China-CEE Institute
中国—中东欧研究院

ISSN 2786-2860
Vol. 1 No. 6
November 2021

CHINA WATCH

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A Portrait of the Chinese Economy of Our Time: From Manufacturing to Services

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In the period from 2010 to 2012, a shift occurred in the trajectory of China's economy, with important macroeconomic indicators overturning earlier operating trends. Conspicuous aspects of this change include, first, a reversal of economic growth from continuous increase in the first decade of the 2000s to a continuous decline after 2011. Second, in the area of industrial structure, before 2012, the real added-value growth of the industrial sector exceeded that of the service sector most of the time, but afterward, the real added-value growth of the service sector has continued to exceed that of the industrial sector, and the gap is widening. Third, regarding the expenditure structure, in the ten years before 2011, the consumption rate fell while the investment rate rose, but afterward, the consumption rate rose and the investment rate fell. Fourth, in the area of external position, the current account balance/GDP ratio steadily rose before 2009, and it has steadily fallen afterward. As for business cycle fluctuations, the PMI index, which reflects the degree of economic prosperity, has also clearly taken a step downward after 2011, so that before this, the economy was more hot than cold, while afterward, it was more cold than hot. In addition, in many areas such as regional and urban development, fiscal and tax revenue, credit, and corporate profits, we have seen turning points between the first decade of the 2000s and the following decade.

The turning points in these important macroeconomic indicators do not exist in isolation. There are intricate, close connections among economic phenomena, and running through these close connections are clues to major underlying factors. Such reversals among many important macroeconomic indicators imply that a change has occurred among those underlying factors. Finding such clues is crucial in China's economic research, since it can help us get a more complete grasp of the overall context of economic phenomena, so that we can understand the connections among complex economic phenomena from a clearer perspective; it can also help us make predictions

about the future and better serve the formulation of economic policies.

A Logical Starting Point: The Upgrading of Consumption from Manufacturing to Services

The continuous increase in consumer income levels will bring about two major changes in the structure of consumer spending. The first change occurs after income levels reach a certain stage and the consumption of food gradually reaches saturation: the proportion of consumption expenditure on food decreases. This is known as the Engel effect (or Engel's Law). The second change occurs when consumption of manufactured products gradually reaches saturation: the proportion of consumption expenditure on manufactured goods decreases. This may be described as an Engel effect in the broad sense. The Engel effect and generalized Engel effect have both been empirically verified by all high-income countries at similar stages of development.

Judging from high-income countries' experience of development, when per capita GDP reaches the 8000-9000 international dollars (at the 1990 benchmark), the growth of household expenditure on manufactured goods begins to slow relative to that of expenditure on services. The main reason behind this is that after incomes reach a certain level, people's consumption of manufactured goods is gradually saturated. To improve the quality of life further, consumption of services begins to exceed the consumption of manufactured goods. This sort of change follows the level of per capita income and is continuously strengthened.

The trajectory of structural change in China's consumer spending is highly consistent with the experience of high-income countries. China's per capita GDP based on purchasing power parity surpassed the I$8000 (1990 benchmark) level in 2010 and the I$9000 level in 2012. If we take 2012, when Chinese per capita income surpassed the I$9000 level, as the boundary, then we can say that the structure of Chinese household consumption expenditure had a turning point that year. From 2005 to 2012, the fastest-growing areas of Chinese household consumer spending were in household equipment and services, transportation and communications, other goods and services, and clothing; the growth rate of expenditure on food was close to the average growth rate of all consumption expenditure, while lagging behind the average growth rate were education, culture, and entertainment services, housing, and health care expenditures. From 2013 to 2019, however, the growth rates in health care and education, culture, and entertainment services had leapt from behind to the top two

growth areas of consumer spending; these were followed by transportation and communication and housing, while the growth rates for household equipment and services, food, and clothing ranked at the bottom.

The upgrading of consumption from manufacturing to services after China's per capita income passed the I$9000 mark has entailed the lowest economic growth force for manufactured goods, and this is also the source of the subsequent turnabout changes in many of the economic indicators. We have thus witnessed one after another change driven by this force in industrial structure, population flow, urban morphology, investment structure and investment rate, economic growth rate, and economic cycle.

A Chain Reaction: Industrial Transformation

The consumption upgrade from manufacturing to services will inevitably require an adjustment of the industrial structure. Manufacturers as a whole are faced with the challenges of a decline in demand growth and a decline in the relative price of their products. The growth rate of manufacturing sales revenue has dropped significantly after 2012, as has the growth rate of manufacturing added-value, so the overall environment faced by the manufacturing industry stands in sharp contrast with that of the peak period of development in the previous stage. This has forced a series of adjustments within the manufacturing sector, focusing on the following areas: (1) Low-efficiency enterprises and a large number of small and micro-enterprises in the manufacturing sector were eliminated, and the market share of a few high-efficiency enterprises increased significantly. (2) To survive in a more competitive environment, enterprises have increased their R&D investment, improved quality, and increased new product categories. (3) For the same purpose, they have set up a more specialized division of labor, so that professional services that were once retained internally, such as R&D, sales, business services, and other professional services, are now split off into separate, independent companies that can provide more professionalized service. (4) Judging from the level of R&D investment, quantity of patented production, production processes, and the complexity of export products, the transformation and upgrading of the manufacturing sector are progressing well.

Meanwhile, the service sectors' shares of employment and value-added in the economy are increasing, but not all service industries have seen faster growth after the peak period of industrialization—only the ones that use more knowledge and professional skills will grow faster. These service industries require more input from

highly educated labor. This type of industry is also called "technology-intensive services" or "human capital-intensive services." In the United States, from the 1950s to the present, the service sector's value-added share has increased from 60% to 80%, an increase of 20 percentage points, and within this sector, the share of technology-intensive services has increased by 25 percentage points, while the share of low-tech services has not increased at all, but has rather fallen. Other high-income countries have had similar experiences. In 13 such economies (Japan, South Korea, the Taiwan region of China, United States, United Kingdom, Germany, France, Belgium, Italy, Spain, Finland, Sweden, and the Netherlands), after they experienced their peak industrialization periods, service areas that tend to be more human capital-intensive, such as finance, insurance, real estate and commercial services, governmental services, and so on all saw sustained growth whether in terms of their value-added or in terms of their employment figures. Service areas that are less human-capital intensive, such as trade, food service and accommodation, transport, warehousing, transportation, and information services are declining or staying level in terms of added-value.

This has also been the case in China, where the added value of human capital-intensive services has grown more conspicuously since 2012. From 2012 to 2020, the growth rate of the added value of the service sector has shown a very significant positive correlation with that sector's human capital intensity. The top industries in terms of value-added growth are all industries with high human capital intensity, which include: information transmission; computer services and software, leasing and business services; real estate; finance; health care; social security and social welfare; scientific research; technical services and geological surveying; public management and social organization; culture, sports, and entertainment; education; water conservancy; and environmental and public facilities management. Industries with the lowest growth rates are those with lower human capital intensity, and they include: mining; manufacturing; agriculture; forestry, animal husbandry and fishing; accommodation, food, and beverages; transport; warehousing and postal services; residential services; other services, etc.

Another Chain Reaction: From Urbanization to Metropolitanization

After the engines of production and consumption in high-income countries shifted to human capital-intensive industries, urban morphology continued to change. The population is still clustering, but the way it is clustering has changed. Judging from

international experience, the proportion of the population living in areas with a population density higher than 2000 persons per square kilometer (the urbanization rate) has already approached or reached its peak, and further increases will not be large. However, population migration is still taking place, and more and more people are concentrating in metropolitan areas with higher population densities—not in the centers of these metropolitan areas, but in their suburbs. Many metropolitan areas around cities such as Tokyo, New York, London, Paris, and so on have continued to expand since entering their economic transitional phase from manufacturing to services. Meanwhile, many other cities, especially small and medium-sized cities and those that rely excessively on resources or industrial production, are declining.

Human capital-intensive industries have become key to determining the destiny of a city's development. Even though we have the Internet and other new technologies that can be traded across regions, in most human capital-intensive services it is still difficult to provide the services across a distance. This means that cities with simultaneous advantages in the production and consumption of human capital-intensive services are more competitive, and these cities are often metropolises.

The main differences between metropolises and small and medium-sized cities are larger scale, higher density, and greater heterogeneity. Together, these characteristics make metropolises as well as small and medium-sized cities more conducive to the dissemination and accumulation of knowledge, and more conducive to knowledge consumption. With human capital-intensive industries becoming the focus of development, metropolises are more likely to win in the competition among cities.

While metropolises rise, many small and medium-sized cities, and those with an overreliance on the production or trade of industrial products, are facing bottlenecks in development. Some cities have succeeded in transforming, while others are facing industrial decline and population outflow, as in the famous "rust belt" area of the United States. The production and consumption of industrial products can be separated distance-wise. Those cities that do have advantages in the production of minerals, energy, or manufactured goods, even if the local market is not large, can still sell their products to markets outside their region to make a profit, in which case these cities' income levels rise, they maintain vitality, and they even become "star cities" for a time. However, ever since the economic structural transformation from manufacturing to services, the entire focus of production and consumption has shifted to human capital-

intensive service industries, and the profitability of industrial goods and their trade has narrowed significantly. Cities that rely excessively on the production or trade of industrial goods are facing transformational challenges.

Since China's economy entered a period of economic structural transformation from manufacturing to services, significant changes have occurred in our urban morphology. The population continues to cluster, and the urbanization rate continues to increase. Official statistics show that China's urbanization rate has risen from 51.8% in 2012 to 59.1% in 2018. This urbanization rate was calculated according to administrative regions, and some unit population densities calculated based on big data indicate that China's actual urbanization rate is higher than this. The direction of population agglomeration has also undergone significant changes: the attractiveness of small and medium-sized cities has declined, while large cities are attracting more people. We used a sample covering 215 major cities in China to observe two important characteristics of the evolution of China's urban morphology: (1) There are more cities with net population outflows than cities with net population inflows. The proportions of cities with net population inflow and net population outflow during the 2007-2012 period were 45% and 55% respectively. During the 2012-2018 period, the proportion of cities with net population inflow dropped to 36.8%, and the proportion of cities with net population outflow was 63.2%. (2) The bigger the city, the more attractive it is, and the megacities are the most attractive. From 2012 to 2017, the growth rate of the permanent population of a city with a population of 1 to 5 million was basically the same as the growth rate of the permanent population of the province where the city is located. The two rates were 0.62% and 0.63% respectively, which indicates that such cities, in terms of attracting population inflows, did not have much of an advantage. The growth rate of the permanent population of a city with a population of 5-10 million was significantly higher than that of the province where the city is located. The two rates were 0.79% and 0.62% respectively. Finally, the growth rate of the permanent population of a city with a population of more than 10 million was much higher than that of the province where the city is located; the two rates were 1.21% and 0.63% respectively.

The Weakest Link of Transformation: Not in Industrial Production, But in the Services Behind It

China has not de-industrialized prematurely. The premature de-

industrialization of Latin American countries has led to the stagnation of their economic development, so some scholars are worried that China will begin to de-industrialize prematurely. In China, the kind of income levels and peak manufacturing share that correspond to manufacturing-to-services economic restructuring are close to those of high-income economies at a similar stage of development; the change in manufacturing share after the peak period is also very similar. Ten years after they reached peak industrialization, the average share of manufacturing value-added in GDP in Japan, South Korea, the Taiwan region of China, United States, West Germany, and France were, respectively, 30.3%, 30.5%, 34.8%, 25.3%, 33.7%, and 25.6%. The average value of China's share for the 2012-2019 period was 30.0%, which indicates that China has not withdrawn from the manufacturing sector any more significantly than other high-income economies at similar development stages. The trajectory of change in China's manufacturing share reflects standard action. The logic behind the manufacturing-to-service transition depends on per capita income reaching a certain height, the manufacturing sector undergoing full development, and the consumption of manufactured goods reaching saturation—only then does the transition begin. This, basically, has been the case in China. China first became a global manufacturing country, and then, only after its manufactured goods became fully competitive in the international market, its economy began to transform. This is something that Latin American countries have not experienced.

The growth potential of the human capital-intensive service sector has not yet been fully released. Even though services since 2012 have grown faster than other industries, with the performance of the human capital-intensive services becoming more conspicuous, their full growth potential has not been released, if we compare them with their counterparts in high-income countries at a similar development stage. Human capital-intensive service industries can be divided according to their degree of marketization into highly marketized and minimally marketized types. The average growth rate of employment in China's human capital-intensive services from 2012 to 2018 was 3.2%. Some of these services, including "real estate industry" and "leasing and commercial services industry"—highly marketized sectors—had average employment growth rates as high as 7.0%. Although the employment ratio of highly marketized human capital-intensive services is lower than that of the high-income economies at a similar development stage, it is rapidly catching up to the normal range of the frame of reference.

Minimally marketized human capital-intensive services have lower employment rates and have not moved closer to the normal range of the frame of reference. Minimally marketized human capital-intensive services include "scientific research, technical services, and geological prospecting," "water conservancy, environmental and public facilities management," "education," "health," "social security and social welfare," "culture, sports, and entertainment," and "public management and social organization." During the 2012-2019 period after the peak of industrialization, the average employment growth rate in China's minimally marketized human capital-intensive services was 1.7%, which was lower than that in the highly marketized type. It was also lower than the 2.5% average growth rate of employment in similar industries in the ten years after the peak of industrialization in high-income economies. In some of the less marketized human capital-intensive services, China has not narrowed the employment gap—instead, the gap has further widened.

Some human capital-intensive industries have become the weakest links of current economic development and transformation. The difficulties in seeing a doctor or going to school reflect supply gaps in the related service sectors. The high housing prices in our metropolises likewise reflect gaps in related service sectors such as education, medical resources, and public transportation. These gaps also represent huge development potential, but that potential cannot be released. On top of that, the lagging development of some service industries also restricts the development of other sectors. The key to the development of traditional agriculture into modern agriculture is the modernization of the industrial sector. The key to upgrading the industrial sector lies not in the internal production linkages of the industrial sector, but in the development of human capital-intensive services, including basic education, scientific research, financial services, intellectual property protection, and other commercial services—all the service links behind industrial production. The upgrading of industry requires effort outside of industry.

Structural Reform: Not to Be Sought Through Comprehensiveness, but in Breakthroughs

It is not difficult to write a standard textbook-style prescription for developing minimally capitalized human capital-intensive services. First, optimize control policies and introduce fair market competition to allow these service industries to improve supply and efficiency through fiercer market competition. Second, improve and perfect

accountability mechanisms in public management and services, promote a transformation of government functions from development to service, and improve government public services. However, in specific practice, it would be difficult for these prescriptions for reform to be widely accepted, and true implementation would be difficult. The difficulty of implementation lies not only in departmental interests, but also, and more importantly, in the major cognitive and value differences throughout society regarding these reform areas, which make reaching consensus on reform difficult. Even if a programmatic document of reform were formulated, it would be difficult to carry out in specific operations.

Reform policies should seek breakthroughs on the margins rather than through major systemic changes. Even gradual advancement of structural reform is not easy. On the one hand, it requires that the content of the reform can directly or indirectly repair the weakest links, while on the other hand, it requires that the content of reform does not fully confront mainstream values. Partial confrontation is inevitable, but it cannot be full confrontation. Using the pilot reform approach would reflect the wisdom of gradual and negotiated reform and be based on the valuable experience of China's "reform and opening up." Testing the points of reform in selected areas of a reform pilot zone is still an effective model that avoids the intensification of disagreements, and it has low trial-and-error costs.

(Translated by Thomas E. Smith)