



China Economic Quarterly Q3 2021

China's GDP growth slowed to 4.9% in Q3, but still grew by 9.8% in the first three quarters, as the lingering pandemic exerts downward pressure.

Nov 2021

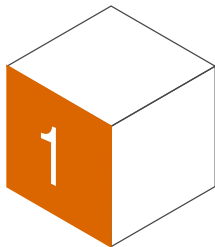
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Major economic indicators

China's **economic growth** slowed down to 4.9% in Q3 year-on-year, mainly because the number of COVID-19 cases rebounded in several provinces, and epidemic prevention and control measures were tightened in the summer during the peak vacation period. Another reason is that the benchmark growth rate in Q3 2020 was 4.9%, which is much higher than the previous quarters in the same year.

Overall, the economy continued to expand in the first three quarters of the year. By the end of Q3, GDP reached 82.31 trillion yuan with a 9.8% growth year-on-year. Compared to the official annual target of above 6% for GDP growth in 2021, there is no doubt that China will meet its goal. The key challenge is to seek a balance between steady growth and epidemic prevention and control in Q4 this year and Q1 next year, especially since the 2022 Olympic Winter Games will officially open in Beijing on 4 February.

Average GDP growth rate (geometric mean) for the first three quarters of 2020 and 2021 was 5.2% which is 0.8% less than during the same period in 2019 (the pre-pandemic level). Average Q3 GDP growth rate for 2020 and 2021 reached 4.9% which is 1.1% less than Q3 in 2019.

Furthermore, according to data from the National Health Commission, by 26 October, more than 2.51 billion doses of COVID-19 vaccines have been administered in China. As a result, approximately 80% of the nation's population have been vaccinated. The speed of vaccination was much faster than previously expected.

However, the threat of the pandemic persists. COVID-19 might still be the biggest uncertainty for China's economic development in Q4 and early next year, due to the surge of Delta variant cases and the potential threat of new variants.

Additionally, IMF emphasised that the rapid spread of Delta and the threat of new variants have increased global uncertainty. IMF lowered the projection of global economic growth in 2021 to 5.9% due to worsening pandemic dynamics and supply chain disruptions. IMF also projected that the global economy would grow by 4.9% in 2022 (as the benchmark of 2021 is fairly high).

Meanwhile, the world should also be alert to the potential damages of surging energy prices and heightened inflation as a result of global economic recovery.

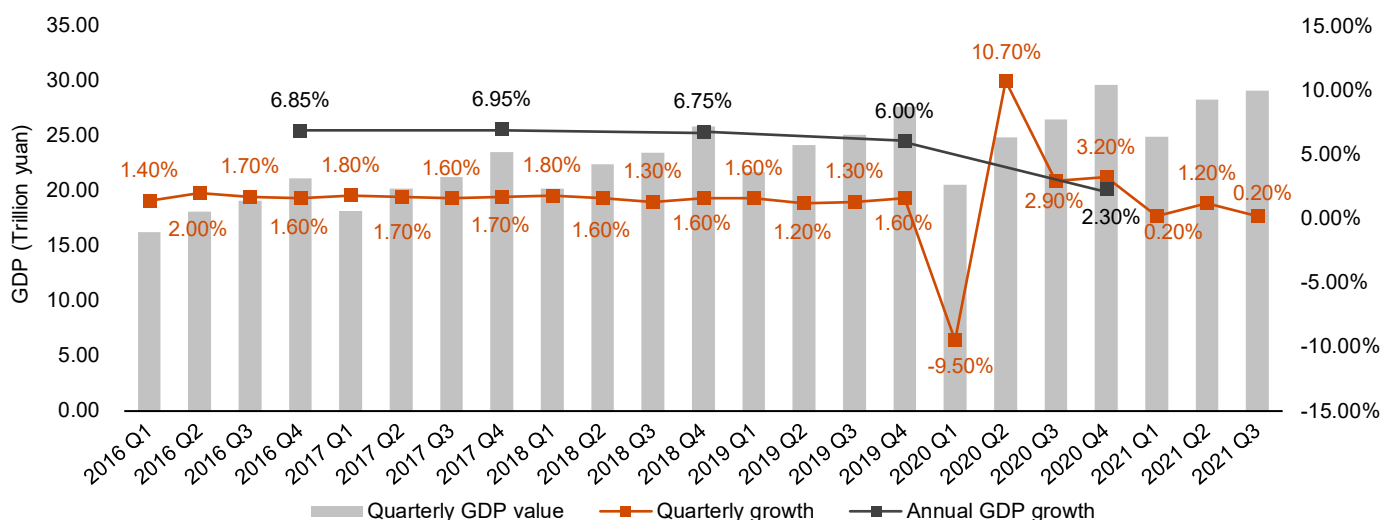
For China, global economic recovery will certainly create stronger demand for exports and a better external environment.

Besides, by the end of October, China has created 10.45 million jobs, reaching 95% of its annual goal of adding 11 million new employment opportunities. In comparison, 10.97 million jobs were created during the same period in 2019 before the pandemic. This indicates that the employment market has almost recovered to the pre-pandemic level. By the end of Q3, the number of migrant workers from rural areas has increased to 183 million which 700,000 more than in Q2.

In September, the urban surveyed unemployment rate in 31 major cities dropped to 5.0% which is 0.2% lower than during the same period in 2019. Unemployment rate for the age group of 16 to 24 years (mostly fresh college graduates) remained at a higher level of 14.6% in September.

In addition to the COVID-19 pandemic, other top economic challenges for China in Q4 2021 and the year of 2022 would be to keep the balance between economic growth and macro control of the real estate sector, as well as achieving peak carbon emissions. Hopefully, 2022 would be the year to finally walk out of the shadow of the COVID-19 pandemic.

Figure 1: Quarterly GDP values and quarterly and annual GDP growth rate



Source of data: Unless otherwise stated, economic data is from the National Bureau of Statistics, Wind and financial data from the People's Bank of China.

In the first three quarters, the output of the primary, secondary and tertiary industry was 5.14, 32.09, and 45.08 trillion yuan respectively. The growth rates were 7.4%, 10.6% and 9.5% year-on-year.

Average growth rates for the first three quarters of 2020 and 2021 were 4.8%, 5.7% and 4.9% year-on-year respectively. Meanwhile, the figures were 2.9%, 5.6% and 7.0% for primary, secondary and tertiary industry during the same period in 2019.

More specifically in the first three quarters, the primary, secondary and tertiary industry accounted for 6.25%, 38.99% and 54.76% of the total GDP respectively. In Q3, these figures were 7.91%, 39.11% and 52.98%

On the other hand, the service sector contributed 54.2% of GDP growth which is 1.2% higher than in the first half year.

Consumption, investment and international trade further expanded and

increased by 16.4%, 7.3% and 22.7% respectively in the first three quarters year-on-year.

As a result, in the first three quarters, final consumption expenditure contributed to 64.8% of GDP growth which is around 3% higher than in the first half year.

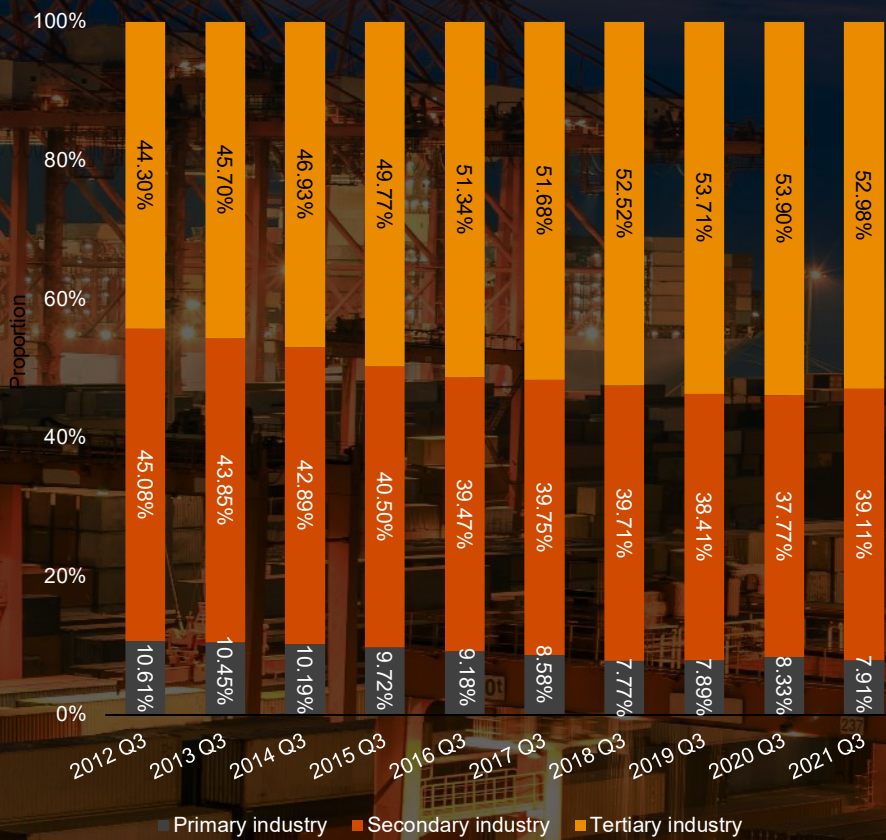
Furthermore, in the first three quarters, the contribution rate of total capital formation (investment) to economic growth reached 15.6% which is 3.6% less than in the first half year.

The contribution rate of net exports of goods and services to economic growth was 19.5%.

In general, the growth of consumption and investment was hit by the COVID-19 pandemic more seriously in Q3 than in the previous quarters, but China's economic recovery still managed to get back to the right track by the end of Q3. Interruptions in the short term will not reverse such trend.



Figure 2: GDP composition



Total fixed asset investment reached 39.78 trillion yuan in the first three quarters, increasing by 7.3% year-on-year. The growth rate has slowed down from 12.6% in the first half year. Average growth rate for the first three quarters of 2020 and 2021 was 3.8%. It went up by 7.7% in Q3 2021 compared to the same period in 2019.

The growth of total fixed asset investment peaked at 35% in January, and then has been declining month by month to 7.3% by the end of September.

More specifically, **by ownership**, private investment reached 22.75 trillion yuan increasing by 9.8% year-on-year in the first three quarters. It accounted for 57.2% of total investment (55.7% in 2020, 56.4% in 2019 and 62% in 2018).

In contrast, state-owned investment rose by 5.0% in the first three quarters. Similar to the previous quarters, the growth rate is much lower than that of private investment.

Furthermore, fixed asset investment from Hong Kong SAR, Macao SAR and Taiwan region owned companies increased by 14.6% in the first three quarters year-on-year. Fixed investment of foreign-owned enterprises increased by 6.6% over the same period. Fixed investment of domestic-owned (including state-owned and private enterprises, as well as others such as collective enterprises, limited liability companies, etc.) went up by 7.1%.

By sector, fixed asset investment of the primary (1.04 trillion yuan), secondary (11.91 trillion yuan) and

tertiary industry (26.84 trillion yuan) increased by 14.0%, 12.2%, and 5.0% in the first three quarters respectively. During this period, average fixed asset investment growth rates of the primary, secondary and tertiary industry for 2020 and 2021 were 13.0%, 4.0% and 3.4% respectively.

By industry, fixed asset investment in the manufacturing sector rose by 14.8% in the first three quarters year-on-year. The industrial sector went up by 12.2%. Infrastructure investment (excluding the production and supply of electricity, gas and water) increased by 1.5% only.

For the manufacturing sector, investment in raw material manufacturing increased by 15.1%, investment in consumer goods manufacturing increased by 12.4%, and investment in equipment manufacturing increased by 16.5%.

In the first three quarters, as one of the three key areas of fixed asset investment, in addition to manufacturing and infrastructure, real estate investment rose by 8.8% which is much lower than 15.0% in H1 this year.

In the first three quarters, three sectors recorded negative growth. Fixed asset investment in the manufacturing of automobile reduced by 6.5% (compared to the 2.3% decline in H1). Purchase of equipment and instruments saw a 2.3% reduction in fixed asset investment. Fixed asset investment in railway transportation reduced by 4.2%.

Additionally, fixed asset investment in road transportation, management of

water conservancy, environmental and public facilities, and management of public facilities grew by less than 1%.

Similar to H1, most of the industries with single-digit growth in fixed asset investment are dominated by state-owned enterprises.

Furthermore, there were several industries that registered an increase of around 20% to nearly 30% in fixed asset investment, such as processing of food from agricultural products (also namely as agricultural and sideline food processing; 20.6%), manufacturing of chemical raw materials and chemical products (19.3%), manufacturing of special purpose machinery (25.2%), manufacturing of computers, communications and other electronic equipment (24.4%), manufacturing of electrical machinery and equipment (22.0%), manufacturing of railways, shipbuilding, aerospace and other transportation equipment (26.7%), and health and social services (24.5%).

Lastly, fixed asset investment in high-tech manufacturing and high-tech services grew by 18.7% and 6.6% respectively in the first three quarters.

Total GDP in China was 82 trillion yuan in the first three quarters. Although total capital formation (investment) only contributed 15.6% to economic growth, the 40 trillion yuan total fixed asset investment had a dramatic influence on China's economic recovery. For Q4 2021 and the year of 2022, investment is expected to remain stable growth as China's economy continue to recover.

Figure 3: Fixed Asset Investment

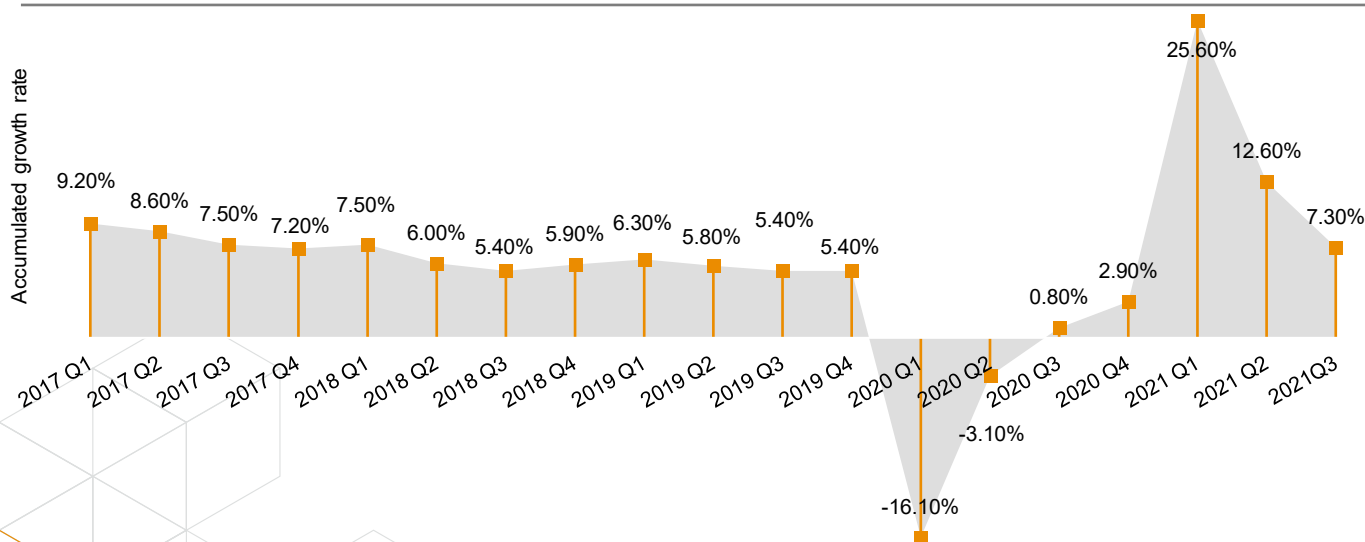
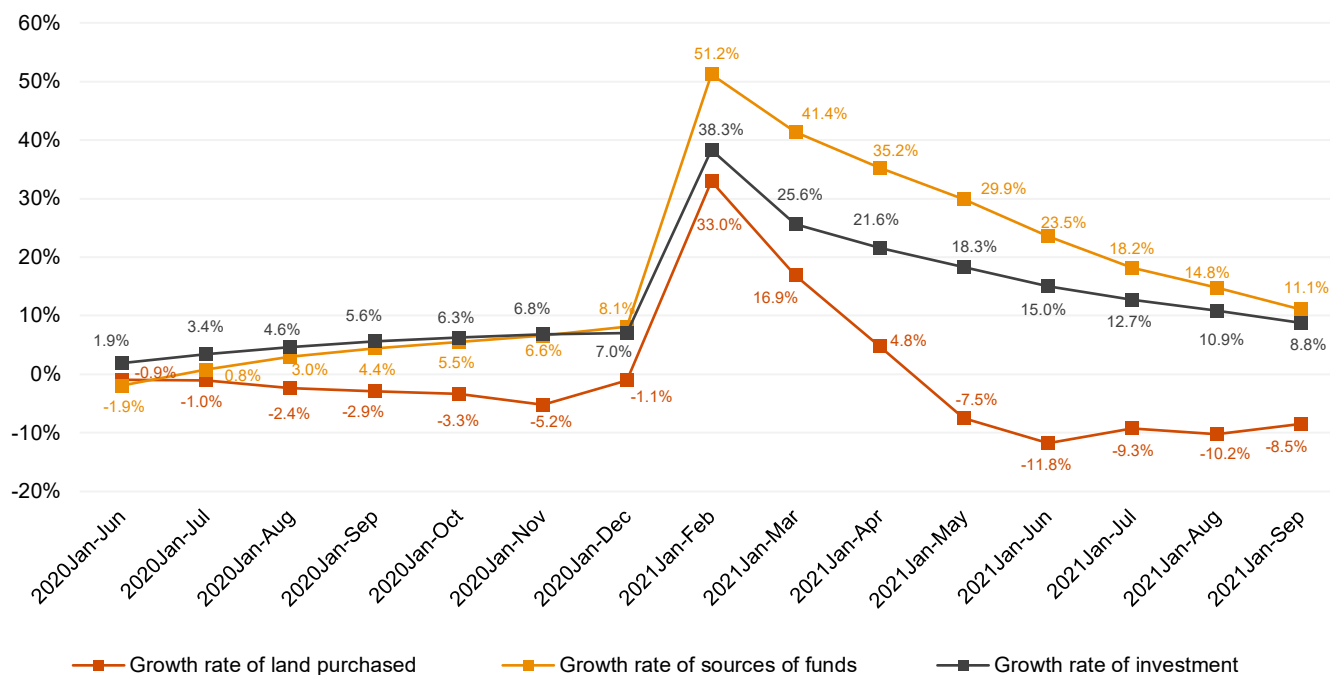


Figure 4: Growth rates in real estate



Total real estate investment increased by 8.8% in the first three quarters year-on-year, which is much lower than 15.0% in H1 and 25.6% in Q1. It reached 11.26 trillion yuan accounting for 28.3% of total fixed asset investment.

For the first three quarters, average growth rate for 2020 and 2021 was 7.2%. The growth rate was up by 14.9% by the end of Q3 2021 compared to the same period in 2019.

In addition to investment, the growth of other major indicators has also slowed down in Q3, such as sales, sources of funds for developers, and national housing climate index.

The real estate sector is facing a major turning point due to the double effect of “the three red lines”, (caps for debt-to-cash, debt-to-assets and debt-to-equity ratios) and the potential nation wide implementation of property tax. The three red lines have put a lot of pressure on the developers (the supply side). Meanwhile, property tax will curb the demand.

Around 75.4% (8.49 trillion yuan) of total real estate investment went to residential buildings. It increased by 10.9% in the first three quarters. Total sales value of all properties increased by 16.6% (38.9% in H1) and reached 13.48 trillion yuan. Out of which, 12.2 trillion were sales of residential properties and increased by 17.8% year-on-year.

In September, prices of newly built properties in the tier one cities of Beijing, Shanghai, Guangzhou and Shenzhen went up by 5.3% year-on-year, while prices of resale residential properties increased by 7.7%. In tier two cities, prices of newly built and resale properties increased by 4.1% and 3.0% respectively. For tier three cities, these prices rose by 2.3% and 1.4%.

In the first three quarters, the sources of funds for real estate development enterprises reached 15.15 trillion yuan and increased by 11.1% year-on-year, but the amount was halved compare to H1 this year. Average growth rate for 2020 and 2021 was 7.7%, increasing by 16% compared to the first nine months in 2019.

More specifically, 4.72 trillion yuan was generated from self-raised funds which increased by 6.1% year-on-year. There was 5.69 trillion yuan from deposits and prepayment which increased by 25.6%. Personal mortgage loans and domestic bank loans provided 2.41 trillion yuan and 1.88 trillion yuan funds respectively. Out of which, personal mortgage loans went up by 10.7%, and domestic bank loans decreased by 8.4%. Furthermore:

- Total value of land transactions (or land transaction price) remained almost flat in the first three quarters. Earlier in H1, it decreased by 5.7%.

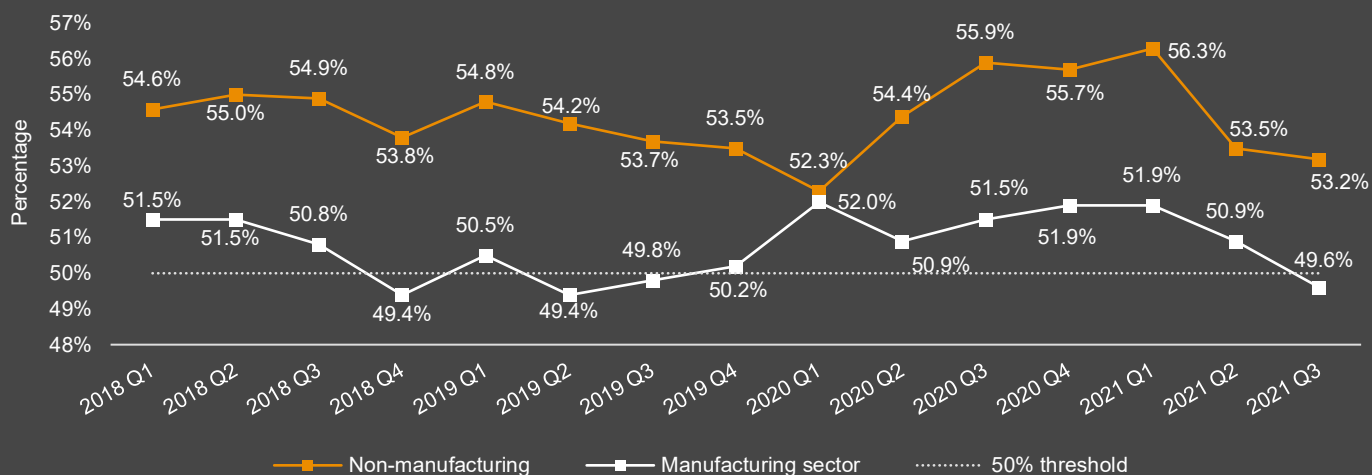
- Land acquisition area (growth rate of volume of land purchased) decreased by 8.5%.
- Floor space of buildings at the start of construction decreased by 4.5% (residential, office, and commercial); residential space decreased by 3.3% while it increased by 5.5% in H1.

In September, the real estate development prosperity index (also referred to as the “national real estate climate index”) was 100.74, hitting the lowest level of the year. Additionally, in the first three quarters:

- Floor space of residential buildings completed remained flat while office and commercial buildings declined by 2.8% and 1.7% year-on-year respectively.
- Total floor space of residential buildings sold surged by 17.8%, but still around 10% less compared to H1. Total floor space of office and commercial buildings reduced by 2.8% and 1.7% respectively.
- Floor space under construction increased by 7.9%.

After around 20 years of bull run, China’s property market might be at a critical turning point. Before the COVID-19 pandemic ends, China’s economic recovery would be fragile.

Figure 5: Purchasing Managers' Index



China's **Purchasing Managers' Index (PMI)** for the manufacturing sector was 50.4%, 50.1% and 49.6% in July, August and September respectively. PMI has been falling from 51.9% month by month since March to below the threshold of 50% in September.

Average PMI remained above 51% in the first two quarters, and declined to around 50% in Q3 as a result of the rebound of COVID-19 cases. This matches the slower GDP growth rate in Q3.

In September, impacted by a setback in energy-intensive industries, most of the sub-indexes of PMI for the manufacturing sector dropped to less than 50%. The only three exceptions were main raw material purchase price index (63.5%), producer price index (56.4%), and production and business activities expectation index (56.4%).

The raw material purchase price index and producer price index were 2.2% and 3.0% higher than those of the previous month, both rising to their highest points in four months.

Three indexes with the lowest scores were open orders index (45.6%), new export orders index (46.2%) and import index (46.8%). These three indexes were relatively weak in the first half year and remained below the threshold of 50% for most of the months. In particular, open orders index has been lower than 50% since the beginning of the year.

In September, among the 21 industries surveyed, 12 had index scores that

were higher than the critical point of 50%. This is two industries more than the previous month. A large number of manufacturing industries have expanded compared with the previous month, but overall PMI was still lower in September than in August.

Additionally, both supply and demand have slowed down. For instance, the production index and new orders index were 49.5% and 49.3% respectively in September, down by 1.4% and 0.3% from the previous month, both hitting their lowest points of the year. The two indexes of energy-intensive industries are also lower than 45.0%.

By the size of enterprises, PMI of large, medium, and small-sized enterprises in September was 50.4%, 49.7% and 47.5% respectively. All three sub-indexes have declined since June. This indicates that the operating environment for large enterprises has been generally stable. 40% of the surveyed small enterprises reported price hikes in raw material, fund shortages and insufficient market demand. Some of the small enterprises surveyed were facing many difficulties in production and operation.

In the third quarter, the **non-manufacturing PMI** also went down, especially in August. It has declined from 55.3% in May to 53.3% in July, and 47.5% in August before it recovered to 53.2% in September. This reflects that the expansion of non-manufacturing sector has weakened in the third quarter compared to the second quarter. Meanwhile, in Q3, there were more COVID-19 cases than in Q2.

By sector, in September, the non-manufacturing PMI of the service sector increased to 52.4% which is 7.2% higher than in August. Construction industry business activity index further dropped to 57.5% which is 3% less than in August. It was 60.1% in June and 62.3% in March.

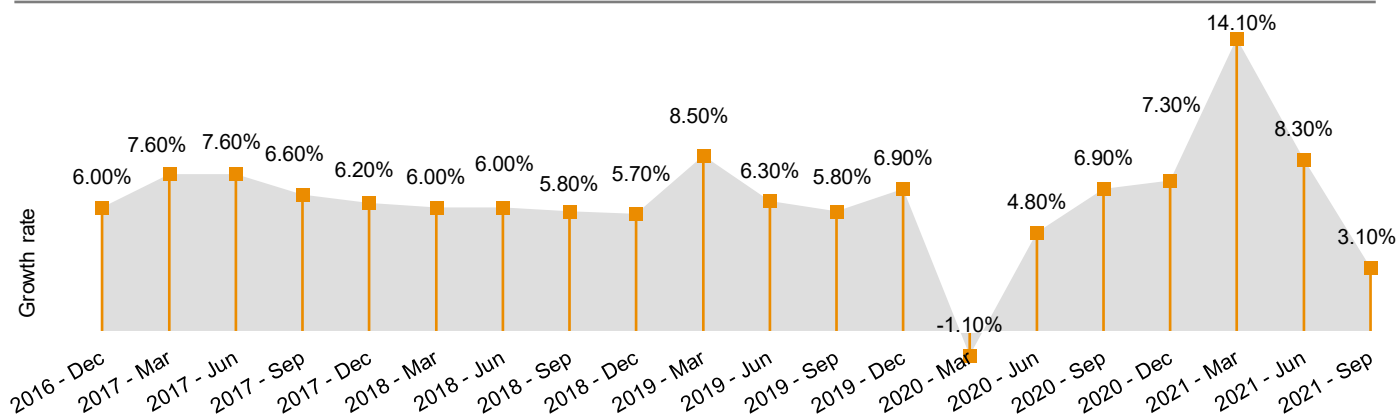
Furthermore, business activity indexes of capital market service and real estate dropped below the threshold of 50% in September. On the other hand, business activity indexes of railway transportation, air transportation, accommodation, radio and television, satellite transmission services, post service and express delivery were above 60%.

Out of the six major sub-indexes of non-manufacturing PMI, the employed person index remained low in September at 47.8%. New orders index also dropped below the threshold again to 49%. Besides, foreign new orders index, unfilled orders index and stock index were still below 50%, standing at 46.4%, 44.2% and 45.9% respectively.

The business activities expectation index maintained at a high level of 59.1% in September, indicating that non-manufacturing enterprises have strong confidence in the recent market developments.

Finally, in Q4, the rising COVID-19 cases within the country will continue to affect PMI for both the manufacturing and non-manufacturing sector. Accurate forecasting will still be challenging.

Figure 6: Industrial Added Values



Growth of **Industrial Added Values** for companies over designated scales rose by 11.8% year-on-year in real terms in the first three quarters. Average growth rate in the first three quarters for 2020 and 2021 was 6.4% which is higher than the pre-pandemic level during the same period in 2019. At that time, it increased by 5.6%.

In September, industrial added values went up by 3.1% only year-on-year, and average growth rate for the past two years was 5%. This is partly due to the limit on national energy consumption in order to peak carbon emissions, the shortage of coal supply and the surge of electricity and commodity prices, as well as international logistics costs. As a result, both supply and demand in the manufacturing industry have experienced sluggish growth.

The capacity utilisation rate has remained at a high level in recent years, reaching 77.1% in Q3. However, it is slightly lower than the rate of 78.4% in Q2 and 77.2% in Q1.

The total profit for all industrial companies over designated scales increased by 44.7% year-on-year to 6.34 trillion yuan in the first three quarters. The growth rate remained substantial, though the figure nearly halved compared to H1. Average growth rate in the first nine months for the past two years was 18.8%. The total profit rose by 41.2% in the first nine months of 2021 compared to the same period in 2019.

Meanwhile, total revenues of these companies rose by 22.2% and reached 91.16 trillion yuan in the first nine months.

In terms of industrial added values, the industries below each rose by around 30% to 20%, including:

- Manufacturing of fabricated metal products (21.2%);
- Manufacturing of electric machinery and equipment (21.4%);
- Manufacturing of medicines (29.2%);
- Manufacturing of high-tech industry (20.1%).

In contrast, industrial added values of mining and textile remained at a low level, standing at 4.7% and 3.7% respectively in the first three quarters.

Furthermore, according to the China Association of Automobile Manufacturers (CAAM), car output and sales in the first nine months increased by 7.5% and 8.7% to 18.24 and 18.62 million respectively. Compared to the same period of 2019, car output and sales increased by 0.4% and 1.3% this year.

In September, car output and sales dropped by 17.9% and 19.6% to 2.08 and 2.07 million year-on-year respectively. It was caused by the chip shortage (eased slightly in Q3), the relative high base of the same period last year, and the restrictions on power consumption which were implemented in many provinces.

According to CAAM, it will be difficult for the market to meet projections for the year due to uncertainties on the supply side, such as the shortage of chips and power and the rising prices of power and raw materials. On the other hand, with the steady economic growth, the demand for automobiles is still stable.

By ownership, profits for all company types soared in the first nine months:

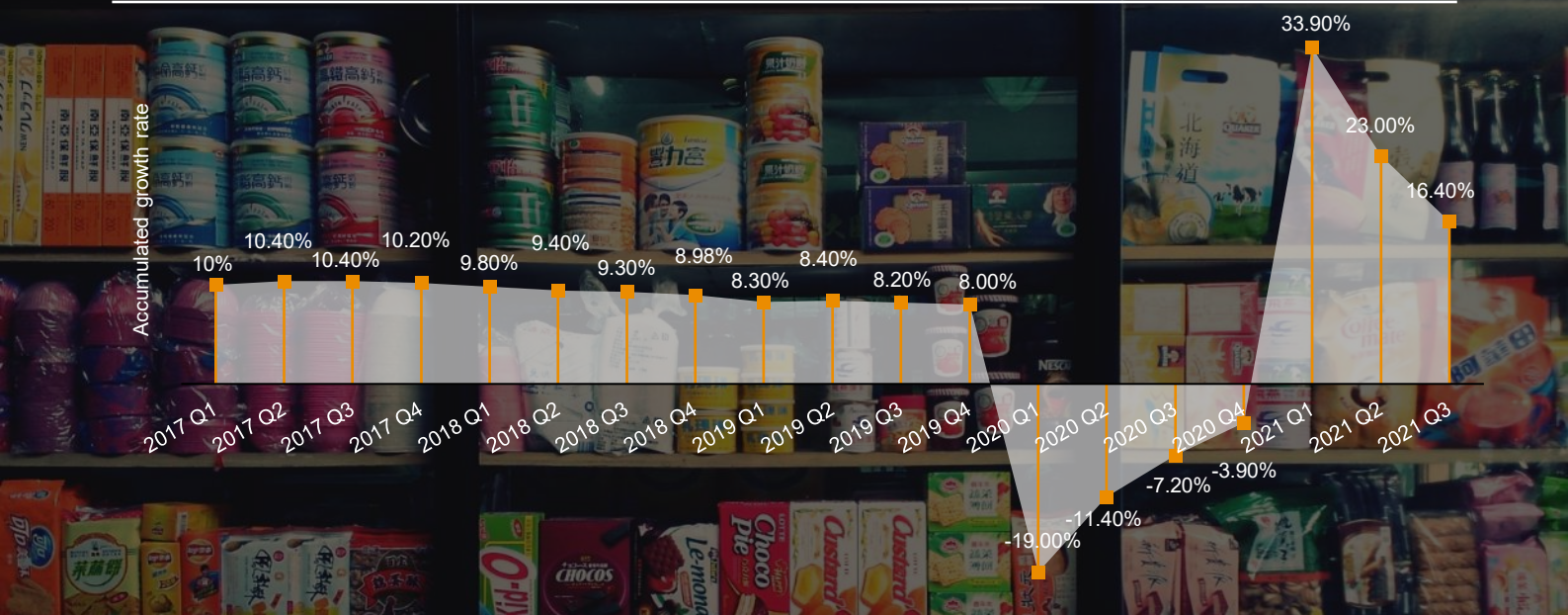
- Profits of state-owned enterprises (SOEs) increased by 77.9% to 1.99 trillion yuan which was the highest growth rate among all types of companies;
- Profits of foreign-owned enterprises (including Hong Kong, Macao and Taiwan) increased by 31.7% to 1.70 trillion yuan;
- Profits of joint-stock enterprises increased by 50.5% to 4.52 trillion yuan;
- Profits of private companies increased by 30.7% to 1.86 trillion yuan.

Lastly, **by industry**, in the first nine months, profits of the following industries surged sharply:

- Mining and washing of coal (172%); extraction of petroleum and natural gas (267%), mining of ferrous metal ores (146%);
- Processing of petroleum, coal and other fossil fuels (930%); manufacturing of chemical raw materials and chemical products (127%).
- Manufacturing of chemical fibres (318%); manufacturing and processing of ferrous metals (145%), manufacturing and processing of non-ferrous metals (162%).



Figure 7: Retail Sales of Consumer Goods



Total retail sales of consumer goods increased by 16.4% year-on-year reaching 31.81 trillion yuan in the first three quarters. Average growth rate for 2020 and 2021 was 3.9%. Compared to the same period in 2019, it went up by 8.0%.

In September, retail sales of consumer goods reached 3.68 trillion and the growth rate was only 4.4% year-on-year. It was up by 7.8% compared to the same period in 2019. During the third quarter of the year, it increased by 8.5% and 2.5% in July and August year-on-year, slowing down due to rising COVID-19 cases.

After deducting price factors, the real growth rates of retail sales of consumer goods were 6.4%, 0.9% and 2.5% from July to September, hitting the lowest level of the year.

In terms of the types of consumption, in the first nine months, catering consumption increased by 29.8% year-on-year to 3.28 trillion yuan. Retail sales of physical goods reached 28.53 trillion with a 15% growth. In September, catering consumption and retail sales of physical goods increased by 3.1% and 4.5% year-on-year respectively.

The COVID-19 pandemic continued to exert negative impacts on consumption in the third quarter of the year. For Q4, this situation is likely to last if there are still new COVID-19 cases across the country.

Among the 16 categories of retail items with double-digit sales growth, nine items recorded a more than 20%

increase in sales in the first nine months, including:

- Gold, silver and jewelry (41.6%);
- Catering consumption (29.8%);
- Clothing and footwear (or garments, hats, knitwear, etc.) (20.6%);
- Tobacco and liquor (25.8%), beverages (23.4%);
- Building and decoration materials (24.9%), furniture (20.7%), cultural and office appliances (21.7%);
- Petroleum and related products (20.3%).

National online retail sales went up by 18.5% year-on-year reaching 9.19 trillion yuan in the first nine months. Online retail sales of physical goods rose by 15.2% to reach 7.50 trillion yuan, accounting for 23.6% of total retail sales of goods.

Furthermore, sales from supermarkets, convenience stores, department stores, specialty shops and exclusive shops grew by 6.2%, 14.5%, 19.9%, 17.1% and 19.8% year-on-year respectively.

Finally, in the first three quarters, the consumer market has shown great resilience and continued to recover, until the COVID-19 pandemic hit the market again in Q3.

Per capita disposable nominal income rose to 26,265 yuan in the first nine months and increased by 10.4% year-on-year. After deducting price factors, the real growth rate was 9.7%.

Average nominal growth rate in the first three quarters for 2020 and 2021 was 7.1% and real growth rate was 5.1%. Compared to the same period in 2019, it rose by 14.8% year-on-year (unless otherwise specified, the following are year-on-year nominal growth rates).

For urban residents, the average income rose by 9.5% to reach 35,946 yuan in the first three quarters. In the meantime, the average income of rural residents grew by 11.6% to 13,726 yuan.

On the other hand, in the first three quarters, per capita consumption expenditure reached 17,275 yuan, up 15.8%. The figure was up by 11.7% compared to the same period in 2019. Average growth rate for 2020 and 2021 was 5.7%.

The growth rate of per capita consumption expenditure was 5.4% higher than that of per capita disposable income in the first three quarters. Meanwhile, the gap was 10.6% in the first half year. This might provide another explanation why consumption has slowed down in Q3, while the COVID-19 pandemic was the main cause.

It would be difficult for domestic consumption to pick up in Q4 if pandemic prevention and control measures continued to tighten. If so, GDP growth in Q4 might face downward pressure.

Figure 8: Quarterly Balance of Trade



China's total imports and exports increased by 22.7% year-on-year and reached 28.33 trillion yuan in the first three quarters. It registered the highest growth rate among the major economic indicators thanks to the steady recovery of global economy and the increasing demand from the international markets.

More specifically, in the first nine months, exports surged by 22.7% to 15.55 trillion yuan, while imports increased by 22.6% to 12.78 trillion yuan. Compared to the same period in 2019, total trade, exports and imports went up by 23.4%, 24.5% and 22.0% respectively. Net exports reached 2.77 trillion yuan. Cross-border e-commerce increased by 20.1% year-on-year.

In the first nine months, as the domestic market steadily recovered, the scale of imports reached a record high for the same period in history. Imports of some consumer goods had grown rapidly to reach 1.29 trillion yuan accounting for 10.1% of total imports.

Prices of major imported commodities rose sharply. In the first three quarters, the average import prices of iron ore, crude oil, copper, natural gas and soybean increased by 67.5%, 32.8%, 37.9%, 5.1% and 29.4% respectively year-on-year. In comparison, the import volume of some commodities has decreased. More specifically, the import and export freight volume was 3.74 billion tons with an increase of 3%. Out of which, 2.43 billion tons were imported, a decrease of 0.5% in the first three quarters.

In September, exports and imports rose by 19.9% and 10.1% year-on-year respectively, registering slightly slower growth rates than earlier in the year.

By geography, according to the General Customs Administration, China's imports and exports with the top four trading partners continued to grow in the first three quarters. Trade values with ASEAN, EU, the US, Japan and Korea reached 4.08, 3.88, 3.52, 1.78, 1.70 trillion yuan respectively. Each of the five figures grew by 21.1% (ASEAN), 20.5% (EU), 24.9% (US), 11.2% (Japan) and 17.3% (Korea).

China's imports from ASEAN, EU, and the US increased by 22.7%, 18.4%, 32.6% year-on-year in the first nine months and reached 1.84, 1.5 and 0.85 trillion yuan respectively.

Additionally, trade with countries under the Belt and Road Initiative (BRI) also increased by 23.4%. Out of which, imports from BRI countries was 3.62 trillion yuan with an increase of 24.5%.

Trade with 14 RCEP member states also went up by 19.3% and reached 8.81 trillion yuan. It accounted for 31.1% of China's total foreign trade. Out of which, exports was 4.06 trillion yuan with an increase of 18%. Imports reached 4.75 trillion yuan with an increase of 20.4% year-on-year in the first three quarters.

The China-Europe freight train continued to play an important role in facilitating trade with the BRI countries. For the first three quarters, a total of 11,300 trains were operated and 1.09 million TEUs were delivered, with a year-on-year increase of 29% and 37% respectively. As a result, 21.8% of China's trade with BRI countries (1.56 trillion yuan) in the central and western regions were transported by train.

Furthermore, China continued to increase its market share of goods trading as the world's largest trading nation. According to the latest data, in the first half of this year, the international market shares of China's imports, exports, and international trade reached 12%, 14.5% and 13.2% respectively, with a year-on-year increase of 0.8, 0.9 and 0.8 basis points respectively.

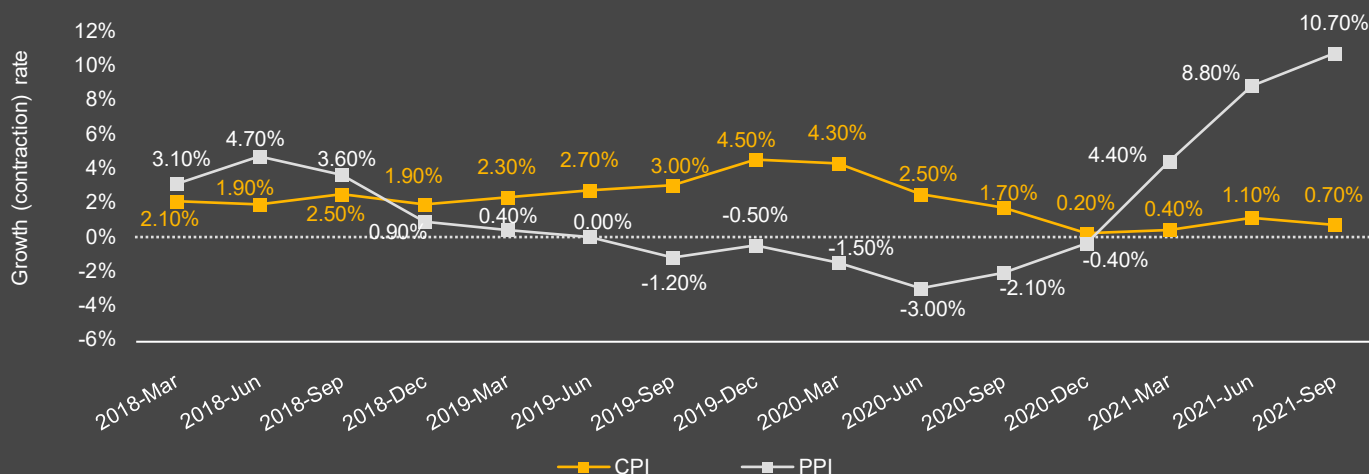
By ownership of trading enterprises, trade generated by private enterprises in the first nine months increased by 28.5%, accounting for 48.2% of China's total trade. Meanwhile, trade from foreign-owned enterprises and state-owned enterprises reached 10.22 trillion yuan and 4.35 trillion yuan respectively. The trade values increased by 14.7% and 25.1% respectively year-on-year.

Furthermore, in the first nine months, the number of China's import and export enterprises increased by 34,000 to 526,700.

For Q4, due to the high base of international trade in the same period in 2020, the growth rate of import and export may fall in the fourth quarter. However, the overall trend of expansion will not change, and the scale of trade is still expected to achieve rapid growth throughout the year.

Nevertheless, the pandemic, as well as the potential interruptions for business operation resulting from power shortages and supply chain disruptions will remain the major uncertainties for China's exports and imports.

Figure 9: Producer Price Index and Consumer Price Index



The Producer Price Index (PPI) for manufactured goods continued to rise significantly in Q3 to a record high in recent years. It increased by 9.0%, 9.5% and 10.7% year-on-year from July to September respectively.

The index was affected by the rising coal price which had a significant impact on the energy-intensive industries. It was also affected by international commodity price. During the first three quarters, PPI for manufactured goods increased by 6.7% year-on-year.

Meanwhile, the purchasing price index for manufactured goods also went up by 9.3% in the first three quarters and 14.3% in September. Among the sub-indices for manufactured goods, the price for means of production increased by 14.2% in September (boosting PPI by 10.6%) and 8.9% in the first nine months.

The price of mining and quarrying products went up by 49.4% in September and 26.7% in the first nine months. The price of raw materials rose by 20.4% in September and 13.2% in the first nine months. The price of processing sector increased by 8.9% in September and 5.6% in the first nine months.

On the other hand, PPI for consumer goods remained fairly flat, increasing by only 0.4% in September and 0.2% in the first nine months; the prices of durable consumer goods and clothing both declined slightly by 0.6% and 0.8% in the first three quarters.

In terms of the purchasing price index, price of ferrous metals rose by 20.9% in the first nine months. Price of non-ferrous metal materials and wires increased sharply by 20.1%.

Prices of fuel and power went up by 30.3% in September and 14.1% by the end of Q3. Prices of chemical raw materials increased by 20.7% in September and 12.3% by the end of Q3. Prices of wood and pulp products increased by 7.2% in September and 4.9% by the end of Q3.

More specifically, PPI for manufactured goods of the following sectors increased by more than 20% year-on-year in September and or in the first three quarters, such as:

- Mining and washing of coal (74.9% in September and 31.0% from Q1 to Q3);
- Petroleum and natural gas extraction (43.6% in September, 32.6% from Q1 to Q3);
- Processing of petroleum, coking, processing of nucleus fuel (40.5% in September and 22.0% from Q1 to Q3);
- Mining of ferrous metal ores (29.4% in September and 39.5% from Q1 to Q3);
- Manufacturing and processing of ferrous metals (34.9% in September and 27.7% from Q1 to Q3);
- Manufacturing and processing of non-ferrous metals (24.6% in September and 21.8% from Q1 to Q3).

In Q4, PPI is expected to maintain at the current high level. So far it has not reflected any major impacts on industrial operations. As mentioned above, the total profit for industrial companies has increased by more than 40%.

The **Consumer Price Index (CPI)** was fairly flat compared to the sharply rising PPI. It increased by 0.7% in September and 0.6% in the first nine months year-on-year. Comparatively, these two figures were 1.7% and 3.3% in 2020, and 3.0% and 2.5% in 2019 before the outbreak of the pandemic.

In the first nine months, food prices decreased by 1.6%, and non-food prices increased by 1.1%. Price of consumer goods went up by 0.6% while price of services increased by 0.7% year-on-year. In September, food prices declined by 5.2% while non-food prices rose by 2.0%

More specifically, in terms of food prices, prices of meat and pork (one of the core meat consumption categories) continued to decrease by 15.4% and 28.0% year-on-year in the first half nine months, due to high base from last year. Cooking oil, beef and lamb prices increased by 7.0%, 3.6%, and 6.5% in the first nine months respectively. Prices of aquatic products and egg also rose by 9.8% and 9.6%.

Additionally, prices of vegetables and fruits dropped by 2.5% and 0.8% in September due to sufficient supply. These two prices rose by 1.3% and 2.7% in the first nine months. As a result of rising fuel prices, prices of transportation and communication went up by 5.8% in September and 3.3% in the first nine months.

As for Q4, CPI is very likely to remain at a low level, and prices of consumer goods and services are expected to advance further following rising PPI.

2 Policy updates

Growth of aggregate financing to the real economy reduced by 4.87 trillion yuan by the end of Q3.

China's monetary policy almost recovered to the pre-pandemic level. According to the People's Bank of China (PBoC), total aggregate financing to the real economy (AFRE) increased by 24.75 trillion yuan in the first three quarters which is 4.87 trillion yuan less than the same period in 2020 but 4.14 trillion yuan more than the same period in 2019.

PBoC said that the growth rate of M2 (defined as money supply that includes cash, checking deposits, and easily convertible near money) and AFRE basically matched the nominal economic growth rate in the first nine month.

As a result, total outstanding AFRE reached 308.05 trillion yuan by the end of September 2021, increasing by 10% year-on-year. M2 increased to 234.28 trillion yuan and up by 8.3%.

Total RMB loans to the real economy increased by 16.83 trillion yuan, 0.46 trillion yuan more than the same period in 2020 and accounting for 68% of AFRE. Out of which, the balance of medium and long-term loans in manufacturing, infrastructure and service industries (excluding real estate) increased by 37.8%, 16.4% and 17.2% respectively, 2.6%, 2.2% and 0.3% higher than those at the end of the previous year.

Total outstanding RMB loans recorded 189.46 trillion yuan by the end of September and rose by 11.9% year-on-year.

Furthermore, the macro leverage ratio continued to decline and reached 274.9% by the end of Q2, 4.5% lower than at the end of 2020. More specifically, leverage ratios of non-financial enterprises, governments and households decreased by 3.1%, 1% and 0.4% respectively. These figures are expected to continue to decline in Q3 and Q4 as a result of economic recovery and slower debt growth. (Data on macro leverage ratio for Q3 was not available at the time of writing of this report).

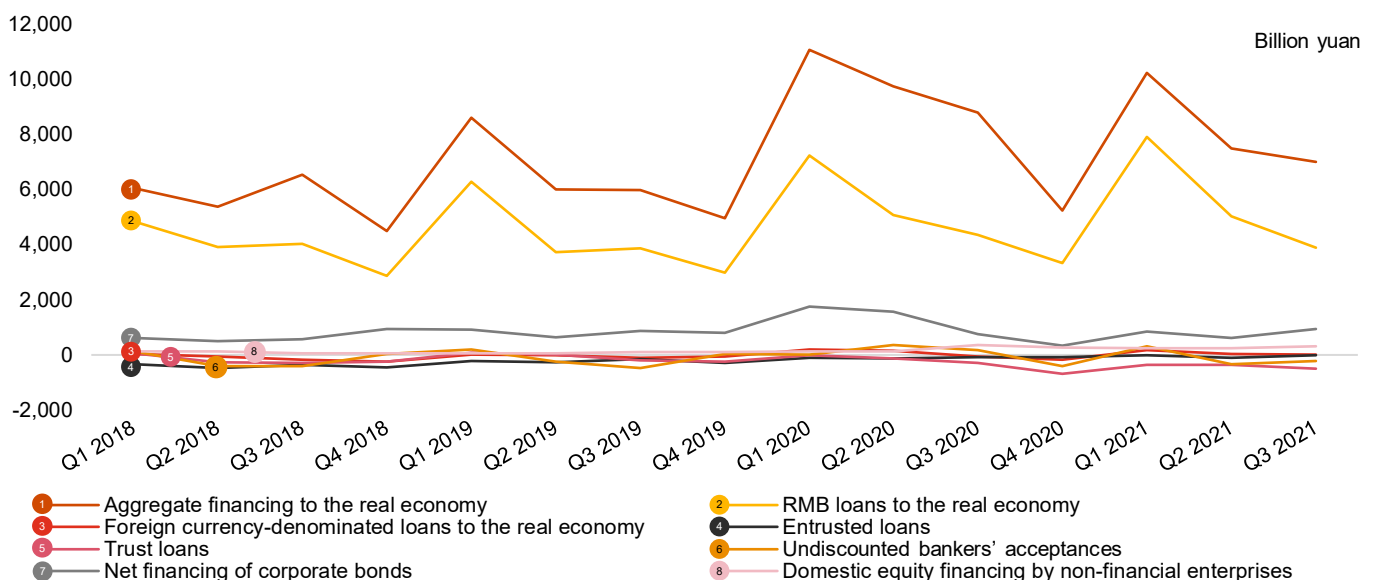
The financing of government bonds and corporate bonds has returned to normal, and equity financing increased slightly year-on-year. In the first three quarters, net financing of government bonds reached 4.42 trillion yuan, 2.32 trillion less than the same period last year. Net financing of corporate bonds was 2.43 trillion yuan, 1.66 trillion less than in 2020, and same as the first three quarters in 2019.

Off-balance-sheet financing including entrusted loans, trust loans and undiscounted bank acceptance bills reduced by 1.56 trillion yuan, which is 1.4 trillion more than the decrease in the first nine months of 2020.

For real estate financing, recently the risk preference of financial institutions for the real estate industry has decreased significantly, and there has been a consistent contraction of demand, leading to significant slowdown in the growth rate of real estate development loans. PBoC emphasised this short-term overreaction is a normal market phenomenon. Thus, PBoC and China Banking and Insurance Regulatory Commission (CBIRC) held a meeting at the end of September to guide major banks to accurately grasp and implement a prudent management system for real estate financing, maintain stable and orderly release of real estate credit, in order to promote steady and healthy development of the real estate market.

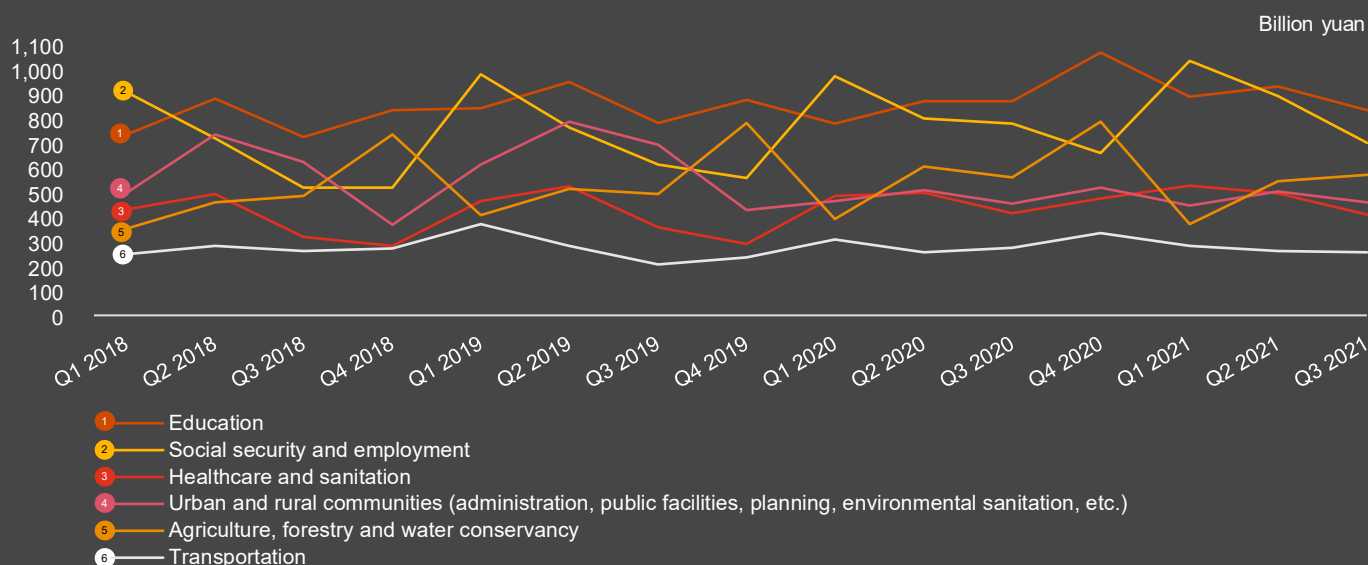
Lastly, since the beginning of this year, PBoC has implemented a prudent monetary policy and made comprehensive use of various monetary policy tools such as reserve requirement ratio (RRR) reduction, central bank lending, central bank discount, medium-term lending facility (MLF) and open market operations (OMOs). The goal was to maintain reasonable and abundant liquidity, and stabilise money market interest rates. These measures would last until the end of 2021.

Figure 10: Aggregate financing to the real economy (flows) (Q1 2018 — Q3 2021)



Source: Wind

Figure 11: General public budget expenditure (Q3 2016 — Q3 2021)



Source: Wind

Fiscal revenue grew by 16.3% while fiscal spending increased by 2.3%.

In the first three quarters, fiscal revenue restored generally stable growth as economic recovery continues. The national public budget revenue grew by 16.3% year-on-year to 16.40 trillion yuan, an increase of 8.9% compared to the same period in 2019.

Meanwhile, national public budget expenditure went up by 2.3% to 17.92 trillion yuan. The growth of budget expenditure was dwarfed by that of budget revenue. More specifically, in terms of fiscal revenue, revenue of the central government grew 17.1% to 7.65 trillion yuan while the local government revenue rose by 15.6% to 8.75 trillion yuan in the first nine months.

National tax revenue grew 18.4% to 14.07 trillion yuan and non-tax revenue expanded by 5.4% to 2.33 trillion yuan.

Among the major sources of tax revenue in the first nine months in 2021, similar to H1, almost all showed double-digit growth except environmental protection tax (which increased by 4.2%), vessel tonnage tax (which increased by 7.4%), and vehicle purchase tax (which increased by 9.1% mostly due to disruption of car production caused by chip shortage). The top five sources of tax revenue in the first three quarters included:

- Value-added tax grew by 17.4% to 5.01 trillion yuan as industrial production continued to grow and PPI remained at high level;

- Enterprise income tax grew by 18.8% to 3.56 trillion yuan given rapid increase in enterprise profits;
- Consumption tax on imports of goods driven by continuous growth of import and export, while domestic excise tax grew by 24.5% to 1.37 trillion yuan;
- Personal income tax grew by 21.6% to 1.04 trillion yuan;
- Real estate-related tax revenue achieved rapid growth. Tax on land ownership and land value-added tax rose by 16.7% and 14.6% respectively to reach 603 and 567 billion yuan. Property tax and urban land use tax also increased by 18.0% and 3.5% respectively to reach 214 and 148 billion yuan.

Out of the 17.92 trillion yuan of total national public budget expenditure, the central government's expenditure decreased by 1.6% year-on-year to 2.41 trillion yuan. Expenditure of local governments saw a 3% growth to 15.52 trillion yuan. Other major items comprising fiscal expenditure in the first nine months included:

- 2.66 trillion yuan on social security and employment (a 2.4% increase year-on-year);
- 2.69 trillion yuan on education (a 5.2% increase);
- 1.52 trillion yuan on agriculture, forestry and water conservancy (a 4.5% decrease);
- 1.44 trillion yuan on urban and rural communities (administration, public

facilities, planning, environmental sanitation, etc.) (a 1.2% decrease);

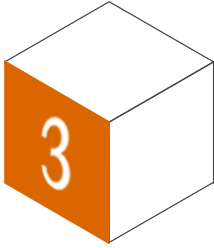
- 1.47 trillion yuan on healthcare and sanitation (a 2.3% increase);
- 835 billion yuan on transportation (a 4.3% decrease).

Expenses on interest payments of debt increased by 4.2% to 766 billion yuan. Spending on science and technology increased by 0.8% to 572 billion yuan, while spending on energy conservation and environmental protection decreased by 8.3% to 369 billion yuan.

In addition to general public budget revenue, government funds rose by 10.5% in the first half nine months to reach 6.11 trillion yuan. Out of which, local government funds reached 5.78 trillion yuan with an increase of 10% while central government funds grew by 20.8% to 318 billion yuan. 5.36 trillion yuan of local government funds was obtained from the transfer of state-owned land use rights.

Overall, 7.13 trillion yuan in government funds was spent in the first three quarters, a decrease of 8.8% year-on-year. Out of which, 6.93 trillion was spent by local governments.

Lastly, by the end of September, local governments had issued 2.99 trillion yuan of new bonds. The bond issuance played an important role in driving the expansion of effective investment and maintaining the stable operation of the economy.



The progress of China's innovative economy

China's global ranking has risen to 12th this year, according to the Global Innovation Index (GII) 2021 released earlier in September by the World Intellectual Property Organisation (WIPO). As the world's largest developing country and second largest economy, China has made continuous progress towards building an innovative economy. In another word, China is becoming an innovative country and growing from a big country in science and technology to a powerful nation. In the 14th Five-Year Plan (2021-2025) for National Economic and Social Development and the Long-Range Objectives Through the Year 2035, it is officially stated that innovation remains at the heart of China's modernisation in the coming years.

So, what is the progress of China's innovative economy? What are the implications for the business sector?

Figure 12: Global Innovation Index (GII) 2021

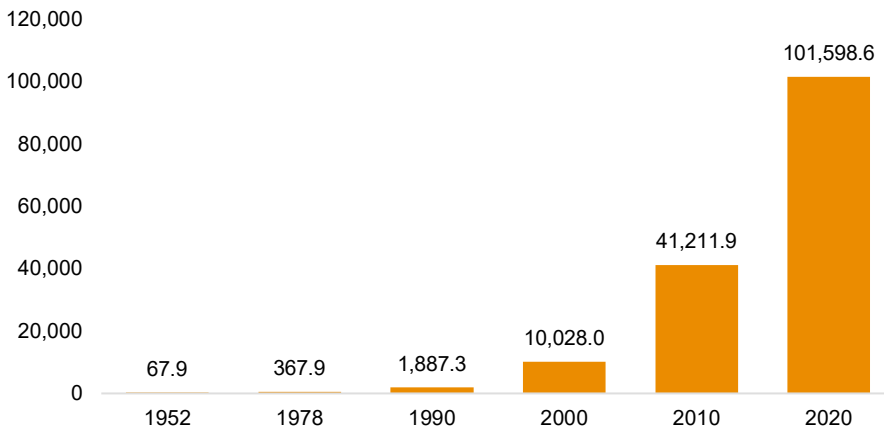
	2021 Ranking	2020 Ranking
Switzerland	1	1
Sweden	2	2
USA	3	3
UK	4	4
Republic of Korea	5	10
Netherlands	6	5
Finland	7	7
Singapore	8	8
Denmark	9	12
Germany	10	6
France	11	12
China	12	14
Japan	13	16
Hong Kong SAR (China)	14	11
Israel	15	13
Canada	16	17
Iceland	17	21
Austria	18	19
Ireland	19	15
Norway	20	20

Source: World Intellectual Property Organisation (WIPO)

■ Substantial enhancement of economic strength is fundamental to the development of innovative economy

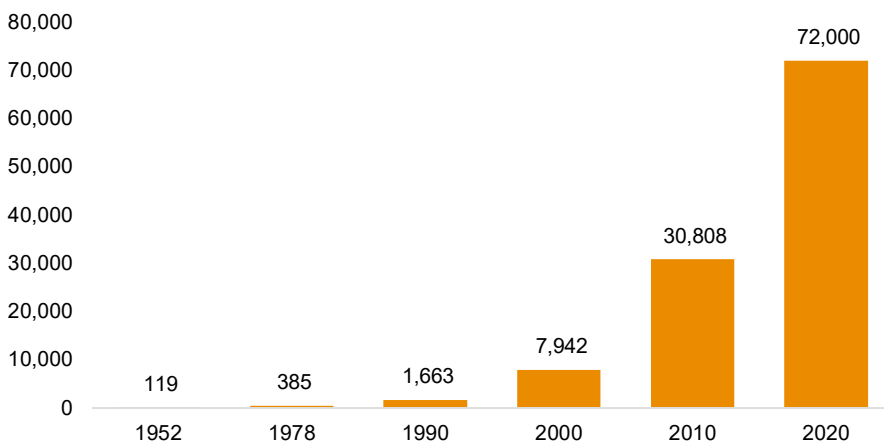
China's GDP jumped from 68 billion yuan in 1952 to nearly 102 trillion yuan in 2020, accounting for more than 17% of the global economy, according to China's all-round well-off society, a white paper published by the Information Office of the State Council on the journey towards moderate prosperity in all aspects in China. GDP per capita in China increased from tens of US dollars in 1952 to more than 10,000 USD in 2020, achieving a historic leap from a low-income country to an upper middle-income country.

Figure 13: The growth of GDP from 1952-2020 (unit: RMB billion)



Source: The white paper of China's all-round well-off society

Figure 14: The growth of GDP per capita from 1952-2020 (unit: RMB)



Source: The white paper of China's all-round well-off society

China has become the world's largest manufacturing base since 2010, and is the biggest producer of more than 220 types of industrial products. China is the world's largest country for goods trading, the second largest services trading nation, and the second largest commodity consumption economy.

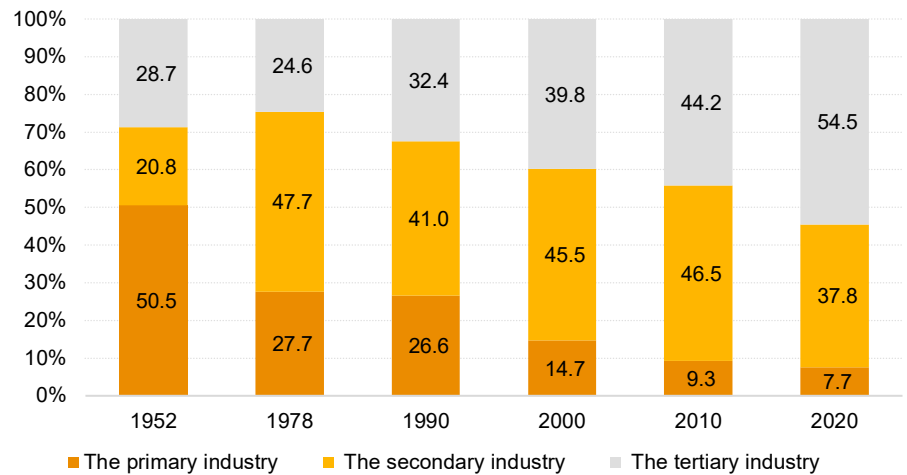
China also has the largest amount of foreign exchange reserves. In 2020, China became the world's top destination for new foreign direct investment. With an expanding middle class of more than 400 million, it is the world's most important growth market. China's economy is full of vitality and has great potential and sufficient conditions in developing into an innovative economy.



■ The industrial sector continues to move towards medium and high-end of the global value chain, where innovation is key to maintain sustainable growth

China has built one of the most comprehensive industrial systems in the world. The optimisation and upgrading of its industrial structure have been significantly improved. The relative proportion of the primary, secondary and tertiary industry to the overall economy has changed from 50.5% : 20.8% : 28.7% in 1952 to 7.7% : 37.8% : 54.5% in 2020. This means that China has transformed from a traditional agricultural economy to an industrial and service economy. China's economy has shifted from relying mainly on agricultural sector to a more balanced trajectory of development driven by all three industries.

Figure 15: Change of the ratio of the primary, secondary and tertiary industry



Source: The white paper of China's all-round well-off society

China has built a modern industrial system which is comprehensive and fairly independent, besides some of the key technologies. The breadth and depth of the integrated development of industrialisation and information technology continue to expand. The degree of modernisation of the industrial chain and supply chain has been further improved. "Made in China" is currently transforming and upgrading to "intelligent manufacturing in China".

Strategic emerging industries represented by new generation information technology, biotechnology, high-end equipment, and green and environmental protection have been developing rapidly and have become important engines powering high-quality development.

The digital economy has injected new vitality to economic development, and the trends of industrial digitisation and digital industrialisation have also accelerated. The modern service sector is developing rapidly with the support of "Internet Plus", which has led to the development of new formats and new business models, such as platform

economy and sharing economy. The producer (business) service industry is steering towards specialisation and high-end of the value chain, and the life (living) service industry has been upgraded.

Additionally, China's modern infrastructure network continues to improve, including information network, roads network, dense railway network, and bridges. The "five vertical and five horizontal" comprehensive transportation channels are basically connected.

China has sped up its progress in building the transportation. The transportation network extending in all directions has a profound impact on urban development patterns, population distribution and economic zones. It has also deeply changed people's life and work circles. For example, the total mileage of high-speed railways, expressways and urban rail transit and the number of deep-water berths in ports rank first in the world. The total turnover of civil aviation transportation has ranked second in the world consecutively for many years.

All these industrial achievements have paved the way for China to develop its innovative economy. With solid fundamental and industrial support, China has strong potentials in cultivating world class innovations beyond the developing markets.

■ China's strength in science and technology has developed by leaps and bounds, providing the backbone for an innovative economy

China has made a series of major achievements in science and cutting-edge technologies, as well as breakthroughs with strategic importance in many high-tech fields. These advancements in science and technology include:

- quantum information,
- iron-based superconductivity,
- neutrinos,
- stem cells,
- and brain science.

The high-tech fields with strategic importance include:

- manned spaceflight and lunar exploration,
- Beidou navigation system,
- manned deep diving,
- high-speed railway,
- 5G mobile communication,
- and supercomputing.

Science and technology has been widely used in production, and innovation-driven development has achieved remarkable results. By the end of 2020, the contribution rate of scientific and technological progress (refers to the contribution of technological progress to economic growth in a broad sense) exceeds 60%.

Science and technology has significantly improved governance. With the development of digital government, digital society, digital village and smart city, and powered by the "Internet Plus" initiative, government services have become increasingly accessible.

Science and technology has profoundly improved people's lives. A variety of channels for online shopping, mobile payment, online car-hailing, bike sharing, online work, online education, telemedicine, smart home, etc. have not only brought convenience to people, but also more freedom, flexibility, and have enabled their comprehensive development.

■ China's R&D investment intensity reached 2.4% of total GDP in 2020, compared to nearly 2.5% in OECD countries

According to the Communiqué on National Expenditures on Science and Technology in 2020 jointly released by the National Bureau of statistics, Ministry of Science and Technology, and Ministry of Finance, China's R&D investment reached 2,439 billion yuan and increased by 10.2% year-on-year. Due to the COVID-19 pandemic, the growth rate was 2.3% less than in 2019.

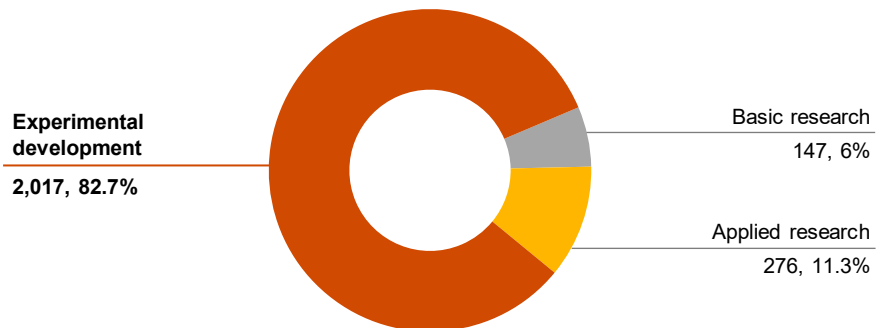
More specifically, for R&D investment, details by type of research are as follows:

- Basic research reached 147 billion yuan and up by 9.8%, accounting for 6.0% of total investment.
- Applied research reached 276 billion yuan and up by 10.4%, accounting for 11.3% of total investment.
- Experimental development reached 2,017 billion yuan and up by 10.2%, accounting for 82.7% of total investment.

The following are the R&D expenditure details by type of organisation:

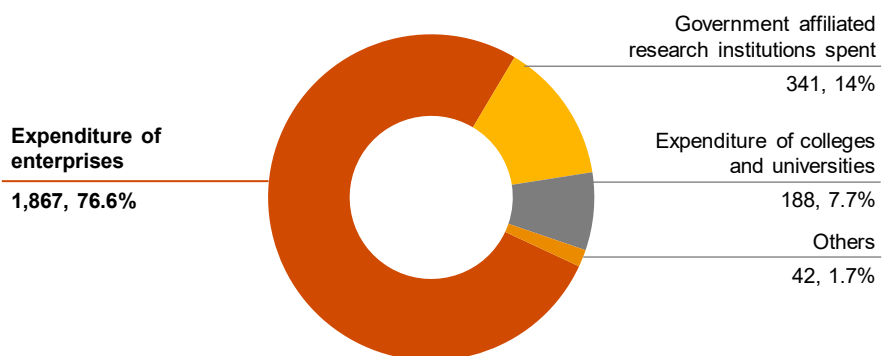
- Expenditure of enterprises reached 1,867 billion yuan and increased by 10.4%, accounting for 76.6% of total expenditure.
- Expenditure of government affiliated research institutions reached 341 billion yuan and increased by 10.6%, accounting for 14.0% of total expenditure.
- Expenditure of colleges and universities reached 188 billion yuan and increased by 4.8%, accounting for 7.7% of total expenditure.

Figure 16: The R&D investment by the types of research (unit: RMB billion)

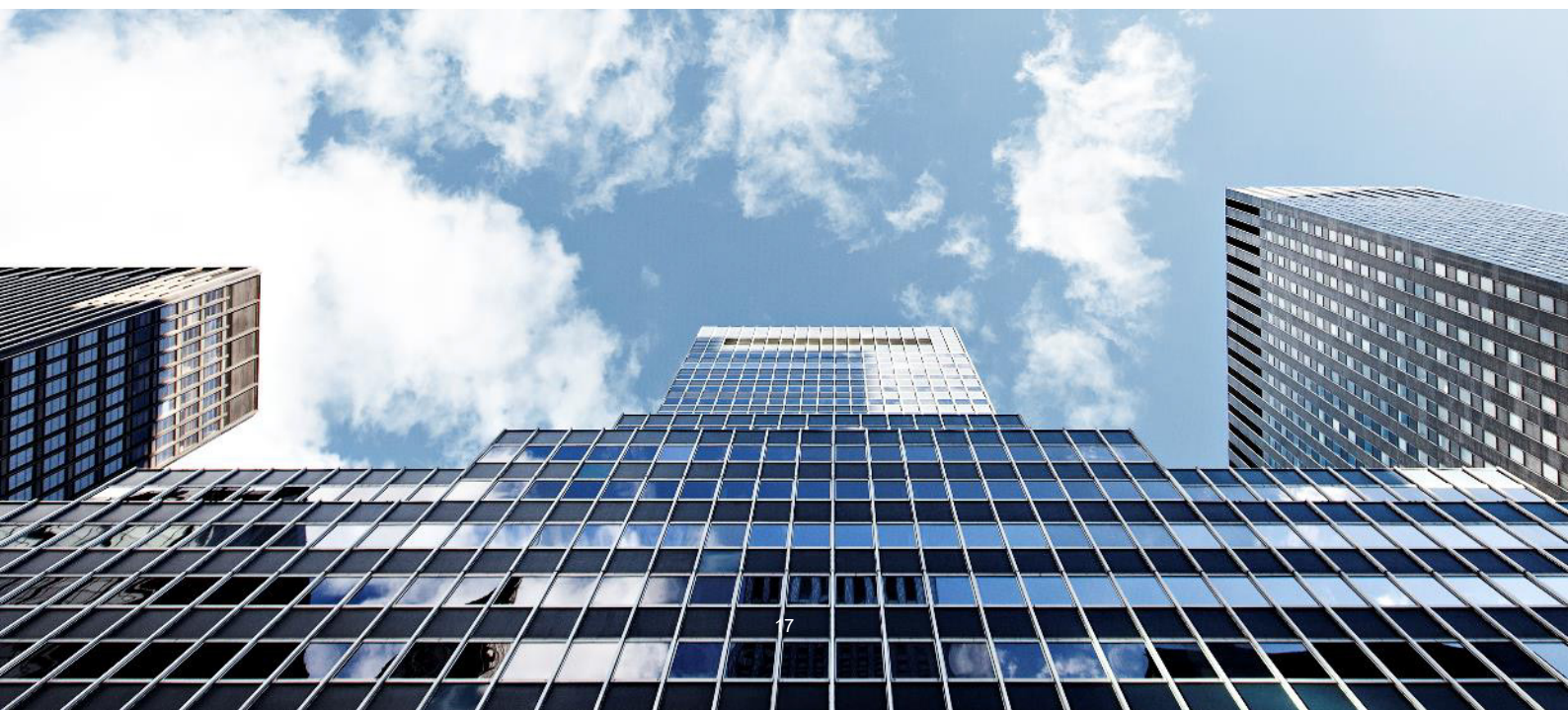


Source: Communiqué on National Expenditures on Science and Technology in 2020

Figure 17: The R&D expenditure by the types of organisation (unit: RMB billion)



Source: Communiqué on National Expenditures on Science and Technology in 2020



In terms of industrial sectors, the following industries ranked top five in terms of R&D investment intensity (ratio to operating income):

- 3.59% from manufacture of measuring instrument and meter.
- 3.13% from manufacture of railway locomotives, building of ships and boats, manufacture of air and spacecrafts and other transportation equipment.
- 3.13% from manufacture of medicines.
- 2.85% from manufacture of special-purpose machinery.
- 2.35% from manufacture of computer, communication equipment and other electronic equipment.

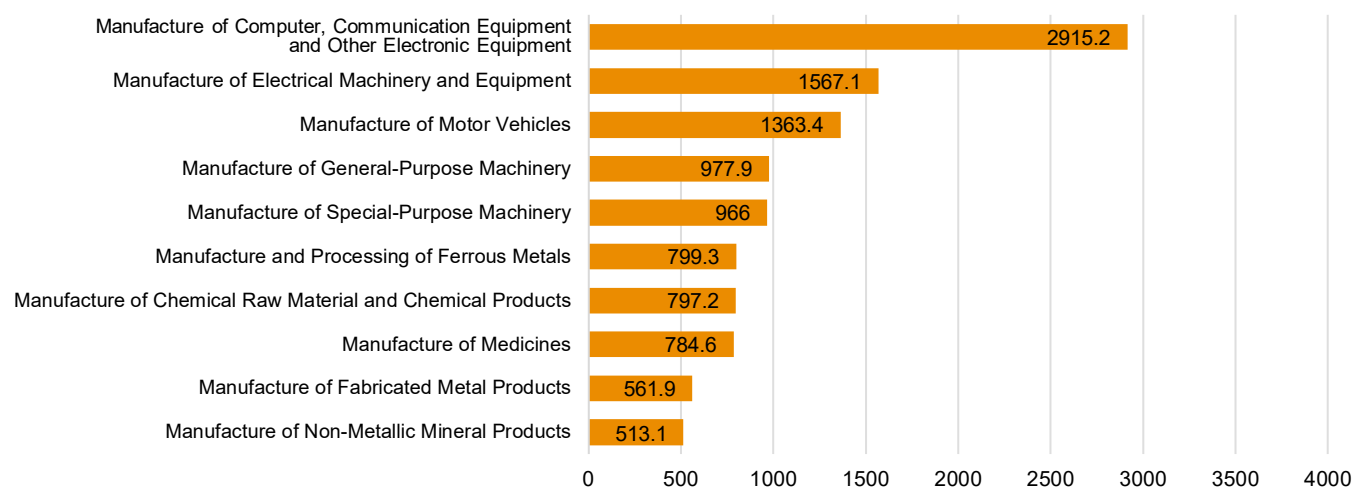
Furthermore, there were four industries with R&D investment of around 100 billion yuan, including:

- 292 billion yuan from manufacture of computer, communication equipment and other electronic equipment.
- 158 billion yuan from manufacture of electrical machinery and equipment.
- 136 billion yuan from manufacture of motor vehicles.
- 98 billion yuan from manufacture of general-purpose machinery.

Lastly, by geographic location, the following provinces (or province-level municipalities) ranked top five in terms of R&D investment intensity (ratio to local GDP):

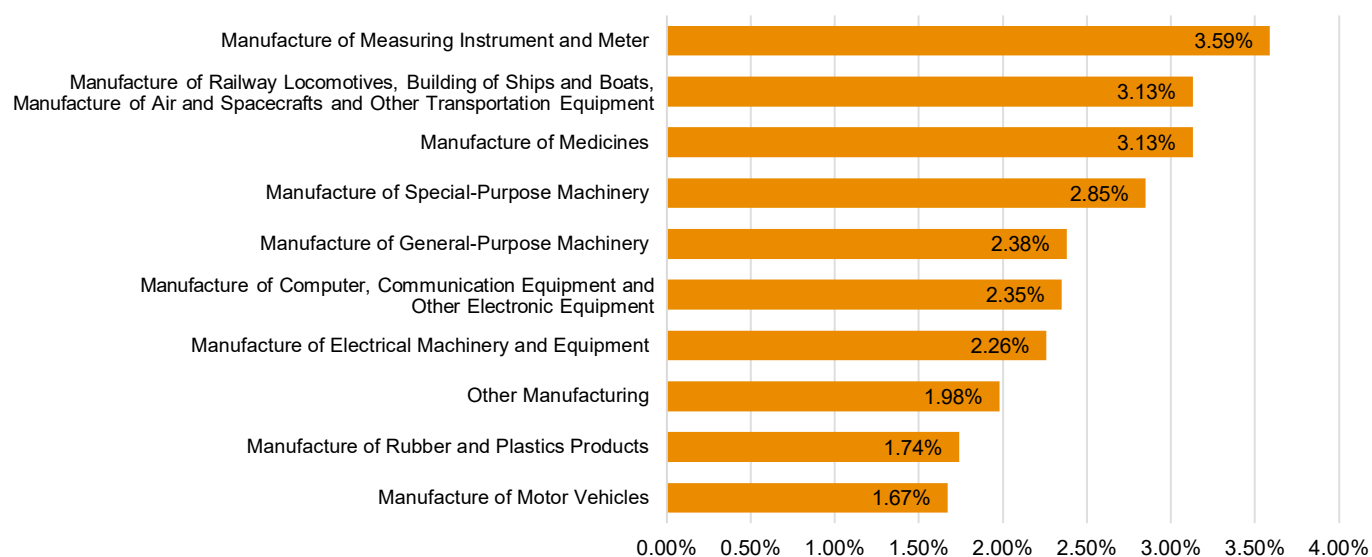
- 6.44% from Beijing.
- 4.17% from Shanghai.
- 3.44% from Tianjin.
- 3.14% from Guangdong.
- 2.93% from Jiangsu.

Figure 18: Expenditures in R&D of industrial enterprises above designed size by sectors in 2020 - Top 10 sectors (unit: RMB billion)



Source: Communiqué on National Expenditures on Science and Technology in 2020

Figure 19: Intensity in R&D of industrial enterprises above designed size by sectors in 2020 - Top 10 sectors (unit: %)



Source: Communiqué on National Expenditures on Science and Technology in 2020

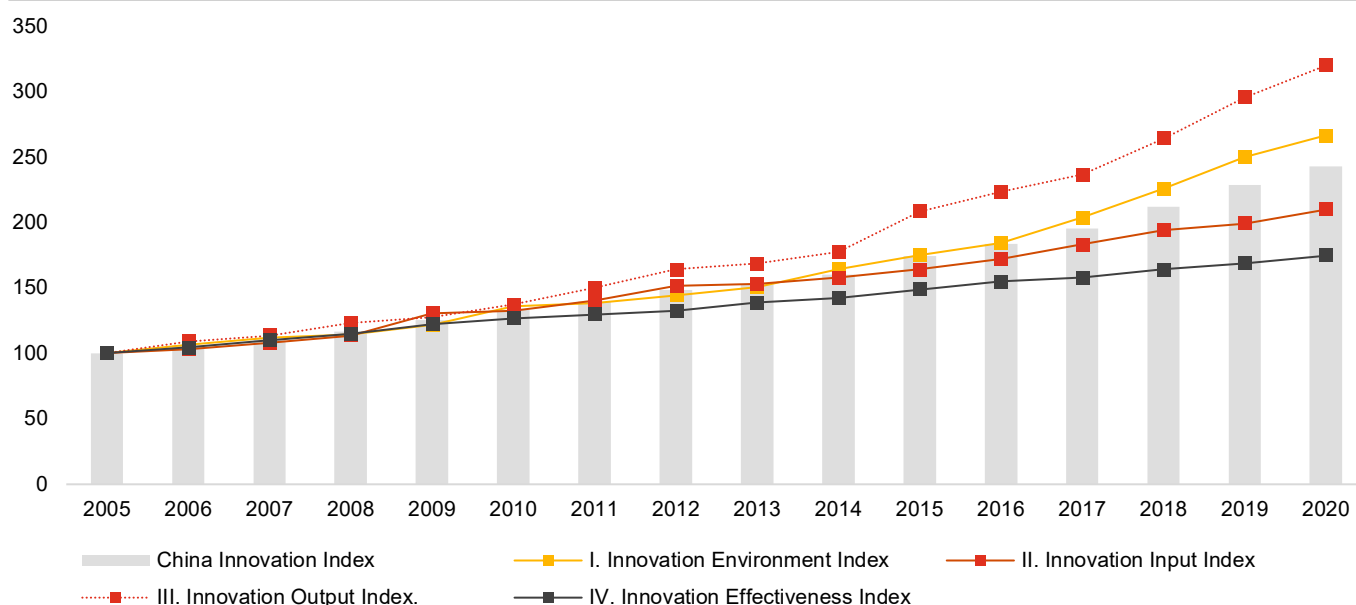
■ China's innovation index continued to improve and enterprises kept the dominant position for R&D investment

According to the 2020 China Innovation Index compiled by the National Bureau of Statistics and other government departments, the innovation index reached 242.6 increasing by 6.4%

compared to 2019. The ability and level of innovation have further improved, and the momentum of innovation has accelerated. Innovation has provided important support for maintaining steady

and rapid economic growth and promoting high-quality economic development.

Figure 20: China innovation index and sub-sector index in 2005-2020



Source: 2020 China Innovation Index, Wind (take 2005 as 100)

China's innovation index system is divided into three levels, namely the overall index, four sub-indices, and 21 sub field indexes (Innovation Input has six sub field indexes while other sub-indices have five).

The Overall Innovation Index scores are comprised of four key items or sub-indices, namely Innovation Environment (25%), Innovation Input (25%), Innovation Output (25%) and Innovation Effectiveness (25%). Take Innovation Environment as an example (see the table on the right), this score comes from five indicators or sub field indexes (each indicator weighs 20%), including index of the number of people with college degree or above in the labor force and per capita GDP, etc.

Figure 21: Innovation Environment of China's Innovation Index

Item	Indicator	Unit	Weight
Innovation Environment (25%)	Index of the Number of People with College Degree or Above in the Labor Force.	Person /10,000 persons	20%
	Per Capita GDP	yuan/person	20%
	Proportion Index of Science and Engineering Graduates in the Population of School Age	percent	20%
	Ratio Index of Science and Technology Appropriation to Financial Appropriation	percent	20%
	Index of Proportion of Enterprises Enjoying Additional Tax Deduction and Exemption	percent	20%

Source: China's Innovation Index in 2020

In 2020, among the 21 evaluation indicators in the four sub fields, 19 indicators have improved compared to the previous year. There were six indexes achieving double-digit growth, including:

- Number of People with College Degree or Above in the Labor Force Proportion (278.7 in 2019, 318.5 in 2020)
- Science and Engineering Graduates in the Population of School Age (219.0 in 2019, 247.7 in 2020)
- Proportion of Enterprises Enjoying Additional Tax Deduction and Exemption (476.7 in 2019, 535.7 in 2020)
- Patent Authorisation Index Per 10,000 R&D Personnel (429.3 in 2019, 534.9 in 2020)
- Trademark Ownership Per Hundred Enterprises (386.4 in 2019, 454.6 in 2010)
- Technical Market Turnover Per 10,000 Scientific and Technological Activity Personnel (it refers to the average transaction amount of

technology market per 10,000 scientific and technological personnel. 489.1 in 2019, 582.3 in 2020)

Furthermore, China's R&D investment has maintained double-digit growth for five consecutive years and the total investment ranked second in the world in 2020, reaching 2,439 billion yuan and increasing by 10.2% compared to 2019.

The input intensity (ratio of R&D expenditure to GDP) was 2.40%, an increase of 0.16% over the previous year, reaching a new high since 2010. China's ranking of input intensity among the world's major economies has increased from the 16th in 2016 to the 12th in 2020, which is close to the average level of OECD countries. The full-time equivalent (FTE)¹ of R&D personnel reached 5.24 million persons in 2020, an increase of 9% over the previous year and continued to rank first in the world.

The dominant position of enterprises in innovation has been further consolidated. In 2020, the R&D expenditure of Chinese enterprises reached 1,867 billion yuan and

increased by 10.4% over the previous year. The contribution of Chinese enterprises accounted for 77.9% of China's total R&D investment growth with an increase of 9.4% over the previous year.

Among these expenditures, the R&D expenditure of industrial enterprises above designated size was 1,527 billion yuan with an increase of 9.3%. Among such enterprises, 208,000 or 52.1% of them have carried out technological innovation activities, registering an increase of 2.5% over the previous year and exceeding the 50% threshold for the first time.

Note for FTE: According to UNESCO, United Nations Educational, Scientific and Cultural Organization, the Full-time equivalent (FTE) of R&D personnel is defined as the ratio of working hours actually spent on R&D during a specific reference period (usually a calendar year) divided by the total number of hours conventionally worked in the same period by an individual or by a group. In other words, one full-time equivalent may be thought of as one person-year.



■ Enterprises will continue to play a leading role while China strives to become a major world centre for science and innovation

Several Chinese government development plans, guideline documents, as well as speeches of top leaders have made it very clear that innovation is vital for economic and social development.

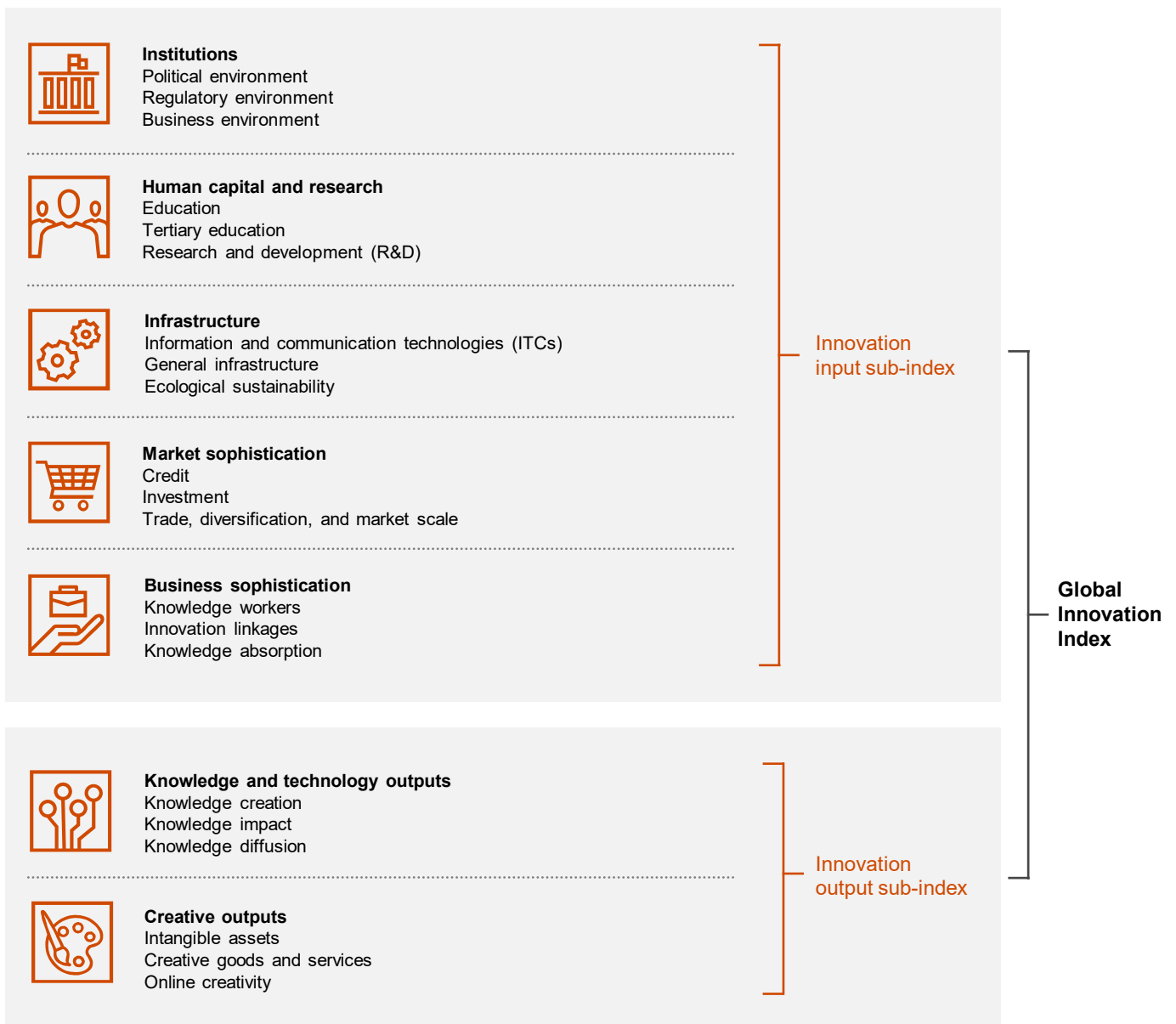
China's top leaders have emphasised many times that innovation is the "primary driving force", and China needs scientific and technological solutions to boost economic and social development as well as improve people's living standards.

Moreover, besides government-affiliated research institutions, colleges and universities, enterprises are the mainstay in the process of transforming the world's largest workshop into an innovative economy. This is evidenced by the fact that 77% of the total R&D investment comes from enterprises, which also generated the majority of the innovation outputs.

However, although the innovation capability and level are constantly improving, China is still a developing economy. For instance, China lacks major achievements in basic science and has been relying on the developed countries for core technologies. This situation has not been fundamentally changed. The ability to transform scientific and technological achievements into products and services is not strong, despite the rapid growth of many enterprises. The talent development and incentive mechanism needs to be further improved as well, especially within government-affiliated research institutions, colleges and universities. Therefore, there is a long journey ahead for China to further develop its innovative economy.

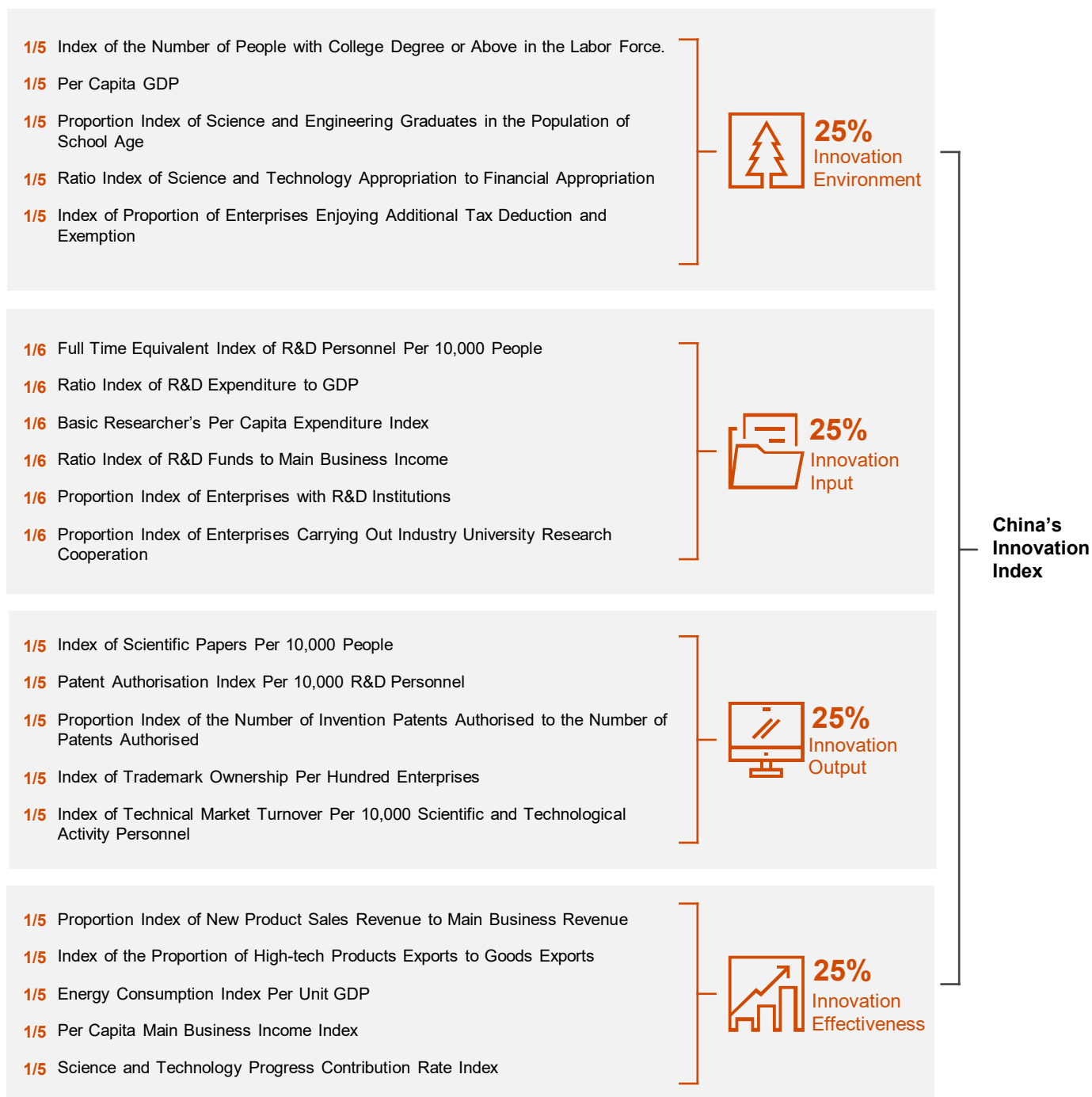


Figure 22: Framework of the Global Innovation Index 2021



Source: Framework of Global Innovation Index (GII) 2021 by World Intellectual Property Organisation (WIPO)

Figure 23: Framework of the China's Innovation Index 2021



Reference:

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