhou, he particularly emphasised that Guangzhou, an old city, should give new vitality and deliver new achievements in comprehensive urban work and new comprehensive strengths in the urban culture, the modern service industry, the modern global business environment and other fields. Guangzhou is indeed an old city with a history of over 2,200 years. But we should also have a clear understanding that in the sense of modernisation, the real urbanisation period of Guangzhou has only lasted a few decades. Its urban development is vigorous and in progress, whether in large-scale expansion or industrial upgradation. In the course of its development, our city must attach equal importance to both sides. We must first make up for our lost history of modernisation and urbanisation. But we must also embrace the new challenges of globalisation and the technological changes of the future. For Guangzhou to become more international as a critical hub in the world's urban network, we must work hard on the following six aspects:

First, we have to build an open economic system integrated to the world and a high-end, high-quality and high-tech

modern industrial system. We must create a world-class open and innovative business environment, enhance the industrial division and coordination of the Guangdong-Hong Kong-Macao Greater Bay Area, the "Belt and Road" industrial cooperation, and build a highly open innovation and entrepreneurship system.

Second, we have to enhance the resource allocation capacity for global reach, vigorously develop hub enterprises that are open to cooperation, build both virtual and physical hub-type platforms, establish a global service network hub linking the rest of the world, and create a future-oriented super CBD with global influence.

Third, we have to plan for a pattern of exchange that is a win-win for all, transforming our city into an international city for urban and public diplomacy, an international city for conferences, an international cultural exchange centre and a world-renowned tourist destination.

Fourth, we have to build a hub network which is accessible to the world for international talents, resources, transportation and information.

Fifth, we have to create a world-leading livable environment, improve the urban ecological spaces, form a harmonious and inclusive living community, further popularise the concept of urban globalisation, and build a beautiful and livable city with distinctive characteristics that's full of vitality.

Sixth, we have to implement a communication strategy with global reach, establish an international urban image, accurately create overseas communications content and channels, enhance interactivity in international communications, strengthen the level of international information exchange, and strive for a voice in the field of global urban research.

Guangzhou is always considered as a low-key and pragmatic city. It is a civic city, but never mediocre. Instead, we should carefully transform it into a "dream city" to promote its strong appeal and leadership, making it possible for everyone to settle down and pursue their dreams.



4. Health, safety and public security

Cities provide residents with basic living spaces, while meeting essential requirements for health and safety. The dimension of “health, safety and public security” measures the city’s performance in social security and public services such as medical care, senior care and security. This dimension encompasses six variables: “number of licensed doctors per capita”, “per capita medical facility level”, “coverage rate of public pensions”, “urban traffic safety Index”, “loss due to disasters” and “average life expectancy”, which are representative indicators of urban public services and social security.

The six cities of Hong Kong, Shanghai, Macao, Beijing, Guangzhou and Shenzhen have benefited from a greater degree of economic development. They are among the top six in this dimension and can offer better medical and health services and security for their urban residents. In addition, Taiyuan and Zhengzhou also deliver outstanding performance in this dimension. Taiyuan ranks 7th in the dimension of “health, safety and public security” due to its excellent performance on the three variables of “number of

licensed doctors per capita”, “per capita medical facility level” and “loss due to disasters”. While Taiyuan has a wealth of medical resources as capital of Shanxi province, the city is less affected by disasters, especially natural disasters, due to its location in the inland plains, affording it a higher degree of security. Zhengzhou places second in “urban traffic safety Index”, reflecting the clear effect of urban traffic management, while its “loss due to disasters” variable is ranked 7th, similar to Taiyuan.

In recent years, many cities have focused on boosting investment in medical and health resources and promoting the equalisation of medical public services. When we look to “number of licensed doctors per capita” and “per capita medical facility level” as variables for measuring a city’s medical resources, Dalian, Urumqi, Kunming, Haikou, Lanzhou and Shenyang all hold a significant edge over their comprehensive rankings. Dalian places 4th in terms of “number of licensed doctors per capita”, 6th for Urumqi, 8th for Kunming and 10th for Haikou. Shenyang places 8th in terms of “per

capita medical facility level” while Lanzhou places 12th. All these cities are provincial capitals or sub-provincial cities, with access to relatively concentrated medical resources. Their services scope encompasses not just the city itself, but also blanket the entire province. And when compared with large cities such as Beijing and Shanghai, their population are within a more reasonable range, affording them a higher per capita level of service. We should also note that, since last year, Hainan province has been promoting the entry of healthcare industries and developing a haven for health care. With the support of this policy, and building on the advantages of existing medical resources, Hainan should develop further in the medical and health care space.

The cities of the Guangdong-Hong Kong-Macao Greater Bay Area place higher in metrics of social security. The social security systems of Hong Kong and Macao are relatively comprehensive, with the highest “coverage rate of public pensions” and “average life expectancy”. As first-tier cities with developed economies,

Guangzhou and Shenzhen have made rapid progress in building its social security system. Thanks to Guangdong's long-standing and highly market-oriented economy, it has developed a relatively mature labour relations

and governance framework. In terms of "coverage rate of public pensions", Zhongshan places 7th, Zhuhai 9th and Foshan 10th. With the progress and deepening of cooperation between the healthcare and senior care

industries in the Guangdong-Hong Kong-Macao Greater Bay Area, there should be further development opportunities for medical resources and pension systems.

		Number of licensed doctors per capita	Per capita medical facility level	Coverage rate of public pensions	Urban traffic safety Index	Loss due to disasters	Average life expectancy	Total
1	Hong Kong	36	38	38	27	30	38	207
2	Shanghai	37	36	34	14	35	36	192
3	Macao	32	35	37	38	1	37	180
4	Beijing	38	37	33	11	12	35	166
5	Guangzhou	22	34	35	16	23	28	158
6	Shenzhen	11	29	36	30	22	24	152
7	Taiyuan	28	33	14	23	38	13	149
8	Chengdu	23	30	15	26	33	18	145
9	Zhengzhou	27	14	18	37	32	12	140
10	Kunming	31	24	6	26	36	15	138
11	Hangzhou	34	26	31	8	6	32	137
12	Jinan	30	21	21	9	25	19	125
12	Qingdao	16	17	23	29	15	25	125
12	Changsha	25	19	10	36	19	16	125
15	Dalian	35	10	13	24	18	23	123
16	Nanjing	20	32	19	12	8	31	122
17	Xi'an	14	22	20	18	28	17	119
18	Xiamen	15	28	28	22	3	22	118
18	Haikou	29	23	7	15	34	10	118
20	Wuhan	19	25	9	6	31	26	116
21	Urumqi	33	11	17	21	27	3	112
22	Shenyang	21	31	24	5	9	21	111
22	Zhuhai	24	9	30	13	2	33	111
22	Tianjin	18	20	22	8	14	29	111
25	Wuxi	12	5	25	19	10	30	101
26	Zhongshan	6	6	32	17	24	14	99
27	Suzhou	9	1	26	21	7	34	98
28	Foshan	3	8	29	4	29	20	93
29	Guiyang	4	16	16	33	20	2	91
29	Fuzhou	17	15	8	32	11	8	91
31	Shijiazhuang	10	7	4	35	26	6	88
32	Baoding	5	2	1	34	37	6	85
33	Lanzhou	26	27	2	2	21	1	79
34	Chongqing	2	12	11	31	13	9	78
35	Ningbo	13	3	27	3	4	27	77
36	Tangshan	7	4	12	28	5	6	62
37	Harbin	1	13	5	10	17	11	57
38	Hefei	8	18	3	1	16	7	53



5. Transportation and urban planning

With the increase in road traffic, sound urban planning has become a main focus for urban development. While urban transportation offers convenience, the adverse effects of congestion are also growing. With modernisation, urban transportation and urban planning have become interrelated, as transportation planning affects urban layouts, while urban planning determines road development. In the future, it is necessary to consider population changes, environmental issues and housing issues holistically. Based on the above considerations, the “transportation and urban planning” dimension consists of six variables: “road area per capita”, “public transit system”, “rail transit coverage”, “state of floating urban population”, “green area” and “available housing for residents”. The first three variables reflect traffic conditions, while the latter three reflect urban planning settings. These variables have been chosen to reflect the objective realities and laws governing modern-day urban development.

In this dimension, Zhuhai and Nanjing rank among the top cities in most variables and both cities have come out at the top of the rankings for three consecutive years. Following them are Xi’an, Guangzhou, Shenzhen, Xiamen, Hangzhou, Foshan, Zhongshan and Chengdu. In recent years, Zhuhai’s economic development has risen steadily, thanks to its small urban area and population, which has allowed for effective urban planning

implementation. Zhuhai places among the top three in “public transit system”, “green area” and “available housing for residents”. Nanjing is now starting to see dividends from the multi-year construction of its transportation infrastructure, placing among the top three in “road area per capita” and “rail transit coverage”. Compared with previous years, the statistical outcomes of this year’s “transportation and urban planning” dimension stand out in one respect. That is, five of the top ten cities are cities in the Guangdong-Hong Kong-Macao Greater Bay Area, including Zhuhai, Guangzhou, Shenzhen, Foshan and Zhongshan, respectively.

The Bay Area is the leading pole of growth for global economic development and also a leader in technological change. The Guangdong-Hong Kong-Macao Greater Bay Area is a “9+2” city cluster, comprising the nine cities of Guangdong province, alongside Hong Kong and Macao SARs. At the end of 2017, its total population reached 70 million, with approximately 10 trillion yuan in total economic output, surpassing 12% of the nation’s economic output, while boasting one of the highest degrees of openness and economic vitality. Building a world-class Greater Bay Area and a world-class city cluster requires both the “soft connectivity” of institutional rules as well as the “hard connectivity” of infrastructure. In September 2018, the Hong Kong section of the Guangzhou-Shenzhen-Hong Kong high-speed

railway officially opened, closing the distance between Hong Kong and cities in mainland China. On October 23 of that same year, the world’s longest sea-crossing bridge, the Hong Kong-Zhuhai-Macao Bridge, officially opened. On November 20, the main crossing of the Second Humen Bridge in the Guangdong-Hong Kong-Macao Greater Bay Area was also fully connected, with its completion and opening expected in 2019. We note that Zhongshan places in the top 10 in the variable of “road area per capita”, while Guangzhou and Shenzhen rank in the top 10 in the two variables of “public transit system” and “rail transit coverage”. The continuous improvement of the transportation system has enhanced the level of interconnectivity within the Greater Bay Area and its surrounding regions, while the flow of quality education and medical resources among the three regions has also grown smoother. It is gratifying to note that, while transportation in the Guangdong-Hong Kong-Macao Greater Bay Area has become increasingly convenient, improvements in the urban environment have also accelerated. Among the “green area” variables, Zhuhai’s green area per capita has risen to first place, while Shenzhen, Guangzhou, Foshan and Zhongshan are also in the top 10.

According to the Outline Development Plan for the Guangdong-Hong Kong-Macao Greater Bay Area issued on Feb 18, 2019, the future development of the Guangdong-Hong Kong-Macao Greater Bay Area

will accelerate the interconnectivity of its infrastructure, fully leveraging Hong Kong's international aviation hub and Guangzhou's comprehensive transportation hub to build a comprehensive modern transportation system. This will lead to a world-class grouping of airports, forming a "multi-airport system", and further expand the domestic and overseas

aviation networks of the Guangdong-Hong Kong-Macao Greater Bay Area. And with a focus on connecting to the mainland with Hong Kong, Macao and the eastern and western banks of the Pearl River Estuary, an inter-city rail transit network featuring Guangzhou, Shenzhen and Zhuhai as the main hubs has been constructed, with the aim of realising one-hour access between

the major cities in Guangdong, Hong Kong and Macao, while extending to the surrounding provinces through to the eastern, western and northern parts of Guangdong to form a network of expressways, high-speed railways and express trains. This network will also form the backbone of land-based corridors that link the Pan-Pearl River Delta region with the ASEAN countries.

	Road area per capita	Public transit system	Rail transit coverage	State of floating urban population	Green area	Available housing for residents	Total
1 Zhuhai	20	37	9	33	38	37	174
2 Nanjing	36	29	36	6	33	25	165
3 Xi'an	32	30	18	35	15	33	163
4 Guangzhou	11	33	30	36	34	15	159
5 Shenzhen	8	36	32	38	35	2	151
6 Xiamen	24	35	14	29	29	14	145
7 Hangzhou	16	31	21	25	15	32	140
8 Foshan	22	18	26	23	32	17	138
9 Zhongshan	34	13	9	12	30	38	136
9 Chengdu	19	11	31	37	20	18	136
11 Beijing	3	33	37	19	37	4	133
11 Qingdao	30	23	12	17	21	30	133
13 Tianjin	27	20	19	31	11	23	131
14 Suzhou	38	5	28	3	20	35	129
14 Wuxi	37	6	20	4	28	34	129
16 Hefei	29	9	17	20	26	26	127
17 Haikou	26	14	9	24	15	36	124
18 Changsha	5	22	24	32	8	28	119
19 Fuzhou	15	8	13	22	32	27	117
19 Zhengzhou	6	11	29	30	12	29	117
21 Wuhan	12	27	34	27	4	12	116
22 Dalian	18	25	35	7	23	7	115
23 Shanghai	7	19	38	26	3	20	113
24 Jinan	35	18	9	21	10	19	112
25 Chongqing	14	4	23	14	25	31	111
26 Urumqi	10	34	9	15	18	24	110
26 Shijiazhuang	33	4	16	16	36	5	110
28 Guiyang	9	22	10	28	28	9	106
29 Kunming	4	27	25	13	16	16	101
30 Lanzhou	28	28	22	8	6	8	100
31 Ningbo	13	7	27	18	7	21	93
32 Taiyuan	21	13	9	9	23	13	88
33 Shenyang	23	15	15	2	9	22	86
34 Hong Kong	1	38	33	11	1	1	85
34 Macao	2	24	9	34	5	11	85
36 Tangshan	25	2	9	10	24	3	73
37 Baoding	31	2	9	1	17	6	66
38 Harbin	17	18	11	5	2	10	63



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Some thoughts concerning how Hong Kong can become a global innovation and technology hub

Hong Kong Chief Executive Carrie Lam Cheng Yuet-ngor stated in her first Policy Address in October 2017 that Hong Kong has the potential to become an international innovation and technology hub. Later President Xi stressed in his instructions that cooperation between the mainland and Hong Kong must be strengthened in the field of science and technology, and emphasised his support for Hong Kong to become an international hub for innovation and technology. This shows that Hong Kong's development goal has won recognition and support from the central government, and carries great significance to the development of the Guangdong-Hong Kong-Macao Greater Bay Area.

Hong Kong's greatest advantage in becoming an international hub for innovation comes from its high degree of globalisation. Specifically, this advantage is reflected in three aspects: first, abundant resources of universities as well as professors and researchers from abroad; second, the internationalisation of college students; and third, the internationalisation of entrepreneurs. The diversification of human resources has long been an important factor in measuring the globalisation level of a city, and is also one of the key areas in which Hong Kong has invested heavily for many years.

Hong Kong has four distinctive features in the nurturing of international brands of innovation:

First, we should continuously train and attract outstanding talents in innovation: Hong Kong places greater emphasis on the quality rather than quantity of innovative talents. The skills of these talents must be diversified and meet world-class standards. Hong Kong has a population of only seven million, yet its AI level ranks third in the world, while two of its hospitals rank among the top 50 globally.

That is because Hong Kong's globalised universities have trained many outstanding talents and attracted numerous top-notch scholars back to Hong Kong to pursue their scientific research. At the policy level, Hong Kong has actively created a talent list and a technology talent immigration programme that offers work visas to outstanding talents in less than 30 days. Meanwhile, it also guarantees that many of its talent policies are at the leading edge of the Guangdong-Hong Kong-Macao Greater Bay Area.

Second, focus on the AI and healthcare sectors. The key to enhancing Hong Kong's core competitiveness lies in the development of financial technology and smart cities. Bearing this in mind, the HKSAR government has invested HK\$10 billion to support the establishment of two research clusters on healthcare technologies and on artificial intelligence and robotics technologies, with the view of attracting more cooperation among top-notch local, mainland and overseas scientific research and development institutions in Hong Kong. This shows that the Hong Kong government is not guided by short-term results in these two areas, but aims to establish a sustainable ecological cycle.

AI extends to a wide range of fields and scenarios. Hong Kong hopes to re-industrialise the city and upgrade its industry to high-end, advanced and environmentally sustainable manufacturing through artificial intelligence. It also hopes to improve the operational efficiency of the city and the government through the smart city development programme.

Third, we should give full play to the role of the Hong Kong government to facilitate. The Hong Kong government establishes fair, just and open innovation platforms to create a level-playing field that embraces the engagement and concerted development of entrepreneurs. It not only supports preliminary

scientific research, but also values the application of R&D accomplishments. The government regularly carries out competition activities to attract innovations and match them with market demands, while offering flexible capital support to ensure their implementation and application. The government further provides tax incentives and deductions for small and medium-sized enterprises engaged in innovative technologies and R&D.

Fourth, establish a close connection between the Guangdong-Hong Kong-Macao Greater Bay Area and the mainland market. Hong Kong has always attached great importance to cooperation with mainland China as well as the Greater Bay Area in the field of innovation and technology. Hong Kong has established 22 key national laboratories and engineering laboratories with the Ministry of Science and Technology and the Chinese Academy of Sciences (CAS), where Hong Kong and the mainland scientists can work together. The CAS has established a sub-centre for regenerative medicine and automation in Hong Kong to facilitate a full exchange of scientific research results. Hong Kong also cooperates closely with the major cities of the Greater Bay Area, while various funds in Guangdong province can be used to jointly invest in Hong Kong's innovation programmes. Hong Kong's technological innovation achievements can be applied in the Greater Bay area and the families of innovative talents can also travel freely within the region.

Generally speaking, the development of innovation and technology needs a complete scientific process. It is a systematic project that requires the full integration of international, local and mainland resources. Without talents, industrial focus and advanced management, it is very hard for innovation and technology to take root, let alone reach an international level.



6. Sustainable development and natural environment

Economic growth is no longer the sole criterion for evaluating urban development, and the concept of sustainable development has taken on an increasingly important role. In the dimension of “sustainable development and natural environment”, sustainable development refers not just to the sustainability of natural resource exploitation and use, but also whether the changes in the urban population and labour force can sustain a city’s vitality. This dimension encompasses five variables: “residential water resources per capita”, “centralised sewage treatment rate”, “labour supply”, “rate of change in floating population” and “greenhouse gas emission level”. Among these, variables 1, 2 and 5 focus on assessing the use and impact of water and air in the process of urban development. Variables 3 and 4 focus on two perspectives: the quantitative changes in the urban labour force, as well its composition. Among them, “labour supply” calculates the growth rate of urban workers, while “rate of change in floating population” is the ratio of the permanent population to household registration population. This variable differs from “state of urban floating population” in the fifth dimension in its definition and evaluation.

Haikou ranks first in the overall ranking of this dimension, placing first in

“labour supply” and “greenhouse gas emission level”, holding a clear edge over other cities. Since Hainan province was approved as an international tourist island in 2010, many supporting policies and development opportunities have led to increased employment opportunities for the local government, significantly boosting the number of employed workers in the province in recent years. At the same time, Hainan’s excellent natural environment and industrial structure, led by tourism and a modern services industry, allow for low-pollution and low-emission economic development. As a result, Haikou places first in “greenhouse gas emission level”. Hainan province will continue to explore a new model of green development in the Free Trade Zone. Its ecological civilisation development concept will continue throughout the entire construction process of the Hainan Free Trade Zone, with the characteristics of sustainable development to grow increasingly apparent.

The cities of Guangdong, Hong Kong and Macao perform well in this dimension. Shenzhen, Foshan, Zhongshan, Guangzhou, Macao, Hong Kong and Zhuhai place 2nd, 3rd, 5th, 8th, 8th, 13th and 19th, respectively (Guangzhou and Macao place 8th), benefiting chiefly from the advantages of its “residential water resources

per capita” and “rate of change in floating population”. In terms of water resources, the per capita water resources of the cities of Guangdong, Hong Kong and Macao are more abundant than that of the northern cities, while Guangdong province has in recent years focused on improving the use of water resources in the Pearl River Delta, leading to its excellent performance in this variable. Going forward, Guangdong province will guarantee the supply of stable water resources for the future development of Guangdong-Hong Kong-Macao Greater Bay Area through the Pearl River Delta Water Resources Allocation Project. In terms of floating populations, Shenzhen, Zhongshan and Foshan are among the top three in “rate of change in floating population”. Guangzhou and Zhuhai also place highly (6th and 10th respectively). Benefiting from the dynamic innovation, great employment prospects and social inclusivity of first-tier cities such as Guangzhou and Shenzhen, these cities are strong attractors of foreign talent. Due to the high degree of integration between small and medium-sized cities and large cities, there is a lot of push and pull between city populations, which allows the entire region to share in the vitality of sustainable growth brought about by a rising population.

As the saying goes: “Clear waters and lush mountains are as good as gold.” These days, an increasing number of cities are beginning to transform their economic growth models and explore more quality sustainable

development paths. With the gradual implementation of national environmental protection measures such as the Ten Articles of Atmosphere and the Ten Articles of Water, as well as the continued advancement

of policies to attract foreigners, we believe more cities will realise improvements in the sustainable development of both environmental and human capital resources.

	Residential water resources per capita	Centralised sewage treatment rate	Labour supply	Rate of change in floating population	Greenhouse gas emission level	Total
1 Haikou	32	22	38	24	38	154
2 Shenzhen	25	32	16	38	36	147
3 Foshan	38	25	24	36	23	146
4 Xiamen	16	26	30	35	29	136
5 Zhongshan	31	28	9	37	25	130
6 Chengdu	34	18	37	10	27	126
7 Beijing	15	20	32	32	24	123
8 Guangzhou	24	22	13	33	30	122
8 Macao	36	11	11	27	37	122
8 Wuhan	30	15	35	23	19	122
8 Shanghai	17	31	28	34	12	122
12 Guiyang	26	35	26	17	7	111
13 Hangzhou	22	23	21	21	16	103
13 Zhengzhou	3	36	25	22	17	103
13 Hong Kong	37	12	19	3	32	103
16 Hefei	27	14	34	6	21	102
17 Changsha	18	37	2	8	35	100
18 Jinan	6	30	36	12	15	99
19 Zhuhai	20	27	12	29	8	96
20 Shenyang	21	17	27	11	14	90
21 Ningbo	28	2	29	26	4	89
22 Baoding	1	29	23	2	33	88
22 Xi'an	19	10	20	5	34	88
22 Lanzhou	14	24	33	14	3	88
25 Shijiazhuang	12	38	17	9	10	86
26 Fuzhou	29	3	18	7	28	85
27 Qingdao	11	33	7	15	18	84
27 Urumqi	13	4	31	31	5	84
29 Kunming	2	9	22	19	31	83
30 Suzhou	33	8	4	30	6	81
31 Wuxi	23	13	5	25	11	77
32 Nanjing	35	1	6	20	13	75
33 Harbin	5	16	10	13	26	70
34 Tangshan	7	34	14	4	2	61
35 Tianjin	8	7	8	28	9	60
36 Dalian	9	5	3	16	20	53
36 Chongqing	10	19	1	1	22	53
38 Taiyuan	4	6	15	18	1	44



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“ Opportunities and challenges for Shanghai to becoming a world-leading city

Shanghai once ranked among the first-tier world cities, comparing itself with the four major global cities of London, New York, Paris and Tokyo. Today, Shanghai is still a measurable distance away from this first echelon in areas such as economic output, energy level, international influence and global resource allocation. Going forward, Shanghai needs to rely on the experiences and resources it has accumulated over the years to fully realise its potential and grasp the opportunities:

1. Technological innovation

Shanghai has been committed to technological innovation for the past 20 years, becoming one of the leading cities in China in fields such as integrated circuits, new-energy vehicles and scientific apparatus construction. In recent years, Shanghai has fostered a number of major enterprises and institutions and established a global presence in the artificial intelligence, bio-medicine and life sciences sectors. Technological innovation is a key index to gauge the core competitiveness of a world city and Shanghai must continue to invest and make breakthroughs in this area.

2. Advanced manufacturing

In the Outline of Shanghai's 13th Five-Year Plan, Shanghai proposed to keep the added value of the manufacturing industry at 25% of Shanghai's total GDP by the end of the 13th Five-Year Plan period, while raising the added value of strategic emerging industries to 20% of Shanghai's total GDP by 2020. The development history of New York and London also proves that technological innovation depends on the development of high-end and advanced manufacturing industries and that technological innovation can play an effective role only when closely integrated with the real economy.

Shanghai has a solid industrial base and a complete range of industries. Its urban area is larger than that of any other first-tier city, allowing it great potential in developing advanced manufacturing industries. Moreover, Shanghai's advanced manufacturing industry can further promote the coordinated development of the Yangtze River Delta and the Yangtze Economic Belt. In the future, Shanghai will vigorously serve the national development strategy by developing aerospace, shipping, maritime and large-scale advanced equipment manufacturing industries, forming its own distinctive advanced manufacturing industry.

3. Opening up

From the early days of China's economic reform and opening up to 2017, Shanghai has attracted 91,000 foreign investment projects, amounting to more than US \$220billion in foreign investment. Shanghai also hosts the most foreign enterprise headquarters in China. Amidst the complicated global political and economic environment, it is necessary to balance the interests of all parties, face new challenges and seize new opportunities in the process of opening up. Last year, Shanghai rolled out 100 measures to further expand opening up, which was met with great response worldwide. Moreover, the construction of the new district within Shanghai's Free Trade

Zone also highlights Shanghai's determination to increase its openness to the outside world. In fact, Shanghai still enjoys a lot of room to open up even further. For instance, there have been successful case studies in the opening up of the education, culture and medical sectors in the traditional services industry and measures can be taken to launch them on a wider scale. It is also necessary to strengthen the opening up of the water, gas, electricity and transportation sectors in the basic services industry. The service trade within the free trade zone needs to be made more accessible. Measures should be taken to gradually establish a "pool" and clearing centre for capital.

Increasing openness also requires keeping pace with the times. In the past, urban construction and land development has put special emphasis on the control of the "plot ratio" and land property classification. However, these restrictions can be appropriately relaxed as per the trend of industrial integration and the advanced nature of the industry. For instance, it's now difficult to categorise some enterprises in the primary, secondary or tertiary industry and the composite development of lands and buildings should be strengthened. Although Tesla's "super factory" in Shanghai has a high plot ratio, it represents the most advanced level of high-end manufacturing in the world in measures of intelligence and efficiency. Similar high-end and automated "smart" manufacturing enterprises should be encouraged and afforded more flexible policies.

4. Talent

Shanghai currently faces the challenge of an aging population. In 2018, about 3.66 million people over 65 years of age lived in Shanghai, or 15.1% of its permanent population. Meanwhile, Shanghai also faces the challenge of other cities actively working to attract high-end talent. Shanghai needs to adjust and optimise its population control policies in due time by offering personalised policies to high-end talent, while forming a reasonable age and employment structure.

5. Structure of the economy

After years of development, Shanghai has achieved a relatively balanced economic structure. The volume of central state-owned enterprises, local state-owned enterprises, foreign enterprises and private enterprises each account equally for a quarter of the total economic output. As the birthplace of China's national industry, Shanghai has fostered over a long period of development certain enterprises with core competitiveness in various sectors. Shanghai's local state-owned enterprises are large, diversified and enjoy many development opportunities. A series of market-oriented measures may be adopted to revitalising high-quality assets, such as mixed-ownership reform and Public-Private Partnership (PPP). Shanghai has carried out reform and

exploration in the fields of infrastructure and culture, and has made some achievements. However, it still needs to step up efforts to mobilise existing state-owned capital.

6. Regional economy and city clusters

Historically, Shanghai has been a representation of integration. In particular, people from Jiangsu, Zhejiang and Anhui account for a very large proportion of its population. Moreover, the industrial development of the Yangtze River Delta is closely related to Shanghai as many of its industries have developed on Shanghai's coattails.

Last June, Jiangsu, Zhejiang, Shanghai and Anhui jointly studied and formulated the Three-Year Plan of Action for the Integrated Development of the Yangtze River Delta. After President Xi laid out the "Three Major Tasks" for Shanghai last November, the National Development and Reform Commission led in compiling a plan for the integrated development of the Yangtze River Delta, establishing a special agency to strengthen leadership. However, enterprises must be at the vanguard of urban integration by following on the government's effort to create a favourable political environment. We must sincerely support the balanced and coordinated development of all types of enterprises.

The integrated development of a city requires an innovation in policies, weakening "regional ownership" and the gradual realisation of a free flow of various resources such as talent, weakening the concept of household registration. Moreover, innovation is also required in the financial and taxation sectors to stimulate the coordinated and differentiated development of various cities and achieve the general development goal of the Yangtze River Delta.

The State Council approved the Shanghai Master Plan (2017-2035) at the end of 2017, clarifying Shanghai's role as the core city of the world-class Yangtze River Delta city cluster and an international metropolis of the economy, finance, trade, shipping, technological innovation and culture. In the future, Shanghai will strive to become an outstanding global city, an attractive city for innovation, culture and ecology, and a modern international socialist metropolis with global influence. Going forward, Shanghai will make persistent efforts in the above-mentioned fields if it can rise above its challenges and seize opportunities, while building on what it has already achieved.



7. Culture and quality of life

The unique culture of a city and the living conditions of its residents are also important in measuring its attractiveness and future development opportunities. In the dimension of “culture and quality of life”, we’ve employed four variables in describing a city’s cultural vitality and the quality of life of its residents, namely: “cultural dynamism”, “traffic conditions”, “air quality” and “standard of living”. Among these, “cultural dynamism” measures the scale of a city’s cultural industry by analysing the proportion of workers in its culture, sports and entertainment industries. “Standard of living” chiefly describes the day-to-day consumption of commodities and resources by its residents and the total sale of commodities per capita. This consists of two aspects: total retail sales of consumer goods and electricity consumption per capita.

In this dimension, Macao ranks first as a global tourist city, far above its 18th overall ranking. Haikou, also an important tourist city in China, places 8th, also higher than its overall ranking of 30th. Although these two cities have their own unique characteristics, their local culture, and sports and entertainment-related sectors are an important feature of their tourism

industries. For example, Macao is world-famous for its gambling sector, which constitutes the chief subject of its tourism industry. Haikou has always attached importance to the development of its cultural industries, having built a cluster of emerging film and television industries, which have driven the development of its tourism sector. Another city deserving attention in this dimension is Changsha. Changsha ranks 4th in measures of “cultural dynamism”. The cultural industry here has flourished and maintains clear advantages, earning it the title awarded by the The United Nations Educational, Scientific and Cultural Organisation, as China’s first “Capital of Media and Art” and creating 100 billion yuan in an added value in 2018. Thanks to its high placements in the two variables of “cultural dynamism” and “standard of living”, Changsha places third in this dimension, after Macao and Hong Kong.

Traffic congestion is a common malady of the modern-day metropolis. The four megacities of Beijing, Shanghai, Guangzhou and Shenzhen fall far behind in this variable, with Beijing at the bottom, Guangzhou at 36th, Shanghai at 30th and Shenzhen in 29th place. In contrast, Hong Kong and

Macao, which are also economically developed and densely populated, rank 6th and 7th, respectively. This is because Hong Kong and Macao have relatively mature urban governance systems and a lot of experience in solving the issues of traffic congestion. Controlling the total number of vehicles on the road, optimising the public transportation systems, regulating urban road design and road network planning have significantly alleviated urban congestion. However, the situation in Hong Kong and Macao is different from that of the first-tier cities in mainland China. Hong Kong and Macao are relatively small in physical size, with compact built-up areas and dense public transportation systems that can meet the travel needs of most. The cities of Guangzhou and Shenzhen have larger areas, greater populations and a more complex distribution of residential and commercial districts in its built-up areas, leading to more diversified travel requirements. Whether the Hong Kong and Macao experience can be referenced in solving the traffic congestion problems must be explored in detail, keeping in mind the on-the-ground situation of each city.

Urban air quality is another pressing issue that concerns everyone.

Impacted by multiple factors such as natural climates, industries and winter heating, China's northern cities are generally ranked lower in this variable. In the Beijing-Tianjin-Hebei region, Tangshan ranks 38th, Shijiazhuang 37th, Baoding 34th, and Tianjin 29th. Beijing has climbed up the ranks in recent years, but still

falls in the middle of the pack, at 22nd. In addition to Beijing-Tianjin-Hebei, cities such as Taiyuan, Xi'an and Zhengzhou also place relatively low. Air quality issues are of great importance to central and local governments at the moment. The Beijing-Tianjin-Hebei governments have carried out joint prevention and

control efforts, working together to fight and control air pollution. Taiyuan, Xi'an and Zhengzhou have also introduced policies to control pollution sources from every aspect of production and life. It's widely believed that the air quality of these cities should gradually improve and come under control.

	Cultural dynamism	Traffic conditions	Air quality	Standard of living	Total
1 Macao	38	32	37	38	145
2 Hong Kong	29	33	38	35	135
3 Changsha	35	17	20	34	106
3 Shanghai	36	9	25	36	106
5 Fuzhou	17	21	34	32	104
6 Wuhan	30	31	12	29	102
7 Nanjing	31	18	15	31	95
8 Ningbo	7	35	27	25	94
8 Haikou	32	20	36	6	94
10 Hangzhou	15	23	19	33	90
11 Xiamen	10	22	35	20	87
12 Wuxi	6	37	14	29	86
13 Qingdao	13	30	26	16	85
14 Beijing	37	1	17	29	84
14 Suzhou	2	34	18	30	84
16 Urumqi	23	38	11	10	82
17 Zhongshan	1	26	28	26	81
18 Dalian	18	12	32	18	80
19 Shenzhen	8	10	33	25	76
19 Zhuhai	4	5	30	37	76
21 Zhengzhou	25	25	6	18	74
21 Taiyuan	33	24	3	14	74
23 Jinan	26	16	8	23	73
24 Guangzhou	27	3	23	19	72
24 Kunming	24	11	29	8	72
26 Shenyang	20	19	16	15	70
27 Shijiazhuang	22	36	2	6	66
28 Chengdu	34	8	9	13	64
29 Tianjin	12	29	10	12	63
30 Xi'an	21	15	4	22	62
30 Guiyang	16	6	31	9	62
32 Harbin	28	2	21	6	57
33 Foshan	3	7	24	22	56
34 Hefei	14	14	13	12	53
35 Lanzhou	19	13	7	8	47
36 Tangshan	9	28	1	2	40
36 Baoding	5	27	5	3	40
38 Chongqing	11	4	22	1	38



8. Economic Clout

The dimension of “economic clout” focuses on a city’s economic status, industrial structure and activities, and emphasises the overall performance of a city in terms of its economic development and influence. This dimension encompasses five variables: “number of well-known enterprises”, “number of financial practitioners”, “foreign direct investment”, “proportion of the tertiary industry” and “nominal growth rate of gross regional domestic product”. Among these, “number of well-known enterprises” are drawn from the list of Fortune Global 500 and Fortune China 500 companies, published by Fortune’s Chinese site in 2018. The “number of financial practitioners” calculates the proportion of financial practitioners as a subset of all workers. “Foreign direct investment” calculates the ratio of the actual amount of foreign capital deployed in the region in relation to regional GDP. We attempted to use ratio and growth rate data to determine a city’s urban development in order to reduce the impact of differing city sizes on the ranking results of each variable.

In the dimension of “economic clout”, Beijing, Hong Kong and Shenzhen place among the top three, while Shanghai and Hangzhou are tied for fourth

place. The sixth to tenth positions go to Chengdu, Guangzhou, Xi’an, Wuhan and Chongqing (Guangzhou and Xi’an tie for 7th). In this dimension, the top cities are positioned relatively low in terms of their “nominal growth rate of gross regional domestic product”, due to their already large economies and high levels of development. However, they have clear advantages in the other four variables. The only exception to this is Shenzhen, which comes in 4th in terms of its regional growth rate, higher than Beijing, Hong Kong, Shanghai, Guangzhou, and other major cities. Shenzhen remains at a stage of rapid urban development, due to its innovation-driven industries. At present, Shenzhen’s leading industries are concentrated in emerging sectors such as high-end manufacturing, modern services and high tech. As a result, Shenzhen has maintained its economic growth vitality while other cities in China have taken on economic momentum in transforming and upgrading their industrial structure. As a whole, the cities in the Yangtze River Delta region have significantly more economic clout than other regions and city clusters. Shanghai and Hangzhou rank fourth, followed by Ningbo, Nanjing and Suzhou in 12th, 14th and 15th places.

These rankings are well deserved, due to the region’s leading economic strengths and dynamic development.

A few observations around this dimension are noteworthy. First, Hangzhou’s ranking has jumped to fourth place, next to Beijing, Hong Kong, Shenzhen, and Shanghai. This outcome fully reflects Hangzhou’s advantages in the rapid development of Hangzhou’s Internet industry in recent years, through the city’s well-known enterprises, industries and foreign capital utilisation. Second, Chengdu and Chongqing, as the economic core of the southwest region, have an actively developing and export-oriented economy. Chengdu ranks 6th in the dimension of “economic clout” while Chongqing ranks 10th. This is due to the outstanding performance of the two cities in terms of “number of financial practitioners” and “foreign direct investment”. Chengdu and Chongqing place 5th and 6th respectively in both variables. Third, Xi’an’s economic development performance in the past two years has been outstanding. 2017 was hailed in the media as “the first year of Xi’an’s great development”, and the impact of the investment it attracted was remarkable. Numerous well-known enterprises invested in Xi’an to set up

their own headquarters and the Shanxi Pilot Free Trade Zone was launched, while the strategic effect of the Belt and Road Initiative began to take force. Fourth, the two cities, Tianjin and Tangshan also deserve attention. Tianjin, an important import-export trading port in the Beijing-Tianjin-

Hebei region, ranks fourth in terms of “number of financial practitioners” and “foreign direct investment”. Tangshan ranks 29th in economic clout, higher than its 38th overall ranking, thanks to its excellent performance in “number of well-known enterprises”, “number of financial practitioners” and “nominal

growth rate of gross regional domestic product”. This is the intended outcome of Beijing’s gradual shedding of its non-capital core functions, the transfer of industries to the surrounding areas and the coordinated development of the Beijing-Tianjin-Hebei region.

	Number of well-known enterprises	Number of financial practitioners	Foreign direct investment	Proportion of the tertiary industry	Nominal growth rate of gross regional domestic product	Total
1 Beijing	38	38	37	36	21	170
2 Hong Kong	37	36	38	37	7	155
3 Shenzhen	35	30	30	24	35	154
4 Shanghai	36	37	36	34	9	152
4 Hangzhou	34	32	29	30	27	152
6 Chengdu	26	33	33	16	29	137
7 Guangzhou	33	31	28	33	8	133
7 Xi'an	24	15	27	29	38	133
9 Wuhan	30	26	32	17	23	128
10 Chongqing	30	34	34	10	15	123
11 Tianjin	21	35	35	23	2	116
12 Xiamen	31	11	16	22	34	114
12 Ningbo	23	27	23	4	37	114
14 Nanjing	33	17	21	25	17	113
15 Suzhou	26	22	25	12	19	104
16 Qingdao	21	20	31	18	11	101
16 Taiyuan	30	9	3	28	31	101
18 Jinan	21	29	14	26	10	100
19 Kunming	30	12	8	21	25	96
19 Changsha	12	23	26	9	26	96
19 Zhengzhou	8	28	24	14	22	96
22 Hefei	21	16	18	5	33	93
23 Fuzhou	21	10	15	11	32	89
24 Harbin	12	25	20	27	3	87
25 Dalian	21	24	19	15	6	85
25 Zhuhai	21	3	17	8	36	85
27 Wuxi	4	13	22	13	30	82
28 Urumqi	23	4	1	32	18	78
29 Tangshan	21	18	12	1	24	76
29 Macao	4	1	5	38	28	76
31 Haikou	12	8	4	35	13	72
32 Guiyang	8	6	10	20	20	64
33 Shenyang	8	21	9	19	4	61
34 Lanzhou	4	5	2	31	16	58
35 Foshan	21	7	13	2	14	57
36 Shijiazhuang	8	19	11	6	12	56
37 Baoding	12	14	7	3	1	37
38 Zhongshan	4	2	6	7	5	24



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Promoting high-quality development through greater openness: Enlightenment of free trade zones in China's urban development

China has set up 12 pilot free trade zones since the establishment of the China (Shanghai) Pilot Free Trade Zone was approved by the State Council in September 2013. Apart from the diverse national missions for each pilot free trade zone in China, the fundamental starting point for reform and innovation is to recalibrate the relationship between the government and the markets, and to deepen and widen the development of the market of economic factors by establishing a “negative list” in order to gain comparative competitive advantages, enforce regional promotions, stimulate the industrial and spatial transformation of cities and regions, facilitate the rise of scientific and technological innovation capabilities, and accommodate to changes in the population structure, while creating richer urban vitality.

The 12 pilot free trade zones comprise three major districts, with nearly 30 cities involved. The development of free trade zones is of great significance for urban and even regional economic development and urbanisation, and gives expression to the idea of “promoting high-quality development through greater openness”. There is great logical consistence between the reforms and the high-quality development of the free trade zones. High-quality development is not about avoiding development, GDP or statistics, but rather calls for a balance of statistics, GDP and development based on “innovation, coordination, greenness, openness and sharing”.

Innovation is the primary impetus for high-quality development. The essence of the pilot free trade zones is institutional innovation. Measures should be taken to establish a decisive position in the market allocation of resources, continuously reducing the cost of institutional transactions, and providing institutional guarantees for high-quality development, with an increasingly shorter “power list,” an increasingly longer “responsibility list” and an increasingly transparent “negative list”.



Coordination is an endogenous feature of high-quality development. The responsibility of the pilot free trade zones is replicable and scalable. With numerous districts and cities involved, the free trade zones should be more proactive in undertaking the corresponding strategic missions of the nation, cultivating the pilot field of nationwide reform, migrating more reform experiences to brother districts, and boosting harmonious development in the region.

Green development is a prevalent form of high-quality development. The benchmarking of the pilot free trade zones is a stringent investment and trade requirement, and at its core is legalisation, internationalisation and facilitation. High-quality development should be embodied in the protection of intellectual property, entrepreneurship, and labour rights and interests. It should follow the implementation path of “Lucid waters and lush mountains are invaluable assets”.

Openness is the only feasible course for high-quality development. The pilot free trade zones are about forcing reforms through openness, identifying shortcomings, weaknesses and blind spots in the existing management system through greater transparency. The corresponding provinces and cities should take advantage of the pilot free trade zones to improve their own stress testing, and to expand transparency in turn with the outcomes of that stress testing.

Sharing is the ultimate goal of high-quality development. The orientation of the pilot free trade zones is a sense of gain for the general public and enterprise. We do not reform for reform’s sake. The key is to set the stage for the greater development of talents, to offer enterprise with different business opportunities and greater success in their cities, and to deliver more benefits to the people through high-quality development.

As the first pilot free trade zone in China, Shanghai has launched a series of national initiative reform measures for institutional innovation, such as the “negative

list management model”, the “single window” of international trade, the free trade account system, and the “four-in-one” concurrent and ex-post supervision system and the construction of a business environment system to World Bank standards. The practical effect of this is that a large number of nationally initiated projects have landed in the Pudong district, with the construction of Shanghai’s “five centres” driving the breakthrough of institutional bottlenecks in finance, science and technology, shipping and other fields. In terms of the strategy to serve the national free trade zones, the Shanghai Pilot Free Trade Zone is undertaking a pioneer role. For instance, there are binding requirements in the updated version of the China-Singapore Free Trade Agreement to open the Shanghai Pilot Free Trade Zone in shipping, law, construction and other fields. In this respect, Shanghai, along with other pilot free trade zones, can collaborate with each other to explore, innovate, break through and experiment boldly, openly and autonomously.

On the occasion of the fifth anniversary of the pilot free trade zone, President Xi Jinping gave important instructions for each pilot free trade zone. He emphasised the continuous need to free our minds, actively explore, strengthen overall planning and reform, and constantly improve the pilot free trade zone’s development. This will be required in order to yield gains in institutional innovation that can be replicated and promoted at scale, turning the pilot free trade zones into a new high water mark for reform and opening up in the new era, and to dedicate ourselves to achieving the goal of “two centuries” and realise the dream of the great rejuvenation of the Chinese nation. This is the critical mission in the next stage of the pilot free trade zones—to strengthen the supply-side structural reforms with institutional innovation as the main directional guidance, and to furnish domestic and foreign investors and entrepreneurs with an improved and truly international business environment for innovation and entrepreneurship.





9. Cost

Costs, including production costs and costs of living, are also an important consideration for talents and investors in choosing a city. We use five variables to gauge the cost of a city: “average salary of employees”, “transport cost”, “cost of commercial land”, “food price” and “domestic service prices”. Among these, “average salary of employees” and “cost of commercial land” mainly look at the cost of production and operations from the perspective of investors. The “cost of commercial land” also considers the price of rent for office buildings and shops. “Transport costs”, “food price” and “domestic service price” are the living costs of a city from the perspective of its residents. The “transport cost” examines the cost of city-operated taxi fares. The “food price” averages a basket of basic foods such as grain, oil, meat, eggs and vegetables. The “domestic service price” calculates the price of three basic living expenses: residential electricity, piped natural gas and residential water. This variable design is considered relatively comprehensive, and strives to depict

the cost level of each city in as fair a way as possible.

In the dimension of “cost”, the prices of economically developed regions are generally higher, and their ranking is therefore comparatively low, which would be consistent with our subjective perception. For example, Hong Kong and Macao are first and second from the bottom, followed by Shenzhen, Guangzhou and Shanghai. In the cities of Chengdu, Wuhan and Xi’an, where economic growth has been rapid in recent years, performance in this dimension is better than that of cities with similar development levels, placing 20th, 17th and 14th, respectively. These three cities are national central cities located in the southwest, central and northwest, and their lower-cost advantages constitute an important consideration for those choosing where to live and for investors choosing where to park their capital. From this perspective, these three cities face further development opportunities. The question of how to improve the level of economic development, while keeping the city’s investment and living costs within a certain range and improving

its livability, is a problem that many city managers have grappled with and are exploring.

Prices are a double-edged sword. Employee salaries are considered a cost for businesses, and yet a source of income for residents. The price of food and services is a cost of living for residents, but a source of income for businesses and individuals engaged in related industries. The higher wage levels in first-tier cities have increased the consumption capacity of its residents, while increasing labour costs for businesses. Based on our observations, first-tier cities with more developed economies have not been affected by the high cost of labour, but have continually upgraded from labour-intensive to intellectual-intensive jobs and from production to consumer industries, while continuously increasing the added value of their industries. Tertiary industries occupy a higher proportion of the economy, and at the same time bringing clear industrial transfer and spill-over effects to the surrounding areas, driving the development of neighbouring cities. For example, Dongguan, located between

Shenzhen and Guangzhou, has received numerous industrial transfers from Shenzhen and Guangzhou in recent years due to its cost advantages and policy guidance. At present, the

cost levels of small and medium-sized cities in the Beijing-Tianjin-Hebei region are relatively low. Baoding, Shijiazhuang and Tangshan rank among the top three in this dimension. This leaves

plenty of room to further facilitate industrial transfers from Beijing and Tianjin to promote the coordinated development and integration of Beijing-Tianjin-Hebei.

	Average salary of employees	Transport cost	Cost of commercial land	Food price	Domestic services prices	Total
1 Baoding	38	38	38	38	25	177
2 Shijiazhuang	34	37	29	38	23	161
3 Tangshan	37	24	38	34	25	158
4 Taiyuan	31	37	19	29	38	154
5 Shenyang	27	34	27	35	23	146
6 Harbin	36	28	26	26	26	142
7 Urumqi	20	31	31	22	36	140
8 Guiyang	28	37	25	15	33	138
9 Dalian	16	23	32	32	34	137
10 Hefei	22	25	29	26	29	131
11 Kunming	23	34	24	21	27	129
12 Wuxi	13	23	36	30	16	118
13 Chongqing	29	23	20	11	30	113
14 Xi'an	21	27	13	17	32	110
15 Lanzhou	24	29	11	4	37	105
16 Jinan	14	32	18	36	4	104
17 Wuhan	18	26	12	16	31	103
18 Zhengzhou	32	16	24	23	7	102
19 Haikou	33	17	31	8	12	101
20 Chengdu	19	15	11	18	36	99
20 Fuzhou	26	23	14	13	23	99
22 Xiamen	25	23	17	15	15	95
22 Qingdao	15	23	15	19	23	95
24 Zhongshan	35	6	35	7	10	93
25 Tianjin	8	30	9	26	19	92
26 Ningbo	10	13	34	21	11	89
27 Suzhou	11	11	22	28	15	87
28 Foshan	30	9	33	6	8	86
29 Nanjing	5	13	7	27	29	81
30 Changsha	12	14	21	9	19	75
31 Beijing	3	5	2	31	19	60
32 Zhuhai	17	9	17	5	10	58
33 Hangzhou	9	10	9	12	15	55
34 Shanghai	4	4	4	33	5	50
35 Guangzhou	7	9	5	3	7	31
36 Shenzhen	6	3	3	10	2	24
37 Macao	2	2	6	2	3	15
38 Hong Kong	1	1	1	1	1	5



10. Ease of doing business

The question of whether an enterprise chooses to invest in a city takes into account not just its economic clout, cost and other factors described in the above dimensions, but also the institutional environment of the city as well as various soft costs. The “ease of doing business” dimension looks at external factors that may affect the development of enterprises from numerous perspectives, including the following six variables: “convenience for entrepreneurship”, “labour disputes”, “logistics efficiency”, “capital market engagement”, “fiscal balance” and “reliance on foreign trade”.

As expected, Hong Kong ranks first overall in this dimension. As a financial centre and a free trade port with global influence, Hong Kong enjoys active markets and a sound legal system. The advantages of its business environment are recognised worldwide. In the Doing Business Report published by the World Bank every year, Hong Kong has ranked among the Top 5 of the world’s 190 economies for many years, far higher than two mainland cities, Beijing and Shanghai, further confirming our conclusions. Xiamen and Ningbo rank second and third in this dimension,

mainly due to their higher rankings in the variables of “convenience for entrepreneurship”, “logistics efficiency” and “reliance on foreign trade”.

In the “convenience for entrepreneurship” variable, Shenzhen and Hangzhou excel. Shenzhen follows Hong Kong and Macao, placing third, while Hangzhou surpassed Beijing and Guangzhou, placing fifth. The outstanding performance of these two cities can be mainly attributed to the rapid development of the Internet and other technologically innovative industries in recent years. Driven by a number of Internet technology giants such as Tencent and Alibaba, many small and medium-sized startups have undergone rapid growth, forming their own local clusters. This has increased the influence of innovation and entrepreneurship in these two cities.

The variable of “labour disputes” measures a city’s labour laws and legal environment. We find that in this variable, a city’s development level can be divided into several stages: The labour market in Macao and Hong Kong is relatively mature, and the legal system is sound, resulting in the fewest labour disputes per capita, allowing them to

place first and second, respectively. Since reform and opening up, cities in mainland China have gradually put in place labour employment mechanisms that meet the needs of market-oriented development. This has resulted in a great number of labour disputes in first-tier cities such as Beijing, Shanghai, Guangzhou and Shenzhen, which experience the highest economic activity. An active market brings greater job opportunities, leading to increased labour disputes. However, due to the strong legal awareness of workers residing in major cities, the channels for legal recourse are easier to access when confronting disputes, which makes it easier to protect the legitimate rights and interests of workers through legal channels. For underdeveloped cities, factors such as limited job opportunities and an imperfect legal environment may lead to a lower number of labour disputes than first-tier cities. Regardless, there is still a lot of room for improvement in the establishment of a sound and mature labour law and labour market regulatory environment in mainland cities.

In recent years, optimising the business environment and stimulating the vitality

of market players has been one of the key tasks of the central government and the local governments at all levels. In 2018, the State Council set up a coordinating group to promote the transformation of government functions, namely to streamline administration procedures, delegate power, strengthen

regulation and improve service. In particular, it set up a special group to optimise the business environment, successively issuing a series of policy measures to implement the reform and optimisation of the business environment to pursue continuous efforts in providing enterprise with

better business conditions. We will continue to follow and track these changes in Chinese cities in our follow-up observations.

		Convenience for entrepreneurship	Labour disputes	Logistics efficiency	Capital market engagement	Fiscal balance	Reliance on foreign trade	Total
1	Hong Kong	38	37	34	38	33	30	210
2	Xiamen	28	25	36	20	35	37	181
3	Ningbo	32	15	37	23	28	38	173
4	Hangzhou	34	15	32	33	31	25	170
5	Shanghai	35	1	31	37	27	34	165
6	Shenzhen	36	11	26	35	17	36	161
7	Guangzhou	32	11	38	34	13	27	155
8	Nanjing	32	19	30	30	29	10	150
9	Suzhou	25	19	20	24	37	20	145
10	Beijing	33	2	20	36	20	33	144
11	Changsha	26	28	26	18	32	13	143
12	Wuhan	10	23	33	25	23	17	131
13	Urumqi	18	26	26	15	26	19	130
14	Fuzhou	27	25	17	22	10	23	124
14	Qingdao	20	22	11	19	24	28	124
16	Macao	37	38	6	1	36	5	123
17	Wuxi	29	19	21	10	30	12	121
18	Foshan	25	11	23	7	25	29	120
19	Hefei	23	16	28	11	34	6	118
20	Jinan	10	22	27	21	22	15	117
21	Zhongshan	23	11	36	2	11	32	115
22	Zhengzhou	14	33	12	28	12	11	110
23	Dalian	10	6	18	27	15	31	107
24	Tianjin	20	4	9	31	14	26	104
24	Xi'an	5	34	9	26	6	24	104
26	Tangshan	14	31	22	17	5	14	103
26	Zhuhai	18	11	29	3	7	35	103
28	Chengdu	18	12	13	32	18	8	101
29	Haikou	14	13	15	8	38	4	92
30	Shijiazhuang	10	31	17	12	4	16	90
31	Chongqing	23	3	5	29	2	21	83
31	Taiyuan	5	35	3	9	9	22	83
33	Kunming	5	27	11	14	16	3	76
34	Harbin	10	32	1	4	21	7	75
35	Lanzhou	14	36	4	5	3	9	71
35	Shenyang	5	6	7	16	19	18	71
37	Guiyang	18	20	15	6	8	1	68
38	Baoding	5	31	3	13	1	2	55



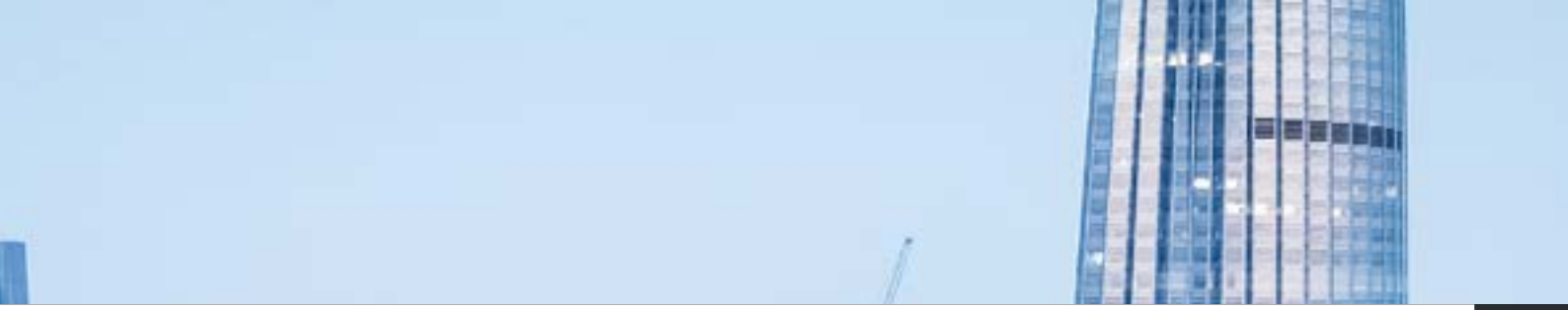
Chen Ying

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“ Expanding the space of happiness and building a first-class urban development operator in China

China Construction Fangcheng Investment & Development Co. Ltd (CSCEC Fangcheng) is a comprehensive urban construction investment platform established in 2014 by China State Construction Engineering Corporation (CSCEC), specialising in the comprehensive development of urban land plots and the business of urban operations. We capitalise on the most complete factors of production and the best business resources of our parent company in the investment and construction sectors and allocate market resources under a business model of platform-based cooperation for mutual benefit and synergy. By working with excellent partners in the financial, industrial, think tank and consulting fields at home and abroad, we are committed to promoting the national strategies of the new form of urbanisation, regional coordinated development and rural revitalisation in order to fulfill our economic, political and social responsibilities as a central state-owned enterprise.

So far, CSCEC Fangcheng has invested in and operated more than 30 large-scale projects in Beijing, Shanghai, Tianjin, Xi'an, Zhengzhou, Nanjing, Jinan and other cities, including the reconstruction of shantytowns and the construction of new urban areas and industrial parks. Capable of “integrated one-stop” land development and urban operation, the company has accumulated extensive professional experience in comprehensive urban construction. Successful projects include the comprehensive reconstruction project in the Xujiawan area of Xi'an, which has been selected for inclusion in the second batch of PPP demonstration projects by the Ministry of Finance of China, becoming the country's first comprehensive urban construction PPP project recognised by a ministry-level authority. Other projects include the Tanggu Bay New Town Project in Binhai New District, Tianjin, which was named a pilot project for the demonstrative construction of small towns in Tianjin, winning a special funding



award from the Tianjin municipal comprehensive demonstration project of energy conservation and emissions reduction, and obtaining a three-star green building certification from the Ministry of Housing and Urban-Rural Development of China.

As a leader in China's construction industry, CSCEC Fangcheng is also actively exploring how to transform the sector. From the perspective of our sub-sector, we understand that the future direction is for construction enterprises to transform themselves into urban development operators.

First of all, at the current stage of national development, China's comprehensive urban construction business is now in full swing, offering enormous potential for the development of new urban areas and the renewal of old urban areas in leading city clusters. Over the years, urbanisation in China has generally grown at an annual rate of 1%, resulting in a sustained, strong demand for urban renewal and improvement. The development of central urban areas in China's first-tier cities is basically at the stage of construction within existing land stock. In the future, the emergence of megacities will boost the expansion of metropolitan areas and city clusters. Key megacities will have a spread radius of around 50 kilometers and establish an urban network of rail transit, giving rise to large-scale integrated urban construction projects. In central urban areas, the continuous influx of population, the transformation and improvement of industries, and the renewal and improvement of the city's image will create numerous investment opportunities, such as the reconstruction of old urban areas, long-term rental apartments, industrial operations and so on.

Secondly, based on feedback from local governments, a model of integrated industrial-urban development is more popular in the market than the fast-paced, piece-meal approach to development. Investors and developers who can truly promote urban industrial improvement and spatial layout optimisation are

popular. The model of integrated industrial-urban development based on quality industries driving primary and secondary collaborative development comes with greater creative potential. It represents a direction of enterprise transformation and improvement, while being fully supported by government policies in facilitating the integrated development of industry, the city and its people.

And third, in view of the development and trends among industrial participants, the common pursuit of the industry as a whole is to enhance the capacity of industrial operations and to realise a closed-loop business model. As the rate of urbanisation rises, China's construction industry is bound to reach a turning point. In 2018, we've already felt an obvious change in the market environment and started to establish our corporate vision of "becoming a first-class urban development operator in China." In the industry, we will strive to create five product lines: commercial and residential housing; medical and health care facilities; cultural and tourist resorts; industrial parks; and smart cities for greater vertical integration of investment, construction and operation. We will seek to combine the four business models of governmental procurement, PPP, investment and construction integration, and asset-light operations. In order to better operate these new forms of businesses, we will consider cooperating with specialised companies in the industry in new, innovative ways such as mixed ownership, pooling resources from the medical and health care, culture, sports, tourism, education, science and technology industries, and fully leveraging our respective advantages and strengths to achieve mutual benefit and jointly propel economic and social development. In the years to come, we will also continue to optimise our business model for sustainable and high-quality enterprise development.

Variables

I. Intellectual capital and innovation

Turnover rate of full-time teachers of middle and primary schools

The educational resources of every city are measured by calculating the ratio of full-time teachers of middle and primary schools in 2017 to the respective figures in 2012. For the cities from mainland China, data sources are the statistical yearbooks of respective cities. For Hong Kong and Macao, data are from the Census and Statistics Department and the Statistics and Census Bureau .

Scale of higher education students

Higher education students are an important reserve of urban human capital in the future. The number of students enrolled in the ordinary institutions of higher education in each city in 2017 is used as a measure of future human capital reserves. Data of the cities from mainland China are collected from the statistical yearbooks and bulletins published by the statistics bureaus of the respective cities. For Hong Kong and Macao, data are from the Census and Statistics Department and the Statistics and Census Bureau .

Educational level of employed population

The educational level of employed population in each city is comprehensively evaluated by the ratio of the population with college degree or above to the employed population. Data of the cities from mainland China are collected from the 6th National

Census Bulletins in 2010 and the China City Statistical Yearbook. The data of Hong Kong and Macao are from the 2011 Census Results disclosed by the Census and Statistics Department and the Statistics and Census Bureau respectively.

State key laboratories

This variable examines the cities' technical reserves for innovation and research potential based on the statistics of state key laboratories in each city. Data of the cities from mainland China are sourced from the Ministry of Science and Technology and the Ministry of Education; those of Hong Kong and Macao are collected from public available information.

City Innovation Index

This variable adopted the China Entrepreneurship Innovation Index (EII) which is jointly published by the Chinese Academy of Sciences, the 36 Kr, the Management Committee of Zhongguancun Science Park and the China Economic Research Institute. It measures the overall innovation capabilities of the cities. The value of the variable is the 12-month average of the EII in 2018. Data of Hong Kong and Macao come from the field study and manual calculations.

II. Technical maturity

Internet Plus Index

Data for this variable comes from the 2018 China "Internet Plus" Index Report released by Tencent Research Institute. It aims to assess the application of the Internet, as well as the development level of the digital economy in each city. Data of Hong Kong and Macao come from the field study and manual calculations.

E-commerce development Index

The ranking of this variable is determined after adjusting the results by referring the economic and industrial characteristics and the level of e-commerce development of each city in the same province. The e-commerce development index of each province is extracted from the "China E-Commerce Development Index Report (2017)". This report is produced under the guidance of the High-tech Industry Department of the National Development and Reform Commission, jointly issued by the National Engineering Laboratory of E-commerce Technologies of Tsinghua University and the other four units. Data of Hong Kong and Macao come from the field study and manual calculations.

Number of granted patents

This variable measures the level of innovation by the number of granted patents every 10,000 people in each city. The calculation method is the number of granted patents divided by the permanent resident population in 2017. Data of the cities from mainland

China are collected from the statistical yearbooks and bulletins published by the statistics bureaus of the respective cities. The data of Hong Kong are from the Census and Statistics Department; those of Macao are from the statistics disclosed by the Economic Bureau of Macao SAR.

III. Major regional cities

Star-graded hotels

This variable measures the supply and demand and market saturation levels of star-graded hotels. Data of the cities from mainland China are sourced from the 2016 Statistical Bulletin on Star-graded Hotels in China released by the Ministry of Culture and Tourism, the statistical yearbooks and bulletins. For Hong Kong and Macao, data are from the Census and Statistics Department and the Statistics and Census Bureau respectively.

Length of stay per capita of international inbound visitors

The appeal of the cities to international tourists is assessed by the number of days that the inbound visitors stayed in each city in 2016. Data are sourced from the China Tourism Statistics Yearbook 2017, the Census and Statistics Department of Hong Kong SAR and the Statistics and Census Bureau of Macao SAR.

Inbound and outbound flights

This variable aims to reflect demand in each city for air passenger and cargo transportation. The ranking is based on the number of inbound and outbound

flights to and from the cities' main airports. Figures include international and domestic flights for civilian use, cargo flights and non-revenue flights (excluding military aircraft). As there is no airport in Suzhou, Baoding and Zhongshan, the ranking of its neighboring city-Wuxi, Shijiazhuang, Zhuhai is referred to respectively. The source of the data is from 2017 Civil Aviation Airport Production Statistics Bulletin. Data of Hong Kong are from the Civil Aviation Department of Hong Kong SAR; those of Macao are from the statistics released by the Macao International Airport.

Passenger capacity

Passenger capacity spans railroads, civil aviation, highways and water transport. It is used to indicate the size and carrying capacity of passenger transport of the cities in 2017. Data sources are the statistical yearbooks and bulletins of each city. For Hong Kong and Macao, data are from the Census and Statistics Department and the Statistics and Census Bureau respectively.

Exhibition/convention economy development Index

This variable is based on the composite index of urban exhibition development in the 2017 China Exhibition Data Statistical Report, released by the China Convention and Exhibition Research Society. It aims to evaluate the developments of the exhibition industry of every city. The ranking of Hong Kong and Macao is based on manual

calculations of several indicators, such as the number of specialised exhibition halls, area of indoor exhibition halls and number of exhibitions held annually and etc. Data are collected from the Convention and Exhibition Industry profile released by the Hong Kong Trade Development Council, the information disclosed by Hong Kong Exhibition & Convention Industry Association and the Quarterly report of meetings, incentives, conferencing and exhibitions (MICE) statistics issued by the Statistics and Census Bureau of Macao SAR.

IV. Health, safety and public security

Number of licensed doctors per capita

This variable is used to measure the per capita health care resources of the observed cities. It is calculated by dividing the number of licensed doctors (assistants) by the population of permanent residents in each city. Data sources are the statistical yearbooks and bulletins of each city. For Hong Kong and Macao, data are collected from the Census and Statistics Department and the Health Bureau respectively.

Per capita medical facility level

This variable is used to measure the development level of medical facility in each city. It is calculated by dividing the number of hospitals accepted by insurance companies for claims by the population of permanent residents. Data sources are the statistical

Variables

yearbooks and bulletins of each city in mainland China, the Census and Statistics Department of Hong Kong SAR, the Statistics and Census Bureau of Macao SAR and the Prudential Hong Kong limited.

Coverage rate of public pensions

The coverage rate of public pensions is calculated by dividing the basic public pensions by the population of the permanent residents. It is treated as a proxy for measuring the development level of each city's elderly care system. The data come from the China City Statistical Yearbook 2017. For Hong Kong and Macao, the statistical result is calculated based on the same model as that of the mainland cities.

Urban traffic safety Index

This index reflects the traffic safety in cities by reviewing the mortality rates of road traffic per 10,000 vehicles. The observed cities are ranked in an increasing order of the mortality rate. The data source is the China Research Report on the Development of Road Traffic in Metropolitan Cities. Available data covers up to the end of 2016. For Hong Kong and Macao, data are collected from the Census and Statistics Department and the Health Bureau respectively.

Loss due to disasters

This variable uses the ratio of compensation expense to premium income of property insurance to determine the economic loss caused by disasters. The observed cities are

ranked in an increasing order of the ratio. Data sources are the statistical yearbooks and bulletins of each city in mainland China, the Insurance Authority of Hong Kong SAR and the Monetary Authority of Macao SAR.

Average life expectancy

This variable is used to measure the health condition of the residents in each city. Data are collected from the related statistics of the mainland cities and the public accessed channels of Hong Kong and Macao

V. Transportation and urban planning

Road area per capita

This data, taken from the China Urban Construction Statistical Yearbook 2016, is used to assess the road facilities of each city. The data of Hong Kong and Macao are collected from the Planning Department of Hong Kong SAR and the Cartography and Cadastre Bureau of Macao SAR.

Public transit system

This variable includes two indicators at the per capita level which are the number of buses and passenger transport volume. It comprehensively measures the passenger capacity of the public transit network of every city. The data come from the China City Statistical Yearbook 2017, the Census and Statistics Department of Hong Kong SAR and the Statistics and Census Bureau of Macao SAR.

Rail transit coverage

This variable takes the mileage of rail transit lines divided by the area of built-up land as a measure of rail transit development in every city. The data of mainland cities are collected from the China Urban Construction Statistical Yearbook 2017. The data of Hong Kong are from MTR's annual report and the Census and Statistics Department of Hong Kong SAR.

State of floating urban population

This variable adopts the ratio of the permanent population in 2017 to that in 2012, to illustrate change in speed of population migration of every city. The data are sourced from the statistical bulletins of every city, the Census and Statistics Department of Hong Kong SAR and the Statistics and Census Bureau of Macao SAR.

Green area

Green area per capita and ratio of green coverage to built-up areas are used to gauge each city's green area. Data are sourced from the China Urban Construction Statistical Yearbook 2016, the Planning department of Hong Kong SAR and the Environmental Protection Bureau of Macao SAR.

Available housing for residents

This variable is the ratio of the newly completed area of residential houses developed by the real estate enterprises to the population of permanent residents in each city in 2017. It is used to measure the condition of residential housing supply of each city. The data

are sourced from the National Bureau of Statistics, the Census and Statistics Department of Hong Kong SAR and the Statistics and Census Bureau of Macao SAR.

VI. Sustainable development and natural environment

Residential water resources per capita

This variable is measured by the per capita domestic water consumption which reflects the utilisation of water resource in each city. The data are from the China Urban Construction Statistical Yearbook 2017, the Water Supplies Department of Hong Kong SAR and the Marine and Water Bureau of Macao SAR.

Centralised sewage treatment rate

This variable is measured based on the centralised wastewater treatment rate of sewage treatment plants. It is used to reflect the utilisation efficiency of natural resources and the development level of circular economy in each city. The data are from the China Urban Construction Statistical Yearbook 2017, the Drainage Services Department of Hong Kong SAR and the Environmental Protection Bureau of Macao SAR.

Labour supply

This variable is calculated by the percentage of changes of the employed population between two consecutive years in order to evaluate the labour supply situation in each city. The data come from the China City Statistical

Yearbook 2017, the Census and Statistics Department of Hong Kong SAR and the Statistics and Census Bureau of Macao SAR.

Rate of change in floating population

This variable uses the ratio of the permanent population to the registered population in 2017 to reflect the supply of floating labour in every city. The calculation methods of Hong Kong and Macao have been adjusted according to the actual conditions since the demographics are different from those in mainland China. Sources of the data are the statistical yearbooks and bulletins of every city, the Census and Statistics Department of Hong Kong SAR and the Statistics and Census Bureau of Macao SAR.

Greenhouse gas emission level

This variable reflects the resource consumption and the degree of greenhouse effect by the per capita greenhouse gas emission level of each city. The data are from China Urban Greenhouse Gas Working Forum. Available data covers up to the end of 2015.

VII. Culture and quality of life

Cultural dynamism

This variable looks at the scale of the cultural industry and cultural dynamism in every city. It is measured by the proportion of cultural, sports and entertainment practitioners towards the total employed population in each city. The data come from the China City Statistical Yearbook 2017, the

Census and Statistics Department of Hong Kong SAR and the Statistics and Census Bureau of Macao SAR.

Traffic conditions

Evaluation of this variable adheres to the peak congestion delay index released by AutoNavi. The purpose is to measure the road congestion and traffic efficiency in each city. The observed cities are ranked in an increasing order of the index value. The value of this variable is calculated based on the average daily index in the third quarter of 2018. The ranking of Macao is determined by the field study mixed with manual calculations.

Air quality

This variable adopts the composite index of average annual air quality to assess the overall air quality of each city. The index evaluates levels of six pollutants namely; fine particulate matter (PM2.5), inhalable particles (PM10), sulphur dioxide (SO₂), nitrogen dioxide (NO₂), ozone (O₃) and carbon monoxide (CO). The larger the index, the more severe the pollution is. Data are calculated based on the average value of the index captured from the monthly air quality reports (2017/11-2018/10) released by the China National Environmental Monitoring Centre (CNEMC).

For Hong Kong and Macao, the rankings are manually calculated based on data collected from the report issued by the Air Monitoring Network of the Guangdong, Hong Kong, Macao and Zhuhai Pearl River Delta.

Variables

Standard of living

This variable is measured from two perspectives. The first is measuring residents' spending power by retail sales of consumer goods per capita. The second is domestic electricity consumption per capita, which is used to reflect demand for convenience and comfort in daily life. Data are sourced from the statistical bulletins and the China City Statistical Yearbook 2017, the Census and Statistics Department of Hong Kong SAR and the Statistics and Census Bureau of Macao SAR.

VIII. Economic clout

Number of well-known enterprises

This variable uses the number of registered headquarters of top 500 companies in every city to measure each city's degree of economic development and its economic clout. Data are sourced from 2018's "World Top 500 list" and "China Top 500", released by Fortune's Chinese website.

Number of financial practitioners

This variable reflects the scale of development of the financial industry in each city, based on the proportion of the number of financial practitioners towards the employed population. The data sources are the China City Statistical Yearbook 2017, the Census and Statistics Department of Hong Kong SAR and the Statistics and Census Bureau of Macao SAR.

Foreign direct investment

This variable measures the appeal of the city to foreign investments and development level of the externally-oriented economy of every city, using the number of signed projects of foreign direct investment and the amount of foreign investment in actual use for the year. The data are sourced from the statistical bulletins of the mainland cities, the Census and Statistics Department of Hong Kong SAR and the Statistics and Census Bureau of Macao SAR.

Proportion of the tertiary industry

This variable uses the proportion of 2017's added-value of the tertiary industry in the regional GDP to reflect changes in each city's urban economic structure. The data are sourced from the statistical bulletins of the mainland cities, the Census and Statistics Department of Hong Kong SAR and the Statistics and Census Bureau of Macao SAR.

Nominal growth rate of gross regional domestic product

This variable uses the growth rate of the regional GDP in 2017 to measure the economic growth of each city. The data are sourced from the statistical bulletins of the mainland cities, the Census and Statistics Department of Hong Kong SAR and the Statistics and Census Bureau of Macao SAR.

IX. Cost

Average salary of employees

This variable uses the average salary to compare the cost of employees that enterprises in each city bear. The observed cities are ranked in an increasing order of the average salary. The source of data are the National Bureau of Statistics, the Census and Statistics Department of Hong Kong SAR and the Statistics and Census Bureau of Macao SAR.

Transport cost

This variable takes the fares of taxis as standards for measuring the mobility cost in the cities. The observed cities are ranked in an increasing order of the mobility cost. Data are sourced from the Baidu Map for the mainland cities. For Hong Kong and Macao, data are collected through field studies and manual calculations.

Cost of commercial land

This variable compares the lease price of offices and commercial rentals in each city to measure the cost of commercial land. The observed cities are ranked in an increasing order of the lease price and rentals. Data of the mainland cities are collected from the China Real Estate Association. For Hong Kong and Macao, data are collected through field studies and manual calculations.

Food price

This variable takes 2018's average prices of apples, greens, Chinese

cabbage, eggs, pork, soybean oil, rice, and other everyday food items as examples to observe food pricing in the cities. The observed cities are ranked in an increasing order of the prices. The data are sourced from the China Price Information Network for the mainland cities. For Hong Kong and Macao, data are collected through field studies and manual calculations.

Domestic services prices

This variable reviews the prices of three daily life services, covering, residential electricity, natural gas and water, in order to measure the overall domestic services prices in each city. The data are sourced from the China Price Information Network for the mainland cities. For Hong Kong and Macao, data are collected through field studies and manual calculations.

X. Ease of doing business

Convenience for entrepreneurship

This variable using the percentage of increase in the number of A-share listed non-state-owned companies, to measure the entrepreneurial environment in each city. Data are sourced from Wind. For Hong Kong and Macao, data are collected through open accessed channels and manual calculations.

Labour disputes

This variable takes the number of labour disputes accepted by relevant

authorities for every 10,000 job holders. The source of data is the China Labour Statistical Yearbook 2017 (The available data is updated till 2016). As the Yearbook only discloses the data of provincial administrative areas (including autonomous regions and municipalities), the evaluation is based on data of the provincial administrative areas each city is affiliated to. The observed cities are ranked in an increasing order of the number of disputes. For Hong Kong and Macao, data are collected from the Hong Kong Judiciary Annual Report and the statistical data disclosed by the Court of Macao SAR.

Logistics efficiency

This variable reviews the logistics efficiency of each city by considering commodity circulation, using the per capita volume of freight and per capita volume of express delivery business. The efficiency of logistics reflects a city's basic conditions and overall standards of transportation, information and communication, as well as warehouse facilities. This variable uses 2017's data sourced from the statistical yearbooks, the State Post Bureau, the Census and Statistics Department of Hong Kong SAR and the Statistics and Census Bureau of Macao SAR.

Capital market engagement

This variable uses performance to evaluate the financial competitiveness

of each city's financial services industry, strength of financial institutions, and size of financial market. Data is sourced from the tenth edition of China's Financial Centre Index (CDI CFCl) Report. As the data of Lanzhou, Haikou, Zhongshan and some other cities are not available, the rankings are determined by benchmarking and manual calculation through a number of indicators such as the valued added of the financial industry, the growth rate of value added and the employed population and etc.

Fiscal balance

The ratio of local general budget revenue to local general budget expenditure is used to measure the fiscal balance. The data sources are the statistical bulletins and the National Bureau of Statistics for the mainland cities, the Census and Statistics Department of Hong Kong SAR and the Statistics and Census Bureau of Macao SAR.

Reliance on foreign trade

Using the ratio of total import and export volume to regional GDP, this variable indicates foreign trade dependence, reflecting the impact of foreign trade activities on economic development in each city. Data are sourced from the statistical yearbooks of the mainland cities, the Census and Statistics Department of Hong Kong SAR and the Statistics and Census Bureau of Macao SAR.

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For further information

In recent years, PwC has continued to track urban evolution and development opportunities of Chinese cities. We have formed a scientific and systematic methodology and gained abundant practical experience in areas of business environment improvement, regional development strategic positioning, industrial planning and comprehensive city development evaluation. We hope to provide practical and in-depth forward-looking analysis and formulate sustainable and future-oriented strategic positioning and development planning in city and region development.

Please contact us if you wish to know more about our research methods in urban development or in the above areas.

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