Beijing
Shanghai
Shenzhen
Guangzhou
Hangzhou
Nanjing
Suzhou
Wuhan
Qingdao
Chengdu

Ningbo
Changsha
Hong Kong
Tianjin
Chongqing
Xiamen
Wuxi
Zhengzhou
Jinan
Xi'an

Hefei
Foshan
Fuzhou
Shenyang
Dongguan
Zhuhai
Changzhou
Kunming
Wenzhou
Nantong

Yantai
Macao
Dalian
Quanzhou
Shaoxing
Nanchang
Jiaxing
Taiyuan
Guiyang
Shijiazhuang

Zhongshan
Nanning
Xuzhou
Harbin
Changchun
Taizhou
Huizhou
Haikou
Tangshan
Yangzhou

Hohhot
Yancheng
Baoding
Urumqi
Jiangmen
Lanzhou
Zhaoqing

Chinese Cities of Opportunity 2024

pwc 普华永道

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

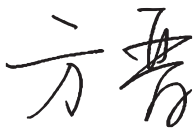
Culture and tourism industries create new images and unlock new opportunities for cities

Cities are pivotal to China's pursuit of high-quality development, furnishing crucial spatial support for constructing a new development pattern. Since the launch of reform and opening up, urbanisation has undergone an unprecedented surge in both scale and pace. Since 1978, the urbanisation rate in China has consistently advanced by over one percentage point on average each year, resulting in 93 cities with a population exceeding one million, surpassing other nations worldwide in this aspect. China's urbanisation rate of permanent residence hit 66.16 percent in 2023. As cities accelerate the transition towards a new type of urbanisation, many have fostered distinctive industries to propel economic advancement rooted in their unique industrial foundations. Super-large cities and megacities drive the collective development of surrounding cities, counties, and city clusters by promoting the division of labour and cooperation. In doing so, they continue to explore a path to high-quality urban development with Chinese characteristics.

The 14th Five-Year Plan proposes, from a strategic standpoint, to advance the implementation of a new type of people-centred urbanisation strategy, as cities embody people's aspirations for a better life. In 2023, with China's economy steadily recovering, residents' enthusiasm for tourism consumption continued to escalate. Among the tourist destinations, cities such as Zibo and Harbin have gained popularity, driving tourists to explore fresh urban prospects anchored in cultural tourism. These cities captivate tourists not only with their local cuisine and picturesque landscapes but also with their well-developed infrastructure, well-regulated market environment, and the sense of belonging and identity towards their own cities among the residents, who are eager to extend warmth and hospitality to visitors of their cities.

As the "Chinese Cities of Opportunity" report gradually expands its scope of observations, we have not only witnessed the development of many leading Chinese cities but also discerned fresh momentum driving the growth of many emerging cities. This report offers an international perspective and serves as a valuable reference for China's new urbanisation efforts. This year's report observes a total of 57 cities, including China's major urban clusters, as well as several central and regional node cities. The report scrutinises cities across multiple tiers in ten dimensions, aiming to explore their characteristics and potential, in a comprehensive and equitable manner.

The China Development Research Foundation and PwC have maintained a close collaboration for many years, and both teams work together to provide the valuable public product, the "Chinese Cities of Opportunity" report, to city administrators and social investors. I wish to extend my gratitude to the PwC team for their dedication to corporate social responsibility throughout this partnership. I eagerly anticipate continuing our collaboration to offer forward-thinking perspectives and insights, thereby contributing to the high-quality development of Chinese cities.



Fang Jin
Secretary General,
China Development Research Foundation

Identifying diverse and multifaceted urban opportunities

Our world today is undergoing a deep transformation. Technological disruption, climate change and other accelerating global megatrends are creating both challenges and opportunities for institutions and organisations alike. In this uncertain and rapidly-changing environment, leaders are having to adapt and reinvent their organisations to remain viable and thrive in the decades ahead.

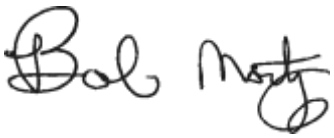
Cities serve as critical hubs for major economic activities and dense populations. In recent years, we have witnessed notable changes in the ways cities operate around the world, as enterprises adapt their business strategies and residents readjust their individual lifestyles in response. With the recovery of the world economy, cities are presented with a chance to stand out by embracing the numerous opportunities brought about by opening-up and cooperation.

Over the past few years, as the world's second largest economy, China has played an important role in boosting the global economic recovery. China has been enhancing its urban business environment while being actively involved in the global industrial restructuring, guided by proactive policies and initiatives and supported by industrial development.

Cities are important places where industries grow. With the progress of urbanisation, China has been at the forefront of developing many megacities with a population exceeding 10 million or regional GDP surpassing RMB1 trillion, alongside metropolitan areas and urban clusters surrounding central cities. China's urban infrastructure is continually being upgraded, driven by fast-growing digitalisation and increased consumption. As a result, we have witnessed the growth of emerging industries like intelligent manufacturing and new energy in China. Many Chinese cities have seized the opportunities in these cutting-edge fields of scientific and technological innovation and green economy to accelerate development.

In the meantime, these megacities have created more opportunities that spill over to the surrounding cities, driving the growth of urban clusters. The diverse core industrial strengths and regional advantages showcased by cities of different sizes have made the region more attractive to investors. Overall, the fast-growing high-tech industries and the expansion of sustainable green economy models will generate fresh development momentum and opportunities for China's urbanisation, creating new opportunities for businesses and investors.

At PwC, we look forward to continuing to participate in China's urbanisation, by helping businesses and investors to make the most of these opportunities. We would like to thank the China Development Research Foundation (CDRF) for its continued support provided to PwC China and the "Chinese Cities of Opportunity" research. We hope that our work will be helpful for the future development of Chinese cities.



Bob Moritz
PwC Global Chair

Content

Overview

The vigour and vitality of cities derive from the continuous process of development and progress. The world today is going through profound changes unseen in a century, amidst this historical cycle, where opportunities and challenges coexist, Chinese cities have not ceased their efforts to seek new development opportunities and explore new economic growth potential. They are entrusted with the mission to promote industrial innovation with sci-tech innovation and to develop new quality productivity forces featuring high-tech, high-efficiency, and high-quality. In the pursuit of promoting the high-quality development of new urbanisation, it will be an important goal and direction for a certain period in the future to drive regional coordinated development and urban-rural integration based on urban clusters and modern metropolitan areas.

City selection

As urbanisation in China continues to progress, many emerging cities have entered a stage of high-quality development, with their economic strength and appeal steadily improving. Our focus will be more on these rapidly rising cities. In addition to assessing the performance of individual cities in terms of overall strength, we also aim to examine in-depth regional urban characteristics and development trends. This year, we have added six new cities in the Yangtze River Delta to our observation, specifically: Yancheng, Yangzhou, Jiaxing, Shaoxing, Taizhou, and Wenzhou.

The 57 “Chinese Cities of Opportunity 2024” are (broadly from North to South, West to East): Harbin, Changchun, Shenyang, Dalian, Urumqi, Lanzhou, Xi’an, Hohhot, Taiyuan, Beijing, Tianjin, Shijiazhuang, Tangshan, Baoding, Jinan, Qingdao, Yantai, Zhengzhou, Xuzhou, Yancheng, Yangzhou, Nanjing, Hefei, Wuhan, Changzhou, Nantong, Wuxi, Suzhou, Shanghai, Jiaxing, Hangzhou, Shaoxing, Ningbo, Taizhou, Wenzhou, Fuzhou, Quanzhou, Xiamen, Changsha, Nanchang, Guangzhou, Shenzhen, Zhaoqing, Foshan, Jiangmen, Zhongshan, Dongguan, Huizhou, Zhuhai, Chengdu, Chongqing, Kunming, Guiyang, Nanning, Haikou, as well as Hong Kong and Macao.

Although the above cities vary in terms of economy and population size, each possesses its own distinct development context and fundamental basis, influenced by geographical location, resource endowment, and historical progression. The “Chinese Cities of Opportunity” report predominantly focuses on examining the characteristics and potential of individual cities. By analysing urban development data, we aim to identify diverse and multi-tiered development prospects for these cities.

The observation covers a number of central cities and node cities in major urban clusters in China, such as the Beijing-Tianjin-Hebei city cluster, the Yangtze River Delta city cluster, the Guangdong-Hong Kong-Macao Greater Bay Area, the Chengdu-Chongqing city cluster, the Yangtze River Midstream city cluster, the Shandong Peninsula city cluster, the Central Plain city cluster, and the Guanzhong Plain city cluster.

Research methodology

The “Chinese Cities of Opportunity” report adopts PwC’s city assessment tools to examine the selected cities. The tools provide targeted observations of the cities from ten dimensions, involving economic growth, society and people's livelihood, urban infrastructure, natural environment, population, city governance, and city influence. The development of cities is changing every day. Accordingly, our observation system is not static. We hope to follow the pace of the rapid development of Chinese cities to reflect their development achievements and potential opportunities. Therefore, observing from the ten dimensions, we can take a fine-grained look through a lens based on multiple variables. While maintaining the basic principles and keeping the system unchanged, we can make appropriate adjustments to align with the socio-economic development. Nevertheless, urban societies take on rich and diverse forms. History, cultural traditions, and strategies and wisdom that focus on future development cannot be simply measured by data models alone. The results are also influenced by data sources and methods of calculation. We intend to use these tools to provide a richer and more diverse perspective for observing cities. The city rankings provide no basis for comparison to those of the previous years, that is, the findings in this report are relatively independent observations.

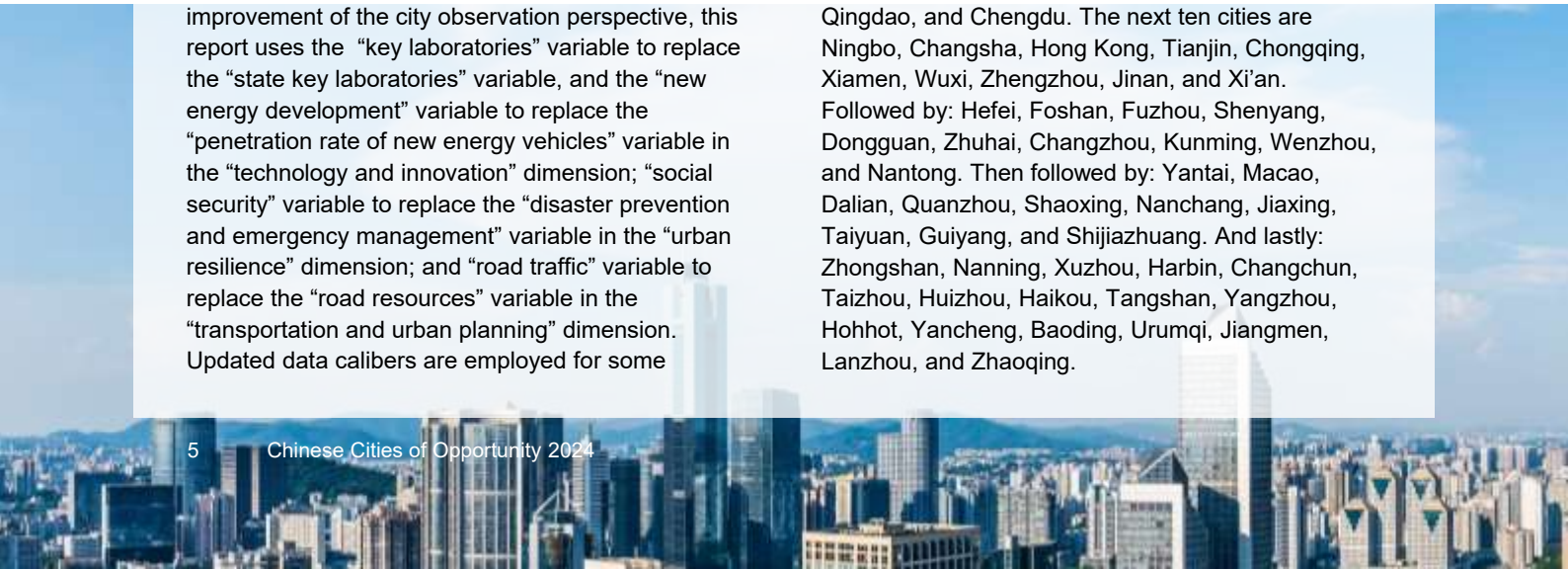
In this report, the cities are observed in ten dimensions, with each dimension comprising five variables for a total of 50 variables. Some variables encompass sub-indicators, primarily considering the balance of the number of each type of variable under each dimension. At the same time, the data indicators covered by a single variable can appropriately reflect the level of development of that variable. The variables and sub-indicators simultaneously factor in both per capita and gross data to provide an overarching picture of each city's foundation for development and potential opportunities. We analyse all cities based on consistent standards while taking factors such as scale advantage into account. In light of the changes in the statistical scope of some data and the improvement of the city observation perspective, this report uses the “key laboratories” variable to replace the “state key laboratories” variable, and the “new energy development” variable to replace the “penetration rate of new energy vehicles” variable in the “technology and innovation” dimension; “social security” variable to replace the “disaster prevention and emergency management” variable in the “urban resilience” dimension; and “road traffic” variable to replace the “road resources” variable in the “transportation and urban planning” dimension. Updated data calibers are employed for some variables. Our considerations for the design and data sources of these variables are detailed in the “variables” section of this report.

We use PwC’s assessment tools in examining the selected cities. The variables and dimensions are not weighted, and every city has a ranking against each variable. One point is awarded to each position up the table, with the scores of the corresponding positions arranged in descending order, i.e., the highest score, for first place, was 57 points and the lowest score, for last place, was one point, with tied rankings receiving equal points. However, for certain dimensions, such as “cost”, the scores were arranged in ascending order, i.e., the scores reflect their corresponding positions in the table. Scoring in order reduces the complex, absolute differences between cities to equidistant points. The sum of points awarded to each city for each variable under each dimension constitutes its ranking for that dimension, and the sum of a city's scores across all variables and all dimensions determines the city’s overall ranking in the report.

The data were sourced under the principles of objectivity, impartiality, rigour, and applicability, and mainly obtained from public sources, including the National Bureau of Statistics, government departments, official statistical yearbooks and bulletins published by each city, as well as research data from authoritative think tanks, universities, and research institutes, or big data research findings. The primary data source for this report was the official statistical yearbooks published by each city in 2023. In cases where cities had not published such yearbooks, data from provincial-level statistical yearbooks and bulletins were used as supplements. The statistical data cut-off point was 2022, the rest were 2023, and the data collection cut-off point was February 2024. We refer to provincial-level data or other comparable data where the data released by a specific city was insufficient.

Observation results

The top ten cities in the “Chinese Cities of Opportunity 2024” are: Beijing, Shanghai, Shenzhen, Guangzhou, Hangzhou, Nanjing, Suzhou, Wuhan, Qingdao, and Chengdu. The next ten cities are Ningbo, Changsha, Hong Kong, Tianjin, Chongqing, Xiamen, Wuxi, Zhengzhou, Jinan, and Xi’an. Followed by: Hefei, Foshan, Fuzhou, Shenyang, Dongguan, Zhuhai, Changzhou, Kunming, Wenzhou, and Nantong. Then followed by: Yantai, Macao, Dalian, Quanzhou, Shaoxing, Nanchang, Jiaxing, Taiyuan, Guiyang, and Shijiazhuang. And lastly: Zhongshan, Nanning, Xuzhou, Harbin, Changchun, Taizhou, Huizhou, Haikou, Tangshan, Yangzhou, Hohhot, Yancheng, Baoding, Urumqi, Jiangmen, Lanzhou, and Zhaoqing.



From the observation results, it is evident that the top cities excel in balanced development, ranking prominently across multiple dimensions, thereby showcasing their robust overall strength. Beijing, Shanghai, Shenzhen, and Guangzhou continue to lead the development of Chinese cities, with Hangzhou, Nanjing, Suzhou, Wuhan, Qingdao, and Chengdu following closely in the top ten. Notably, Beijing and Shanghai clinch the top spots in three dimensions each, while Shenzhen secures the first position in two dimensions. Qingdao ranks first in the "transportation and urban planning" dimension and holds the tenth rank in the "economic clout" dimension. Ningbo leads in the "sustainable development" dimension and ascends to the top ten in both the "economic clout" and "ease of doing business" dimensions. Wuxi, Foshan, and Dongguan ranks in the top ten in the dimensions of "technology and innovation", "transportation and urban planning", and "ease of doing business", respectively. Cities like Hefei, Shenyang, Changzhou, Nantong, and Yantai, positioned mid-ranking overall, also demonstrate commendable performance in various dimensions. For brevity, detailed comments will be reserved for the top cities in the overall ranking. Please refer to the text for comprehensive insights into specific dimension rankings and analyses.

From the comprehensive observation results, it is evident that the three primary city clusters in the Beijing-Tianjin-Hebei region, the Yangtze River Delta, and the Guangdong-Hong Kong-Macao Greater Bay Area exhibit consistent performance. Similarly, cities within the Chengdu-Chongqing, Shandong Peninsula, and Yangtze River Midstream city clusters demonstrate commendable performance in the observation. The development momentum and outreach of these city clusters continue to expand, establishing connections that drive enhancements in overall urbanisation levels. Furthermore, several rapidly growing emerging cities exhibit outstanding performance in the observation. In recent years, certain cities have experienced significant growth propelled by the advancement of strategic emerging industries. In addition to their strong appeal to investors, these cities have fostered confidence and provided robust support for the stabilisation and recovery of the Chinese economy. This underscores the diversified, multi-level, and multi-tiered economic vitality prevalent in Chinese cities. This report will also place greater emphasis on these cities and their performance across various dimensions or variables. While the supporting data used in the observation is mainly retrospective, the enhanced performance of these cities did not occur overnight. Consequently, this report will delve deeper into the underlying factors driving their progress and the potential development opportunities they bring forth.

In-depth interviews

The "Chinese Cities of Opportunity 2024" is privileged to include insights and views from the following scholars and experts.

Mr. Yi Chengdong, Professor of the Department of Urban and Real Estate Management at the School of Management Science and Engineering, Central University of Finance and Economics, puts the focus on "promoting urban-rural integration and regional integrated development", as elucidated in his article titled "Developing metropolitan areas to promote regional and integrated urban-rural development".

Mr. Zhai Guofang, Professor and PhD Supervisor at the Department of Urban Planning and Design, Nanjing University, advocates for prioritising the importance and positive impacts of resilient city construction in his article titled "Building resilient cities to ensure both development and security".

Mr. Lu Ming, a member of the 14th National Committee of the Chinese People's Political Consultative Conference (CPPCC) and Director of Shanghai Institute for National Economy at Shanghai Jiao Tong University, introduces concepts and suggestions regarding "Enhancing traffic efficiency through compact development in major cities" in his article. This is based on an analysis of traffic data in major cities and investigations into urban space construction and planning.

Mr. Dong Weijun, former President of Heilongjiang Provincial Academy of Social Sciences, member of the Social Development Affairs Committee, the Standing Committee of Heilongjiang Provincial People's Congress, Vice Chairman of Heilongjiang Federation of Social Sciences, and Vice President of Heilongjiang Provincial Economic Association, shares Harbin's practices and experience in cultural tourism as an example to illustrate how city managers can leverage cultural tourism to form industrial linkage in the article "Harnessing the power of the cultural tourism industry to unleash urban potential".

Mr. Liu Peilin, Chief Expert and Research Fellow at the Research Centre for Regional Coordinated Development, Associate Dean of the Institute for Common Prosperity and Development, and Research Fellow at the School of Economics, Zhejiang University, advocates for prioritising stability, predictability, and other influencing factors in the endeavour to enhance the business environment. This perspective is articulated in his article titled "Constructing cities of opportunity with long-termism business environment".

Our report is crafted from the standpoint of building social responsibility, and all participating interviewees share this vision. Their observations and experiences, shared on crucial topics regarding the development of metropolitan areas, the construction of resilient cities, industrial growth, and the enhancement of the business environment in Chinese cities, have enriched our perspective and provided readers with diverse and comprehensive insights.

Rankings 2024 and analysis

		1. Intellectual capital	2. Technology and innovation	3. Major regional cities	4. Urban resilience	5. Transportation and urban planning
1	Beijing	268	275	251	262	200
2	Shanghai	252	268	271	251	129
3	Shenzhen	224	278	247	226	188
4	Guangzhou	254	257	270	222	188
5	Hangzhou	231	260	247	248	180
6	Nanjing	236	236	232	208	215
7	Suzhou	157	262	160	189	200
8	Wuhan	250	220	204	181	162
9	Qingdao	185	208	206	183	217
10	Chengdu	206	225	250	167	195
11	Ningbo	137	216	196	205	169
12	Changsha	230	203	187	122	200
13	Hong Kong	180	173	192	230	143
14	Tianjin	212	219	215	222	122
15	Chongqing	184	164	258	190	170
16	Xiamen	159	176	205	197	171
17	Wuxi	175	224	116	182	156
18	Zhengzhou	210	191	182	110	129
19	Jinan	151	195	190	202	131
20	Xi'an	227	199	213	156	142
21	Hefei	195	197	176	122	174
22	Foshan	148	197	132	99	213
23	Fuzhou	133	121	149	113	142
24	Shenyang	167	138	169	156	137
25	Dongguan	150	213	51	76	131
26	Zhuhai	154	166	82	189	149
27	Changzhou	150	173	92	148	144
28	Kunming	102	124	212	92	134
29	Wenzhou	84	154	145	136	154
30	Nantong	100	127	108	145	154
31	Yantai	135	79	137	166	107
32	Macao	135	127	126	220	152
33	Dalian	155	102	156	141	186
34	Quanzhou	76	94	127	93	98
35	Shaoxing	101	104	67	166	145
36	Nanchang	157	92	136	124	130
37	Jiaxing	91	130	80	142	73
38	Taiyuan	161	123	92	109	143
39	Guiyang	110	99	193	85	146
40	Shijiazhuang	118	114	126	93	122
41	Zhongshan	88	145	26	85	145
42	Nanning	109	97	155	67	145
43	Xuzhou	96	74	110	146	157
44	Harbin	142	63	139	100	117
45	Changchun	123	60	104	131	96
46	Taizhou	54	106	91	130	104
47	Huizhou	82	102	54	79	102
48	Haikou	93	90	150	64	99
49	Tangshan	83	31	78	148	135
50	Yangzhou	63	76	76	153	136
51	Hohhot	72	37	76	83	128
51	Yancheng	57	53	47	140	133
53	Baoding	79	45	50	87	130
54	Urumqi	69	50	112	99	85
55	Jiangmen	65	72	35	74	102
56	Lanzhou	114	61	93	69	80
57	Zhaoqing	60	21	20	65	82

6. Sustainable development	7. Culture and quality of life	8. Economic clout	9. Cost	10. Ease of doing business	Total score
153	277	275	63	240	2264
184	281	275	57	257	2225
235	251	263	29	266	2207
233	252	245	44	216	2181
213	259	247	40	247	2172
174	251	238	51	215	2056
152	248	245	75	262	1950
165	226	207	115	190	1920
215	195	214	86	204	1913
162	184	194	122	201	1906
260	190	221	74	232	1900
244	180	188	143	174	1871
190	175	275	46	221	1825
146	181	211	101	194	1823
148	204	185	177	141	1821
243	136	180	100	215	1782
165	201	213	119	213	1764
149	155	164	194	190	1674
169	137	194	130	168	1667
129	155	161	132	151	1665
168	161	172	121	175	1661
198	156	166	141	187	1637
252	164	171	129	150	1524
138	164	149	173	103	1494
187	173	145	132	231	1489
249	81	155	116	147	1488
128	141	167	139	174	1456
238	139	116	191	99	1447
175	200	117	124	142	1431
138	175	163	174	139	1423
163	130	145	220	135	1417
175	147	128	14	175	1399
142	136	137	130	107	1392
166	162	125	213	178	1332
129	176	128	158	148	1322
162	120	111	168	108	1308
135	165	151	155	172	1294
147	96	116	210	89	1286
194	76	59	204	73	1239
119	92	92	225	120	1221
219	84	74	178	149	1193
196	82	89	160	84	1184
92	97	110	181	97	1160
150	101	64	190	53	1119
126	103	81	201	85	1110
154	135	58	139	131	1102
235	65	107	155	120	1101
244	43	67	162	72	1084
75	87	109	255	58	1059
76	93	127	170	57	1027
147	65	85	224	51	968
146	88	84	185	35	968
117	76	48	251	78	961
120	31	93	201	78	938
156	60	66	178	70	878
71	96	32	209	22	847
191	28	22	196	29	714

1 Intellectual capital

Innovation factors like scientific and technological strength, human resources, and educational levels have always been the primary drivers for cities to enhance their independent innovation capabilities and build innovative cities. The dimension of "intellectual capital" evaluates a city's investment in innovation resources, intellectual capital reserves, and foundational research in science and technology through the analysis of five variables: “enterprise expenditure on R&D”, “scale of higher education”, “key laboratories”, “expenditure on science and technology”, and “educational level”.

In the overall ranking within this dimension, Beijing, Guangzhou, Shanghai, Wuhan, Nanjing, Hangzhou, Changsha, Xi'an, Shenzhen, and Tianjin take the top ten spots (in descending order), Zhengzhou, Chengdu, Hefei, Qingdao, and Chongqing rank 11th to 15th. These cities have gradually amassed abundant educational resources and established excellent foundational conditions for scientific research over time. Throughout their development and transformation, they have showcased early-mover advantages in bolstering their overall capabilities through advancements in science and education. Simultaneously, serving as pivotal cities within their respective regions, they exert strong influence and leadership in driving the progress of surrounding cities, thus providing crucial support for the formation of regional innovation ecosystems.

As a crucial driver of China's economic growth driven by science and technology, the Yangtze River Delta city cluster has accelerated the convergence of innovation resources and steadily ramped up investment in science and technology. Cities such as Suzhou, Shanghai, Wuxi, Hangzhou, Ningbo, Changzhou, and Nantong maintain their leading positions in terms of "enterprise expenditure on R&D". Additionally, Jiaxing and Shaoxing, newly included in the observation, also demonstrate noteworthy performance in "expenditure on science and technology", signalling their potential in scientific and technological innovation. Within the Guangdong-Hong Kong-Macao Greater Bay Area (GBA), Shenzhen, Dongguan, Guangzhou, and Foshan rank among the top cities in terms of "enterprise expenditure on R&D". In recent years, the GBA has significantly increased its investment in research and development, leading to the emergence of new strategic industrial clusters. The region aims to position itself as a global hub for scientific and technological innovation by fostering strong enterprises, industries, and economies rooted in scientific and technological prowess.

Since the launch of the Notice on Implementing the Plan for Restructuring the State Key Laboratory System by the Ministry of Science and Technology in 2022, China has hastened the pace of reshaping its scientific and technological innovation framework. In 2023, many higher education institutions concentrated their efforts on applying for the reconstruction of state key laboratories. As part of adapting to the reforms in the national scientific and technological system, the variable of " key laboratories" has newly incorporated the number of state key laboratories as a sub-indicator. Hong Kong has performed well in this aspect. It actively collaborates with cities in the GBA to deepen the integration of science and innovation and enhance the synergy between industry, academia, and research innovation. Its goal is to establish itself as an international hub for science and innovation.

Cities in Central and West China such as Zhengzhou, Wuhan, Xi’an, Chongqing and Chengdu, Harbin in Northeast China, and Nanchang in Southeast China all fare pretty well in the "scale of higher education" variable thanks to their great efforts to cultivate a large number of highly educated talents. However, these cities face huge opportunities and challenges to empower economic transformation and upgrading, such as how to gather and attract top-notch talents in scientific and technological innovation, link the talent chain, industrial chain, and capital chain together, translate scientific and technological achievements into productivity locally, and develop "new quality productive forces" based on local conditions.

		Enterprise expenditure on R&D	Scale of higher education	Key laboratories	Expenditure on science and technology	Educational level	Score
1	Beijing	48	52	57	54	57	268
2	Guangzhou	52	57	49	45	51	254
3	Shanghai	55	46	55	49	47	252
4	Wuhan	45	55	53	48	49	250
5	Nanjing	41	50	56	47	42	236
6	Hangzhou	50	39	50	51	41	231
7	Changsha	38	49	52	39	52	230
8	Xi'an	39	51	54	28	55	227
9	Shenzhen	57	15	40	56	56	224
10	Tianjin	44	43	47	31	47	212
11	Zhengzhou	27	56	41	35	51	210
12	Chengdu	37	53	48	37	31	206
13	Hefei	40	44	42	55	14	195
14	Qingdao	42	34	46	32	31	185
15	Chongqing	54	54	45	20	11	184
16	Hong Kong	19	25	51	40	45	180
17	Wuxi	51	16	26	43	39	175
18	Shenyang	16	37	45	16	53	167
19	Taiyuan	20	38	31	17	55	161
20	Xiamen	28	23	31	46	31	159
21	Suzhou	56	29	1	53	18	157
21	Nanchang	15	47	36	33	26	157
23	Dalian	35	31	33	12	44	155
24	Zhuhai	18	11	25	52	48	154
25	Jinan	33	40	39	19	20	151
26	Changzhou	47	18	25	38	22	150
26	Dongguan	53	13	25	21	38	150
28	Foshan	46	17	1	44	40	148
29	Harbin	11	48	43	2	38	142
30	Ningbo	49	21	1	50	16	137
31	Macao	1	1	38	57	38	135
31	Yantai	26	28	25	30	26	135
33	Fuzhou	30	33	18	18	34	133
34	Changchun	12	35	32	1	43	123
35	Shijiazhuang	8	41	38	5	26	118
36	Lanzhou	5	32	36	7	34	114
37	Guiyang	10	36	28	24	12	110
38	Nanning	3	42	25	13	26	109
39	Kunming	9	45	27	8	13	102
40	Shaoxing	34	9	1	41	16	101
41	Nantong	43	14	1	36	6	100
42	Xuzhou	21	20	36	15	4	96
43	Haikou	2	19	31	6	35	93
44	Jiaxing	36	3	1	42	9	91
45	Zhongshan	17	4	1	34	32	88
46	Wenzhou	25	12	18	26	3	84
47	Tangshan	31	22	1	9	20	83
48	Huizhou	29	5	1	29	18	82
49	Baoding	14	27	25	3	10	79
50	Quanzhou	32	24	1	14	5	76
51	Hohhot	6	30	1	4	31	72
52	Urumqi	4	26	1	11	27	69
53	Jiangmen	13	6	1	23	22	65
54	Yangzhou	24	8	1	22	8	63
55	Zhaoqing	7	10	25	10	8	60
56	Yancheng	23	7	1	25	1	57
57	Taizhou	22	2	1	27	2	54

Technology and innovation

2

The optimisation and upgrading of urban industrial structure, along with the transition from high-speed growth to high-quality growth, heavily rely on the impetus provided by technology and innovation. The dimension of "technology and innovation" assesses a city's technological development, innovation capacity, and level of digitisation. This dimension encompasses five variables: "granted patents", "high-tech enterprises", "new energy development", "mobile Internet", and "digital cities". The observation results of these variables can, to some extent, indicate a city's fundamental foundation, industrial utilisation, and urban scenario application of accumulated technologies, thereby reflecting the city's development driven by technology and innovation.

In this dimension, Shenzhen, Beijing, and Shanghai not only claim the top three spots in the overall ranking but also secure two first-place positions in each variable. This positions them as leaders among other cities in terms of their overall technological and innovation capabilities. Additionally, Suzhou, Hangzhou, Guangzhou, Nanjing, Chengdu, Wuxi, and Wuhan also demonstrate strong performance, ranking among the top ten in this dimension. Overall, cities in the Yangtze River Delta stand out in this aspect, showcasing a relatively high level of regional concentration in technological research and development, fostering an innovative atmosphere, and nurturing high-tech industries.

Among the top ten cities in the "granted patents" variable, there are five cities from the GBA, namely Shenzhen, Zhuhai, Foshan, Zhongshan, and Dongguan. This reflects the region's significant emphasis on and support for scientific and technological innovation. The GBA's commitment to establishing an "international centre of scientific and technological innovation" is evident in its substantial investment in both basic research and practical technical fields. Guangdong Province, Hong Kong, and Macao within the GBA have deepened their cooperation in science and technology. With a robust flow of scientific and technological resources such as data, capital, and talent, the region has experienced a deepening integration in both basic research and industrial innovation. By implementing a collaborative innovation mechanism in science and technology, the GBA is steadfastly moving forward in its ambition to construct an international hub of scientific and technological innovation, along with an ecosystem with global appeal.

"High-tech enterprises" play a pioneering role in transforming scientific and technological advancements into tangible productivity. Leading the ranking are key cities within the three major urban clusters: Chengdu in Southeast China, Changsha and Wuhan in Central China, and Xi'an in Northwest China. An industrial innovation agglomeration area with multiple players has emerged, playing a crucial role in driving the development and growth of emerging industries in the region.

Plenty achievements in leading manufacturing and major industries have achieved international standards as China has accelerated the transformation and upgrading of its traditional industries and fostered strategic emerging industries through scientific and technological innovation, speeding up the development of "new quality productive forces". Notably, China has made significant strides in the commercial operation of domestically produced large aircraft, the construction of large cruise ships, and the production and sales of new-energy vehicles (NEVs), which now account for over 60% of global production and sales. The "new energy development" variable assesses both the adoption of NEVs and the advancement of new energy industries within a city. Shanghai and Shenzhen are at the forefront of this effort, while Changzhou, Hefei, and Xiamen also demonstrate commendable performance. Hefei, with aspirations to become the NEV capital, is systematically developing a complete industrial chain for NEVs. Meanwhile, Changzhou is concentrating on the NEV industry to establish itself as a new-energy industry hub, gradually unleashing industrial momentum and propelling economic growth to new heights. Through the development of strategic emerging industries, these cities effectively drive high-quality economic growth.

		Granted patents	High-tech enterprises	New energy development	Mobile Internet	Digital cities	Score
1	Shenzhen	57	55	57	54	55	278
2	Beijing	50	57	55	57	56	275
3	Shanghai	42	56	57	56	57	268
4	Suzhou	56	53	53	52	48	262
5	Hangzhou	52	52	49	53	54	260
6	Guangzhou	44	50	54	56	53	257
7	Nanjing	47	45	46	48	50	236
8	Chengdu	24	48	51	49	53	225
9	Wuxi	49	38	49	43	45	224
10	Wuhan	39	51	49	32	49	220
11	Tianjin	34	46	52	41	46	219
12	Ningbo	45	37	42	45	47	216
13	Dongguan	48	44	40	48	33	213
14	Qingdao	46	42	39	38	43	208
15	Changsha	27	54	41	43	38	203
16	Xi'an	28	47	51	36	37	199
17	Hefei	37	41	44	33	42	197
17	Foshan	54	43	37	28	35	197
19	Jinan	40	39	34	40	42	195
20	Zhengzhou	25	36	39	46	45	191
21	Xiamen	43	30	43	28	32	176
22	Hong Kong	3	49	30	51	40	173
22	Changzhou	53	31	45	23	21	173
24	Zhuhai	55	21	33	35	22	166
25	Chongqing	8	40	31	34	51	164
26	Wenzhou	36	33	37	32	16	154
27	Zhongshan	51	24	26	32	12	145
28	Shenyang	18	35	26	24	35	138
29	Jiaxing	41	32	30	18	9	130
30	Macao	7	20	11	50	39	127
30	Nantong	31	27	28	12	29	127
32	Kunming	16	15	17	45	31	124
33	Taiyuan	17	18	32	39	17	123
34	Fuzhou	22	34	13	16	36	121
35	Shijiazhuang	10	28	28	22	26	114
36	Taizhou	35	16	23	25	7	106
37	Shaoxing	38	23	14	19	10	104
38	Dalian	21	29	6	20	26	102
38	Huizhou	30	26	20	5	21	102
40	Guiyang	11	7	16	37	28	99
41	Nanning	2	12	24	32	27	97
42	Quanzhou	29	22	6	13	24	94
43	Nanchang	15	17	19	17	24	92
44	Haikou	32	4	35	16	3	90
45	Yantai	20	10	9	10	30	79
46	Yangzhou	33	14	19	8	2	76
47	Xuzhou	19	13	21	8	13	74
48	Jiangmen	26	25	10	2	9	72
49	Harbin	13	19	1	9	21	63
50	Lanzhou	12	3	4	28	14	61
51	Changchun	14	5	12	11	18	60
52	Yancheng	23	6	15	3	6	53
53	Urumqi	6	2	9	21	12	50
54	Baoding	5	9	22	5	4	45
55	Hohhot	4	1	3	14	15	37
56	Tangshan	1	11	7	6	6	31
57	Zhaoqing	9	8	2	1	1	21

Major regional cities

3

As China's vast territory, large population, and diverse resource endowments lead to regional disparities, the issue of regional divergence has become increasingly prominent with the expansion of cities and the proliferation of urban centres. To address this challenge, city clusters and metropolitan areas, spearheaded by key regional cities, play a crucial role in facilitating overall regional coordinated development and enhancing urban system construction. The dimension of "major regional cities" comprises five variables: "star-graded hotels", "airplane take-offs and landings", "passenger capacity", "freight volume", and "exhibition economy". From a regional coordination perspective, this dimension thoroughly assesses a city's influence and its driving effects on surrounding areas and cities.

Shanghai, Hangzhou, and Nanjing, three cities in the Yangtze River Delta, rank among the top ten in this dimension. They continuously yield positive spillover effects, benefiting more areas and cities within the Yangtze River Delta region. Additionally, Suzhou, Wuxi, and Wenzhou perform well in the "passenger capacity" variable, while Ningbo and Xuzhou lead in "freight volume". These cities have significantly contributed to the smooth flow of both domestic and international circulation by effectively facilitating the movement of various elements and resources. The GBA stands out as one of the most economically dynamic and open regions in China. Guangzhou and Shenzhen, ranking second and sixth respectively in this dimension, play prominent driving roles as two core cities within the region.

The Beijing-Tianjin-Hebei city cluster, led by Beijing and Tianjin, serves as a strong driving force for the high-quality development of the Circum-Bohai Sea Economic Zone and economic growth in North China. Regional coordinated development has shifted from industrial transfer to industrial chain cooperation, and the "Beijing research and development, Tianjin-Hebei manufacturing" model has given full play to their respective advantages and significantly enhanced urban functionality.

In addition, inter-regional connectivity also facilitates the linkage of the Circum-Bohai Sea Economic Zone with the two major city clusters in the Beijing-Tianjin-Hebei region and the Yangtze River Delta, opening up broad space for receiving spillovers of resources and industrial economy. The Circum-Bohai Sea Economic Zone has gradually become a key link connecting the Beijing-Tianjin-Hebei and Yangtze River Delta city clusters. The key hub cities of Qingdao, Jinan, and Dalian all perform well in the "star-graded hotels" and "exhibition economy" variables.

Following the established Beijing-Tianjin-Hebei, Yangtze River Delta, and the GBA city clusters, the Chengdu-Chongqing city cluster has capitalised on new opportunities arising from the development of the national strategic hinterland, gradually emerging as the "fourth pole" of China's economic growth. In a collaborative effort, Chongqing and Sichuan have jointly issued the Action Plan for Building a Regional Development Functional Platform in Areas Adjacent to Sichuan and Chongqing. This initiative aims to enhance collaboration in innovation, establish a regional development functional platform, and create cross-provincial new areas. Additionally, it seeks to explore reform mechanisms for the appropriate separation of economic zones from administrative regions, fostering mutual economic benefits.

In addition, Wuhan and Changsha have achieved high scores in the "airplane take-offs and landings", "exhibition economy", and "freight volume" variables. Similarly, Xi'an, Kunming, and Xiamen also demonstrate significant performance in this dimension, highlighting the pivotal role that comprehensive gateway cities play as crucial hubs within the region. Moreover, city clusters are beginning to take shape in various regions such as the middle reaches of the Yangtze River, the Guanzhong Plain, the Guangdong-Fujian-Zhejiang region, and Central Yunnan. These areas are gradually leveraging their respective comparative advantages based on their primary functions, fostering a new development pattern through integration and mutual promotion.

		Star-graded hotels	Airplane take-offs and landings	Passenger capacity	Freight volume	Exhibition economy	Score
1	Shanghai	55	57	48	57	54	271
2	Guangzhou	54	55	53	55	53	270
3	Chongqing	53	50	54	56	45	258
4	Beijing	57	54	55	28	57	251
5	Chengdu	49	56	57	37	51	250
6	Shenzhen	48	53	51	43	52	247
6	Hangzhou	51	51	50	45	50	247
8	Nanjing	43	48	47	47	47	232
9	Tianjin	44	32	49	52	38	215
10	Xi'an	48	47	43	33	42	213
11	Kunming	35	52	45	51	29	212
12	Qingdao	50	42	29	42	43	206
13	Xiamen	35	43	34	44	49	205
14	Wuhan	29	46	39	46	44	204
15	Ningbo	41	28	40	53	34	196
16	Guiyang	17	39	56	54	27	193
17	Hong Kong	56	49	8	23	56	192
18	Jinan	30	36	46	30	48	190
19	Changsha	24	45	22	50	46	187
20	Zhengzhou	43	41	37	21	40	182
21	Hefei	32	29	35	41	39	176
22	Shenyang	33	38	41	16	41	169
23	Suzhou	41	1	52	29	37	160
24	Dalian	48	34	33	22	19	156
25	Nanning	21	35	28	38	33	155
26	Haikou	27	44	38	9	32	150
27	Fuzhou	16	31	36	36	30	149
28	Wenzhou	39	25	42	24	15	145
29	Harbin	37	37	32	5	28	139
30	Yantai	48	19	23	31	16	137
31	Nanchang	32	23	31	19	31	136
32	Foshan	29	9	26	32	36	132
33	Quanzhou	39	18	24	39	7	127
34	Shijiazhuang	24	26	6	48	22	126
34	Macao	52	14	4	1	55	126
36	Wuxi	9	20	44	25	18	116
37	Urumqi	12	40	25	10	25	112
38	Xuzhou	4	15	30	49	12	110
39	Nantong	36	16	16	27	13	108
40	Changchun	1	33	20	15	35	104
41	Lanzhou	13	30	21	12	17	93
42	Taiyuan	21	27	19	2	23	92
42	Changzhou	14	17	27	13	21	92
44	Taizhou	16	11	18	35	11	91
45	Zhuhai	21	21	17	3	20	82
46	Jiaxing	24	1	13	34	8	80
47	Tangshan	21	10	1	40	6	78
48	Hohhot	5	24	9	14	24	76
48	Yangzhou	11	22	15	18	10	76
50	Shaoxing	27	1	10	20	9	67
51	Huizhou	7	13	5	26	3	54
52	Dongguan	6	1	7	11	26	51
53	Baoding	27	1	11	7	4	50
54	Yancheng	8	12	14	8	5	47
55	Jiangmen	2	1	12	17	3	35
56	Zhongshan	3	1	2	6	14	26
57	Zhaoqing	11	1	3	4	1	20

Interview

Developing metropolitan areas to promote regional and integrated urban-rural development

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In 2022, China experienced its first population negative growth since the launch of reform and opening up. Presently, the country's population dynamics reflect a trend of birthrate decline, population ageing, and differentiation in regional population growth. In 2023, urbanisation in China showed gradual growth, with an urbanisation rate reaching 66%. Projections suggest this rate will rise to approximately 70% by 2030 and reach a peak of around 80% between 2040 and 2050. At this juncture, significant efforts should be directed towards the development of metropolitan areas and city clusters, where continue to experience population concentration. The Central Economic Work Conference held in 2023 proposed it as one of the key economic tasks for 2024 to "promote the coordinated development between urban and rural areas, as well as regional coordinated development". During this stage, China should develop metropolitan areas to drive regional and integrated urban-rural development.

First, we need to enhance the planning and construction of metropolitan areas to ensure that a significant portion of the country is encompassed by large-scale metropolitan areas at both national and provincial levels, with key cities serving as focal points. We should align our development principles, approaches, and strategies, streamline functions and spatial layouts, and implement comprehensive planning and development for infrastructure and public services. This approach will facilitate the synchronised advancement of various industries.

Second, we should strengthen the development of a unified large market and promote the sufficient two-way flow of land, population, capital, and technological factors among cities, towns, and villages within the metropolitan areas. It's crucial to streamline the pathways for rural-to-urban migration and advance reforms in household registration, ensuring that migrant populations with stable employment or livelihoods are integrated into local communities, similar to local rural residents. We will facilitate the free flow of technological factors and resources and strengthen intellectual property protection. Establishing funds for the holistic development of metropolitan areas and urban-rural integration is essential. We should support the issuance of government bonds for welfare projects that promote regional and urban-rural coordinated development, provided that debt risks are effectively managed. Furthermore, we need to activate unused land, optimise land and property usage, and expand trials to facilitate the commercial utilisation of rural collective land.

Third, we need to enhance specialisation and cooperation among industries within metropolitan areas, as well as regional collaboration in the service sector, manufacturing, and modern agriculture. Additionally, leveraging digital and other innovative technologies is essential to foster the integration and synergy of industries.

Fourth, we need to strengthen the mechanism for the coordinated development of resources and the environment, promote orderly economic and social progress through the orderly distribution of land and space, and integrate a new type of urbanisation with overall rural revitalisation. We should give full play to the radiating and spreading role of core cities in the metropolitan areas, drive urban-rural integration in the surrounding areas, and achieve rural revitalisation.

Fifth, we need to improve the modern governance system for the coordinated development of metropolitan areas and the integrated development of urban and rural areas. Moreover, we should maximise the participation of multiple entities in governance and explore mechanisms for linking statistics calculation analysis, financial and tax allocation, policy sharing, and joint responsibility in assessment. In doing so, we can strengthen the integration of metropolitan areas and the integrated development of urban and rural areas.

Urban resilience

4

As urbanisation advances rapidly in China, cities with a population of more than ten million and a GDP of over RMB1 trillion continue to emerge. The country has entered a stage of high-quality development in urbanisation, calling for enhanced urban resilience. Cities must develop robust capabilities to mitigate various risks and fulfil the basic security needs of urban residents. Therefore, establishing a solid economic foundation and maintaining consistent resource allocation are fundamental to enhancing urban resilience. The dimension of "urban resilience" aims to assess a city's operational and management systems, as well as government funding. This dimension comprises five variables: "medical resources", "healthcare", "public pension", "public safety", and "social security". The resource elements measured by these variables reflect a city's long-term investment and economic foundation, which will progressively increase alongside improvements in urban economic development and targeted investments by city administrators.

The majority of top cities in this dimension boast a strong economic foundation, with governments making sustained significant investments in various sectors including healthcare, pension, and social security. Shaoxing and Yangzhou, newly included in the assessment, outperform expectations in this dimension compared to their overall city ranking. Their commendable performance can be attributed to high per capita government investments in “healthcare” and “social security”, as well as their upper-middle-level participation rates in urban pension insurance. This underscores the importance city administrators place on investing in various resources for urban development.

The adequacy of "medical resources" remains a pressing concern for densely populated urban centres. This variable assesses the overall physician resources and medical facility levels in each city, using sub-indicators such as the total number of practising physicians, physicians per 10,000 residents, total hospital beds, beds per 10,000 residents, and the total number of "Grade III, Level A" (top-level) hospitals. Beijing, Hangzhou, Zhengzhou, Chengdu, and Jinan emerge as the top five cities in this dimension. Medical resources in regional key cities not only cater to local medical demands but also serve the high-level medical needs of the wider region. Consequently, a significant concentration of high-quality medical resources will inevitably occur in these cities. In the future, achieving a balanced distribution of medical resources throughout the region will be crucial. This can be accomplished through initiatives such as establishing branches of high-level hospitals or implementing relocation measures. Such efforts will facilitate the equitable distribution of medical resources and represent a key aspect of high-quality development in healthcare provision.

The "public pension" variable assesses a city's social security system development by examining the public pension coverage rate. This rate indicates the proportion of the permanent resident population covered by basic endowment insurance, including both insured urban employees and insured urban and rural residents. Chongqing and Chengdu, the two core cities in Sichuan, perform well in this variable. Given the rapid concentration of industries and population in these cities, they prioritise the construction of their public pension systems. They also promote the flexible flow of talent by synchronising policies and implementing various facilitation measures. Yangzhou and Taizhou, newly included in the assessment, also excel in this variable. This reflects their progress in social security while experiencing rapid economic growth.

As the level of urbanisation continues to increase in China, city administrators are faced with two important topics: high-quality urban security ability and basic resource supply. They should continue to pay attention to and steadily invest corresponding resources while developing the economy.

		Medical resources	Healthcare	Public pension	Public safety	Social security	Score
1	Beijing	57	53	56	50	46	262
2	Shanghai	50	55	41	55	50	251
3	Hangzhou	57	50	47	47	47	248
4	Hong Kong	20	56	55	56	43	230
5	Shenzhen	28	54	51	53	40	226
6	Guangzhou	49	46	44	49	34	222
6	Tianjin	42	29	46	52	53	222
8	Macao	1	57	48	57	57	220
9	Nanjing	51	42	7	51	57	208
10	Ningbo	27	49	30	45	54	205
11	Jinan	53	36	54	18	41	202
12	Xiamen	8	51	57	44	37	197
13	Chongqing	45	37	53	25	30	190
14	Suzhou	33	48	9	48	51	189
14	Zhuhai	7	52	34	54	42	189
16	Qingdao	41	34	23	39	46	183
17	Wuxi	25	44	17	46	50	182
18	Wuhan	49	41	18	37	36	181
19	Chengdu	54	28	52	15	18	167
20	Yantai	14	32	50	17	53	166
20	Shaoxing	13	40	33	36	44	166
22	Xi'an	44	30	45	20	17	156
22	Shenyang	52	20	26	34	24	156
24	Yangzhou	11	31	43	42	26	153
25	Tangshan	30	26	49	11	32	148
25	Changzhou	18	38	1	41	50	148
27	Xuzhou	32	22	24	28	40	146
28	Nantong	17	45	2	26	55	145
29	Jiaxing	16	43	29	33	21	142
30	Dalian	23	12	35	35	36	141
31	Yancheng	19	47	13	30	31	140
32	Wenzhou	29	35	20	29	23	136
33	Changchun	39	39	36	4	13	131
34	Taizhou	10	27	37	27	29	130
35	Nanchang	24	33	28	24	15	124
36	Changsha	40	8	40	19	15	122
36	Hefei	37	24	38	6	17	122
38	Fuzhou	13	25	21	14	40	113
39	Zhengzhou	55	4	42	3	6	110
40	Taiyuan	46	5	12	12	34	109
41	Harbin	43	19	6	5	27	100
42	Urumqi	34	2	5	38	20	99
42	Foshan	16	18	15	31	19	99
44	Shijiazhuang	38	17	25	7	6	93
44	Quanzhou	10	11	39	8	25	93
46	Kunming	47	7	14	22	2	92
47	Baoding	31	14	31	2	9	87
48	Guiyang	36	6	19	23	1	85
48	Zhongshan	3	3	8	43	28	85
50	Hohhot	23	21	4	13	22	83
51	Huizhou	5	23	11	32	8	79
52	Dongguan	6	1	22	40	7	76
53	Jiangmen	4	10	32	16	12	74
54	Lanzhou	26	16	3	21	3	69
55	Nanning	35	9	16	1	6	67
56	Zhaoqing	2	15	27	10	11	65
57	Haikou	21	13	10	9	11	64

Interview

Building resilient cities to ensure both development and security

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I. China faces intertwined security challenges, and the uncertainty and complexity faced by cities are constantly increasing.

The world is currently experiencing heightened levels of uncertainty. Since the beginning of the 20th century, intensified human economic activities and rapid urbanisation have led to increased material wealth alongside escalating risks. These risks encompass traditional threats such as earthquakes, floods, typhoons and mudslides, as well as new challenges such as environmental pollution, industrial accidents, economic crises, traffic incidents, and infectious diseases. This collective risk landscape has ushered humanity into what can be termed as “risk society”. According to statistics, natural disasters in China affected 95.44 million people in 2023, resulting in 691 fatalities and missing persons, the collapse of 209,000 houses, and damage to 10,539,300 hectares of crops. These calamities incurred direct economic losses amounting to RMB345.45 billion. Compared to the average figures of the past five years, there was a decrease of 24.4%, 2.8% and 37.2% in the number of affected individuals, casualties, and damaged crops, respectively. However, there was a significant increase of 96.9% in the number of collapsed houses and a 12.6% rise in direct economic losses.

II. The concept of building resilient cities represents a novel approach and paradigm for addressing natural disasters and environmental issues.

In the face of increasingly severe disasters and environmental problems, international organisations including the United Nations and the World Bank are calling upon the international community to take immediate action in building resilient cities and coping with climate change and other global risks. A resilient city can endure, absorb, adjust to, and rapidly bounce back from external shocks such as earthquakes, heavy rainstorms, floods, typhoons, and terrorist incidents. The Communist Party of China (CPC) and the Chinese government attach great importance to building resilient cities. “The Recommendations of the Central Committee of the Communist Party of China for the 14th Five-Year Plan for Economic and Social Development and the Long-range Goals Through 2035”, adopted at the fifth plenary session of the 19th CPC Central Committee, proposes to build resilient cities. In December 2023 during his inspection tour in Shanghai, Xi Jinping, general secretary of the Communist Party of China Central Committee and Chinese president, called for efforts to advance the building of a resilient and safe city, to explore a new path of modernisation in megacity governance with Chinese characteristics. Beijing, Shanghai, Shenzhen and other cities have taken the lead in building resilient cities and have achieved positive results by actively exploring and summing up experience under this initiative.

III. Building resilient cities is a focus of efforts to ensure both development and security.

It is pointed out in the report delivered at the 19th National Congress of the Communist Party of China that “we should ensure both development and security and be ever ready to protect against potential dangers”. President Xi Jinping also stressed that security underpins development and development guarantees security, and security and development should be promoted simultaneously at a symposium on cyberspace security and informatisation. The research conducted by the Multi-Hazard Mitigation Council of the National Institute of Building Sciences in the US shows that the benefit-cost ratio will be 11:1 if resilient cities are built according to fortification criteria, and the ratio for funding from the Federal Government will be 6:1. A benefit-cost ratio of 4:1 can be achieved further when resilient cities are built beyond fortification criteria. Japan’s national resilience planning, initiated in 2013, is projected to decrease earthquake-related losses by 30% to 40% and flood-related losses by 30% to 100%. The benefit-cost ratio is calculated at 14.8, with tax revenue increase outweighing costs at a ratio of 1.56:1. Thus, constructing resilient cities not only enhances security but also fosters a better business environment, mitigates economic losses, and stimulates economic growth. This effort is undoubtedly a priority in ensuring both development and security.

Transportation and urban planning

5

As the foundation of urban construction, transportation is an important component of economic activities in a city. At present, urban transportation faces such challenges as unbalanced space utilisation and an irrationally distributed transportation network. Scientific and optimal urban planning can enhance the order and bearing capacity of the transportation structure and better support a new development paradigm and high-quality development. The “transportation and urban planning” dimension comprehensively describes a city’s carrying capacity, transportation management ability, and construction planning through five variables: "road traffic", "bus transport", "rail transit", "traffic efficiency" and "green space coverage".

In general, Qingdao, Nanjing, and Foshan rank in the top three positions. Beijing, Suzhou, and Changsha are tied for fourth place, while Chengdu ranks seventh. Guangzhou and Shenzhen share eighth place, followed by Dalian, Hangzhou, Hefei, Xiamen, Chongqing, and Ningbo. This observation underscores the development of efficient and well-designed integrated transportation systems in China's major cities. These systems seamlessly connect express trunk routes, distributed routes, and green pathways.

In the next five years, China will enter a new stage of building up its strength in transportation at a faster pace. The Ministry of Transport, in conjunction with other government departments, successively issued guiding documents such as the Five-Year Action Plan for Accelerating Building up China’s Strength in Transportation (2023-2027) and the Notice on Piloting the Launch and Road Access of Intelligent Internet-connected Vehicles. The documents emphasise the need to expedite the development of smart transportation and foster the deep integration of emerging technologies such as big data, the Internet, and artificial intelligence with the transportation industry. This integration aims to enhance the intelligence and precision of urban management. Leading the way in this endeavour, the Yangtze River Delta has pioneered a new model of smart transportation. In a collaborative effort, three provinces and one municipality have introduced the "One-code Pass" in transportation to promote connectivity among cities and further bolster integrated transportation development in the region. In the "traffic efficiency" variable, cities in the Yangtze River Delta, including Nantong, Changzhou, Xuzhou, Ningbo, as well as Shaoxing, Yancheng, Yangzhou, Taizhou, and Jiaxing, which are newly included in this observation, rank among the top ten cities.

In addition, China's transportation infrastructure is expanding in size. In 2023, as many as 240 highway projects were approved nationwide, involving a total investment of more than RMB1.7 trillion. To facilitate the observation of urban infrastructure planning and construction, the "road traffic" variable has been adjusted this year, using a city’s car ownership and road network density of built-up areas as sub-indicators to measure road traffic demand and supply capacity in a city. Wenzhou, Nantong, and Shijiazhuang score high in this variable, performing better than in the overall dimension.

In terms of urban resource utilisation and planning, cities within the GBA continue to uphold their leading positions in ecological governance. Macao and Hong Kong claim the first and second spots, respectively, in the "bus transport" variable. Additionally, Zhongshan, Dongguan, Zhuhai, and Foshan all rank among the top six cities in the "green space coverage" variable. These cities are dedicated to implementing green and low-carbon development concepts while establishing long-term development mechanisms to promote environmentally friendly transportation and create more liveable urban environments.

		Road traffic	Bus transport	Rail transit	Traffic efficiency	Green space coverage	Score
1	Qingdao	50	49	45	24	49	217
2	Nanjing	54	46	52	16	47	215
3	Foshan	56	26	44	35	52	213
4	Beijing	37	52	54	1	56	200
4	Changsha	49	35	49	14	53	200
4	Suzhou	57	23	47	42	31	200
7	Chengdu	55	40	51	13	36	195
8	Guangzhou	52	48	43	2	43	188
8	Shenzhen	54	39	55	22	18	188
10	Dalian	21	50	50	15	50	186
11	Hangzhou	46	36	56	31	11	180
12	Hefei	16	28	39	40	51	174
13	Xiamen	12	55	29	37	38	171
14	Chongqing	44	47	33	5	41	170
15	Ningbo	26	22	48	48	25	169
16	Wuhan	39	42	53	9	19	162
17	Xuzhou	35	1	30	49	42	157
18	Wuxi	34	15	37	36	34	156
19	Nantong	49	5	21	53	26	154
19	Wenzhou	51	24	24	46	9	154
21	Macao	26	57	42	24	3	152
22	Zhuhai	13	54	1	27	54	149
23	Guiyang	31	45	28	19	23	146
24	Zhongshan	39	16	1	32	57	145
24	Nanning	29	18	35	46	17	145
24	Shaoxing	5	20	19	57	44	145
27	Changzhou	10	14	25	50	45	144
28	Taiyuan	18	32	17	28	48	143
28	Hong Kong	18	56	46	22	1	143
30	Xi'an	19	43	38	9	33	142
30	Fuzhou	27	33	34	27	21	142
32	Shenyang	45	38	27	13	14	137
33	Yangzhou	26	8	1	55	46	136
34	Tangshan	42	19	1	41	32	135
35	Kunming	14	37	41	18	24	134
36	Yancheng	26	13	1	56	37	133
37	Jinan	44	41	20	13	13	131
37	Dongguan	21	9	15	31	55	131
39	Baoding	42	4	1	43	40	130
39	Nanchang	7	17	40	44	22	130
41	Shanghai	32	29	57	6	5	129
41	Zhengzhou	26	25	36	35	7	129
43	Hohhot	1	34	23	40	30	128
44	Tianjin	30	30	31	25	6	122
44	Shijiazhuang	49	7	32	22	12	122
46	Harbin	37	44	22	10	4	117
47	Yantai	7	27	1	33	39	107
48	Taizhou	11	3	1	54	35	104
49	Huizhou	34	11	1	40	16	102
49	Jiangmen	29	12	1	31	29	102
51	Haikou	40	21	1	17	20	99
52	Quanzhou	15	6	1	48	28	98
53	Changchun	9	31	26	3	27	96
54	Urumqi	3	51	16	7	8	85
55	Zhaoqing	4	10	1	52	15	82
56	Lanzhou	2	53	18	5	2	80
57	Jiaxing	9	2	1	51	10	73

Interview

Enhancing traffic efficiency through compact development in major cities

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In the course of development, major cities and metropolitan areas have experienced urban problems such as traffic congestion, long commutes, pollution and high property prices. In July 2022, the National Development and Reform Commission unveiled a notice that detailed efforts to promote new urbanisation during the 14th Five-Year Plan period, highlighting the urgent need to address major urban problems. The development approach adopted by major cities or metropolitan areas in terms of spatial layout modes, such as compact development, sprawling development, or population decentralisation, has a significant impact on traffic congestion and sustainable urban development.

We have collected data on congestion index, population size, and skyscraper numbers for over 400 cities worldwide to analyse the relationship between compact urban development and traffic congestion. Given that skyscrapers are commonly concentrated in the downtown areas, the indices based on skyscraper data in our analysis could evidently represent the building height in city centres and the level of compact development. Our findings have revealed that congestion deteriorates along with the rising population, but for major cities, it is in an inverse proportion to building height in downtown areas.

Why is congestion relatively eased in compact cities? In service-oriented major cities where frequent interactions between supply and demand are needed, the location advantages of downtown areas naturally offer more conveniences to employment and consumption. As the population is concentrated in the urban core, high-rise buildings allow people to replace a portion of their horizontal commuting facilitated by cars with a faster vertical commuting facilitated by elevators. This not only enhances commute efficiency but also relieves pressure on transportation infrastructure. Compact cities can shorten commute and routine travel distances, and other means of commuting such as walking and cycling will be used more often, thus giving better use of urban road resources. On the other side, compact cities make it economically feasible to apply diverse and dense public transport networks. This will possibly improve transportation infrastructure, build up traffic capacity and efficiency, and scale down the use of private vehicles to alleviate traffic congestion.

Then how to develop cities with mature space layouts in a compact manner? Urban renewal is one. Through urban renewal, cities can alleviate congestion in terms of frequency and extent, and reduce the commute time, even if the city's population increases.

However, apart from some misconceptions about compact city development, there remain barriers to compact development nowadays, such as the unreasonable plot ratio of buildings in city centres. Despite the building height restrictions due to multiple considerations including preservation of historical buildings and ecological maintenance in downtown areas, many measures can be taken to expand living space. To be specific, relevant stakeholders could make efforts to alleviate outdated plot ratio control according to market needs, reallocate vacant industrial, commercial, or service land to residential land, and increase the utilisation efficiency of residential land.

Sustainable development

6

The "sustainable development" dimension evaluates the allocation and responsible utilisation of natural resources in cities, focusing on "water resources", "urban environmental protection", and "air quality". It also analyses trends in sustainable population growth through "population mobility" and measures cities' energy efficiency and commitment to green and low-carbon restructuring via the "green and low-carbon development" variable. Megacities often face challenges in managing water resources and urban environmental protection due to natural limitations and the concentration of the population. As they develop industries, it's crucial for them to have the mindset of maintaining air quality and embracing green and low-carbon development. The long-term sustainability of cities relies on a continuous flow of population, which provides the necessary labour supply. For large cities, sustainable development hinges on striking a balance between development and the efficient utilisation of resources.

Among the top cities in this dimension, Ningbo, Fuzhou, Haikou, Changsha, and Kunming show no obvious weaknesses, mainly benefiting from their balanced advantages in all the variables, which reflect their relatively balanced sustainable development. Zhuhai not only enjoys an inherent advantage in air quality due to its coastal location but also secures an excellent performance in urban environmental protection while it continues to agglomerate population. Decades ago, Fuzhou proposed the "3820" strategic project to transform the city into a "clean, beautiful, comfortable, quiet, and open coastal city with a healthy ecological environment". By implementing advanced concepts of green development and creating an ecological city, Fuzhou has provided a “Fuzhou example” for overall coordinated and sustainable urban development.

"Water resources" and "air quality" represent areas where cities are influenced by inherent natural conditions. Chongqing, Zhaoqing, Jiangmen, Nanning, and Harbin, leading the list, benefit from their coastal locations, enjoying natural advantages in these aspects. When assessing urban "air quality", it's essential to consider not only the city's average annual air quality but also the improvement compared to the previous year. Ningbo, Yancheng, Fuzhou, Huizhou, and Xiamen emerge as the top five performers in the "air quality" variable. The Action Plan for Sustained Improvement of Air Quality will prioritise the enhancement of air quality in key regions through various measures. These include promoting collaborative governance among regions, enhancing the atmospheric environment management system, and expediting the adoption of green and low-carbon lifestyles. "Urban environmental protection" includes two sub-indicators: the sewage treatment ratio and the ratio of incinerated waste to safely disposed waste. Cities like Zhengzhou, Baoding, Zhongshan, Haikou, Taiyuan, and Fuzhou demonstrate outstanding performance in this aspect. Addressing resource challenges such as "waste encircling cities" necessitates effective measures for managing urban waste through reduction, harmless treatment, and recycling, especially for large cities. Population plays a vital role in modern human resources. "Population mobility" gauges a city's labour force sustainability by monitoring the inflow and outflow of the urban population. Cities in GBA exhibit notable strengths in this variable, with Dongguan and Zhongshan ranking among the top performers. Additionally, provincial capital cities demonstrate evident siphonic effect on their population, with Urumqi and Taiyuan excelling in this regard.

As populations increasingly gravitate towards large cities and economically prosperous regions, city administrators must prioritise environmental concerns such as urban sustainable development and quality of life. By transitioning towards a green and low-carbon lifestyle, cities can effectively pursue the "dual carbon" objective, simultaneously promoting economic growth and fostering a sustainable ecological environment, thus gradually realising a "beautiful China".

		Water resources	Urban environmental protection	Air quality	Population mobility	Green and low-carbon	Score
1	Ningbo	48	38	57	37	40	260
2	Fuzhou	47	52	55	22	26	252
3	Zhuhai	14	51	52	53	35	249
4	Changsha	49	33	41	46	47	244
4	Haikou	26	54	45	41	27	244
6	Xiamen	11	31	53	52	48	243
7	Kunming	36	49	31	38	42	238
8	Shenzhen	28	2	48	55	57	235
8	Huizhou	51	28	54	48	5	235
10	Guangzhou	44	39	17	50	49	233
11	Zhongshan	18	55	43	56	6	219
12	Qingdao	34	47	9	46	55	215
13	Hangzhou	52	11	38	44	41	213
14	Foshan	35	35	25	51	17	198
15	Nanning	54	23	25	28	29	196
16	Guiyang	33	19	27	41	31	194
17	Zhaoqing	56	51	28	12	5	191
18	Hong Kong	8	27	52	2	54	190
19	Dongguan	21	29	32	57	10	187
20	Shanghai	31	11	34	25	50	184
21	Macao	1	12	52	10	53	175
21	Wenzhou	50	41	49	15	20	175
23	Nanjing	7	26	41	30	39	174
24	Jinan	33	43	16	20	45	169
25	Hefei	25	25	22	32	46	168
26	Quanzhou	46	42	42	18	18	166
27	Wuhan	30	9	19	42	51	165
27	Wuxi	12	44	36	33	14	165
29	Yantai	40	38	48	12	25	163
30	Chengdu	41	7	10	34	53	162
30	Nanchang	43	23	12	25	36	162
32	Jiangmen	55	5	29	21	10	156
33	Taizhou	42	46	45	14	7	154
34	Beijing	22	8	2	43	56	153
35	Suzhou	15	15	31	49	12	152
36	Harbin	53	23	15	8	30	150
37	Zhengzhou	5	57	5	28	45	149
38	Chongqing	57	16	1	10	45	148
39	Taiyuan	6	54	21	47	13	147
39	Hohhot	4	41	7	37	33	147
41	Tianjin	13	38	21	26	33	146
41	Yancheng	19	34	57	1	35	146
43	Dalian	38	3	14	31	24	142
44	Shenyang	37	48	4	17	16	138
44	Nantong	16	32	46	7	37	138
46	Jiaxing	23	19	38	39	16	135
47	Xi'an	27	19	3	37	38	129
47	Shaoxing	39	25	41	16	8	129
49	Changzhou	10	15	33	29	21	128
50	Changchun	45	6	8	14	24	126
51	Urumqi	9	23	18	55	2	120
52	Shijiazhuang	24	46	12	6	24	119
53	Baoding	17	56	14	20	2	117
54	Xuzhou	29	4	26	5	28	92
55	Yangzhou	3	13	35	5	20	76
56	Tangshan	20	30	6	5	3	75
57	Lanzhou	2	2	23	23	11	71

Culture and quality of life

7

The cultural tourism industry plays an important role in meeting people's needs for a better life, given its wide coverage, strong driving force, and high openness. The strong recovery of China's culture and tourism since last year has effectively released the potential in domestic demand, injecting new impetus into urban economic growth. The "culture and quality of life" dimension examines a city's cultural vitality and people's living standards through five variables: "resident income", "museums", "cinemas", "library collections" and "consumption vitality".

Improving living standards necessitates both a solid economic foundation and an increase in resident income. In the Yangtze River Delta city cluster, the residents generally have high income. Hong Kong and Macao claim the top two positions in the "resident income" variable. Additionally, ten cities in the Yangtze River Delta feature among the top 15, including Shanghai, Suzhou, Hangzhou, Ningbo, Nanjing, and Wuxi, as well as newcomers Shaoxing, Wenzhou, Jiaxing, and Taizhou. This underscores the robust economic prowess of the integrated Yangtze River Delta region. The "consumption vitality" variable evaluates a city's overall consumption and per capita consumption levels by considering two sub-indicators: total retail sales of consumer goods and retail sales of consumer goods per capita. Quanzhou, Fuzhou, Hefei, and Jinan outperform expectations in this variable compared to the overall dimension, taking leading positions.

To stimulate consumption, encourage effective investment, and form a virtuous cycle between consumption and investment, the State Council issued Several Measures for Unlocking the Potential of Tourism Consumption and Promoting the High-quality Development of Tourism last year. The document proposes the deep integration of culture and tourism, the development of themed tour routes showcasing Chinese cultural relics, and the promotion of cultural tourism under the theme "Reading ten thousand books and travelling ten thousand miles". It also encourages diversification in tourism forms, such as "exhibition + tourism" and "performance + tourism". Xi'an introduced an innovative panoramic cultural display of the Tang Dynasty titled "12 Hours in Chang'an, a Tang City that Never Sleeps". Similarly, Gansu unveiled ten cultural tour routes themed "An Exquisite Lanzhou: Picturesque Mountains, Rivers, and Folk Customs along the Yellow River". Several cities have also captivated tourists with their unique cultural characteristics and rich cultural heritage.

It is worth noting that the cultural tourism consumption chain, with "food, accommodation, travel, shopping and entertainment" as the core elements, continues to extend, driving the revitalisation of various kinds of resources. Cultural tourism has gradually become an important approach for the transformation and upgrading of many industrial cities. The National Development and Reform Commission and the Ministry of Culture and Tourism jointly issued the Tourism Development Plan for Northeast China, with a primary focus on promoting high-quality economic development and facilitating the transformation of the region's old industrial base. The immense popularity of Harbin's ice and snow tourism has significantly bolstered market confidence and positively impacted economic growth in Northeast China. Similarly, Shenyang, another city with a historical industrial base, has dedicated significant efforts to the development of industrial tourism. Leveraging its abundant cultural resources and industrial heritage, Shenyang has introduced several industry-themed cultural tourism routes, effectively transforming the industrial "rust belt" into a vibrant "showcase belt" of cultural tourism.

A city's cultural development requires long-term operation and accumulation. A good city brand is a valuable intangible asset as it can enhance the influence and appeal of a city itself and empower economic transformation and upgrading.

		Resident income	Museums	Cinemas	Library collections	Consumption vitality	Score
1	Shanghai	55	56	57	56	57	281
2	Beijing	54	57	53	57	56	277
3	Hangzhou	52	51	51	54	51	259
4	Guangzhou	51	43	52	53	53	252
5	Shenzhen	45	44	56	55	51	251
5	Nanjing	49	50	44	52	56	251
7	Suzhou	53	39	50	52	54	248
8	Wuhan	32	52	49	45	48	226
9	Chongqing	12	54	55	35	48	204
10	Wuxi	47	45	42	35	32	201
11	Wenzhou	46	42	35	47	30	200
12	Qingdao	36	53	35	22	49	195
13	Ningbo	50	17	39	42	42	190
14	Chengdu	27	33	55	27	42	184
15	Tianjin	23	49	40	50	19	181
16	Changsha	37	13	48	38	44	180
17	Shaoxing	48	47	15	36	30	176
18	Hong Kong	57	20	23	49	26	175
18	Nantong	34	32	41	28	40	175
20	Dongguan	38	21	46	32	36	173
21	Jiaxing	44	34	18	47	22	165
22	Fuzhou	28	25	20	43	48	164
22	Shenyang	20	23	37	48	36	164
24	Quanzhou	31	19	25	35	52	162
25	Hefei	30	36	37	13	45	161
26	Foshan	39	29	47	17	24	156
27	Xi'an	17	55	43	13	27	155
27	Zhengzhou	16	41	46	15	37	155
29	Macao	56	32	1	30	28	147
30	Changzhou	41	30	21	10	39	141
31	Kunming	25	35	33	21	25	139
32	Jinan	33	10	23	27	44	137
33	Xiamen	42	8	13	42	31	136
33	Dalian	21	47	16	44	8	136
35	Taizhou	43	41	29	1	21	135
36	Yantai	29	39	10	16	36	130
37	Nanchang	22	26	31	5	36	120
38	Changchun	5	25	30	39	4	103
39	Harbin	8	48	27	9	9	101
40	Xuzhou	3	19	29	7	39	97
41	Taiyuan	7	23	12	42	12	96
41	Lanzhou	10	29	8	32	17	96
43	Yangzhou	24	17	18	24	10	93
44	Shijiazhuang	9	29	38	4	12	92
45	Yancheng	13	11	26	15	23	88
46	Tangshan	18	17	9	29	14	87
47	Zhongshan	35	2	14	18	15	84
48	Nanning	4	3	24	37	14	82
49	Zhuhai	40	6	6	11	18	81
50	Guiyang	14	10	11	21	20	76
50	Baoding	2	37	32	3	2	76
52	Hohhot	26	4	4	25	6	65
52	Huizhou	19	8	19	2	17	65
54	Jiangmen	11	13	6	24	6	60
55	Haikou	6	6	4	19	8	43
56	Urumqi	15	1	7	6	2	31
57	Zhaoqing	1	14	2	8	3	28

Interview

Harnessing the power of the cultural tourism industry to unleash urban potential

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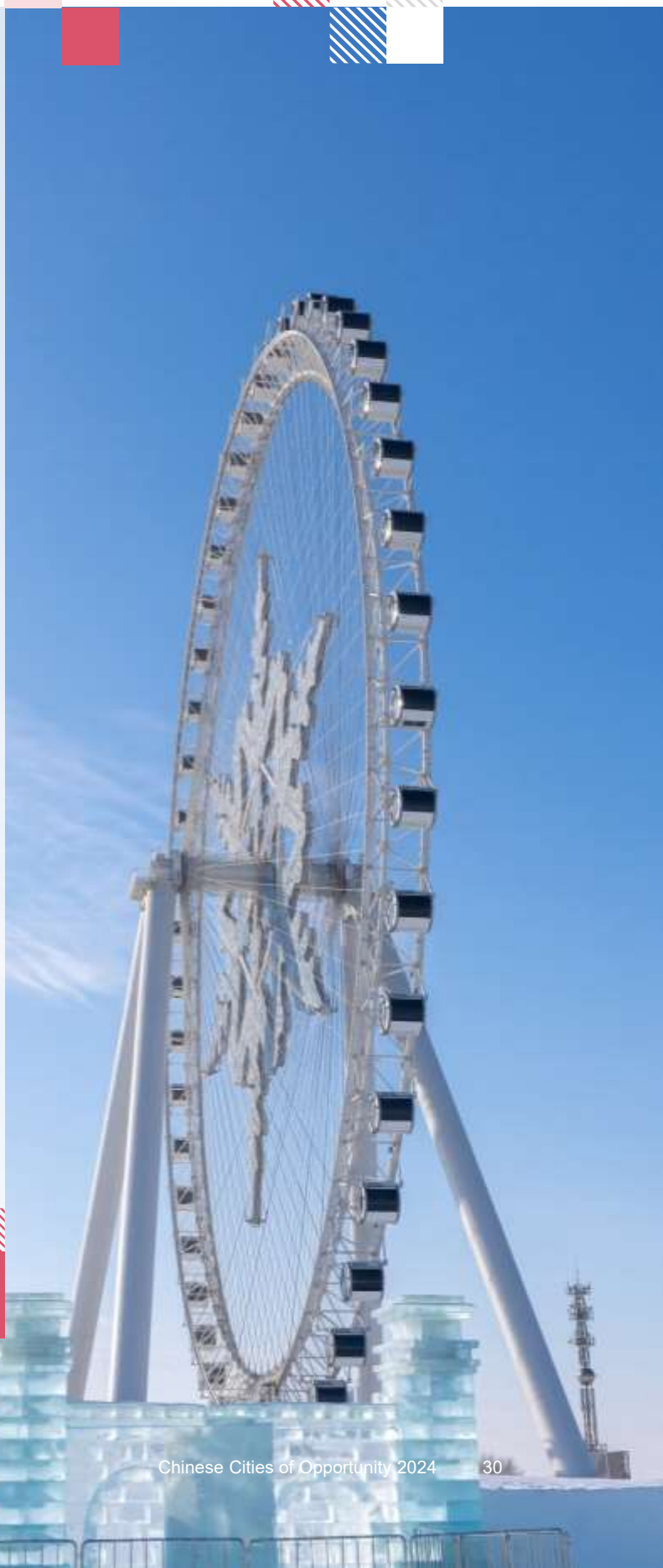
This winter, Harbin has become the go-to spot for tourists, especially favoured by online influencers, for its stunning ice and snow attractions. This surge in popularity, seemingly unexpected but inevitable, hints at exciting opportunities for urban development. Harbin's recent buzz is a mix of its vibrant energy, a stroke of luck, and its impressive transformation fueled by its longstanding reputation. Over the Spring Festival break, Harbin welcomed a record-breaking 10.09 million visitors, raking in an impressive RMB16.42 billion in tourism revenue.

This is a successful practice of the concept that "Ice and snow are also mountains of gold and silver". On March 7, 2016, President Xi Jinping proposed a concept to Heilongjiang Province: "Snow and ice, comparable to green mountains and clear water, are also valuable assets that represent true wealth." In recent years, Heilongjiang Province and its capital city Harbin have been committed to putting this idea into action, working hard to turn innovative concepts into real results. Despite the challenges of icy winters, which are typically seen as drawbacks for cities in high-latitude regions, Harbin has fully embraced its ice and snow resources, turning them into valuable assets with cultural significance. The city's journey began with the introduction of the Ice Lantern Fair in 1963. Today, its International Ice and Snow Festival stands as one of the world's top four festivals of its kind, while its Ice and Snow World holds the Guinness World Record for being the largest ice and snow-themed park. By casting culture into the soul of the city, improving tourism through cultural traits and innovation, Harbin has transformed its "cold" resources into a thriving economy. With the ice and snow economy emerging as a key driver of growth, the city is focused on fostering the comprehensive development of its ice and snow industry, spanning sports, culture, equipment, and tourism.

Promotion by the new media is closely matched with the joint actions taken by tourists and local residents. The new media took the lead in promoting Harbin as an ideal destination for ice and snow tourism, which sparked the strong interest of tourists from other parts of the country, and local residents responded actively to receive the tourists. The word-of-mouth acclaim quickly enhanced the reputation and popularity of the city. Harbin has naturally become a hot destination for enjoying ice and snow in winter, attracting a large number of tourists from South China who swarmed into the city in groups. As hosts, the people of Harbin were eager to rejuvenate their city and stimulate its economy. They warmly welcomed numerous visitors from all over the country, treating them with the same care and hospitality as they would toward their own family. The residents demonstrated genuine sincerity, enthusiasm, courage, and generosity, redefining the essence of urban spirit in the new era. Harbin's approach serves as a model for exploring ways to blend culture and tourism with distinctive local characteristics for development.

Harbin is endowed with the perfect unity of time, geography, and people. As a renowned “Ice City & Summer Capital”, Harbin has four distinct seasons, snow-covered in winter, and cool and pleasant in summer. Given its superior geographical location, the city is the centre of China’s cooperation with Russia and has a strong European flavour, known as the “Oriental Moscow” and “Little Oriental Paris”. This winter, the surge in popularity of “Erbin” (a nickname for Harbin) can be attributed not only to its unique ice and snow attractions and culturally rich tourism offerings, but also to its high-quality public services, pleasant consumption environment, and the warmth of its urban culture. Government agencies in Heilongjiang Province and Harbin took proactive measures by launching the “100-day initiative” for winter ice and snow tourism, demonstrating responsiveness to public feedback, and addressing concerns about ticket refunds for the Ice and Snow World incident in a positive manner, which garnered widespread praise. Harbin’s genuine and straightforward local customs, along with its warm and imaginative approach to welcoming tourists, not only boosted the city’s popularity but also enhanced tourism throughout Northeast China. A city can only become lively and influential, transforming online interest into actual tourists and turning transient internet fame into year-round popularity, if it fosters a stable and inclusive environment where government functions well and people live in harmony.



Economic clout

8

The "economic clout" dimension measures a city's major economic indicators through variables such as "well-known enterprises", "foreign investment", "deposits and loans of financial institutions", "regional GDP" and "regional GDP per capita". The current international economic situation is complex and changeable, and the recovery of China's economy requires the joint support of all cities. By observing the economic development of cities at this stage, we can review their overall economic strength and influence, and forecast their future potentials.

Beijing, Shanghai, and Hong Kong, the three major political, economic, and financial centres, lead in the respective variables. They also occupy the top three positions in the overall ranking of this dimension. Hong Kong maintains its lead in two variables: "foreign investment" and "regional GDP per capita". Beijing and Shanghai claim the first and second positions, respectively, in the "well-known enterprises", "deposits and loans of financial institutions" and "regional GDP" variables. Over 20 cities boast a "regional GDP" exceeding RMB1 trillion. Several cities exhibit robust growth momentum, including Foshan, Quanzhou, Nantong, Dongguan, Changzhou, and Yantai, reflecting the multi-tiered development momentum and support of Chinese cities. Moreover, several cities in the Yangtze River Delta, such as Wuxi, Suzhou, Changzhou, Ningbo, and Yangzhou, rank at the top in terms of "regional GDP per capita". The city cluster in the region maintains a balanced and leading position in overall economic development.

The "well-known enterprises" variable examines a city's appeal to investors and economic influence by assessing the number of China's top 500 enterprises headquartered in the cities respectively in 2023. Chongqing, Xiamen, Hefei, Xi'an, and Urumqi perform better in this variable than in the overall dimension. Cities in Central and West China are making great efforts to cultivate and introduce leading enterprises and give full play to their advantages and influence as central cities along the "Belt and Road".

Foreign investment plays a pivotal role in fostering the mutual prosperity and development of both China's economy and the global economy. Since the implementation of the Foreign Investment Law, the scope of industries encouraging foreign investment has progressively expanded, with Chinese cities continuously enhancing their foreign investment environment. Hong Kong and Macao, renowned financial centres with a strong internationalisation foundation, maintain their leadership in this aspect. Beijing and Shanghai further solidify their positions as centres of international exchange and economic hubs. Additionally, cities like Haikou, Shenyang, Jiaxing, Zhuhai, Yantai, Changzhou, and Huizhou demonstrate outstanding performance in the actual utilisation of foreign capital. The number of cities with the potential to attract foreign investment continues to rise. In recent years, attracting foreign investment has been characterised by an optimised structure and broader coverage of cities. It is crucial for cities to seize opportunities, heed the requests of foreign-invested enterprises, and consistently enhance their business environment. By doing so, they can bolster their overall attractiveness to foreign investment and strengthen their economic capabilities. This fosters the formation of " a virtuous cycle of development".

		Well-known enterprises	Foreign investment	Deposits and loans of financial institutions	Regional GDP	Regional GDP per capita	Score
1	Beijing	57	51	57	56	54	275
1	Shanghai	56	54	57	57	51	275
1	Hong Kong	54	57	55	52	57	275
4	Shenzhen	55	47	54	55	52	263
5	Hangzhou	53	50	52	48	44	247
6	Guangzhou	52	42	53	53	45	245
6	Suzhou	49	44	48	51	53	245
8	Nanjing	51	41	49	47	50	238
9	Ningbo	50	34	45	45	47	221
10	Qingdao	40	49	41	44	40	214
11	Wuxi	40	36	39	43	55	213
12	Tianjin	40	48	47	46	30	211
13	Wuhan	45	27	47	49	39	207
14	Chengdu	47	24	51	50	22	194
14	Jinan	45	38	41	37	33	194
16	Changsha	36	33	42	42	35	188
17	Chongqing	49	14	50	54	18	185
18	Xiamen	47	39	25	26	43	180
19	Hefei	45	20	39	36	32	172
20	Fuzhou	36	18	37	39	41	171
21	Changzhou	22	43	21	32	49	167
22	Foshan	40	17	35	40	34	166
23	Zhengzhou	36	19	45	41	23	164
24	Nantong	22	37	28	34	42	163
25	Xi'an	45	21	45	35	15	161
26	Zhuhai	36	46	15	10	48	155
27	Jiaxing	31	52	20	17	31	151
28	Shenyang	22	53	36	25	13	149
29	Dongguan	31	22	33	33	26	145
29	Yantai	22	45	11	31	36	145
31	Dalian	22	35	24	28	28	137
32	Macao	1	56	14	1	56	128
32	Shaoxing	22	25	20	23	38	128
34	Yangzhou	22	32	6	21	46	127
35	Quanzhou	22	16	12	38	37	125
36	Wenzhou	31	15	32	27	12	117
37	Kunming	31	13	34	24	14	116
37	Taiyuan	36	10	31	15	24	116
39	Nanchang	22	11	29	22	27	111
40	Xuzhou	22	29	10	29	20	110
41	Tangshan	31	5	14	30	29	109
42	Huizhou	31	40	7	13	16	107
43	Urumqi	45	2	16	9	21	93
44	Shijiazhuang	31	7	30	20	4	92
45	Nanning	22	28	24	12	3	89
46	Hohhot	31	23	8	4	19	85
47	Yancheng	1	30	9	19	25	84
48	Changchun	22	8	26	18	7	81
49	Zhongshan	22	31	4	6	11	74
50	Haikou	1	55	3	2	6	67
51	Jiangmen	22	26	2	7	9	66
52	Harbin	22	4	22	14	2	64
53	Guiyang	1	9	28	11	10	59
54	Taizhou	1	6	18	16	17	58
55	Baoding	31	3	5	8	1	48
56	Lanzhou	1	1	17	5	8	32
57	Zhaoqing	1	12	1	3	5	22

Cost

9

The “cost” dimension analyses a city’s appeal to talents from the perspective of everyday living costs, and measures its friendliness to investors from business-related costs, through five variables: "consumer price index", "cost of public transport", "cost of housing rental", "cost of business occupancy" and "average salary”.

This dimension employs an ascending ranking method, with cities boasting lower costs being positioned higher. Most cities in North China enjoy significant cost advantages owing to ample land resources and labour capital. Tangshan, Baoding, Shijiazhuang, Hohhot, and Yantai lead the rankings, followed by Quanzhou, Taiyuan, Lanzhou, and Guiyang. Urumqi and Changchun are tied for the tenth position. However, cities in the GBA and the Yangtze River Delta generally trail behind due to high population density and increased demand resulting from advanced economic development, coupled with persistent high costs such as commodity and housing prices.

The key to solving this problem is to accelerate the establishment of a coordinated development pattern of large, medium-sized, and small cities based on city clusters and metropolitan areas. Compared with the excessively concentrated resources and saturated room for development in megacities, small and medium-sized cities and counties within city clusters and metropolitan areas have good locational advantages and industrial foundations, and their economic vitality is yet to be released at a faster pace. They can be developed into satellite cities with complementary functions and industries to support neighbouring big cities.

In recent years, the GBA city cluster has intensified efforts to overcome resource mismatches and homogeneous competition. Leveraging the comparative advantages of various regions, they have optimised the functional division of labour to foster regional coordinated development. Zhongshan, Jiangmen, and Zhaoqing lead in three variables: "cost of housing rental", "cost of business occupancy", and "average salary", boasting advantages in housing and labour costs. Conversely, Macao, Dongguan, Huizhou, Shenzhen, and Guangzhou rank lowest in the "consumer price index" variable. These cities have experienced significant price hikes, while consumption demand and vitality continue to show sustained growth.

The "cost of public transport" variable assesses the affordability of transportation services by considering the standard fares of for-hire taxis and the average radius of mobility in each city. It measures the cost of public transport by calculating the average unit price per kilometre of taxi rides. As major cities in city clusters and metropolitan areas expand their radiation capacity, urban space enlarges, resulting in increased public transport costs. Urumqi, Hohhot, Lanzhou, Taiyuan, Xi’an, Jinan, and Shenyang perform well in this variable, outperforming the overall dimension. With the accelerated construction of urban renewal projects, cities are reorganising and reallocating urban space resources. In the future, as urban spatial pathways are further reshaped, it is anticipated to lead to a potential decrease in residents’ transportation costs.

The results of observation in the "cost" dimension may not be completely consistent with the economic growth rates of cities. For instance, emerging cities such as Yantai and Quanzhou still maintain relatively stable market prices and reasonable costs while achieving rapid economic growth. They are embracing broad prospects for investment. Overall, the potential development opportunities of cities are always diversified and personalised for investors and job seekers with different needs.

		Consumer price index	Cost of public transport	Cost of housing rental	Cost of business occupancy	Average salary	Score
1	Tangshan	34	52	57	57	55	255
2	Baoding	30	53	55	56	57	251
3	Shijiazhuang	46	50	47	35	47	225
4	Hohhot	41	56	52	45	30	224
5	Yantai	28	41	53	56	42	220
6	Quanzhou	51	30	32	44	56	213
7	Taiyuan	33	54	54	29	40	210
8	Lanzhou	56	55	27	22	49	209
9	Guiyang	49	45	45	26	39	204
10	Urumqi	57	57	42	23	22	201
10	Changchun	50	28	36	39	48	201
12	Zhaoqing	23	20	48	53	52	196
13	Zhengzhou	37	34	38	32	53	194
14	Kunming	53	40	33	42	23	191
15	Harbin	52	23	34	30	51	190
16	Yancheng	9	35	46	54	41	185
17	Xuzhou	6	26	56	49	44	181
18	Zhongshan	36	7	51	38	46	178
18	Jiangmen	27	11	43	47	50	178
20	Chongqing	48	47	29	25	28	177
21	Nantong	5	36	49	49	35	174
22	Shenyang	24	48	40	28	33	173
23	Yangzhou	12	29	44	47	38	170
24	Nanchang	29	32	37	34	36	168
25	Haikou	54	42	20	9	37	162
26	Nanning	17	46	39	24	34	160
27	Shaoxing	26	18	30	52	32	158
28	Huizhou	4	16	50	42	43	155
28	Jiaxing	15	9	35	51	45	155
30	Changsha	44	39	21	19	20	143
31	Foshan	22	17	31	40	31	141
32	Changzhou	20	14	41	51	13	139
32	Taizhou	35	6	26	43	29	139
34	Xi'an	25	51	23	14	19	132
34	Dongguan	2	21	22	33	54	132
36	Jinan	19	49	28	18	16	130
36	Dalian	21	44	17	21	27	130
38	Fuzhou	47	27	14	15	26	129
39	Wenzhou	40	4	18	37	25	124
40	Chengdu	42	37	11	11	21	122
41	Hefei	14	33	19	31	24	121
42	Wuxi	13	31	25	36	14	119
43	Zhuhai	55	15	15	13	18	116
44	Wuhan	31	43	10	16	15	115
45	Tianjin	38	19	13	20	11	101
46	Xiamen	32	25	9	17	17	100
47	Qingdao	16	24	24	12	10	86
48	Suzhou	3	38	12	10	12	75
49	Ningbo	10	12	16	27	9	74
50	Beijing	45	10	3	3	2	63
51	Shanghai	43	5	4	4	1	57
52	Nanjing	8	22	8	7	6	51
53	Hong Kong	39	2	1	1	3	46
54	Guangzhou	11	13	7	6	7	44
55	Hangzhou	18	3	6	8	5	40
56	Shenzhen	7	8	5	5	4	29
57	Macao	1	1	2	2	8	14

Interview

Constructing cities of opportunity with long-termism business environment

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In a stable business environment featuring long-termism, the institutional conditions, the legal environment, the regulatory framework and the policy measures that affect how businesses operate remain consistent and predictable, unlike in a short-termism settings where conditions can be more volatile and changeable.

A long-termism business environment isn't static, as gradual adjustments are necessary to keep pace with technological advancements and innovation. However, such adaptations should be made incrementally in the direction of cultivating a business-friendly atmosphere that embraces inclusiveness, prudence, and fosters entrepreneurship and innovation, rather than the opposite. Building a long-termism business environment is of great significance in creating cities of opportunity. Without the presence of such a conducive environment for sustained growth, market players would resort to short-term strategies aimed at quick profits, and the competitive landscape should be in disorder. This lack of stability would dampen market players' willingness to undertake long-term entrepreneurial ventures and innovative pursuits, which demand sustained efforts to yield desired outcomes, thereby diminishing their drive for innovation. Moreover, such markets would in no way attract external investments in a sustained manner. Without the establishment of a stable long-termism business environment, the momentum for high-quality development, and indeed development itself, would falter, impeding the realisation of cities as hubs of opportunity. Hence, it is important to foster a stable long-termism business environment through the following approaches.

Firstly, we need to ensure governance abides by the rule of law to instill confidence among market players and provide them with a sense of security.

Secondly, policies should be refined to target specific issues, avoiding the negative consequences of overlapping regulations. Abrupt policy shifts should be avoided to prevent undermining the trust of market players in the business environment.

Thirdly, improving communication between the government and market participants is crucial. It's vital to engage in pre-communication with stakeholders during policy formulation and to thoroughly and transparently explain the purpose and implications of new policies to society once implemented.

Fourthly, we need to leverage the lessons learnt from successful experiences elsewhere, after all the best practices in building business environment could not be kept to oneself. Building a sustainable business environment requires ongoing learning from the best.

Lastly, we should establish a comprehensive measurement system is essential. In addition to conventional metrics, we should evaluate factors that contribute to the ease of doing business, such as the environment's support for business activities, its impact on investment and entrepreneurship, its promotion of innovation, and its overall contribution to enterprise performance, as well as people's income and quality of life. Moreover, we need to assess the current state and stability of the environment: whether it is improving steadily, fluctuating dramatically, or deteriorating. We should strive for continual improvement rather than decline.

Ease of doing business

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The "ease of doing business" dimension evaluates the environment for business operations in a city. It gauges factors such as the development of startup companies, the volume of domestic and foreign trade, and the effectiveness of city administrators in establishing and managing the urban environment. This assessment is based on five variables: "entrepreneurial vigour", "foreign trade", "logistics", "fiscal balance", and "business environment". It provides insights into the overall business climate in a city, showcasing its economic vitality, growth prospects, and attractiveness to investors.

In this dimension, Shanghai, Hong Kong, Guangzhou, and Quanzhou lead in their respective variables. Shenzhen, Suzhou, Hangzhou, Beijing, Ningbo, Dongguan, Nanjing, and Xiamen are among the top ten cities with well-rounded performances. Several cities in the Yangtze River Delta, such as Jiaxing, Shaoxing, Wenzhou, and Taizhou, newly included in the assessment, along with Foshan and Zhongshan in the GBA, have performed well in this dimension. This success is largely attributed to the region's overall strong economic development, robust investment attractiveness, and a standardised and orderly business environment.

"Entrepreneurial vigour" primarily assesses the presence of non-state-owned listed companies and unicorn enterprises within cities. Over the years, Chinese cities have fostered a culture of innovation and entrepreneurship andofferedsupportive environments and actively incubating innovative enterprises. As a result, many cities have witnessed the emergence of vibrant entrepreneurial ecosystems. In this evaluation, Changzhou and Chongqing demonstrate stronger performance in this aspect compared to their overall standings. "Foreign trade" stands as a crucial facet of China's openness, fostering mutual benefits and progress. Hong Kong, Ningbo, Dongguan, Xiamen, and Shenzhen maintain stable and excellent performance in this variable, and cities around the Bohai Sea such as Qingdao and Dalian also score high in this variable. The overall steady performance of foreign trade is pivotal to stabilising economic growth. “Logistics” indirectly reflects the level of basic support for commercial activities in domestic trade. Quanzhou, Wenzhou, Taizhou, Jiaxing, Shijiazhuang, and Baoding in different regions perform better in this variable than in the overall dimension. This reflects their important roles as regional central cities in terms of logistics, as well as their differentiated competitiveness during development.

After years of continuous efforts, Chinese cities have comprehensively optimised and enhanced their overall business environment, government services, and the scope of e-government services. The introduction of streamlined and standardised government service procedures, along with convenient online processing, has provided both enterprises and residents with tangible benefits. In general, in terms of business environment, larger cities outperform small and medium-sized ones, southern cities outperform northern ones, and eastern cities outperform central and western ones. However, these gaps are gradually narrowing as both central and local governments implement various demonstration initiatives. Moving forward, continuous refinement of the business environment will become increasingly crucial as Chinese cities further open up and engage in international cooperation. The soft aspects of the business environment play a pivotal role in attracting foreign investment and invigorating the private economy, and city administrators should pay sustained attention to this aspect.

		Entrepreneurial vigour	Foreign trade	Logistics	Fiscal balance	Business environment	Score
1	Shenzhen	55	53	56	47	55	266
2	Suzhou	52	52	52	54	52	262
3	Shanghai	57	51	46	48	55	257
4	Hangzhou	54	34	55	55	49	247
5	Beijing	56	50	40	41	53	240
6	Ningbo	44	56	45	44	43	232
7	Dongguan	42	55	54	53	27	231
8	Hong Kong	37	57	27	43	57	221
9	Guangzhou	53	31	57	24	51	216
10	Nanjing	51	30	32	52	50	215
10	Xiamen	44	54	30	49	38	215
12	Wuxi	41	39	34	51	48	213
13	Qingdao	48	45	29	39	43	204
14	Chengdu	50	33	35	37	46	201
15	Tianjin	45	41	33	30	45	194
16	Wuhan	47	16	48	31	48	190
16	Zhengzhou	33	36	43	45	33	190
18	Foshan	26	42	49	46	24	187
19	Quanzhou	30	18	53	57	20	178
20	Hefei	40	26	43	27	39	175
20	Macao	13	49	1	56	56	175
22	Changsha	32	19	40	42	41	174
22	Changzhou	49	28	20	40	37	174
24	Jiaxing	31	46	48	38	9	172
25	Jinan	40	14	27	50	37	168
26	Xi'an	40	32	24	14	41	151
27	Fuzhou	35	25	22	36	32	150
28	Zhongshan	23	48	40	33	5	149
29	Shaoxing	28	40	40	28	12	148
30	Zhuhai	35	47	14	20	31	147
31	Wenzhou	36	29	51	12	14	142
32	Chongqing	46	22	23	5	45	141
33	Nantong	27	27	36	15	34	139
34	Yantai	21	38	12	34	30	135
35	Taizhou	25	35	50	13	8	131
36	Shijiazhuang	18	12	44	18	28	120
36	Huizhou	17	44	25	26	8	120
38	Nanchang	23	15	31	10	29	108
39	Dalian	10	43	10	29	15	107
40	Shenyang	7	13	29	32	22	103
41	Kunming	10	21	21	22	25	99
42	Xuzhou	25	8	18	11	35	97
43	Taiyuan	13	20	15	23	18	89
44	Changchun	30	10	13	9	23	85
45	Nanning	16	24	17	8	19	84
46	Urumqi	20	6	6	35	11	78
46	Baoding	13	4	43	2	16	78
48	Guiyang	16	5	8	17	27	73
49	Haikou	4	23	7	25	13	72
50	Jiangmen	7	37	2	21	3	70
51	Tangshan	7	11	4	19	17	58
52	Yangzhou	20	9	19	7	2	57
53	Harbin	10	3	17	1	22	53
54	Hohhot	16	2	6	16	11	51
55	Yancheng	4	17	9	4	1	35
56	Zhaoqing	4	7	11	3	4	29
57	Lanzhou	4	1	3	6	8	22

Variables

1.Intellectual capital

Enterprise expenditure on R&D

This variable uses the internal expenditure on R&D of industrial enterprises above the designated size in each city in 2022 to measure the investment level in R&D of the society. The data sources are the statistical yearbooks and science and technology bureaus of respective cities, the Census and Statistics Department of Hong Kong SAR and the Statistics and Census Service (DSEC) of Macao SAR.

Scale of higher education

This variable measures a city's future human capital reserves by considering the number of undergraduate and postgraduate students enrolled in the institutions of higher education in each city in 2022. The data sources are the statistical yearbooks and bulletins of each respective city, the Census and Statistics Department of Hong Kong SAR and the Statistics and Census Service of Macao SAR.

Key laboratories

This variable uses the number of state key laboratories operated by enterprises and national key laboratories approved for restructuring in 2023 in each city to measure the infrastructure conditions and development level of the city in terms of science and technology innovation. Data are sourced from the Ministry of Science and Technology. Data for Hong Kong and Macao are obtained from public information.

Expenditure on science and technology

This variable measures the level of government investment in scientific and technological research and development in each city. It is calculated by dividing the city's 2022 fiscal expenditure on science and technology from the general public budget expenditure by the year-end permanent resident population. Data sources include the statistical bureaus and the financial bureaus of respective cities, the Census and Statistics Department of Hong Kong SAR and the Statistics and Census Service of Macao SAR.

Educational level

The educational level of the population is measured by calculating the proportion of the population with a junior college degree or above to the permanent resident population and the proportion of illiterate people to the permanent resident population in each city based on the Seventh National Population Census. This variable comprehensively analyses the overall educational level of the population in each city. Data sources are the Seventh National Population Census, the census results disclosed by the Census and Statistics Department of Hong Kong SAR, and the Statistics and Census Service of Macao SAR, respectively.

2. Technology and innovation

Granted patents

This variable assesses the level of innovation and development of each city by measuring the number of granted patents per 10,000 people in each city. It is calculated by dividing the number of granted patents in 2022 by the year-end permanent resident population. The data sources are the statistical yearbooks and bulletins of respective cities, the Census and Statistics Department of Hong Kong SAR and the Statistics and Census Service of Macao SAR.

High-tech enterprises

This variable measures each city's technological and industrial innovation capacity by considering the number of high-tech enterprises in each city as of year-end 2022. Data are sourced from the statistical bulletins, government work reports and public data released by science and technology departments of each city, and public information released at the provincial, municipal, and regional levels.

New energy development

This variable measures the development level of new-energy industries in each city, such as new-energy vehicles, photovoltaic, and hydrogen energy. It includes two sub-indicators: the ownership of new-energy vehicles per 1,000 people and the index ranking of the "Hurun China New Energy Cities 2023" released by the Hurun Research Institute. Data for cities in the Chinese mainland are sourced from the 2023 year-end figures from the Ministry of Public Security and the Dasouche cloud platform. Data for Hong Kong are sourced from the Hong Kong Transport Department, and data for Macao are sourced from the Macao Statistics and Census Service and calculated with reference to the evaluation system used for cities in the Chinese mainland.

Mobile Internet

This variable uses two sub-indicators to measure the application of Mobile Internet and the development of the digital economy in cities: the proportion of mobile phone users as a percentage of the permanent population as of 2022 year-end, and the Top 100 digital economy city rankings in the "2023 Research Report on China's Urban Digital Economy Development" released by China Centre for Information Industry Development (CCID) Consulting. Data of mobile users are sourced from local statistical yearbooks and bulletins of the respective cities.

Digital cities

This variable uses two sub-indicators to comprehensively measure each city's development level in terms of digitisation: rankings of cities on the digital development index sourced from the "City Digital Development Index (2023) – Cities" released by the H3C Digital China Research Institute, and the top 100 digital city rankings in the "2023 China Digital City Competitiveness Research Report" released by CCID Consulting. 3. Major regional cities.

3. Major regional cities

Star-graded hotels

This variable uses the number of star-graded hotels in each city to measure the local supply and demand and development levels of star-graded hotels. Data sources include the statistical bulletin on star-graded hotels in China released by the Ministry of Culture and Tourism in 2022, the statistical yearbooks and bulletins of respective cities, the Census and Statistics Department of Hong Kong SAR and the Statistics and Census Service of Macao SAR.

Airplane take-offs and landings

This variable reflects the demand for air passengers and cargo transportation in each city. It is based on the ranking of the number of flights landed and taken off at major airports of each city, including civil international and domestic flights, cargo flights and non-revenue flights (excluding military aircraft). Data are sourced from the “2022 National Civil Transport Airport Production Statistical Bulletin”. One point is given to cities that have yet to have an airport. Data for Hong Kong are from the Civil Aviation Department of Hong Kong SAR, and data for Macao are from the statistics released by the Macao International Airport.

Passenger capacity

The passenger capacity of railroads, civil aviation, highways, and water transport reflects the scale and carrying capacity of passenger transport of each city in 2022 and indirectly reflects the city’s function as a regional hub. Data sources are provincial statistical yearbooks, statistical yearbooks and bulletins of the respective cities, the Census and Statistics Department of Hong Kong SAR and the Statistics and Bureau Census Service of Macao SAR.

Freight volume

Freight volume includes the total volume of freight transported by railways, civil aviation, highways, and waterways to show the scale of freight operations and carrying capacity in each city in 2022, which indirectly reflects each city’s function as a regional hub. Data sources include provincial statistical yearbooks, statistical yearbooks and bulletins of the respective cities, the Census and Statistics Department of Hong Kong SAR and the Statistics and Census Service of Macao SAR.

Exhibition economy

This variable refers to the exhibition economy development index, which is based on the composite index of urban exhibition development in the “2022 China Exhibition Data Statistical Report”, released by the China Convention Exhibition Event Society. It aims to evaluate the development of the exhibition industry in each city. The rankings of Hong Kong and Macao are based on calculations of several indicators, such as the number of exhibitions, exhibition space, and the number of exhibition halls. Data are collected from Hong Kong's MICE industry profile released by the Hong Kong Trade Development Council, the Hong Kong Exhibition & Convention Industry Association, and the statistical yearbooks released by Macao SAR.

4. Urban resilience

Medical resources

This variable uses the total number of practising physicians, the total number of hospital beds, the number of practising physicians in medical institutions per 10,000 residents, the number of hospital beds per 10,000 residents in 2022, and the total number of "Grade III, Level A" (i.e., top-level) hospitals in each city as sub-indicators as of the year-end of 2023 to comprehensively measures the overall physician resources and level of medical facilities in each city. The data sources are the statistical yearbooks and bulletins of each city, the Census and Statistics Department of Hong Kong SAR and the Statistics and Census Service of Macao SAR.

Healthcare

This variable measures per-capita healthcare expenditure in each city, by dividing the 2022 final healthcare expenditure by the year-end permanent resident population of each city. The data sources are the statistical yearbooks and the financial bureaus of the respective cities, the Census and Statistics Department of Hong Kong SAR and the Statistics and Census Service of Macao SAR.

Public pension

This variable is defined as the proportion of the permanent resident population with basic endowment insurance, including the number of insured urban employees as well as the number of insured urban and rural residents. This variable is used to measure the development level of the basic endowment insurance as part of the public services provided in each city in 2022. The data sources are the statistical yearbooks and bulletins of each city; those of Hong Kong and Macao are collected from publicly available information.

Public safety

This variable is used to measure per-capita public safety expenditure in each city, by dividing the 2022 fiscal expenditure on public safety by the year-end permanent resident population of each city. The data sources are the statistical yearbooks and the financial bureaus of the respective cities, the Census and Statistics Department of Hong Kong SAR and the Statistics and Census Service of Macao SAR.

Social security

This variable measures financial investment in social welfare, economic security, and the prevention and control of production safety in each city. It includes two sub-indicators: the 2022 per-capita fiscal expenditure on social security and the death toll from work accidents per 100-million-yuan worth of GDP. The data sources are the statistical yearbooks and bulletins, emergency management authorities and finance bureaus in each city, the Census and Statistics Department of Hong Kong SAR and the Statistics and Census Service of Macao SAR.

5. Transportation and urban planning

Road traffic

This variable measures the demand and supply capacity of road traffic in each city, by examining two sub-indicators: vehicle ownership and road network density in built-up areas. Data for cities in the Chinese mainland are sourced from the “2022 China Urban Construction Statistical Yearbook”, the Ministry of Public Security, and the Dasouche cloud platform (2023 year-end). Data for Hong Kong are sourced from the Hong Kong Transport Department, and data for Macao are sourced from the Macao Transport Bureau.

Bus transport

This variable uses the 2022 passenger volume of bus transport (or tram) per capita to measure public transport travel in each city. The data sources are the Ministry of Transport and the statistical yearbooks of respective cities, the Census and Statistics Department of Hong Kong SAR and the Transport Bureau of Macao SAR.

Rail transit

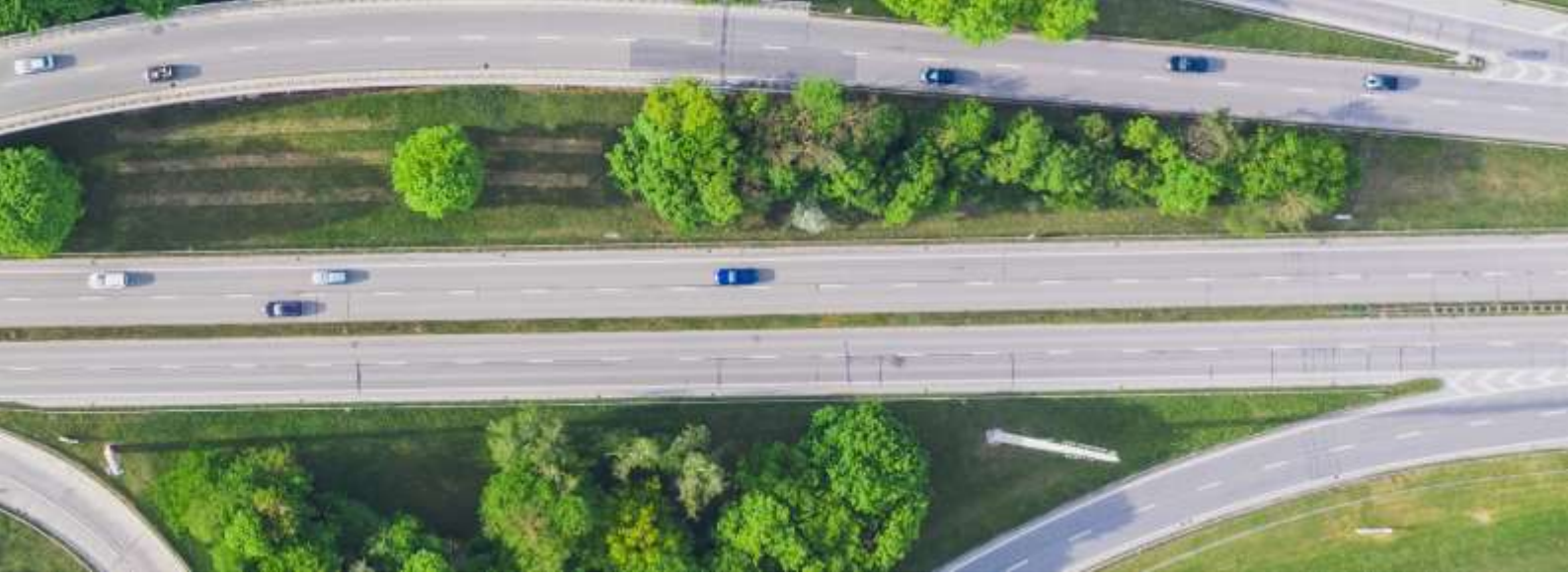
This variable is calculated by dividing the mileage of rail transit lines by the area of built-up land as a measure of rail transit development in every city. The data sources are the “China Urban Construction Statistical Yearbook 2022”, MTR's annual report and the Planning Department of Hong Kong SAR, the Cartography and Cadastre Bureau of Macao SAR.

Traffic efficiency

This variable is based on the list of the most congested cities nationwide in the “2023 (Q3) China Urban Transportation Report” published by Baidu Maps and the city traffic ranking in the 2023 China Major Cities Traffic Analysis Report released by Gaode Map to measure the congestion and traffic flow efficiency in each city comprehensively. Data for Hong Kong and Macao are from sources with consistent standards.

Green space coverage

This variable uses the green space coverage rate in built-up areas from the “China Urban Construction Statistical Yearbook 2022” to measure the level of green development of the built-up areas in each city. Data of Hong Kong and Macao are collected from the Planning Department of Hong Kong SAR and the Environmental Protection Bureau of Macao SAR.



6. Sustainable development

Water resources

This variable is measured by the total volume of water resources of each city in 2022 to evaluate the overall water capacity of the city, which can also indirectly indicate its capability of sustainable development. The data sources are the bulletins from each city's water resources department, the Water Supplies Department of Hong Kong SAR and the Marine and Water Bureau of Macao SAR.

Urban environmental protection

This variable uses two sub-indicators, the sewage treatment rate, and the ratio of incinerated waste to safely disposed waste, thus measuring each city's operational efficiency for environmental protection. The data sources are the waste classification figures in the "2022 China Urban Construction Statistical Yearbook", the Census and Statistics Department and the Hong Kong Drainage Services Department of Hong Kong SAR, and the Statistics and Census Service and the Environmental Protection Bureau of Macao SAR.

Air quality

This variable includes two sub-indicators: air quality and air quality optimisation. Data regarding air quality is sourced from the "National Urban Air Quality Report" published monthly by the China National Environmental Monitoring Centre between September 2022 and August 2023. The air quality optimisation indicator reflects the improvement of air quality in each city by calculating the ranking changes in the comprehensive index. The calculation is done by subtracting each city's ranking of the comprehensive index between September 2022 and August 2023, September 2021 and August 2022. For Hong Kong and Macao, the rankings are manually calculated based on data collected from reports issued by the Guangdong-Hong Kong-Macao Pearl River Delta Regional Air Quality Monitoring Network.

Population mobility

The variable measures the inflows and outflows of the population based on two indicators: the ratio of the permanent resident population as of the year-end 2022 to the household registered population as of the year-end 2021 in each city, as well as the ratio of the registered population as of the year-end 2022 to that of the year-end 2021. The data sources are the statistical yearbooks and bulletins of each city, the Census and Statistics Department of Hong Kong SAR and the Statistics and Census Service of Macao SAR.

Green and low-carbon development

This variable is used to comprehensively measure the energy consumption and low-carbon transformation trends in each city. It includes two sub-indicators: the regional GDP divided by the total electricity consumed in 2022 and evaluations on the urban carbon peak and carbon neutrality index in the "Chinese City Carbon Peak and Carbon Neutrality Index Summary Report (2021-2022)", jointly released by the Chinese Research Academy of Environmental Sciences and Institute of Public and Environmental Affairs (IPE). The data sources are the statistical bureaus of respective cities, the Census and Statistics Department of Hong Kong SAR and the Statistics and Census Service of Macao SAR.

7. Culture and quality of life

Resident income

This variable uses the 2022 disposable income of urban residents to measure the level of income of residents in each city. The data sources are the statistical yearbooks and bulletins of respective cities, as well as the Census and Statistics Department of Hong Kong SAR and the Statistics and Census Service of Macao SAR.

Museums

This variable uses the total number of museums in each city as of 2022 year-end to measure the scale and service capabilities of each city's historical and cultural industries. The data sources are the statistical yearbooks and bulletins of respective cities,the Census and Statistics Department of Hong Kong SAR and the Statistics and Census Service of Macao SAR.

Cinemas

This variable measures the scale and activity of the development of the movie and television culture in each city by considering the total number of cinemas in each city by February 2024. Data are sourced from the number of cinemas published on Maoyan.com; data for Hong Kong and Macao are from publicly available statistics.

Library collections

This variable uses two sub-indicators, the total number of books in public library collections and the per capita number of books possessed in public libraries in 2022, to measure the level of public cultural resources in each city. The data sources are the provincial statistical yearbooks, statistical yearbooks and bulletins of the respective cities, the Census and Statistics Department of Hong Kong SAR and the Statistics and Census Service of Macao SAR.

Consumption vitality

This variable includes two sub-indicators, the total retail sales of consumer goods and the retail sales of consumer goods per capita in each city in 2022 to reflect the overall performance and potential of consumption in each city. The data sources are the statistical bulletins of respective cities, the Census and Statistics Department of Hong Kong SAR and the Statistics and Census Service of Macao SAR.

8. Economic clout

Well-known enterprises

This variable uses the number of registered headquarters of the top 500 companies in each city to measure its level of a city's headquarters economy and its economic clout. The data sources include 2023's "World Top 500 List" and "China Top 500", released by Fortune's Chinese website.

Foreign investment

The variable uses the ratio of foreign direct investment to regional GDP in 2022 to evaluate a city's attractiveness to foreign investors and the development level of its externally oriented economy. The data sources are the statistical yearbooks and bulletins of the respective cities, the Census and Statistics Department of Hong Kong SAR and the Statistics and Census Service of Macao SAR.

Deposits and loans of financial institutions

This variable measures the financial influence of each city by providing a comprehensive picture of the deposits and loans of the financial institutions. It includes two sub-indicators, deposit balance and loan balance, for domestic and foreign currencies as of the end of 2022. The data sources are the statistical yearbooks and bulletins published by the statistics bureaus of the respective cities, the Census and Statistics Department of Hong Kong SAR and the Statistics and Bureau Census Service of Macao SAR.

Regional GDP

This variable uses the local GDP of each city in 2022 to measure the overall scale of the city's economy. The data sources are the statistical yearbooks and bulletins of the respective cities, the Census and Statistics Department of Hong Kong SAR and the Statistics and Census Service of Macao SAR.

Regional GDP per capita

This variable is used to measure the level of economic development in each city, using the 2022 regional GDP per capita of the permanent resident population. The data sources are the statistical yearbooks and bulletins of the respective cities, the Census and Statistics Department of Hong Kong SAR and the Statistics and Census Service of Macao SAR.

9. Cost

Consumer price index

This variable uses the overall rate of change in the consumer price index from 2018 to 2022 to measure changes in overall prices and cost of living over a five-year period. The observed cities are ranked in increasing order. The data sources are the statistical yearbooks and bulletins published by the statistics bureaus of the respective cities, the Census and Statistics Department of Hong Kong SAR and the Statistics and Bureau Census Service of Macao SAR.

Cost of public transport

This variable uses the standard fares of for-hire taxis in each city as of February 2024, as well as the commuting radius, to calculate the average unit price per kilometre of a taxi ride to measure the cost of local mobility. The observed cities are ranked in increasing order. Data are sourced from the “2023 Commuting Monitoring Report of Major Cities in China”, jointly released by the development and reform commissions of the respective cities, Didi Chuxing big data, China Academy of Urban Planning & Design and Baidu Map; those of Hong Kong and Macao come from publicly available information and data with consistent standards.

Cost of housing rental

This variable uses the average urban residential rent per square metre in each city in 2023 to measure the cost of residential housing. The observed cities are ranked in increasing order. Data are sourced from the China Real Estate Association; those of Hong Kong and Macao come from publicly available information.

Cost of business occupancy

This variable measures the cost of commercial real estate by using the average urban rent per square metre of the office buildings in the downtown area of each city in 2023. The observed cities are ranked in increasing order. Data are sourced from the China Real Estate Association; those of Hong Kong and Macao come from publicly available information.

Average salary

This variable uses the level of the average wage of current employees in towns and cities in 2022 to measure the cost of employment in each city. The observed cities are ranked in increasing order. The data sources are the National Bureau of Statistics, the Census and Statistics Department of Hong Kong SAR and the Statistics and Census Service of Macao SAR.

10. Ease of doing business

Entrepreneurial vigour

This variable includes three sub-indicators: the increment of non-state-owned enterprises listed as A-shares on the Shanghai Stock Exchange (SSE) and the Shenzhen Stock Exchange (SZSE) between 2021 and 2023 of each city, the increment of non-state-owned enterprises listed on the US stock market or The Stock Exchange of Hong Kong (SEHK), and the number of unicorns as of February 2024. Company-listing data are sourced from the Wind database. The number of unicorns derives from the IT Juzi start-up database.

Foreign trade

The variable uses the ratio of each city's total value of imports and exports to regional GDP in 2022 to evaluate the scale and level of development of foreign trade activities, reflecting the ease of doing business. The data sources are the statistical yearbooks and bulletins of the respective cities, the Census and Statistics Department of Hong Kong SAR and the Statistics and Census Service of Macao SAR.

Logistics

This variable is used to provide comprehensive measurements for the scale and efficiency of logistics in each city. It includes two sub-indicators relating to express delivery in 2022: business volume and business volume per capita. The data sources are the China State Post Bureau and statistical bulletins of respective cities, the Hong Kong Census and Statistics Department and the annual report published by Macao Post.

Fiscal balance

The ratio of local general budget revenue to local general budget expenditure in 2022 is used to measure the fiscal balance. The data sources are the statistical bureaus and the financial bureaus, the Census and Statistics Department of Hong Kong SAR and the Statistics and Census Service of Macao SAR.

Business environment

This variable comprehensively measures the level of the urban business environment through two sub-indicators: scores received by small and medium enterprises (SMEs) in each city listed in the "SME Development Environment Assessment Report 2022" released by the China Centre for Promotion of SME Development under the Ministry of Industry and Information Technology, as well as well as index rankings of the urban business environment in "China's Business Environment Annual Report (2022)". Cities not listed in the ranking are assessed using equivalent comparable data.

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For further information

In recent years, PwC has continued to track the development opportunities and the process of urbanisation of Chinese cities. We have formed a scientifically rigorous and systematic methodology and gained abundant practical experience in areas of urban and regional development strategies, comprehensive evaluation, business environment optimisation, urban resilience enhancement and sustainable urban development. We hope to provide in-depth, forward-looking analysis with practical experience in the process of China's urban development to help improve the quality of development, governance capability and sustainability of Chinese cities.

Contact us to learn more about our research methodology or practical experience in the above areas.

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