

Current Chinese Economic Report Series

Zhilun Jiao · Xiaofan Wu · Bing-lian Liu ·
Shao-ju Lee · Zhijuan Chen *Editors*

Contemporary Logistics in China

Systemic Reconfiguration and
Technological Progression

 Springer

Current Chinese Economic Report Series

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Chapter 1

Development of China's Logistics Market



Xiaomei Jiang

The People's Republic of China welcomed its 70th birthday in 2019. During the year, while facing a complex combination of a faltering world economy and deteriorating global trade conflicts, China's economy was stable on the whole. Economic growth reached the government's expectation and further opening up to the outside world was sustained, which reflects strong resilience and vitality in the Chinese economy. This healthy economic performance provided strong support to the steady development of China's logistics industry. In 2019, the industry continued to expand, and the quality of its development has steadily improved, thus accelerating China's shift from a "big logistics country" to a "strong logistics country".

This chapter is divided into three sections. In section "[The Environment for China's Logistics Development](#)" introduces the domestic and foreign environment for the development of China's logistics industry. This includes the global economy and trade, China's economic development, and its opening up to the world. In section "[Overall Scale of China's Logistics Market](#)" details the development of the scale of China's logistics market, including the total value and total expense of social logistics, freight volume and turnover, cargo throughput and container throughput in ports, cargo and mail throughput in civil airports, and the business volume of the express delivery industry. In section "[Major Characteristics of China's Logistics Market](#)" summarizes the major characteristics of China's logistics market, including changes in demand for logistics, capital flow into the logistics industry, automation and digital transformation in the logistics industry, logistics market integration, and the internationalization of domestic logistics companies.

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Table 1.1 Economic growth of the major world economies, 2015–2019 (%)

	2015	2016	2017	2018	2019
World economic growth	3.1	3.2	3.7	3.7	2.9
Developed economies	1.9	1.7	2.3	2.3	1.7
United States	2.5	1.5	2.3	2.9	2.3
Eurozone	1.5	1.8	2.4	1.8	1.2
Japan	0.6	0.9	1.8	0.9	1.0
Emerging markets and developing economies	4.0	4.4	4.7	4.6	3.7
China	6.9	6.7	6.8	6.6	6.1
Russia	−3.7	−0.2	1.8	1.7	1.1
India	7.3	7.1	6.7	7.3	4.8
Brazil	−3.8	−3.5	1.1	1.3	1.2
South Africa	1.3	0.3	0.9	0.8	0.4

Source Compiled from *the World Economic Outlook (Jan. 2016, Jan. 2017, Jan. 2018, Jan. 2019, Jan. 2020)*, published by the IMF

The Environment for China’s Logistics Development

Obvious Slowing of Global Economic and Trade Growth

Major Economies Facing Declining Growth Rates

In 2019, a strained situation in world trade continued to intensify and bring about further uncertainty. This inhibited the potential for global economic growth and the major economies generally were shown to be slowing down. According to IMF data, the global economic growth rate was 2.9% in 2019, 0.8% points lower than that of the previous year. This was the lowest in the decade. Among the developed economies, despite America’s continuous economic expansion, its growth rate did slow to some extent; meanwhile, the Eurozone’s slowed much more than expected. Among the emerging markets and developing economies, China’s economic growth rate slowed and India’s declined significantly. Table 1.1 shows the economic growth of the major world economies for 2015–2019.

Growth Rate of World Merchandise Trade Declining Significantly

In 2019, global trade was compromised by a turbulent environment. Protectionism was ratcheted up and the main economies were driven into regular friction on trade, causing the global trade growth rate to decline significantly. In April 2020, the WTO released data showing the world merchandise trade volume to be shrinking at a rate

Table 1.2 Growth rate of the world merchandise trade, 2018–2019 (%)

		2018	2019
Volume of world merchandise trade		2.9	−0.1
Exports	North America	3.8	1.0
	South and Central America	0.1	−2.2
	Europe	2.0	0.1
	Asian	3.7	0.9
	Other Regions	0.7	−2.9
Imports	North America	5.2	−0.4
	South and Central America	5.3	−2.1
	Europe	1.5	0.5
	Asian	4.9	−0.6
	Other Regions	0.3	1.5

Source WTO (2020)

of −0.1% in 2019, which was 3% points lower than that of the previous year. Table 1.2 shows the growth rate of the world merchandise trade for 2018–2019.

Due to this sluggish economic growth and intensifying friction in global trade, China's foreign trade growth rate also slowed in 2019. China's foreign trade volume was 31.55 trillion RMB, a 3.4% year-on-year increase. The growth rate declined by 6.3% points from the previous year. Export volume was 17.23 trillion RMB, a 5% year-on-year increase. Import volume was 14.32 trillion RMB, 1.6% higher than the previous year. Trade volume between China and the U.S. was 541.22 billion USD, which was 14.6% lower than the previous year. China's exports to the U.S. came to 418.51 billion USD, which had fallen by 12.5% from a year earlier. China's imports from the U.S. came to 122.71 billion USD, a 20.9% drop on the year before (Ministry of Commerce 2020). ASEAN overtook the U.S. as China's second-largest trade partner after the EU. Figure 1.1 shows China's total value of imports and exports for 2013–2019.

Increase in China's Integrated Economic Strength

GDP Per Capita Breaks Record

China's economy showed strong resilience while facing the pressure of increasingly challenging domestic and foreign risk. In 2019, its GDP was 99.09 trillion RMB, representing a 6.1% year-on-year increase. Its GDP per capita at average exchange rates was 10.28 thousand USD, breaking a new record of surpassing 10 thousand USD for the first time. Figure 1.2 shows China's GDP and growth rate for 2006–2019.

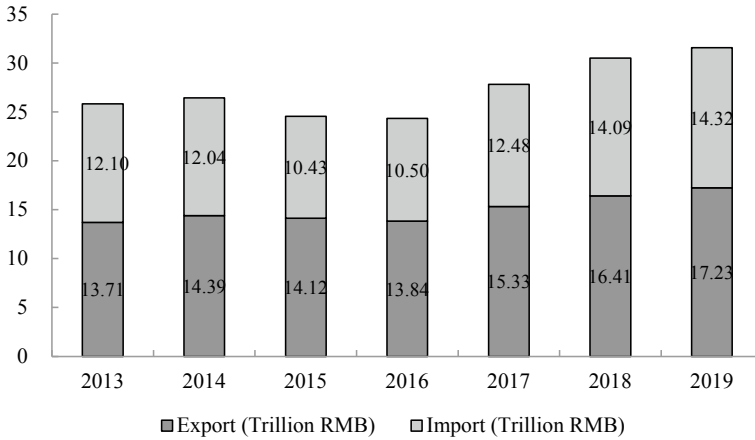


Fig. 1.1 China's total value of imports and exports, 2013–2019. *Source* Compiled from the *China Statistical Yearbook (2019)*, and *China Statistical Bulletin of National Economic and Social Development (2019)*, both published by the National Bureau of Statistics of China

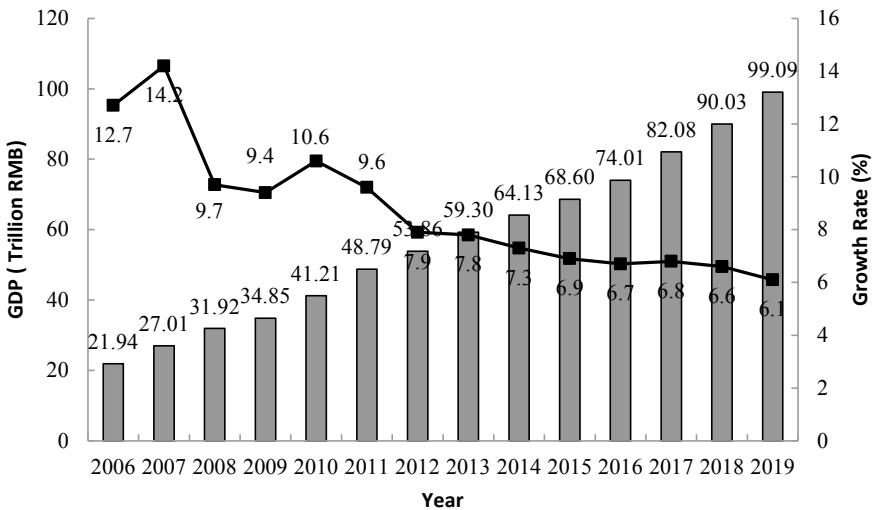


Fig. 1.2 China's GDP and growth rate, 2006–2019. *Note* GDP is computed per current price of each year; growth rates are computed based on constant price of the respective base year (i.e., 2005, 2010, 2015, each is respectively the base year for its successive five years). *Source* Compiled from the *China Statistical Yearbook (2019)*, and *China Statistical Bulletin of National Economic and Social Development (2019)*, both published by the National Bureau of Statistics of China

Domestic Consumer Market Remaining Active

In 2019, Chinese citizens enjoyed a continued increase in incomes. The per-capita disposable income was 30,733 RMB, and after adjusting for inflation, the actual growth was 5.8%. By the year end, there were 1.4 billion people in China. It had the largest middle-income population in the world and its consumer market has the highest potential for growth.

In 2019, China had 41.2 trillion RMB in the retail sales of consumer goods. After adjusting for inflation, the actual growth was 6.0%. Online consumption continued to grow quickly. The online sales total in China amounted to 8.52 trillion RMB, up 19.5% year-on-year, accounting for 20.7% of the total retail sales of consumer goods. Import consumption continued to grow rapidly as well. According to the General Administration of Customs of the PRC, China's imports consumption increased by 19% from 2018 to 2019. The greatest increases were seen in fruits, seafood, cosmetics, and healthcare products, increasing by 39.8%, 37.6%, 38.8%, and 25.8%, respectively.

Significant Acceleration in the Construction of a New Generation of Information Infrastructure

The new generation of information infrastructure refers to the 5G network, data centers, industrial internet provisions, and so on, which comprise key infrastructure for China in this digital economy era. At the beginning of 2019, the Chinese government explicitly stated that the construction of such infrastructure would be accelerated.

Consequently, during the same year, China started to build the 5G network with the construction of 5G base stations as the early-stage focus. By the year end, more than 130,000 5G base stations had been built, with impressive scale: the take up was expanding by millions of users every day. As the stations proliferated, other applications of 5G technology also developed as rapidly, such as video surveillance, AR/VR/MR products, UAVs, and robots.

By the end of 2019, there were about 74,000 data centers in China, accounting for 23% of all worldwide. Among these, there were 2,213 internet data centers (IDC) in use, which continue to expand and upscale. In 2019 alone, China planned to construct 320 data centers, among which mega-scale and large-scale data centers account for 36.1%.

In 2019, China's industrial internet provision saw 536.1 billion RMB in value-add, and the total economic impact brought about by the integration of industrial markets and the Internet was 1.6 trillion RMB (CAICT 2020). In addition, according to the Alliance of Industrial Internet in China, as of the end of 2019, there were hundreds of different kinds of industrial internet platforms.

China's Increasing Openness

"Belt and Road" Construction Pushing Forward with High Quality

The scope of collaboration in the Belt and Road Initiative expands as it moves toward Western Europe. Since 2019, more than 10 countries, including Italy, Switzerland, and Peru, signed the Belt and Road collaboration document with China. Italy was the first G7 member to join the initiative. By the end of November 2019, China had signed 199 Belt and Road collaboration documents with 137 countries and 30 international organizations.

The interconnectivity among the various infrastructural components is significantly improving. For example, the biggest transportation infrastructure project of the Belt and Road Initiative, the Sukkur-Multan section, was completed in advance, by 2019. The Gwadar Port officially began transit trade with Afghanistan. The China-Russia East-Route Natural Gas Pipeline is an iconic project in Sino-Russian energy cooperation. The first stage of the China-Thailand Railway Project had also officially begun work and the Fuxing Tunnel of the China-Myanmar international railway is now open.

The operational quality of the China–Europe freight train has improved significantly. The number of journeys made by these trains amounted to 8,225 in 2019, a 29% year-on-year increase. 725,000 TEUs were transported, up 34% year-on-year. The ratio of laden containers was 94%. The types of goods transported also continued to diversify from technology products, such as mobile phones and computers, to now include items such as clothing, machinery, grain, and alcohol. The import and export of automobiles has become a new growth factor. At the same time, the operations of China–Europe international mail freight trains have been normalized. New business forms such as “door-to-door” transportation and special transportation services have been emerging continuously.

Deployment of Pilot Free Trade Zone Nearing Completion

The establishment of the Pilot Free Trade Zones (PFTZ), with their focus on system innovation, is a strategic move for China to open up even more. In 2019, China established six PFTZ, in Shandong, Jiangsu, Guangxi, Hebei, Yunnan, and Heilongjiang, and the Shanghai PFTZ New Area was officially listed. By the end of 2019, China had set up a total of 18 PFTZ in four batches, which not only covered all coastal provinces but also were established in border areas for the first time. These PFTZ were positioned with differing functions, reflecting that the implementation of the strategic configuration of China's PFTZ was approaching completion.

Legal Framework for Foreign Investment Continuing to Develop

In March 2019, the National People's Congress of China drafted the Foreign Investment Law of the People's Republic of China, which replaces the existing Sino-Foreign Equity Joint Ventures Law, the Sino-Foreign Contractual Joint Ventures Law, and the Wholly Foreign Owned Enterprises Law. It is a new foundational legislation governing foreign investment in China. It highlights the expansion required in opening up and the maximizing of foreign capital. It focuses on enhancing and protecting investments, promising standardized rules for domestic and foreign investments, and ensuring fairness. The enactment of these new laws sends a strong signal regarding China's persistence in opening up, which suggests the nation is poised to take further steps in securing a stable, transparent, and predictable market environment with fair competition.

In June 2019, the National Development and Reform Commission and the Ministry of Commerce of the PRC revised the scope of their restrictions to foreign investment and related business in the release of their "Negative Lists for Foreign Investment 2019" and "Negative Lists for Foreign Investment Access in Pilot Free Trade Zones 2019". The list for the former was shortened from 48 to 40 items, and the latter from 45 to 37 items.

In addition, China released new initiatives for openness in four industries, namely services, manufacturing, mining, and agriculture. China allowed foreign holdings or sole proprietorship in more fields and continued to open more PFTZ.

Overall Scale of China's Logistics Market

Total Value of Social Logistics

In 2019, China's social logistics¹ volume maintained stable growth although the growth rate slowed. The total value of social logistics was 298.0 trillion RMB. After adjusting for inflation, it showed a 5.9% year-on-year increase, and the growth rate had fallen by 0.5% points on the previous year. Figure 1.3 shows the total value and growth rate of social logistics for 2006–2019. Table 1.3 shows the composition of the total value of social logistics for 2015–2019.

¹ Total value of social logistics is composed of five parts: (1) total value of the commodities of farming, forestry, animal husbandry, and fishing products in the social logistics field ("total logistics amount of agricultural products" for short); (2) total value of the commodities of industrial products in the social logistics field ("total logistics amount of industrial products" for short); (3) total logistics value of import goods; (4) total value of commodities of renewable resources in the social logistics field ("total logistics amount of renewable resources" for short); (5) logistics value of goods from institutes and residents (including luggage in railway and air transport, parcels and letters in mailing services, various donations from all sectors of society and handling, carriage and transportation of goods incurred by movement activities of institutes and residents).

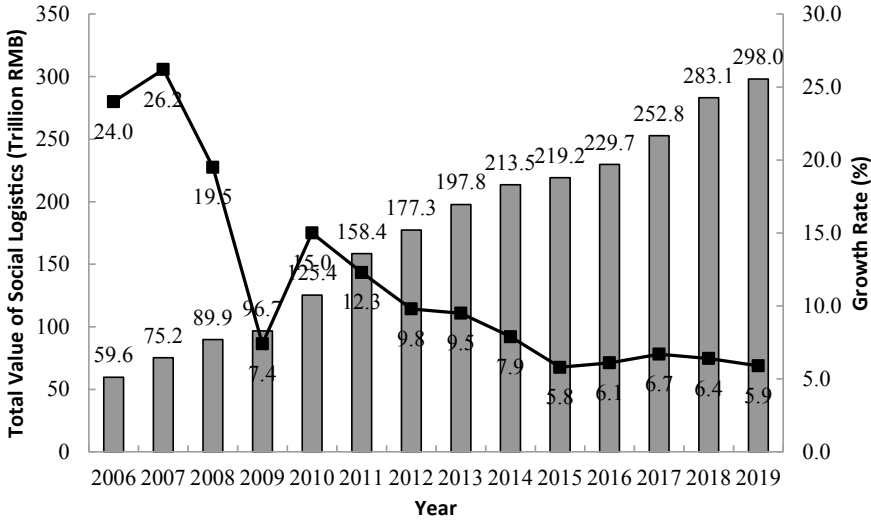


Fig. 1.3 Total value and growth rate of social logistics, 2006–2019. *Note* Growth rates for 2006–2009 are nominal growth rates; those for 2010–2019 are real growth rates. *Source* Compiled from the *National Logistics Operations Bulletin for 2006–2019*, published by the National Development and Reform Commission, and the China Federation of Logistics and Purchasing

Total Expense of Social Logistics

In 2019, China’s social logistics expenses totaled 14.6 trillion RMB, an increase of 7.3% year-on-year, slowing 2.5% points on the year before. The share of total social logistics expense in GDP was 14.7%, which was 0.1% points lower than the previous year. Table 1.4 shows the total logistics expense, the increment, and the share of GDP for 2006–2019. Table 1.5 shows the composition of the total social logistics expenses in 2019.

Freight Volume and Freight Turnover

In 2019, the annual nationwide freight volume was 47.06 billion tons, and freight turnover was 19.93 trillion ton-kilometer. The volume of commercial freight transport increased by 4.8% year-on-year and freight turnover by 3.4% year-on-year.² With China’s transport industry restructuring policies as impetus, a portion of bulk cargo volume moved from highway to rail or sea. Freight volume and turnover on rail and sea grew at a higher rate. Meanwhile, highway, civil aviation, and pipeline volumes

² This data is sourced from the Ministry of Transport of the People’s Republic of China’s “2019 Statistical Bulletin on the Transportation Industry”. Commercial cargo traffic is comprised of rail, highway, sea, and civil aviation. It does not include pipeline data.

Table 1.3 Composition of total value of social logistics, 2015–2019

Indicator	2015		2016		2017		2018		2019	
	Value (trillion RMB)	Share (%)	Value (trillion RMB)	Share (%)	Value (trillion RMB)	Share (%)	Value (trillion RMB)	Share (%)	Value (trillion RMB)	Share (%)
Industrial products logistics	204.0	93.1	214.0	93.2	234.5	92.8	256.8	90.7	269.6	90.5
Imported goods logistics	10.4	4.7	10.5	4.6	12.5	4.9	14.1	5.0	14.3	4.8
Agricultural products logistics, etc. ¹	4.8	2.2	5.2	2.2	5.8	2.3	12.2	4.3	14.0	4.7
Total	219.2	100	229.7	100	252.8	100	283.1	100	298.0 ²	100

¹This data is the sum of the total value of agricultural logistics products, the total value of recycled logistics resources, and the total value of logistics goods by organizations and residents

²Due to the rounding of decimals, the sum of the numbers in this column is slightly different from the total
Source Compiled from the *National Logistics Operations Bulletin for 2015–2019*, published by the National Development and Reform Commission, and the China Federation of Logistics and Purchasing

Table 1.4 Total logistics expense, increment and share in GDP, 2006–2019

Year	Total expense on social logistics (trillion RMB)	Increment from previous year (%)	Share of GDP (%)
2006	3.8	13.5	18.3
2007	4.5	18.2	18.4
2008	5.5	16.2	18.1
2009	6.1	7.2	18.1
2010	7.1	16.7	17.8
2011	8.4	18.5	17.8
2012	9.4	11.4	18.0
2013 ¹	10.2	9.3	16.9
2014	10.6	6.9	16.6
2015	10.8	2.8	16.0
2016	11.1	2.9	14.9
2017	12.1	9.2	14.6
2018	13.3	9.8	14.8
2019	14.6	7.3	14.7

¹In 2013, the Ministry of Transport of the PRC adjusted the statistical indicators for freight volume and turnover. The National Bureau of Statistics of China used the new indicators to adjust the values for social logistics expenses and its ratio to GDP in 2013. The table shows the adjusted values

Source Compiled from the *National Logistics Operations Bulletin for 2006–2019*, published by the National Development and Reform Commission, and the China Federation of Logistics and Purchasing

Table 1.5 Composition of total social logistics expense in 2019

Indicator	Value (trillion RMB)	Increment from previous year (%)	Share (%)
Total expense on social logistics	14.6	7.3	100
– Transportation expense	7.7	7.2	52.7
– Storage expense	5.0	7.4	34.3
– Management expense	1.9	7.0	13.0

Source Compiled from the *National Logistics Operations Bulletin for 2019*, published by the National Development and Reform Commission, and the China Federation of Logistics and Purchasing

grew at a slower rate. Table 1.6 shows the annual nationwide freight volume, freight turnover, and growth rate for 2006–2019. Table 1.7 shows the freight volume, freight turnover, and growth rate of different transportation modes in 2019.

Table 1.6 Annual nationwide freight volume, freight turnover, and growth rate, 2006–2019

Year	Freight volume		Freight turnover	
	Volume (billion ton)	Growth rate (%)	Freight turnover (trillion ton-km)	Growth rate (%)
2006	20.37	9.4	8.88	10.7
2007	22.76	11.7	10.14	14.2
2008	25.86	13.6	11.03	8.8
2009	28.25	9.2	12.21	10.7
2010	32.42	14.7	14.18	16.1
2011	36.97	14.1	15.93	12.3
2012	41.00	10.9	17.38	9.1
2013	40.99	–	16.80	–
2014	41.67	1.7	18.17	8.2
2015	41.76	–	17.84	–
2016	43.87	5.1	18.66	4.6
2017	48.05	9.5	19.74	5.8
2018	51.53	7.2	20.47	3.7
2019	47.06	–	19.93	–

Note The Ministry of Transport of the PRC adjusted the statistical indicators for freight volume via highway and sea. In 2015 and 2019, it adjusted the statistical indicators for highway freight volume. The data from these two years are thus non-comparable to the year before

Source Compiled from the *China Statistical Yearbook (2019a)*, and *China Statistical Bulletin of National Economic and Social Development (2019b)*, both published by the National Bureau of Statistics of China

Cargo and Container Throughput in Ports

In 2019, nationwide cargo throughput was 13.95 billion tons, a 5.7% year-on-year increase, with the growth rate higher than the year before. Among this, foreign cargo throughput was 4.32 billion tons, which was 4.7% higher than the previous year. The nationwide container throughput was 261 million TEUs, a 4.4% increase on the previous year, and the growth rate eased slightly from the year before. Table 1.8 shows the nationwide cargo throughput and growth rate of ports for 2006–2018. Figure 1.4 shows the nationwide container throughput and growth rate for 2006–2018.

Cargo and Mail Throughput in Civil Airports

In 2019, China's aviation market achieved small growth despite the international airfreight market downturn. This was achieved by relying on the domestic market and the Belt and Road countries' airfreight development potential. Nationwide cargo

Table 1.7 Freight volume, freight turnover, and growth rates of different transportation modes in 2019

Indicator	Volume	Growth rate (%)
Total freight volume (billion ton)	47.06	–
Among which: Rail	4.32	7.2
Highway	34.35	4.2
Water	7.47	6.3
Civil aviation (megaton)	7.53	2.0
Pipeline	0.91	1.8
Freight turnover (trillion ton-kilometer)	19.93	–
Among which: Rail	3.007	4.4
Highway	5.964	0.4
Water	10.396	5.0
Civil aviation (billion ton-kilometer)	26.32	0.3
Pipeline	0.535	1.0

Source (growth data for highway and freight turnover volumes): *Statistical Bulletin of Transportation Industry Development in 2019*, published by the Ministry of Transport

Source (remaining data): *China Statistical Bulletin of National Economic and Social Development (2019b)*, published by the National Bureau of Statistics of China

Table 1.8 Nationwide cargo throughput and growth rate of ports, 2006–2019

Year	National cargo throughput of ports		Share of cargo throughput for foreign trade	
	Volume (billion ton)	Growth rate (%)	Volume (billion ton)	Growth rate (%)
2006	5.57	14.8	1.61	18.1
2007	6.41	15.1	1.85	14.6
2008	7.02	9.6	1.99	7.4
2009	7.66	9.0	2.18	9.8
2010	8.93	16.7	2.50	14.7
2011	10.04	12.4	2.79	11.4
2012	10.78	7.3	3.06	9.7
2013	11.77	9.2	3.36	9.9
2014	12.45	5.8	3.59	6.9
2015	12.75	2.4	3.66	2.0
2016	13.20	3.5	3.85	5.1
2017	14.01	6.1	4.09	6.3
2018	14.35	2.5	4.19	2.4
2019	13.95	5.7	4.32	4.7

Source Compiled from the *Statistical Bulletin of Transportation Industry for 2006–2019*, published by the Ministry of Transport

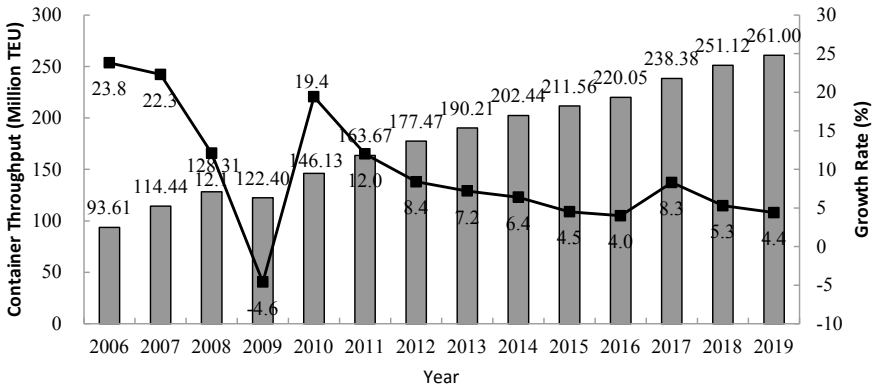


Fig. 1.4 Nationwide container throughput and growth rate, 2006–2019. *Source* Compiled from the *Statistical Bulletin of Transportation Industry for 2006–2019*, published by the Ministry of Transport

and mail throughput in civil airports was 17.10 million tons, a 2.1% year-on-year increase. 12 provinces in the country saw a more than 10% growth rate in cargo and mail throughput; among them, nine were from the central and western provinces. Cargo and mail throughput in Beijing, Shanghai, and Guangzhou occupied 46.5% of cargo and mail throughput in domestic airports, 2.3% points lower than the previous year. Figure 1.5 shows the nationwide cargo and mail throughput and growth rate in civil airports for 2006–2019.

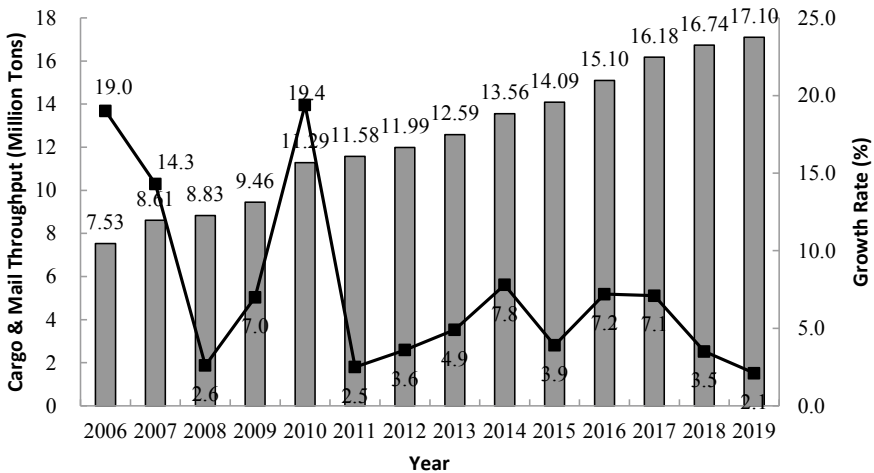


Fig. 1.5 Nationwide cargo and mail throughput and growth rate in civil airports, 2006–2019. *Source* Compiled from the *Statistical Bulletin on the Productivity of National Airports for 2006–2019*, published by the Civil Aviation Administration

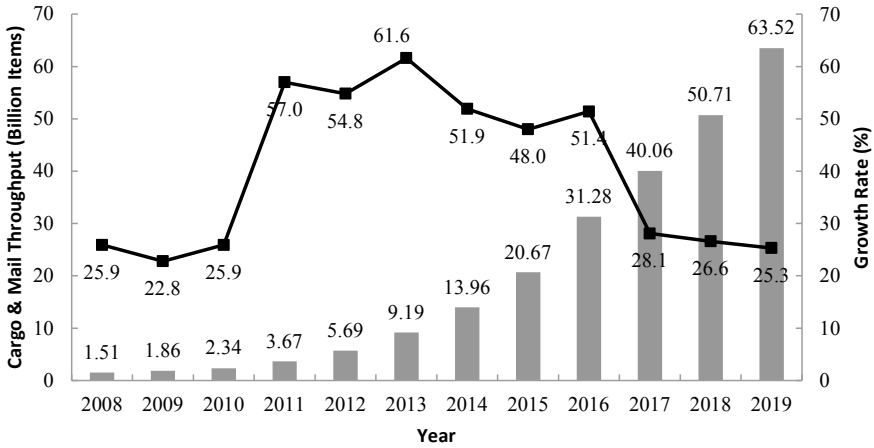


Fig. 1.6 Nationwide business volume of express delivery enterprises and the growth rate, 2008–2019. *Source* Compiled from the *Statistical Bulletin of Postal Service Industry for 2008–2019*, published by the State Post Bureau

Business Volume of Express Delivery Industry

In 2019, China’s express delivery volume for business continued to grow at increasing rates. The industry delivered 63.52 billion items, a 25.3% year-on-year increase, with the increment relaxing slightly that year. In terms of the industry structure, the proportion of intra-city business volume decreased, while inter-city business volume increased. Meanwhile, the proportion of international and Hong Kong-Macao-Taiwan business volume remained the same. Figure 1.6 shows the business volume and growth rate of express delivery enterprises in China for 2008–2019. Figure 1.7 shows the business volume by categories of express delivery for 2008–2019.

Major Characteristics of China’s Logistics Market

Demand in Segmented Logistics Market Continuing to Diverge

Growth Rate of Overall Demand for Logistics Slows

In 2019, the growth of the overall demand for China’s logistics slowed due to declining global economic growth as a whole and the continued restructuring and upgrading of the Chinese economy. For example, the growth rate of the total social logistics value was lower than that of GDP for five consecutive years since 2015. In 2019, the growth rate fell by 0.5% points as compared to the previous year. In 2019,

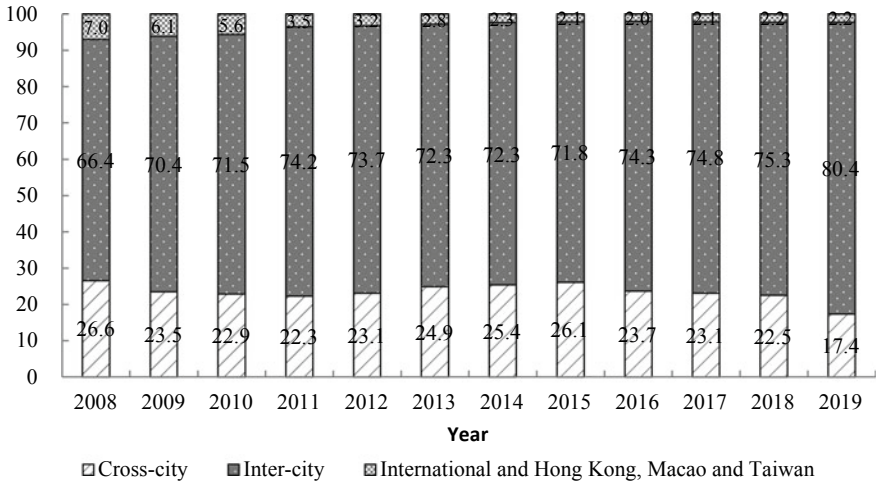


Fig. 1.7 Distribution of business volume of express delivery by category, 2008–2019. *Source* Compiled from the *Statistical Bulletin of Postal Service Industry for 2008–2019*, published by the State Post Bureau

nationwide commercial freight volume increased by 4.8%, freight turnover increased by 3.4%, and nationwide cargo and container throughput grew by 5.7% and 4.4%, respectively. The growth rate of these indicators was on average lower than the GDP growth rate. Although the business volume of express delivery continued its very rapid growth, it had been slowing for four consecutive years since 2016.

Divergence of Demand for Differing Modes of Cargo Transportation

In 2019, the Chinese government continued to impose structural adjustments on cargo transportation. A significant trend was the transfer from the shipment of commodities via road towards rail and water freight, as well as rail-water intermodal transportation. This caused growth in demand for highway freight to be significantly lower than that of rail and water. According to statistics from the Ministry of Transport of the People’s Republic of China (2019b), by the end of the third quarter of 2019, the proportion of bulk cargo, such as ore or coke, being transported via highways to the 17 main ports was 51.4%, which was 16.5% points lower than 2017’s 67.9%. The proportion via rail and sea increased by 11%, from 31 to 42%. In 2019, ports across the country had handled 5.16 million TEU containers that were sea-rail intermodal, a 14.2% increase on the previous year. In 2019, China’s railway freight volume increased at a rate of 7.2%, 3% points higher than the highway growth rate; waterway freight volume increased at a rate of 6.3%, which is higher than the highway growth rate by 2.1% points.

Fast Growth in Logistics Demand for Domestic Consumer Goods

In 2019, China's logistics demand for household consumer goods, such as e-commerce, cold chain, and express delivery, continued its high growth trend due to various factors including Chinese citizens having higher disposable incomes and considerable innovation in the retail sector.

The e-commerce retail sector remained innovative and active in 2019. New business forms such as live broadcast e-commerce, social e-commerce, and fresh food e-commerce developed rapidly, bringing continued rapid growth in the demand for e-commerce logistics. In 2019, the nationwide total online sales for physical goods increased by 19.5% as compared to the previous year. The growth rate was 11.5% points higher than for total retail sales of consumer goods. In 2019, business volume of express delivery reached 63.52 billion items, a 25.3% year-on-year increase.

As consumers have increasing demands for high quality goods and due to advances in intelligent technologies, China's cold chain and instant delivery logistics market experienced continued rapid growth in demand. In 2019, China's cold chain logistics market size was about 339.12 billion RMB, a 17.6% year-on-year increase. Within this, food products occupied 235 million tons, a 24.7% year-on-year increase (Cui 2019). In 2019, there were more than 400 million instant delivery users in China, creating more than 18 billion transactions during the year. The goods being delivered expanded from the initial meal deliveries towards items like fresh food, medicine, clothing, and books (CFLP and Meituan 2020).

Capital Driving Acceleration of Logistics Industry Development

Logistics Remaining a Key Focus in Venture Capital

The entire venture capital market in China cooled in 2019, and its enthusiasm for the logistics sector also declined as compared to previous years. Nevertheless, there were more than 70 investments and other financing events occurring during the year, amounting to over 50 billion RMB. The targets were mostly emerging enterprises in clearly segmented fields, such as e-commerce logistics, express delivery, less than truckload shipping (LTL), international logistics, smart logistics, and integrated logistics. Some of the investments and financing projects in 2019 are shown in Table 1.9.

IPO Completion by Several Logistics Enterprises

In 2019, there were four enterprises in the logistics industry that completed their IPOs. Qingdao Port International Co., Ltd. and China Master Logistics Co., Ltd.

Table 1.9 Overview of some investments and financing projects in the logistics industry in 2019

Number	Financing enterprise	Subfield of logistics	Amount financed
1	Yimidida Group Limited	LTL freight	1.8 billion RMB
2	JUSDA Supply Chain Management International Co., Ltd.	Supply chain logistics	2.4 billion RMB
3	TuSimple	Self-driving trucks	215 million USD
4	Huolala	Intra-city distribution services	300 million USD
5	Zongteng Network Co	Cross-border e-commerce logistics	700 million RMB
6	Newlinks Group	Refined oil e-commerce service platform	725 million RMB
7	Xinning Logistics	Integrated logistics	376 million RMB
8	YunQuNa.com	International logistics e-commerce service platform	70 million USD
9	STO Express	Express services	14.642 billion RMB
10	JUmeng	LTL freight	300 million RMB
11	Cainiao Network Technology	E-commerce logistics	23.3 billion RMB

Source Jia (2019)

were listed on the Shanghai Stock Exchange. Rizhao Port Jurong Co., Ltd. and ESR Cayman Ltd. were listed on the Hong Kong Stock Exchange. The overview of the four IPOs is shown in Table 1.10.

Logistics Enterprises Actively Distributing Asset-Backed Securitization Products

In 2019, due to the encouragement of the Chinese government to develop asset-backed securities (ABS), a group of enterprises with quality logistics storage facilities issued innovative ABS products. This not only expanded their financing channels, but also accelerated the upgrading and development of China's logistics facilities' amenities. Table 1.11 provides an overview of the distribution of ABS products by logistics enterprises in 2019.

Table 1.10 Overview of 2019 logistics enterprise IPOs

Number	IPO company	Core business	Amount raised	Capital usage
1	Qingdao Port International Co., Ltd.	Handling and support services for all cargo at the port, value-added services for logistics and port	1.979 billion RMB	Five projects including crude oil storage facility in the Dongjiakou port area, and the intellectualization and upgrading of the Qingdao port area. The capital raised will also supplement operating funds
2	China Master Logistics Co., Ltd.	One-stop cross-border integrated logistics services	919 million RMB	Mainly used to purchase ships, construction of cross-border e-commerce distribution center, logistics informatization, purchasing large transport amenities, etc.
3	Rizhao Port Jurong Co., Ltd.	Port services for cargo such as grain and wood	600 million RMB	Key projects including purchasing of new berths and relevant amenities, as well as expanding the scope of businesses
4	ESR Cayman Ltd.	Logistics real estate business in the Asia–Pacific region	12.6 billion HKD	Developing own logistics property, optional M&A or strategic investment in logistics real estate companies in the Asia–Pacific region, etc.

Continued Evolution in Automating and Digitalizing Logistics

Port Enterprises Actively Exploring the Application of 5G and Blockchain Technologies

The 5G network is part of a new generation in mobile communication technology. It has more application scenarios in smart ports due to its ultra-high speed, fewer delays, and copious access points. For example, remote control of amenities from the

Table 1.11 Overview of the distribution of ABS products by logistics enterprises in 2019

Number	Company	Product type	Scale of distribution	Underlying assets
1	GLP	Asset-Backed Security (ABS)	1.5015 billion RMB	GLP's high-standard storage facilities in Shanghai and Beijing
2	BLOGIS	Asset-Backed Security (ABS)	1.789 billion RMB	BLOGIS' logistics parks in Kunshan, Nantong, Tianjin, and Langfang
3	Cainiao Network Technology	Real Estate Investment Trusts (REITs)	1.07 billion RMB	Cainiao's "liangjiang" warehouse in Chongqing
4	Bright Real Estate Group Co., Ltd.	Commercial Mortgage Backed Securities (CMBS)	600 million RMB	Bright Real Estate's bonded storage logistics center and cold chain logistics park in Shanghai
5	YPIH	Commercial Mortgage Backed Notes (CMBN)	650 million RMB	YPIH's logistics parks in Suzhou and Shenyang
6	VX Logistic Properties	Asset-Backed Security (ABS)	573 million RMB	Quality warehouse logistics real estate of VX Logistics Properties in several cities including Ningbo and Shanghai

sea, the Internet of Vehicles, video surveillance in parks, the automation of container yard amenities, and suchlike can all significantly improve production and transport efficiency at ports. Hence, large-scale ports and dock operating enterprises in China pay close attention to the adoption of 5G technologies. In the early stages when China activated the pre-application of 5G for business in 2019, these ports and enterprises had already started to join forces with technology providers, with collaborative innovations and testing. For example, in the first half of 2019, Qingdao Port, Ningbo Port, and Tianjin Port all successfully adopted the remote control of traveling cranes via 5G. In August, the Shanghai International Port Group completed testing for the demonstration operation project of smart heavy trucks in the Yangshan Deep-Water Port in Shanghai. By working with other intelligence-based innovation in the Yangshan Port area, these smart trucks using 5G managed to unload cargo in this complex working environment. The project activated the use of automated driving, which planned the optimal route and accurately transported cargo to specified destinations. In November, COSCO Shipping Ports Limited successfully realized the

telecommunication-control of its automated guided vehicle (AGV) and smart tally control in its Port of Xiamen dock.

Equally forward-looking, blockchain technology is a decentralized and distributed peer-to-peer data system. Since information recorded online cannot be easily tampered with, there is huge potential for blockchain development in the logistics and supply chain fields. In 2019, the Shekou Container Terminal issued the first blockchain e-receipt in the country. The Liaoning Port Group designed and innovated a “blockchain electronic cargo release platform”, which was tested at the Dalian Port. The Nansha Smart Port Blockchain Platform, which was jointly developed by the Guangzhou Port Group, Chinese Academy of Sciences, and others, went into full testing. This platform makes it near impossible for the port’s “paperless” documentation and data to be interfered with. It provides traceable data-checking and document storage, empowering management services for container shipment enterprises and relevant clients.

E-commerce Logistics Enterprises Continued Lead on Intelligence-Based Innovation in Logistics

In 2019, Meituan.com released its plan for a new retail industry solution—unmanned warehouses. They are sized between 50 and 200 m² and are equipped with such technologies as smart shelves, AGV robots, and packing machines. This realizes whole process automation, including sorting, transport, handover, and packing. Suning Logistics released the road-testing overview of its second-generation unmanned delivery vehicles. This model operates at 8 km/h faster than conventional speeds. It can detect obstacles 100 m away, identify traffic lights effectively, conduct real-time interactions with surrounding cars and the traffic environment, develop strategies for passing through crossroads, and more besides. Cainiao Network released their intelligent express cabinet, which can weigh automatically and calculate transport fees. JD Logistics’s 5G-intelligent logistics park in Beijing has been completed. This park combines 5G technologies and high-resolution camera technologies; it can realize the location management of warehouse staff and detect the real-time crowding in the warehouse’s production area. This helps to adjust and optimize resources, significantly raising production efficiency.

Logistics Technology Enterprises Driving Digital Transformation of Traditional Manufacturing Industry Logistics

Emerging logistics technology enterprises in 2019, such as SINOIOV, Beijing Huitongtianxia IOT Technology Co., Ltd., and Best Inc., invested considerable resources in developing smart logistics solutions and actively pushed for the digital transformation of logistics in traditional manufacturing enterprises.

SINOIOV is a technology enterprise that uses the Internet of Vehicles big data technology to provide diversified products and services for the road freight industry.

Since July 2019, the company started collaborating with Guangzhou Liby Group Co., Ltd., a large company in the cleaning products field, to provide a comprehensive logistics solution based on the Internet of Things, cloud communication, and big data technologies. This solution realized many functions, such as the visualization of goods monitoring in the transportation process, alerts for transportation routes going off track, and reminders for overdue payments for goods. This raises Liby Group's client service standards and overall joint efficiency of the supply chain.

Beijing Huitongtianxia IOT Technology Co., Ltd. is an Internet of Things (IoT) technology company that provides integrated fleet management and service solutions. In 2019, it established a joint venture with the Aluminum Corporation of China Limited to develop intelligent light-duty aluminum trailers and cargo containers that have greater transportation efficiency. Huitongtianxia IOT Technology developed an IoT solution for large-scale cement enterprise Jinglan Cement Co., Ltd., which entails the "standardization of AI hotspots + automatic load detection + visualization of transportation tasks". This is to monitor and prevent distributors from selling products in areas not listed in contracts, which can help Jinglan Cement avoid losses of up to 13 million RMB each year.

At the end of 2017, intelligent supply chain service provider Best Inc. became a strategic partner for P&G (China) Co., Ltd. in its digitalized reshaping. As of July 2019, Best Inc. had already signed with more than 40 of P&G (China)'s primary distributors. These companies henceforth use the WMS and TMS systems provided by Best Inc. to connect with P&G (China)'s ERP system seamlessly, thus increasing their warehouse and distribution efficiencies significantly. At the same time, P&G (China) can also obtain the distributors' data on goods in stock and in transit, in real-time. This supports the formation of its marketing strategies.

Express Enterprises Increasing Investment in Technology to Lower Costs

In 2019, influenced by various factors such as the incessantly rising labor costs and intense market competition, large-scale express enterprises in China continued to increase their investments in technology. Greater automation and informationization reduce operating costs and strengthen their competitiveness. For example, in 2019, Best Express invested 1.3 billion RMB in updating their automated amenities as well as optimizing their network structure, route planning, stock prediction, and other functions. As of the end of the third quarter in 2019, Best Express's market share had increased from 10.4 to 11.7% year-on-year. Its express delivery costs (excluding delivery fees) fell by 19.6% year-on-year. ZTO Express exploited technologies to optimize trunk routes and increase the load on vehicles to lower their transport costs. The delivery costs for each transaction fell by 8.8% year-on-year. In 2019, YTO Express invested around 400 million RMB and completed the makeover and expansion of 22 trans-shipment center hubs. In 2019, YTO Express's delivery costs per transaction fell by 13.4% year-on-year, and operation costs per transaction in the trans-shipment centers fell by 17.1% year-on-year.