



# Analysis of the Development of Beijing (2018)

*Edited by* Beijing Academy of Social Sciences



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PART I

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General Report



# China's Regional Economies in 2017 and Outlook for 2018

*Regional Economy Research Group, Beijing Academy of  
Social Sciences*

**Abstract** In 2017, with the implementation of its overall strategy for the development of its regional economies, China gradually achieved stronger coordination of such development. Five major trends have been observed with regional economic development. The Report to the 19th National

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Congress of the Communist Party of China has laid out the general plan for the development of China's regional economies. In the year 2018, four major development trends are expected in the development of China's regional economies. In this paper, we make some policy recommendations for the promotion of coordinated regional development.

**Keywords** Regional economy • Coordinated development • Environmental governance

In 2017, with the implementation of its overall strategy for the development of its regional economies, China gradually achieved stronger coordination of such development. Positive results have been seen in the areas of the Belt and Road Initiative, in efforts to ensure the coordinated development of the Beijing-Tianjin-Hebei region, and in the development of the Yangtze River Economic Belt; the Regional Innovation System is being improved over time, with the growth of regional economies becoming more reliant on innovation; the management of the environment by regional players has been strong, and governance in this respect continues to improve; efforts to alleviate poverty in various regions have taken on diverse forms, and decisive progress has been made in the fight against poverty; and change in multiple dimensions has occurred within the development of various regional economies. According to the Report delivered at the 19th National Congress of the Communist Party of China (CPC), at present China is still in an important period of development where strategic opportunities are present, and is also in a critical period in terms of its efforts to transform its developmental path, optimize its economic structure, and shift to other growth engines. After a long period of hard work, we have entered a new era with regard to socialism with Chinese characteristics. The main contradiction in our society has been transformed into the contradiction between the people's ever-growing needs for a better life and unbalanced and inadequate development.<sup>1</sup> Tackling unbalanced and inadequate development among regional economies is the main task in the new stage of regional economic development. The Report to the 19th CPC National Congress has laid out the general plan

<sup>1</sup> Xi Jinping, Secure a Decisive Victory in Building a Moderately Prosperous Society in All Respects and Strive for the Great Success of Socialism with Chinese Characteristics for a New Era. *People's Daily*, October 28, 2017.

for the development of China's regional economies, proposing the implementation of coordinated regional development strategy, innovation-driven development strategy, rural revitalization strategies and sustainable development strategy with adherence to the goal of poverty alleviation and the building of a moderately prosperous society by the year 2020. 2018 is a critical year in China's efforts to build a moderately prosperous society on all fronts. In 2018, change in multiple dimensions will continue to be seen among China's regional economies, with changes in terms of the economic growth rate and contribution to national production between the various parts of China, and multiple growth centers will lead to more coordinated development between various regions. The building and operation of high-speed railways have made urban agglomerations an important pillar of support for the development of regional economies, and policies to promote regional development will be further strengthened, with even more potential for regional growth released. For the further promotion of coordinated development between regional economies, it is necessary to closely follow the changes in the main contradictions in Chinese society and take the appropriate measures while promoting such coordination. Efforts should be made to: further optimize regional policies and to focus more on the guiding principles on spatial classifications; to develop Chinese urban agglomerations according to specific grading systems so that they may adapt to the "new normal" in development, and to help urban agglomerations become new engines for the optimization of coordination between regional economies; to create environments amenable for innovation and to kick start and power regional development and economic transformation through technological innovation; to continue to strengthen the building of an ecological conservation system and to implement the regional integration of environmental governance; and to create a new landscape of full openness to further promote coordinated development between regions.

## 1 DEVELOPMENT OF CHINA'S REGIONAL ECONOMIES IN 2017

In 2017, we have seen change along multiple dimensions among China's regional economies, with changes in terms of the economic growth rate and contribution to national production between the various parts of China (faster economic growth in western China, and a rising share of the national output for southern China, for instance). The Belt and Road

Initiative has continued to advance, and a good start has been achieved with efforts at ensuring the coordinated development of the Beijing-Tianjin-Hebei region; efforts towards the building of the Yangtze River Economic Belt have also achieved positive results. There have been sustained efforts at establishing and building high-tech industrial development zones at the national level, as well as national independent innovation demonstration zones. Regional economic growth is becoming more reliant on innovation. The government has made major decisions in the area of environmental governance, and various local authorities appear to have become more aware of the need for, and proactive in, implementing the concept of green development. Various regions have also adopted a diverse array of approaches to targeted poverty alleviation and achieved results to a certain degree.

## *1.1 Change During the Development of Regional Economies*

### *1.1.1 Trend of Comparatively Faster Economic Growth in Western China, and a Rising Share of the National Output for Southern China Continues*

A sustained recovery of the global economy has led to the growing prosperity of both the domestic and international markets, and a stream of regional economic development policies has been drawn up, with various regions also working continuously to further enhance reform and innovation efforts to stimulate regional development. The transformation of economic structures and the shift towards new engines of growth are gradually accelerating in pace, and the operation of the national economy is being maintained within a reasonable range. The Chinese economy is becoming increasingly stable and is also becoming better. In the first half of 2017, China's economy generally ran smoothly (up by 6.9%), with the economic growth rates in the eastern, central, western and northeastern regions standing at 7.5%, 8.0%, 8.3%, and 4.1%, respectively. In the eastern region during this period, the economic growth rate stabilized slightly and was also adjusted; in central China, the growth generally accelerated, and the momentum for economic development was strong. Western China still led the country in terms of the development of the "Four Major Regions", though the degree of difference was great; although the rate of economic growth in northeast China was relatively low, internally there were signs of

recovery. In addition, economic growth in China has gradually broken free of the “Four Major Regions” structure with differences emerging between the north and the south. Economic growth in certain southwestern and southeastern provinces has been generally better than in northwestern and northeastern China, and has also been faster in the south than the north. The proportion of total economic output from the south is also substantially rising (see Table 1.1).

While the scale of the eastern China economy is large, its growth rate has dropped slightly. In the first half of 2017, the economic growth rate of the eastern region decreased by 0.09 percentage points compared to the same period of the previous year, and compared to 2016, the rate had decreased by 0.1 percentage points. At the same time, internally within the region economic growth rates have also diverged: the economic growth rates of Fujian, Hainan, and Zhejiang Provinces are all above 8%, while the economic growth rates of Guangdong, Shandong, and Jiangsu Provinces have also reached 7.8%, 7.7%, and 7.2%, respectively. In the first half of 2017, Tianjin’s economic growth rate was 6.9%, a significant drop from rates seen in the preceding years. In addition, the growth rates of Beijing (6.8%) and Shanghai (6.9%) are also among the lowest in the country. This has been due to the fact that the eastern China economy is mainly export-oriented, and thus the growth rate has decreased slightly due to the downturn in the global economy.

**Table 1.1** GDP growth in China’s “Four Major Regions” (unit: %)

<i>Year</i>	<i>Eastern China</i>	<i>Central China</i>	<i>Western China</i>	<i>Northeast China</i>
2006	16.9	16.2	18.4	15.2
2007	19.2	21.8	21.9	19.0
2008	17.1	20.9	22.9	20.6
2009	9.0	10.2	10.8	9.4
2010	17.9	22.0	21.6	20.6
2011	16.9	21.3	23.1	21.0
2012	9.0	11.3	13.6	11.2
2013	9.7	10.0	11.5	8.4
2014	8.1	8.4	8.8	5.0
2015	8.0	8.2	8.6	4.5
2016	7.6	7.7	8.6	3.5
H1 2017	7.5	8.0	8.3	4.1

Source: Websites of the respective provincial/autonomous region/municipal bureaus of statistics

Economic growth in central China has generally accelerated, and the growth rate is strong. Prior to 2014, the economic growth rate of the central region had been consistently a double-digit figure. In 2014, the rate dropped to 8.4%, and in the first half of 2017, it fell to 8.0%. There are also significant differences in the economic growth rates of various central Chinese provinces. Jiangxi leads the central region with a growth rate of 9% (fifth highest in the country), followed by Anhui (8.7%), Henan (8.2%), and Hubei (7.8%), which are ranked 6th, 8th, and 13th in the country, respectively. The economic growth rate in Hunan (7.6%) is also higher than the national average. Although Shanxi (6.9%) had the lowest economic growth rate among the provinces in the central region, the rate was still higher compared to the first quarter. Central China has been able to turn in a strong economic performance due to China's implementation of the strategy of the rise of Central China. Compared to eastern China, the central region has undertaken many industrial transfers in recent years. At the same time, it has received support from the central government in the form of the relevant policies. Numerous factors have contributed to the rapid economic development in the central region, which has been faster than that in the eastern region for many years.

The economic growth rate in the western region is still at the top of the "Four Major Regions", though differences between different parts of the region are significant. Judging from the economic growth rates of the 31 provinces, the economic growth rate in the western region leads the country. In addition, five western provinces are also among the top ten in the country. In the first half of 2017, Tibet's economic growth rate was the fastest at 10.8%; it was followed by Chongqing, Guizhou, and Yunnan at 10.5%, 10.4%, and 9.5%, respectively, ranking them second, third, and fourth in the country. They were then followed by Ningxia, Sichuan, and Shaanxi, with economic growth rates of 8.6%, 8.2%, and 8.2%, respectively. Inner Mongolia and Gansu had the lowest economic growth rates of 6.6% and 5.0%, respectively. The above analysis shows that there is a mix of accelerating, declining, and stable economic growth in western China. Since efforts have been made across the country to eliminate excess production capacity and inventory and to accelerate economic transformation, despite the support of national policies in the western region, resource-based provinces still face greater development pressure. In the future, more targeted policies<sup>2</sup> should be introduced to create conditions for the long-term sustainable development of the region.

<sup>2</sup>[http://finance.ifeng.com/a/20170108/15129744\\_0.shtml](http://finance.ifeng.com/a/20170108/15129744_0.shtml).

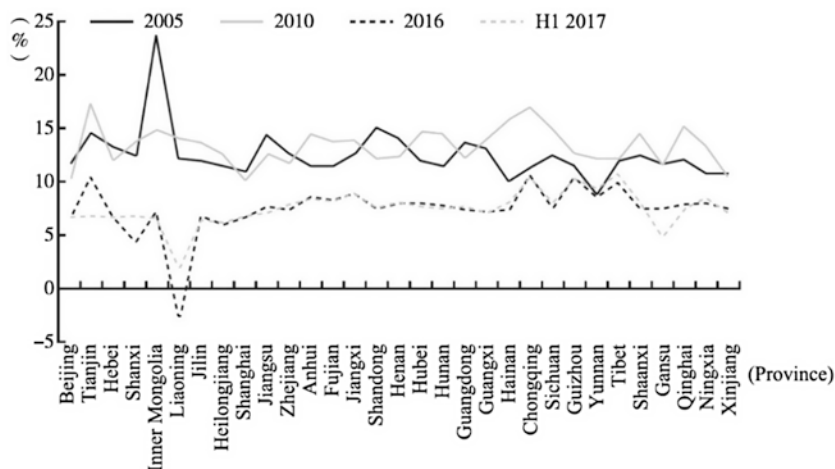


Fig. 1.1 GDP growth rates across China

While the economic growth in northeast China is comparatively slow, there have been signs of recovery. The GDP growth rate in this region was 4.1%, showing a clear sign of steady recovery. In the first half of 2017, the economic growth of Jilin and Heilongjiang accelerated as compared with the first quarter. Liaoning moved from a negative economic growth in 2016 to a positive growth rate of 2.1% in the first half of 2017. The H1 GDP data for the three northeastern provinces also show signs of economic recovery. This is mainly due to the fact that in the past few years, due to the sluggish economy in the northeast region, a series of measures targeted at various economic weaknesses have been launched. The effects of these measures can already be seen (see Fig. 1.1).

#### 1.1.2 *The Shares of the Eastern and Northeastern Regions in Total National Output Decline Slightly, While the Shares of the Central and Western Regions Continue to Rise*

According to data from 2005 to the first half of 2017, total GDP of eastern China increased from RMB10,315.36 billion in 2005 to RMB40,373.37 billion in 2016, registering RMB20,877.47 billion in H1 2017; the region's share of the country's total GDP began to decline in 2007, though the trend reversed in 2015, reaching 52.3% in 2016 and then further increasing to 54.2% in the first half of 2017. In central China,

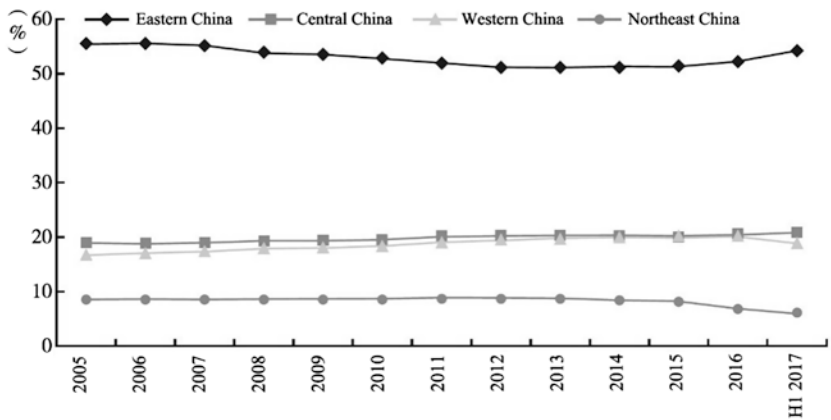


Fig. 1.2 GDP of the Four Major Regions as a share of China's GDP

a steady upward trend has been seen in GDP, that rose from RMB3491.12 billion in 2005 to RMB15,911.32 billion in 2016, with a H1 2017 performance of RMB7963.91 billion. The region's share of the national economy has also shown a steady upward trend. In 2005, the region accounted for 18.8% of the national total, with the figure rising to 20.6% in 2016 and then to 20.7% in the first half of 2017. In the western region, a decline occurred in the first half of 2017 following sustained growth of GDP for many years, with a rate that was one percentage point lower than the 2016 figure. Since 2015, the northeast region's share of the country's total GDP has declined, from 8.6% in 2005 to 8.0% in 2015, and then further to 6.8% in 2016 and 5.9% in the first half of 2017. The economic downturn in the northeast region is still very obvious, and its share of the national GDP has shrunk year by year (see Fig. 1.2 and Table 1.2).

Among the various provinces, in the first half of 2017, the eastern provinces had the greatest economic weight, ranking top in the nation in terms of GDP. Guangdong, Jiangsu, Shandong, and Zhejiang were the top four provinces in China, and H1 GDP in both Guangdong and Jiangsu Provinces exceeded RMB4 trillion. Six of the top ten provinces by GDP in the country were in eastern China.<sup>3</sup> The top ten rankings by GDP in the first half of 2017 did not change much. The top six were Guangdong, Jiangsu, Shandong, Zhejiang, Henan, and Hebei. The biggest changes

<sup>3</sup> <https://wallstreetcn.com/articles/3022931>.

Table 1.2 GDP of the Four Major Regions as a share of China's GDP (units: RMB100 million, %)

Year	Eastern China			Central China			Western China			Northeast China		
	GDP	As a percentage of the national total		GDP	As a percentage of the national total		GDP	As a percentage of the national total		GDP	As a percentage of the national total	
2005	103,153.6	55.5		34,911.2	18.8		31,806.8	17.1		16,024.2	8.6	
2006	120,799.4	55.5		40,636.5	18.7		37,719.9	17.3		18,500.8	8.5	
2007	147,571.5	55.1		50,762.9	18.9		47,117.8	17.6		22,567.2	8.4	
2008	171,457.7	54.0		60,848.0	19.2		57,458.8	18.1		26,987.2	8.5	
2009	186,086.8	53.8		66,775.6	19.3		63,353.8	18.3		29,413.0	8.5	
2010	217,086.6	53.1		80,553.9	19.7		76,178.6	18.6		35,083.9	8.6	
2011	251,937.9	52.1		97,018.4	20.1		93,048.5	19.2		42,118.7	8.7	
2012	274,111.9	51.3		107,732.6	20.2		105,542.7	19.7		46,789.2	8.7	
2013	301,065.6	51.2		118,544.6	20.2		117,662.6	20.0		50,746.0	8.6	
2014	325,448.6	51.2		128,881.7	20.3		128,372.8	20.2		53,435.7	8.4	
2015	348,640.0	51.5		137,642.4	20.3		136,086.0	20.1		54,339.7	8.0	
2016	403,733.7	52.3		159,113.2	20.6		156,528.5	20.3		52,310.2	6.8	
H1	208,774.7	54.2		79,639.1	20.7		74,144.1	19.3		22,529.1	5.9	
2017												

Source: Websites of the respective provincial/autonomous region/municipal bureaus of statistics

occurred in the provinces outside of the top ten rankings. The GDP of Anhui for H1 2017 exceeded that of Beijing, making it the 12th largest province in the country. Shaanxi's GDP exceeded Tianjin's (RMB938.687 billion), placing the province in 15th place overall. The GDPs of Guangdong and Jiangsu both exceed RMB4 trillion, while that of Shandong is more than RMB3 trillion. In the RMB2-trillion club are Zhejiang and Henan, and the top 14 provinces (including Hebei and Sichuan) have a GDP of over RMB1 trillion each.<sup>4</sup>

## *1.2 In-Depth Implementation of, and Positive Results from, the Belt and Road Initiative Alongside the Beijing-Tianjin-Hebei Coordinated Development Strategy and the Yangtze River Economic Belt Development Strategy*

In 2017, the Belt and Road Initiative has been implemented in an in-depth manner in coordination with the Beijing-Tianjin-Hebei Coordinated Development Strategy and the Yangtze River Economic Belt Development Strategy. Efforts at poverty alleviation have achieved remarkable results, and new progress has been made in the areas of environmental protection and management.

### *1.2.1 The Sustained Advancement of the Belt and Road Initiative*

It has been four years since the Belt and Road Initiative was proposed. China has established extensive partnerships with the regions along the Belt and Road, and has built 56 economic and trade cooperation zones in more than 20 countries alongside. In China, the Belt and Road Initiative is deeply integrated with efforts at deepening reform across the board, and has played an important role in the building of a new regional economic structure and promoting balanced regional development in China. China's four major regions are working to support the Belt and Road Initiative in such areas as infrastructure connectivity, energy supply, storage and processing, multi-faceted trade cooperation, and cultural exchange and to partner countries along the Belt and Road. In general, progress has been relatively smooth. Specifically, first, the eastern region has been utilizing its geographical and port advantages in such endeavors, and rapid progress has been made in such areas as foreign trade and transportation. Jiangsu has established an innovative multi-channel cooperation model, with

<sup>4</sup><http://www.stcn.com/2017/0801/13528683.shtml>.

investments in industry parks in Cambodia, Ethiopia, and other countries and the integration of coastal ports along the Yangtze River. In Zhejiang, there has been remarkable progress made in the building of the Zhejiang Jianghai Intermodal Service Center, a cross-border e-commerce experimental zone and overseas cooperation zones. Fujian Province has invested in the development of offshore fishing and stone processing industries in Southeast Asian and African countries, and actively promoted the “going out” of Fujian’s specialty industries such as ceramics, clothing, and furniture industries. The Shanghai, Zhejiang, and Fujian Pilot Free Trade Zones continue to explore new modes of inter-regional cooperation in order to become an important engine for China’s efforts at opening up on all fronts. Second, the combination of location and resources in the western border and the northeast border regions has led to remarkable achievements in capacity export, trade cooperation, cultural exchanges, and infrastructure. For example, China, Mongolia, and Russia have cooperated smoothly in the areas of transportation, ecology, and port construction. Construction has started on economic cooperation zones, the Manzhouli Comprehensive Bonded Zone, Ceke Port Cross-Border Railway, the Moscow-Kazan High-Speed Railway, and other projects, and some projects have officially begun operations. The China-Central Asia-Western Asia Economic is under construction, and bilateral cooperation agreements have been signed with countries along the route. Work on certain natural gas pipelines, tunnels, thermal power plants, and high-speed rail projects have begun, and some of these are already in operation. As for the construction of the China-Pakistan Economic Corridor, projects such as those for coal-fired power stations, highways, ports, hydro-power stations, nuclear power plants are progressing steadily. As for the Bangladesh-China-India-Myanmar Economic Corridor, oil and gas pipelines, construction has begun on industrial park and deep-water port projects. Third, the central region has taken the lead in infrastructure development and promoted the integration of transportation networks by improving railway, water, and aviation channels, thus providing greater convenience in foreign trade between the central region and the countries along the Belt and Road. This has in turn driven the economic growth of the central region to a certain extent.

### *1.2.2 A Good Start in Efforts Towards Coordinated Development in the Beijing-Tianjin-Hebei Region*

Efforts towards the coordinated development of the Beijing-Tianjin-Hebei region have accelerated following the introduction of the Beijing-

Tianjin-Hebei Coordinated Development Plan in June 2015. Over the three years, the pace of integration in key areas and for non-capital city functions and public services has accelerated. A strong start has been achieved, and breakthroughs have been made in certain areas. Specifically, first, rapid progress has been made in the three key areas of transportation, ecology, and industry. In the past three years, the pace of transportation integration in Beijing, Tianjin, and Hebei has accelerated, and the 800 kilometers of non-through roads have been opened. It is now possible to travel between Beijing and Tianjin within one hour, and the same transportation card can be used in all prefecture-level cities in the Beijing-Tianjin-Hebei region. The Tianjin-Hebei Protected Forest has expanded by 100,000 *mu*, and 335 general manufacturing and polluting enterprises have been shut down in the Beijing-Tianjin area. New innovations continue to come online with regard to environmental governance in the Beijing-Tianjin-Hebei region, and environmental protection standards are constantly being integrated. The Standard for Volatile Organic Compound Levels in Architectural Coatings and Adhesives, the first standard for the region, has been established. Innovative new mechanisms for environmental monitoring and interfacing with law enforcement are also constantly being put in place. The number of Beijing-based enterprises moving out of the city and the number of industrial transfers from Beijing and Tianjin to Hebei have been on the rise. In 2016, Beijing's enterprises invested a total of RMB170 billion in Tianjin, with Hebei's enterprises investing another RMB29.4 billion. Hebei has received RMB382.5 billion in investment from Beijing and Hebei, and completed 103 key tasks for the Beijing-Tianjin-Hebei region. Second, significant progress has been made in the area of relieving Beijing of non-capital functions. Construction work on the Beijing "sub-center" has been accelerated, and the construction of the first phase of the administrative office zone has been more or less completed. The zone is able to accommodate Beijing's municipal organs and certain administrative agencies which are set to relocate in end-2017. Since 2014, 433 commodity trading markets have been dismantled, and 3 major wholesale markets (the Beijing Zoo Wholesale Market, the Dahongmen Wholesale Market, and the Tianyi Wholesale Market) have also moved out. Third, planning and construction work for the establishment of the Xiong'an New Area has advanced steadily. On April 1, 2017, the CPC Central Committee with Comrade Xi Jinping as the core decided to set up a national-level new area, the Xiong'an New Area, in an area that includes Xiong County, Rongcheng, and Anxin in Hebei Province.

Xiong'an is to serve as an important vehicle for efforts to relieve Beijing of functions non-essential to its role as the capital city of China and urban population transfers. It has been strategically positioned as a green and livable new urban area that is innovation-driven and served by open development. The establishment of the New Area is a key part of China's attempts to promote coordinated regional development, to optimize the urban structure of the Beijing-Tianjin-Hebei region, and to establish an innovation-driven development model. To date, approval has been granted for the establishment of the Xiong'an New Area Working Committee of the CPC and the Xiong'an New Area Management Committee, and the urban master plan is also being developed. Fourth, the Beijing-Tianjin-Hebei region is working to explore new modes of cooperation, and the integration of public services in the fields of healthcare, education, and poverty alleviation is occurring at a quicker pace. For instance, two-way healthcare referrals and a collaborative development model are now in place in the region. Through key cooperation projects in healthcare, Beijing has sent more than 1000 doctors and has received patients on more than 70,000 instances. Beijing and Hebei have also taken the lead in realizing the direct cross-settlement of medical insurance claims. Efforts to link the education systems of the Beijing-Tianjin-Hebei region are also progressing smoothly. Beijing has signed 21 educational cooperation agreements involving around 30 projects with Tianjin and Hebei, achieving the sharing of educational resources and information exchange. Beijing and Tianjin continue to strengthen their support for severely impoverished areas in northern Hebei and have established assistance mechanisms.

### *1.2.3 Positive Developments with the Yangtze River Economic Belt*

The building of the Yangtze River Economic Belt is an important measure for China as it seeks to promote coordinated regional development and to create a new economic growth belt. Broadly speaking, relatively smooth progress has been made with the Yangtze River Economic Belt strategy. There has been faster economic growth in the 11 provinces and municipality along the Yangtze River, and the quality of economic development continues to improve. Breakthroughs have been made in the areas of ecological conservation, the building of transportation corridors, and the promotion of openness and inter-regional cooperation. Specifically, first, the provinces and municipality involved have worked actively to promote environmental governance along the Yangtze River, and the environment of the Yangtze River Basin has improved significantly. Hunan, Hubei,

Jiangxi, Shanghai, and so on have formulated environmental protection plans for the Yangtze River Basin and improved ecological compensation mechanisms for the Basin. Projects related to environmental governance such as those pertaining to the management of air pollution, forest protection, vegetation restoration, and urban and rural sewage and domestic garbage treatment have been initiated, alongside special rectification work targeted at illegal docks on the trunk Yangtze waterway and illegal sand mining, and chemical pollution along the River was carried out, and remarkable results have been achieved. As of 2017, the water quality of the Yangtze River Basin has continued to improve, and the forest coverage rate has increased to 41.5%. The efficiency of energy utilization is gradually being improved, and significant results have been achieved in terms of new-energy projects. Second, significant results have also been seen from efforts to building of the Yangtze River “Golden Waterway” and transportation corridor. Transportation capacity has been steadily improved. For instance, navigation has begun along the 12.5-meter deep-water channel downstream of Nanjing, and construction has also begun on the Hanjiang Pass shipping hub and other projects. The Yangtze River vessel standardization project has realized the cumulative completion of the dismantling and transformation of 1128 inland navigation vessels. The construction of modern port areas such as in Chongqing, Wuhan, and Nanjing continues to advance, and projects including the Shanghai-Kunming high-speed railway line and the Zhejiang Jiande-to-Kaihua highway have been completed. Since 2012, fixed-asset investment in the transportation, warehousing, and postal industries of the Yangtze River Economic Belt has continued to grow, with the cumulative amount standing at some RMB900 billion. 40,000 kilometers of railway tracks and around 90,000 kilometers of inland waterways are in operation, alongside close to 50,000 kilometers of expressway roads. Third, the five major free trade zones have promoted the formation of a two-way open structure in the Yangtze River Economic Belt. The Yangtze River Economic Belt includes five free trade zones in Shanghai, Zhejiang, Hubei, Chongqing, and Sichuan, and the GDP of the respective provinces constitutes almost half of the GDP of the entire Yangtze River Economic Belt. A two-way, east-west open structure has been established, with the city of Shanghai driving the entire length of the Yangtze River, the middle reaches of the Yangtze River by Wuhan, and the upper reaches of the Yangtze River by Chongqing, in order to promote the coordinated and balanced development of the upper, middle, and

lower reaches of the Yangtze River Basin. Fourth, an early stage inter-provincial cooperation and coordination framework for the Yangtze River Economic Belt has been established. The provinces and municipality along the Yangtze River have signed agreements on consultation and cooperation mechanisms between the upper, middle, and lower reaches of the Yangtze River, thus forming a three-tier, integrated consultation and cooperation framework. Together, these provinces and municipality work together in the areas of environmental governance, infrastructure connectivity, and market integration along the Yangtze River Economic Belt. For example, cooperation agreements have been signed between Sichuan and Chongqing, Zhejiang and Sichuan, Hubei and Chongqing, and Guizhou and Hunan. These agreements lay out the key points and specific tasks of cooperation between the upper-, middle-, and lower-reach provinces and municipality, hence providing the basis for comprehensive environmental governance and industrial cooperation between the upper, middle, and lower reaches of the Yangtze River.

### *1.3 Gradual Improvements in the Regional Innovation System*

In 2017, with the in-depth implementation of the strategy of innovation-driven development, the Regional Innovation System has gradually improved, and various government-led industrial parks have become important pillars of this system. The change of growth engines is speeding up, and regional economic growth has become increasingly driven by innovation.

#### *1.3.1 Continued Improvements in the Regional Innovation System*

Various government-led industrial parks have become important pillars of the Regional Innovation System. There has been sustained work on national high-tech industrial development zones, national independent innovation demonstration zones, national-level new areas, and innovation-based cities, and experiments in comprehensive innovation reforms have been further advanced.

The national high-tech industrial development zones are an important source of regional innovation in China, and constitute an important part of both the national and regional innovation systems. As of end-2016, in China there are a total of 146 national high-tech zones in 30 provinces, autonomous regions, and municipalities with the exception of Tibet. In

the “new economic normal”, the national high-tech zones have maintained fairly high growth rates and have become the backbone of regional economic development. Nationwide, the average economic growth rate of the national high-tech zones was 17.4% during the 12th Five-Year Plan Period (2012–2017). In 2016, national high-tech zones recorded operating incomes totaling RMB28.3 trillion, a total production value amounting to 11.8% of the national GDP, and a total export value amounting to 18.6% of the country’s foreign trade exports. Tax revenue from these zones made up 12.0% of the national total tax revenue. The national high-tech zone works actively to create an environment that is conducive to innovation and entrepreneurship. Increased investment in, and the stimulation of, innovation have made the national high-tech zone the most active player in innovation (with a variety of innovation outputs) in the country. In 2016, research and development-related investment by enterprises located in national high-tech zones accounted for 44.3% of the national total. Comparatively speaking, these enterprises spent 2.9 times as much on R&D as the rest of the country. Technology contracts concluded accounted for 26.8% of the national total, with a total value of RMB305.17 billion. In addition, 219.3 invention patents were granted per 10,000 employees, 9.6 times the national average.<sup>5</sup>

The national independent innovation demonstration zones have a focus on the implementation of innovation-led development strategies. These zones have led regional economic development with their goals of leading technology innovation, operations that are at the head of industry, the economy, society, and in institutional terms. For instance, the main economic indicators of the Hunan Changsha-Zhuzhou-Xiangtan, Wuhan East Lake, and other national independent innovation demonstration zones have maintained a growth rate of 30% for a number of years, making these zones a leading force for regional economic transformation and development. The Zhongguancun National Innovation Demonstration Zone has played an innovative and leading role. A total of 229 international standards have been created, and cutting-edge industries are being cultivated in the zone. The zone has also given us major technological breakthroughs, and established linkages between innovation and industry. An industrial cluster comprising new-generation enterprises in the areas of information technology, new materials, new energy, energy conservation

<sup>5</sup>Key National High-tech Zones’ Innovation Capacity Keeps Increasing. *Guangming Daily*, October 12, 2017.

and environmental protection, biology, and so on has gradually formed, and the agglomeration effect of strategic emerging industries has gradually emerged. The Zhongguancun National Innovation Demonstration Zone has further enhanced its role of “playmaker” across the country, based on strategic partnerships with 72 organizations in 26 provinces, autonomous regions and municipalities across the country, and 23 jointly developed scientific and technological commercialization centers. Zhongguancun enterprises have established more than 12,000 branches outside Beijing.<sup>6</sup>

New development concepts are in practice with the national-level new areas, along with the nurturing of new development models. These new areas have become a new engine for regional economic development. As of October 2017, 19 national-level new areas have been established nationwide. In May 2016, the National Development and Reform Commission issued the Key Points for Institutional Innovations with National-Level New Areas in 2017, stipulating the key tasks in deepening institutional reform and innovation with these new areas. In 2017, the focus with the national-level new areas has been on institutional innovations, identifying new sources of growth, and improving the quality and efficiency of development. For example, institutional innovation has been implemented in the Nansha New Area of Guangzhou, and 279 innovations have been introduced. Its new “Cross-Border E-Commerce Supervision Model” and “Enterprise-Specific Government Service Website” have been named as “best practices” by the Ministry of Commerce. The Gui'an New Area in Guizhou is relying on Big Data and the strategy of maximum openness, working vigorously to develop the IT industry, modern services industry, “Big Health”, cultural and tourism industries, and high-end equipment manufacturing industry with the strategic use of Big Data. The Zhoushan Archipelago New Area in Zhejiang is making efforts to develop its strengths in maritime-related industries, and in modern areas including modern maritime logistics, shipping and offshore equipment, maritime tourism, green petrochemicals, modern aviation, and maritime IT. On April 1, 2017, the CPC Central Committee and the State Council established the Xiong'an New Area. This is another new area with national significance in the footsteps of the Shenzhen Special Economic Zone and the Shanghai Pudong New Area. The Xiong'an New Area is a key area that is expected to relieve Beijing of its non-capital city functions. Here, a new-generation

<sup>6</sup> Ma, Wenliang. Zhongguancun: New Journey in the New Era. *Zhongguancun*, November 2017.

city that is green, smart, efficient, livable, and offering high-quality public services will be built using modern information and environmental protection technologies. The Xiong'an New Area will become a new engine of national economic growth that is driven by innovation and a leader in innovation-driven development.

Innovation-centered cities are the key link in efforts to construct the Regional Innovation System. On December 1, 2016, in a bid to accelerate the establishment of innovation-centered cities, the Ministry of Science and Technology and the National Development and Reform Commission issued the Notice on Guidelines for the Building of Innovation-Centered Cities, providing detailed guidance on the matter as well as the corresponding indicators. Pilot sites for the innovation-centered city approach have continued to explore various models of innovation and development, contributing to the improvement of innovation in these urban areas in the process. In October 2016, the Shenzhen municipal authorities issued the Work Plan for a Demonstration Standard, Global and Innovation-Centered City, thus becoming the first to establish a “standard, global and innovation-centered city” to enhance Shenzhen’s innovation capabilities and level of globalization. As of October 2017, 4768 international and domestic standards, including 1384 international standards, have been developed in the city. Thirty-three industry-standard alliances have also been established. To build up its strengths in innovation, the city of Beijing has worked vigorously to promote institutional innovation, cutting-edge technological innovation, collaborative innovation, and open innovation with its in-depth implementation of the Beijing Technology Innovation Action Plan, the “Made in China 2025” Beijing Action Plan, the “Internet Plus” Action Plan, and so on.

Innovation-centered reforms have been undertaken in innovation reform pilot zones, and 169 reform initiatives in eight innovation reform pilot areas such as the Beijing-Tianjin-Hebei region, Shanghai, Guangdong, Anhui, Sichuan, Wuhan, Xi'an, and Shenyang have been “basically implemented”. Major breakthroughs have been achieved with some of these forms, creating positive case studies and replicable practices. First, the system of intellectual property protections has been further improved. Some regions have explored ways to further strengthen intellectual property protection from the aspects of justice, administration, and assistance, and have improved on their practices. Second, efforts have been made to tackle the challenge of converting scientific and technological achievements to commercial applications, and some progress has been made in this respect.