

# *Chinese Experience in Industrial Development During the Forty Years of reform and opening-up*

Liu Yanhong & Guo Chaoxian\*

**Abstract:** Over the past forty years of reform and opening-up, China's industry has sustained rapid and sound development and generated impressive achievements. Industrialization has entered the second half of its final stage. This experience of successful industrialization with Chinese characteristics constitutes an important component Chinese wisdom and Chinese approaches, and serves as a reference for other developing countries and countries in transition. The Chinese experience in industrial development during this period includes: progressively promoting industrial and economic system reform adapted to local circumstances; seizing the right moment to firmly integrate into the global system of labor division; pursuing the new path of industrialization featuring coordinated development of the "Five Pillars" in keeping up with the times; and developing an industrialization model with Chinese characteristics with concerted efforts of effective market and enabling government.

**Keywords:** forty years of reform and opening up; industrial development; Chinese experience; new industrialization

**T**he past four decades of reform and opening-up have witnessed sustained and rapid economic growth and industrial development in China. Industrialization has developed by leaps and bounds. From 1978 to 2017, China's GDP has soared from RMB 367.9 billion to RMB 74.4127 trillion, with an annual average growth rate of 9.6% in real terms (at constant prices). The industrial added value has increased from RMB 162.2 billion to RMB 24.786 trillion, up an average of 10.9% annually in real terms (at constant prices). The latest release from the

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National Bureau of Statistics (NBS) reveals that national GDP in 2017 reached RMB 82.7122 trillion, growing 6.9% year on year and the industrial added value of enterprises above designated size enjoyed a year-on-year increase of 6.6%. Measured against the comprehensive index of industrialization levels issued by the Institute of Industrial Economics, Chinese Academy of Social Sciences, by 2010, overall industrialization in China had entered the first half of the final stage and by 2015, entered the second half of the final stage, with all provinces at least entering mid-industrialization. More specifically, there were three provinces in post-industrialization, 16 in final stage, only 12 in mid-industrialization.<sup>①</sup> Between 2020 and 2030, as predicted by relevant researches, China will be fully industrialized. If so, it means that it will only take China half a century to achieve what developed countries in the West took more than two centuries to achieve.

Over the past forty years of reform and opening-up, industrial development in China has followed a “Chinese model.” These good practices and successful experiences not only provide critical Chinese experience to developing countries and countries in transition, but also contribute Chinese wisdom and Chinese approaches to global industrialization and modernization.

## 1. Progressively promoting industrial and economic system reforms adapted to local circumstances

In the 1990s, fully accepting the experience of western developed countries, radical steps such as “shock therapy” were adopted by central and eastern

European countries for economic transition. China, on the contrary, has always pursued its gradual economic reform adapted to local circumstances with a focus on the good balance among “reform, development, and stability.” As to the direction of reform, China learnt the experience by trial and error to find one that suited the national situation, and advanced steadily by identifying successful experiences and applying them to broader areas. In terms of the strategy of reform, China followed, on the premise of economic and social stability, one that featured incremental difficulty. Despite crises and multiple difficulties facing the national economy at the beginning of reform and opening-up, China didn’t rush to complete privatization as a solution to state-owned enterprises’ (SOEs) survival issues. Instead, it insisted on a basic economic system with public ownership playing the dominant role, while proceeding with two legs: pushing for steady reform of SOEs through pilot projects, and vitalizing the economy by attracting foreign investment and developing non-public sectors including private enterprises. This, in turn, drove the reform of the national economic structure. Within forty years, three pillars of the Chinese industrial system—SOEs, private enterprises, and overseas/foreign-invested enterprises (Table 1) —thrive and prosper with complementarity, contributing to the thriving mixed-ownership economy with Chinese characteristics.<sup>②</sup> Statistics show that in 2012, among industrial enterprises above a designated size, those of mixed ownership accounted for 26.3% of the total number, 44% of capital, and 41.8% of total profit.<sup>③</sup>

### 1.1 Progressively promoting the reform of state-owned industrial enterprises

The reform of the SOEs was the focus of the

① Huang et al., 2017

② Unless otherwise specified, overseas /foreign-invested enterprises in this paper refer to those enterprises with investments from foreign countries, Hong Kong, Macao and Taiwan.

③ Huang, 2014

Table 1 Ownership Restructuring of Industrial Enterprises above a Designated Size in 1998 and 2016

Indicator	1998			2016		
	State-owned and state-controlled enterprises	Non state-owned domestic enterprises*	Foreign-invested and Hong Kong Special Administrative Region (HKSAR), Macao Special Administrative Region, and Taiwan-invested enterprises	State-owned and state-controlled enterprises	Non state-owned domestic enterprises	Foreign-invested and HKSAR, Macao Special Administrative Region, and Taiwan-invested enterprises
Number of enterprises	64,737 (39.2%)	73,901 (44.8%)	26,442 (16%)	19,022 (5%)	310,023 (81.9%)	49,554 (13.1%)
Total assets (unit: RMB 100 million)	74,916 (68.8%)	12,579 (11.6%)	21,327 (19.6%)	417,704 (38.5%)	455,418 (41.9%)	212,744 (19.6%)
Prime operating revenue (unit: RMB 100 million)	33,566 (52.3%)	14,978 (23.3%)	15,605 (24.3%)	238,990 (20.6%)	669,617 (57.8%)	250,392 (21.6%)
Total profit* (unit: RMB 100 million)	4,393 (54.8%)	703 (16%)	1,282 (29.2%)	12,324 (17.1%)	42,000 (58.4%)	17,597 (24.5%)

Notes: \*Non state-owned domestic enterprises include all industrial enterprises above a designated size apart from state-owned and state-controlled enterprises, as well as foreign-invested and HKSAR, Macao Special Administrative Region and Taiwan-invested enterprises; statistics of total profit in the 1998 column is the actual figure of 2000.

Source: *Statistical Yearbook of China* (1999, 2017).

reform of the economic system in China. As the service industry lagged behind in the early stage of reform and opening-up, the national economy was dominated by the industrial sector, which was further and absolutely dominated by state-owned industrial enterprises, which accounted for 78% of the total output value, and shockingly 92% of total assets in 1978. Therefore, the reform of SOEs mainly targeted state-owned industrial enterprises.

This reform focused on three aspects. First, it gradually relieved SOEs of their administrative subordination to government authorities, making SOEs independent legal entities which could make their own management decisions, hold their own responsibilities over power as well as gains and losses, and engage in fair competition with the non-public sectors. Second, it strived to strengthen SOEs' economic vigor and competitiveness based on better corporate governance and modern enterprise

systems by promoting stockholding system reforms against previous prejudice towards the ownership systems. Third, it adjusted and defined, step by step, the positioning of SOEs, which no longer competed in the common sectors, and focused their energy on key industries and sectors concerning the lifeline of the national economy. SOEs should lead and guide the development in fields including national security, natural monopolies, public goods and service industries, pillar industries, and emerging industries of strategic importance, to support economic transformation, social development and the supply of public goods.

Reform never happens overnight. China's reform is generally considered to have involved roughly three stages spanning a long period from exploration, system innovation, and further effort. The first stage refers to approximately 15 years of exploration between the beginning of reform and opening-up and

the Third Plenary Session of the 14th CPC Central Committee (1993). Reform of the SOEs followed the principle of “decentralization of power and transfer of profits.” Contract operations were adopted as one of the means of empowering enterprises with greater operational independence and increasing their enthusiasm and vitality. But the mission was not fully accomplished. Instead of establishing an effective incentive and restraint mechanism, the practice led to the shortsightedness of enterprises and loss of state-owned assets. Still, the SOEs became more aware of competition, which paved their way to the market during the next stage. The second stage lasted about a decade from the Third Plenary Session of the 14th CPC Central Committee to the early 21st century, featuring system innovations and restructurings. At the micro-level, SOEs launched all-round initiatives in property rights, corporate governance and management, aiming at establishing the modern enterprise system identified during the Third Plenary Session, comprising “clearly established ownership, well-defined power and responsibility, separation of the enterprise from the administration, and scientific management.” At the macro-level, distribution and structure of the national economy were adjusted as complementary measures based on strategic thinking, i.e., “restructuring major enterprises and loosening control over small ones and increasing investment of state capital in some sectors while reducing it in others, thus achieving overall progress.” The establishment of the State-owned Assets Supervision and Administration Commission (SASAC) in 2003 marked the beginning of the third stage, during which the reform and development of enterprises were driven by system reforms. SASAC represents the separation, at the system level, of the function of public administration from the role as a representative of an asset contributor. A major institutional foundation was laid to separate government administration from the management of enterprises

and state assets, and separate representatives of state-owned asset distributors from SOEs, making SOEs real independent market entities. Since the 18th National Congress, with the introduction of Guiding Opinions of the CPC Central Committee and the State Council on Deepening the Reform of State-owned Enterprises, China has accelerated its reform of state-owned assets and SOEs. The target of state-owned asset management systems shifted from enterprise to capital. Under the premise of strengthened surveillance and maintenance and the appreciation of state-owned assets, the priority was to ensure property rights and operational independence of legal entity representatives, thus inspiring vitality, innovation, and competence.

Like other economic and social reforms, reform of the SOEs neither copied other countries’ models or experience without considering local contexts, nor aspired to build Rome overnight, but to progressively explore the path that best suited the national conditions. More specifically, concerted efforts of both the government and SOEs kindled their enthusiasm for innovation and facilitated the synchronized progress of deployment efforts. Promoting successful experiences in pilot areas in the whole country avoided risks of widespread failure due to blind implementation of reform plans. Seemingly conservative, progressive reform, tackling easy challenges before difficult ones, helped to balance the relationship among reform, development, and stability. As no radical steps were taken, there would not be any major economic or social unrest which might fail the reform.

## **1.2 Supporting the development of the non-state-owned industrial economy by emancipating the mind**

1.2.1 Township and village enterprises (TVEs) as “dark horses” make a unique contribution to industrialization in China

In the early 1980s, SOEs were the main targets

of economic reform in urban areas, while TVEs were definitely the main force in rural reform and development. The story of TVEs found its origin in commune and brigade enterprises established in the era of the planned economy under the people's commune system, which was abolished during deepened rural economic reform in 1984. That was when commune and brigade enterprises were officially renamed as TVEs. At the same time, the household contract responsibility system expanded in rural areas. This not only boosted agricultural output and household income, but released a huge group of rural labor from tilling the land. To create job opportunities for this population, the 7th Five-Year Plan made it clear that "developing TVEs is the path we must follow to revive the rural economy," and that "encourage farmers to set up TVEs". It also carried out the 'Spark Program' and other policy measures as incentives. National policy support, extra rural labor, and the accumulation of an agricultural surplus sped up the development of TVEs.

Apart from driving rural industries, these "dark horses" are characteristics of industrialization in China.<sup>①</sup> According to statistics, from 1978 to 1997, the number of TVEs rocketed from 1.5 million to 20.2 million; the proportion of their output value total increased from merely 24% to 79%; and their national gross industrial output value grew from 9% to as high as 58%.<sup>②</sup> As non-public sectors became one of the actors in the socialist market economy after the 15th CPC National Congress, an increasing number of TVEs restructured themselves as private enterprises. Nonetheless, they've left indelible marks on China's economic development and industrialization. Their unique contributions are

found in the following aspects.

First, TVEs, depending mainly on the capital from villages and themselves without national financial support, achieved an annual average growth rate of more than 20% with a low debt ratio. At one time, they substantially drove national economic growth.<sup>③</sup> Statistics from 1998 show that TVEs achieved an added value of RMB 2.2186 trillion, accounting for 27.9% of GDP; turned over RMB 158.3 billion of tax, taking up 20.4% of the national total. Their export delivery value amounted to RMB 685.4 billion, up by 27% from 1995, accounting for 34.8% of national exports.

Second, TVEs made full use of rural labor for development, boosting industrialization, urbanization, and modernization thus substantially transforming the backward rural areas. In 1998, TVEs achieved an added value of RMB 1.553 trillion, taking up 46.3% of the national industrial added value, almost half of the national industrial aggregate. The path to rural industrialization with Chinese characteristics was thus created. Driven by the development of TVEs, a large group of small towns sprung up. In 1998, the number of designated towns alone reached 19,000, 5.7 times that of 1978. These towns became home to 150 million rural residents, whose identity experienced a historical leap from farmers to urban residents. Urbanization in rural areas enjoyed, therefore, huge progress.<sup>④</sup>

Third, taking full advantage of the public sector during this specific historical period, TVEs prepared essential talents, capital and technology for major advancement in the non-public sector after system transitions. After reform and opening-up, it took a long time for the CPC and the Central Government

① Jin, 2008

② Yu et al. 2006

③ Wang, 1997

④ National Bureau of Statistics, 1999

to become fully aware of the status and role of the non-public sector in the socialist economic system. This sector of the economy (including individual and private economy) long suffered before the policy of “encouraging and guiding the sound development of the non-public sector of the economy” was established during the 15th CPC National Congress in 1997, from double constraints in terms of ownership structure and ideology. Its vitality was suppressed. But thanks to their advantageous position as an important part of the public sector, TVEs, especially collective ones, enjoyed remarkable progress during the two decades before reform and opening-up. Their prosperity meant a large number of skilled workers, managers, and necessary capital and technology for stronger competence through technological upgrading after business transformations. When the constraint of ownership was lifted in 1997, lots of township and village collective enterprises turned into privately-owned enterprises,<sup>①</sup> which quickly rose to become drivers of economic growth.

#### 1.2.2 The rise of private industrial enterprises sustains industrialization

Speaking of the development of the non-state-owned economy after reform and opening-up, the first twenty years witnessed tremendous growth in township and village (collective) economies, while the following twenty years were the golden era of the private economy. Since the 1980s, despite legitimate status and encouragement, the private economy still possessed very limited room for growth which was basically occupied by SOEs in urban areas and collective enterprises in rural areas. The flourishing of private economy resulted from a breakthrough in the economic and political system, especially the ownership structure, achieved by breaking the shackles of ideology. The report of the 15th CPC

National Congress in 1997 marked the strengthened role and greater value of the non-state-owned economy as an important component of the basic socialist economic system. Since 1998, the National Bureau of Statistics incorporated private industrial enterprises as an independent type of enterprise into the statistics of the enterprises above a designated size. According to statistics, in 1998, only 6.5% of such enterprises were private, whose asset size, prime operating revenue and total profit accounted for less than 5%. By 2016, however, private enterprises already accounted for more than half of the enterprises above a designated size. Their asset had grown to more than 20%; both prime operating revenue and total profit surpassed 1/3 of the total amount.

In addition to the strong push for China’s economic growth, industrialization, modernization and urbanization, the rise of private industrial enterprises also made the following unique contributions to industrial development. First, private enterprises have become strong competitors of state-owned and collective enterprises. The public sector no longer dominates the market. This not only spurs competition among diversified market actors and improves the efficiency of resource allocations but also promotes the reform of public enterprises and the integration of different types of enterprises. The overall competence of Chinese industrial businesses is enhanced. Statistics of the SASAC reveals that the number of mixed-ownership enterprises combining centrally administered enterprises and the capital of the non-public sector has reached 68.9%; at the local level, this number also amounted to 47%.<sup>②</sup> Mixed-ownership enterprises have become crucial micro entities in China’s market economy system, while the mixed-ownership economy featuring cross-

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① Jiang, 2002  
② SASAC, 2017



shareholding and integration of state-owned, collective and non-public capital serves as an important way of implementing the basic economic system. Second, due to good locations and an export-oriented economy, private enterprises, especially those in the eastern coastal provinces, have promoted centralization of manufacturing industry and its cluster development. As the market actor with the greatest flexibility and openness, non-state-owned small and medium-sized enterprises (SMEs) have played a major role in rapidly expanding the economic scale, and constantly extending the covered area of industrial clusters. In terms of industrial development, these clusters, mainly comprising private SMEs, cooperate through the division of labor, resulting in synergy in production, the advantage of scale in production capacity, and the exemplary and brand effect of flagship enterprises. The competence of relevant industries has been enhanced in the markets at home and abroad. As for regional progress, “lump economies” generated by industrial clusters have driven local economic and social development, and have given impetus to urbanization and rural-urban integration, thus benefiting regional development.<sup>①</sup>

## 2. Seizing the right moment to integrate into the global labour system of division

Since World War II, new technology revolutions and industrial upgrading starting in the USA has triggered a new wave of international industrial transfers passing on from one region to another. In the 1980s, as the priority of industries in the U.S., Japan, Europe and other developed countries shifted to high technology, IT-based development,

and service orientations, these countries and regions transferred the labor-intensive, capital-intensive industries and some technology-intensive industries with low added value to other countries. When emerging industrialized countries and regions, including the Four Asian Tigers, developed heavy chemical and high-tech industries like microelectronics industry transferred from the regions above by absorbing investments from developed countries, they themselves then needed to further transfer labor-intensive industries and parts of capital and technology-intensive industries to foreign countries. This was when China, which just opened up to the world with a huge labor market, seized this rare opportunity. Not only did China become the major recipient country of this new wave of industrial transfers, it also became part of the global labour system of divisions, transforming the domestic and world economies.

Pushing for industrialization with low income, China achieved unprecedented openness at the fastest speed in the widest range of fields with the most thorough policies.<sup>②</sup> This big power, relying on its large labor force and policy incentives offered by reform and opening-up, attracted huge investments from neighboring and developed countries. Foreign-invested enterprises not only led the rapid growth of processing trade and export, but also boosted China's manufacturing industry and competence. In 2001, China's joining the WTO marked the country's full integration into the global economic system. While deepening competition and cooperation in this system, Chinese industry constantly built its strength to become the largest manufacturing base globally and a major component of the world market. Comparative and competitive advantages among different industries were also products

① Wu, et al. 2009

② Jin, 2003

developed during this process. China was forging ahead from manufacturing giant to industrial power. Generally, the integration of China's industry into the global system can be divided into three stages of deepened development: bringing in, going global, and reshaping the global labour system of division through international capacity cooperation.

### **2.1 Bringing in: attracting foreign investment with the most preferential policies to accommodate major international industrial transfer**

Under the basic guidelines of opening up to the outside world, the Central Government soon prioritized attracting and utilizing foreign investment to introduce advanced technology, which was considered strategically important to facilitate socialist modernization. In 1979, the State Council set up the State Foreign Investment Administration Commission. In 1982, the Ministry of Foreign Trade was merged with the State Import and Export Regulation Commission and the State Foreign Investment Regulation Commission, and became the Ministry of Foreign Economic Relations and Trade as the specific administration institution for foreign investment. In 1986, the State Council issued the Provisions of the State Council on the Encouragement of Foreign Investment, launching a series of super-preferential policies for foreign-invested enterprises, especially those for advanced technology and export, in terms of land use, financial support, tax policies, operational independence, etc. In 1988, the Ministry of Finance enacted Interim Provisions of Ministry of Finance of the People's Republic of China Concerning Reduction and Exemption of Enterprise Income Tax and Industrial Consolidated Tax for the Encouragement of Foreign Investment in China's Open Coastal Economic Areas; in 1991, the National People's Congress (NPC) reviewed and approved the Law of the People's Republic of China on Income Tax of

Enterprises with Foreign Investment and Foreign Enterprises, unifying and reducing the income tax of foreign enterprises. Before the new tax law was issued by the NPC to standardize corporate income tax for domestic and foreign enterprises in 2007, the latter had always enjoyed a rate less than half that of the former. In terms of the real income tax level of foreign enterprises, China offered the lowest among neighboring countries at that time (see Table 2).

Table 2 Corporate Tax Rates in East Asia in 1994

Country	Nominal tax rate(%)	Effective tax rate (%)
China	33	12.9
Indonesia	35	32.6
Malaysia	32	18.3
Singapore	27	30.8
Thailand	35	28.5

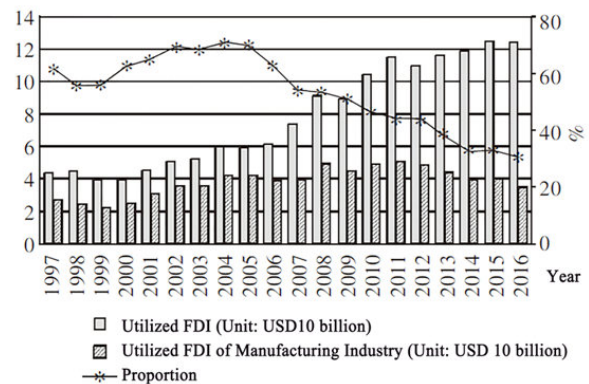
The series of super-preferential policies, especially tax incentives, which targeted foreign enterprises, were extremely helpful in attracting foreign direct investment (FDI).<sup>①</sup> Utilized FDI went up from USD 920 million in 1983 to USD 126 billion in 2016. Since 1993, China has become the developing country which absorbed the most foreign investment and has remained at the top from then on. Specifically, industry, especially the manufacturing industry, as the focus of FDI, has always been the main sector attracting FDI. From 1997 to 2016, China's total utilized FDI amounted to USD 1.59 trillion, of which 49.1% (USD 780.96 billion) was contributed by the manufacturing industry. Despite decreased proportion of foreign investment attracted by the manufacturing industry due to manufacturing recovering of developed countries and increased openness of service and trade in China since the 2008 financial crisis, the percentage remained more than 53% during the 11th Five-Year Plan period, and near 40% at an average level during the 12th Five-



Year Plan period. (See figure 1).

Foreign enterprises have offered significant capital and technical support as well as advanced enterprise systems and management experience, contributing substantially to the development, expansion, and upgrading of Chinese industries. Data since 2000 has shown that they have created more than 1/4 of the output value, directly driving the growth of industry. According to data in 2000-2014, foreign enterprises have always accounted for more than 20% of total industry assets, averaging 23.8%; their average proportion of total fixed assets amounted for an average of 20.6%, and that of sales value was 28.4%. By introducing advanced technology and equipment and investing in capital and technology-intensive industries with higher investment-output efficiency, foreign enterprises have improved the industrial structure, technology and investment efficiency of Chinese industries. Besides, through competition and cooperation with domestic enterprises, foreign enterprises have served as good examples concerning talents, technology, management, research and development (R&D) of products, and market expansion with extensive spillover effects. The flow of human resources, knowledge, and technology at home and abroad is thus facilitated, which spurs the technological progress of domestic enterprises, and inspires profound transformations in terms of operational principles, management models, and governance structures. According to the Ministry of Commerce, by 2013, there were already more than 1,800 foreign R&D centers and more than 50 headquarters of transnational companies operating in China.<sup>①</sup> As the R&D centers of global enterprises are moving eastwards, the manufacturing industry of China is able to move up in the industrial division of the

Figure 1 Growth of Utilized FDI of the Manufacturing Industry from 1997 to 2016



Source: National Bureau of Statistics.

labor chain from the lower end to the middle and higher end.

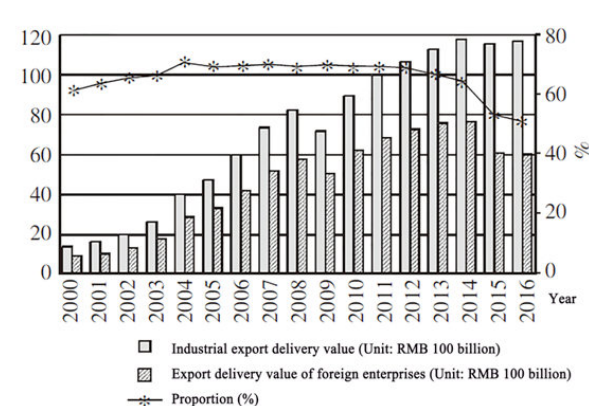
In addition, as an important bridge between China and the global labour system of division, foreign enterprises have expanded China's imports and exports and have increased the export proportion of manufactured goods improving China's export mix, making Chinese industry more competitive globally. Statistics of 2000-2016 show that the industrial export delivery value increased from RMB 1.46 trillion in 2000 to RMB 11.78 trillion in 2016, with an annual average growth of 13.9%. Foreign enterprises had always accounted for more than 60% of the total before 2014, with an annual average of 65.9% (see Figure 2). Thanks to the global chain of the division of labor and sales network of foreign enterprises, "Made in China" is known worldwide. China has become a manufacturing giant and the world's factory.

## 2.2 Going global: participating in international competition by taking full advantage of low factor price

Apart from attracting foreign investment with the most preferential policies to make up for capital

① Li, et al. 2004; Chen, 2007

Figure 2 Exports and the Corresponding Proportion of Foreign Enterprises, 2000–2016



Source: National Bureau of Statistics.

and technical gaps in economic development and enhance industrial productivity and competence, China's open and export-oriented economic strategy also aims to encourage and help Chinese enterprises and products to go global. In fact, since foreign investment introduced in the early stages of reform and opening-up prominently featured processing supplied materials and exporting finished products, the large number of foreign enterprises boosted the processing trade and exports of manufactured goods in China. To further stimulate exports from domestic businesses, and make them strong competitors globally, China carried out many profound system transformations in foreign trade, foreign exchange, investments, etc. On the one hand, the market was allowed to play the leading role in foreign trade through loosened regulations concerning the right to foreign trade, foreign investments, and foreign exchange. On the other hand, export support and assistance policies were carried out, such as tariff reductions and exemptions, tax rebates, the establishment of the Import-Export Bank of China, and the organization of commercial associations.

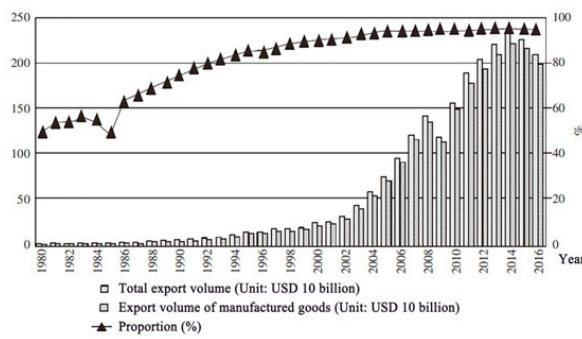
"Made in China," therefore, with the advantage of strong production capacity of manufacturing and support from favorable policies, also enjoyed low costs of land, resources, and labor, fueling the growth of the export business by leaps and bounds. Manufactured goods represent the best of Chinese products "going global."

From 1980 to 2016, the total export volume in China went up from USD 18.1 billion to USD 2.1 trillion, including increases in manufactured goods from USD 9 billion to USD 1.99 trillion. The proportion of manufactured goods in total export volume constantly grew from 50% in 1950, to 80% in 1992, 90% in 1999, and all the way up to more than 95% since 2006 (see figure 3). Increased exported manufactured goods meant an increased proportion of Chinese industrial products in the global market. It started from 2.7% in 1990, ranking 9th globally, then to 6.0% in 2000, ranking 4th, to 13.2% in 2007, ranking 2nd; and finally, to 19.8% in 2010, surpassing the U.S. to reach the top. China thus became a real manufacturing giant. In 2014, China remained at the top, accounting for 20.8% of the global manufacturing industry. Based on the International Standard Industrial Classification of All Economic Activities, China ranks first in seven of the 22 major categories. It tops the world in the production of more than 220 manufactured goods, including iron and steel, cement and automobiles.

In terms of export mix, China's entry into the WTO can be considered a turning point. Twenty years before joining the WTO, labor-intensive products like light industry and textile products were the majority. This proportion peaked in 1994 at 60.5%. After joining, the proportion of capital-intensive products, such as electromechanical and high-tech products (47.3%), surpassed that of labor-intensive products for the first time in 2003. This

① Ministry of Commerce, 2013

Figure 3 Export Increases of Manufactured Goods from 1980 to 2016



Source: National Bureau of Statistics.

indicated that our export mix achieved a significant transformation from labor and resource-intensive products with low added value to capital-intensive ones with higher added values.<sup>①</sup>

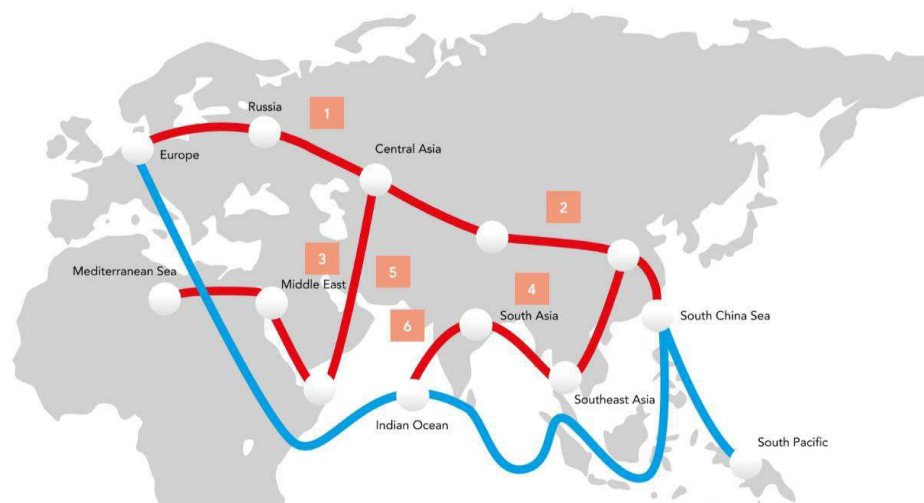
The international competence of Chinese industry still mainly relies on a low factor price; more technological progress is needed to make it a new competitive edge. But this kind of low-cost export-oriented industrialization strategy, which is adapted to the specific stage, has made a crucial contribution to the catching up of Chinese industry, and world economic stability and prosperity. Specifically, for China, an export-oriented strategy helps to maintain a long-term trade surplus in foreign trade, funding industrial reinvestments and technical upgrading. Moreover, the rapid growth of foreign enterprises and export-oriented domestic businesses exerts a strong industrial agglomeration effect, intensifying the advantage of economy of scale for the Chinese processing and manufacturing industries, and facilitating regional economic prosperity and urbanization. For the world economy, cheaper Chinese products satisfy global consumption, benefit consumers, and also have helped to maintain a relatively low inflation rate, globally, over a rather

long period.

### 2.3 International capacity cooperation: establishing a new global industrial system, and building up new momentum for industrial growth

Since the 21st century, the world economic structure has undergone profound changes. The world's economic center is gradually shifting back to Asia. China also speeds up its transformation of economic development model and industrial restructuring. Under such circumstances, the world is becoming ripe for a new round of industrial transfers. As the Chinese economy enters a “new normal,” this country needs to make fuller use of both domestic and international markets and resources. Through global industrial transfers, it can reduce excess capacity, push industrial structural upgrading, and stride towards the higher end of the industrial value chain. With this opportunity, China can also be better engaged in the establishment of international market rules and standard systems. Globally, western developed countries are striving to seek new economic growth engines after the financial crisis, while developing countries are experiencing faster industrialization and urbanization. There is a new global wave of infrastructure initiatives generating great demands for basic quality equipment and production capacity investments and cooperation. Against this background, China proposes an innovative and inclusive foreign industrial cooperation model, namely, industrial production capacity cooperation. In May 2015, the State Council issued the Guiding Opinions on Promotion of International Production Capacity and Equipment Manufacturing Cooperation, which systematically explained the general objectives and priorities of such cooperation, supporting policies, service guarantees, and risk control measures.

① Wei, et al., 2009



*The Belt and Road Initiative*

From the perspective of “going global,” international capacity cooperation aims primarily to shift from the single model of exporting products through trade to the output of production capacity. This refers to various forms of cooperation, such as investments, project construction, technical cooperation and assistance, which adopted flexibly based on the specific situation and needs of partner countries, while bringing into full play one’s own advantage in capital, technology and equipment. In this way, cooperation can extend from processing and manufacturing to cooperative research & development, joint design, marketing, branding and other high-end links, thus improving international cooperation.

To facilitate capacity cooperation, the Chinese government, combining the Belt and Road Initiative, has proposed four international capacity cooperation frameworks comprising “One Axis and Two Wings.” Neighboring Asian countries are the axis on which China is to balance its trade strategy with the ‘West Wing’ of Africa, the Middle East and Central and Eastern Europe. Key countries in Latin America constitute the ‘East Wing’. According to statistics,

by the end of 2016, China had signed bilateral or multilateral capacity cooperation agreements with more than 30 countries, including Kazakhstan, and regional organizations like ASEAN, so as to institutionalize such cooperation; the China Development Bank and the Import-Export Bank of China have granted more than USD 110 billion loans in relevant countries; China Export and Credit Insurance Corporation has undertaken to provide more than USD 320 billion of insurance against exports and investments in these countries; in cooperation with countries along the axis and wings, Chinese enterprises have established 56 trade cooperation zones which are taking shape; the number of enterprises in the zones have surpassed 1,000 with a total output value of more than USD 50 billion, turning over more than USD 1.1 billion of tax to host countries, and creating more than 180,000 jobs for the local populations.<sup>①</sup>

Different from the passive integration into the system of global division of labor by accommodating transferred industries and carrying out processing trade at the beginning of reform and opening-up, international capacity cooperation represents a

① State Council Information Office, 2017

new round of global industrial transfers initiated and led by China in the new era. It aims to match China's advantages in supplying equipment, technology and capital, and the development needs of countries involved, to achieve complementarity, mutual benefits, and common development. By incorporating more developing countries into the system of global division of labor, such cooperation not only reshapes the system dominated by western developed countries since World War II, but also instills new momentum for the world economy.

### 3. Pursuing the new path of industrialization featuring coordinated development of the "Five Pillars" to keep up with the times

During the first two decades since reform and opening-up, market-oriented economic system reform and an open and export-oriented economic strategy helped China in achieving an annual average growth of 15.9%,<sup>①</sup> which represented a miracle and made China the world's largest manufacturing base. In the 21st century, however, this original extensive industrial growth model confronts an increasing number of challenges and restraints, struggling to continue. Main issues follow. First, it has become increasingly obvious that the Chinese industry is not strong or competitive enough despite its big size. As globalization deepens, comparative competence from low factor prices is weakened due to increased costs in China and competition from emerging markets, while a competitive edge based on technological progress and innovation is yet to take shape. It's imperative that Chinese industry strengthens its global competence by transforming the development model. Second, the

traditional resource driven industrial growth model has resulted in severe resource consumption and environmental pollution, which forces China to change its way of development to more intensive and greener industries. Third, the traditional economic model that prioritizes industry has led to a serious economic imbalance between rural and urban areas, and between different regions. Backward agriculture and rural areas make it far more difficult to improve domestic consumption; they are unable to absorb increasing industrial capacity. To continue industrialization, agricultural and rural modernization is a must, which facilitates coordinated development.

Under such circumstances, the 16th CPC National Congress in 2002 proposed to take a new path of industrialization. Since then, China has started to transform its industrial growth model for better adaptation to economic and social changes both at home and abroad, pursuing a sustainable path. Sticking to the new path of industrialization with Chinese characteristics was proposed in the 17th CPC National Congress. In the 18th Congress, it was made clear that "we should take a new path of industrialization with Chinese characteristics, and promote the synchronized development of IT application, urbanization and agricultural modernization. We should promote the integration of IT applications and industrialization, the interactions between industrialization and urbanization, and coordination between urbanization and agricultural modernization, thus promoting the harmonized development of industrialization, IT applications, urbanization and agricultural modernization." In 2015, the CPC Central Committee and the State Council pointed out in the Opinions on Accelerating the Ecological Civilization Construction that, "we should promote the synchronized development of a

① Growth of total industrial output value (1979–1998) in comparable prices.



new industrialization, IT application, urbanization, agricultural modernization, and green development. ...in order to realize sustainable development of the China.” During this process, the CPC and the Central Government have gained a deeper understanding of the new path of industrialization and its role in economic and social development. As a result, the development concept and action plan featuring the synchronized development of the “Five Pillars” has come into being, namely new industrialization, IT applications, urbanization, agricultural modernization and green development.

To take a new path of industrialization with Chinese characteristics, industrial development needs transformation in four aspects. Specifically, they are transformation from factor-driven to innovation-driven, from competition relying on low cost to quality and efficiency, from high consumption and severe pollution manufacturing to green manufacturing, and from production-oriented manufacturing to service-oriented manufacturing.<sup>①</sup> The purpose is to establish a new system of modern industry with a strong capacity for innovation, quality service, close coordination and environmental friendliness. Such a system can improve significantly the status of China’s industry in the global division of labor and value chain, transforming China from a manufacturer of quantity to one of quality. The coordinated development of the “Five Pillars” is also crucial to the new type of industrial progress. IT applications, especially the deep integration of new generations of IT and the manufacturing industry, play a major role in promoting innovation-driven industrial growth. Green development is the necessary support to sustainable industrial progress throughout the whole process. To facilitate urbanization and agricultural modernization, we should establish the mechanism

of industry promoting agriculture and urban areas helping rural areas. In this way, these two processes and industrialization will support and promote each other, coordinating the advancement of industry and agriculture in rural and urban areas. All people can benefit from such efforts. An innovative, coordinative, green and open development model whose fruits would be shared by all was thus put in place.

### **3.1 Promoting transformation of industrial growth from factor-driven to innovation-driven through “integration of two pillars”**

Entering the 21st century, China is becoming increasingly aware that IT applications matter. They can transform and improve traditional industries and strengthen the quality and efficiency of industrial growth. This is the key to transforming the industrial growth model, making it innovation-driven, enhancing international competence, and transforming China from a manufacturer of quantity to one of quality. To facilitate IT applications, China has identified the industrial strategy of prioritizing the IT industry, deepening integration of IT applications and industrialization, and growing to be a manufacturing power based on such an integration. In 1997, China convened the National Informatization Working Conference; in 1998, the Ministry of Information Industry was established. In 2002, the 16th CPC National Congress made the strategic deployment of using IT application to propel industrialization, which would, in turn, stimulate IT application, thus taking a new path of industrialization with Chinese characteristics. In 2006, the General Office of the CPC and the General Office of the State Council jointly issued the State Informatization Strategy (2006–2020). In 2007, the 17th CPC National Congress made further deployments “integrating IT application with industrialization and turning scale-oriented

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① Guo, et al., 2015



industries into strength-oriented industries.” In 2008, the Ministry of Information Industry set up 10 years ago was merged with the industrial administration departments of the National Development and Reform Commission (NDRC) and renamed the Ministry of Industry and Information Technology (MIIT), which strengthened relevant management mechanisms. In 2011, together with four other ministries, the MIIT issued the Opinions on Accelerating Deep Integration of IT Applications and Industrialization, indicating the beginning of the faster integration of the two sectors. The 2015 Assessment Report of Integration of IT Applications and Industrialization revealed that, during the 12th Five-Year Plan period, such integration was effective in transforming and upgrading traditional industries, inspiring new industries and models, and supporting the development of emerging industries. The national development index of integration, which reflects the basic environment of IT applications, industrial applications and application benefits, has increased from 52.7 to 72.7, up 20 percentage points.<sup>①</sup> In 2016, the MIIT issued the Development Plan for the Integration of Information Technology and Industrialization (2016-2020) targeting the 13th Five-Year Plan. It focused on establishing start-ups and innovation platforms supporting the transformation of the manufacturing industry, developing new products, technologies, models, and industries. It also aimed at setting up infrastructure systems facilitating integration and enhancing the new momentum of upgrading the manufacturing industry. A new manufacturing system that is detail-oriented, flexible, intelligent and green is needed to strengthen the global competitive edge of “Made in China” and facilitate the road to a major manufacturer of quality.

### **3.2 Achieving sustainable industrial development through environmentally-friendly**

#### **production**

To achieve sustainable industrial development, China must abandon the traditional path of industrialization featuring high investment, high consumption, severe pollution, low quality, low efficiency and low output. Instead, green development that saves resources and protects the environment should be pursued.

In 1992, after the first global sustainable development agenda was proposed and set up at the UN Conference on Environment and Development, China soon followed with the National Agenda 21, the first national sustainable development action plan that covered the economy, society, resources, and environment. In 1995, for the first time, the 5th Plenary Session of the 14th CPC Central Committee made it clear that sustainable development was of strategic importance and incorporated it into the Ninth Five-Year Plan for National Economic and Social Development and the Outline of the Long-Term Target for the Year 2010. In 2003, the 3rd Plenary Session of the 16th CPC Central Committee proposed the Scientific Outlook on Development, aiming at “comprehensive, coordinated and sustainable development.” In 2007, the 17th CPC National Congress not only approved including the Scientific Outlook on Development and the establishment of a resource-conserving and environmentally-friendly society in the newly amended Constitution of the CPC, but also put forward the advanced concept of an ecological civilization. In 2012, the 18th CPC National Congress integrated the construction of an ecological civilization into the socialist cause with Chinese characteristics. The five-pronged approach for promoting economic, political, cultural, social, and ecological progress was thus put in place. In 2016, based on the 13th Five-Year Plan and the strategic deployment of Made in China 2025, the

① China Center for Information Industry Development, 2016

MIIT released the Industrial Green Development Plan (2016-2020), which identified five goals and 10 priorities of industrial green development for the next five years, in an attempt to establish the mechanism and relevant policy system promoting green development.

### **3.3 Promoting the synchronized development of industrialization, urbanization and agricultural modernization through industry-financed agriculture and urban support-enabled rural development**

From reform and opening-up to the end of the 20th century, due to restrictions like the urban-rural dual household registration system and rural collective land ownership system, the one-way flow of rural and agricultural resources to non-agricultural industries and the urban areas experienced no fundamental change.<sup>①</sup> Compared to industrialization and urbanization, agricultural modernization was lagging, and might even have faced the trend of development reversal.<sup>②</sup> Over time, the imbalance between industry and agriculture, and rural and urban areas widened the gap between income and living standards between urban and rural residents. Economic and social stability was affected; the effort to build a moderately prosperous society in all respects was hampered.

In the 21st century, China started to address the issues of agriculture, farmers and rural areas as a gateway to a more balanced development between industry and agriculture, and rural and urban areas. In 2002, the 16th CPC National Congress identified the need to coordinate economic and social development in the two areas. In 2004, the 4th Plenary Session of the 16th CPC Central Committee noted “two trends” of economic and social development, namely, industry-financed agriculture and urban support-enabled rural

development. Based on these trends, the 11th Five-Year Plan suggested setting up “a permanent mechanism of industry promoting agriculture and urban areas helping rural areas.” The 12th Five-Year Plan further proposed to “simultaneously advance industrialization, urbanization and agricultural modernization. It was also necessary to insist on the policies of promoting “industry-financed agriculture and urban support-enabled rural development,” and increasing investments, relieving burdens, and loosening constraints. The catalytic role of industrialization and urbanization should be brought into full play to develop modern agriculture, increase farmers’ incomes and strengthen of infrastructure and public service in the countryside. The aim was to solidify the foundations of agricultural and rural development and facilitate the progress of modern agriculture. In 2012, the 18th CPC National Congress added another pillar – IT application – to the original three pillars of simultaneous development. Specifically, it meant to “take a new path of industrialization with Chinese characteristics and advancing IT application, urbanization and agricultural modernization. We should promote the integration of IT application and industrialization, the interactions between industrialization and urbanization, and coordination between urbanization and agricultural modernization, thus promoting the harmonized development of industrialization, IT applications, urbanization and agricultural modernization.” In 2015, the 5th Plenary Session of the 18th CPC Central Committee put forward five-pronged approach of “innovative, coordinated, green, open and shared” development, and emphasized once again to “correctly deal with major relations, balance development between urban and rural areas, balance economic and social development, synchronize industrialization, IT application, urbanization and

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<sup>①</sup> Cai, 2006

<sup>②</sup> Wang, 2011

agricultural modernization...so as to enhance overall development.”

Economic and social development since the 12th Five-Year Plan period reveals that coordinated development among industries and between cities and the countryside was increasing. From 2012 to 2016, the employment structure had changed dramatically. The respective employment proportion of the first, second and tertiary industries had turned from 33.6 : 30.3 : 36.1 to 27.7 : 28.8 : 43.5. In 2014, the employment pattern experienced a historical transformation as the number of urban employees surpassed that in villages for the first time. Alongside this adjustment, urbanization came to its major turning point. By the end of 2011, the urban population accounted for 51.27%, exceeding the rural population for the first time. By 2016, the urbanization rate had increased to 57.35%. Such progress drove income increases in rural and urban areas and narrowed their income gap. From 2013 to 2016, national per capita disposable income increased by 7.4% annually in real terms, 0.8 percentage points higher than that of the per capita GDP during the same period. In rural areas, per capita disposable income enjoyed an annual average growth of 8.0%, 1.5 percentage points higher than that of urban residents. In 2012, urban resident incomes were 2.88 times that of the rural area. This figure was reduced to 2.72 in 2016.<sup>①</sup>

#### 4. Developing an industrialization model with Chinese characteristics with concerted efforts of “effective markets and enabling governments”

Since the end of World War II, the very few low-income countries and regions which succeeded in

reshaping themselves into high-income economies all effectively combined the “effective markets” and “enabling governments”.<sup>②</sup> The industrialization in China is “special”. Since forced to open its doors to the outside world in the mid-19th Century, Chinese government has always played a crucial role in industrialization and modernization. For almost every developmental milestone, the Chinese government under different regimes either influenced or guided the model and direction of industrialization and shaped the path.<sup>③</sup> Dong Zhikai<sup>④</sup> also believed that the government-led model of a market economy with Chinese characteristics was essential to industrialization and modernization.

The government plays a dominant role in China’s industrial development. Two factors are at play in this situation: the basic economic system of keeping socialist public ownership as the mainstay and allowing diverse forms of ownership to develop side by side, and the fact that the Chinese economy is transitioning and catching up. On one hand, public ownership as the mainstay means that the state-owned economy must take dominance in the national economy at all time. Such dominance may not be an absolute advantage in economic share, but mainly for its increased support and influence on the national economy, which is vitalized through market-oriented reform. On the other hand, China is a big country. When it transitioned from a planned economy to a market economy, or gradually opened its doors to the outside world, a strong government was required to gradually establish a favorable economic and trade system through comprehensive reform while maintaining economic and social stability. In addition, to accelerate industrialization, and make China one of the top global manufacturing powers by the middle of the 21st century, the government

① National Bureau of Statistics, 2017

② Lin, 2014

is indispensable. Based on the prediction of global economic growth and competition, the government needs not only to make holistic strategic plans and deployments, but also to provide necessary public goods and services support including systems and infrastructure to facilitate implementation.

Since reform and opening-up of China, the market has played a decisive role in resource allocations, and full integration into the global economy has also been a permanent goal. Nonetheless, as a developing socialist country, China must rely on the government as an essential, or even dominant role in market-oriented and globalized reform and opening-up, and in the industrial transitions striving for innovation-driven and sustainable development. In simple terms, the active or even dominant role of the government doesn't mean that it will intervene in enterprises' operation at the micro level. Instead, the government must act as a provider of production factors (public goods in particular), a guard of competition order, and the decision-maker for forward-looking issues.

The active roles of the Chinese government over the past forty years of industrial reform, opening-up, transition and catching up are summarized below.

First, in the transition from a planned economy to a socialist market economy, the government created the needed institutional environments for the effective operation of a socialist market economy by guiding the reform of the economic system. Specifically, it played two main roles. Focusing on the system transformation and protection of property rights, the government promoted reform of SOEs and supported, encouraged and guided the development of the non-public sector. Market actors thus became diversified, while a unique mixed-ownership economy also took shape. In terms of the

price mechanism and investment system reforms, the government promoted the unified factor price mechanism mainly determined by the market, and the industrial access system for all actors in an attempt to create a transparent and open market environment that featured fair competition.

Second, the government acted as an active driving force during opening up. More specifically, it established and improved a foreign-related economic system to build up economic and trade systems in line with the global standard. It also carried out preferential policies with respect to foreign investment, foreign trade, export and industrial support. The goal was to attract investment, encourage exports, and make Chinese industries more competent globally. In addition, it served an active part in international economic governance and drove global transformations in investment and trade systems. In this way, a favorable external environment was created for Chinese enterprises to optimize resource allocations and market layouts worldwide.

Third, based on adjustments in the global economic structure, trends in competition, and changes in domestic resource endowments, the path of industrial development was adjusted strategically and timely. Efforts were made to guide the transformations of the industrial development model from factor-driven to innovation-driven, from extensive development to low-carbon, green and sustainable development and from industrial progress alone to coordinated advancement of industry and agriculture in urban and rural areas. Complementary to the transformations in industrial development strategies, the government made the following efforts. Strategies that were innovation-driven and talents-prioritized were implemented to increase R&D investments and talent trainings, which

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① Wu, 2014  
② 2009

contributed significantly to scientific development and innovation. In this way, strong technology, talent and system support were provided to make industrial growth innovation-driven. Also, deepened reform was necessary to establish market-oriented resource pricing mechanisms and to strengthen standards and regulations in terms of green industrial development. This helped to set up a permanent mechanism featuring low-carbon, green and sustainable industrial development. Fiscal and financial assistance to green industries was also provided through macroeconomic means. Last, agricultural protections were improved to promote new urbanization and foster county-level economies, so that counties could be empowered to

accommodate relocated functions from urban areas and were better positioned to drive the progress of urban areas. At the same time, policy measures like balanced allocation of public resources and equal access to public services between the cities and the countryside were conducive to coordinated development of industry and agriculture. By doing so, industrialization could nurture agriculture and benefit rural areas, while modernized villages and agricultural systems could facilitate sustainable industrial development so that both rural and urban residents could share the fruits of industrialization, urbanization and agricultural modernization.

(Translator: Cui Min, Wu Lingwei;

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