

Wen Xiao · Jiadong Pan ·
Hao Chen

The Dynamic Transformation of China's Economic Development Under the New Normal



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Chapter 1

Review of Chinese and Foreign Studies on the Dynamic Transformation of Economic Development



1.1 Review of the Theoretical Research on the Dynamic Transformation of Economic Development

Economic growth is central to economic research, and economic growth theory is an important theoretical branch of macroeconomics. Indeed, the theory of economic growth has formed many schools during its 200 year development, such as the classical and neoclassical schools. These theories have their own characteristics and provide powerful economic explanations for the economic development and dynamic transformation of various countries and regions.

1.1.1 *Historical Evolution of Chinese and Foreign Economic Growth Theory*

(1) Classical Economic Growth theory

Harris (2007) stated that “The analysis of the process of economic growth was primarily represented by Classical British economists such as Adam Smith and David Ricardo, who are considered as outstanding pioneers of modern economic growth theory.” Adam Smith is one of the most outstanding economists in Enlightenment-era Britain, the founder of classical economics, the master of the collection, and also the pioneer of modern economic growth theory. His principle work, *The Wealth of Nations* (1776), predominantly discussed how to increase a country’s national wealth, namely its economic growth. The core point of Smith’s growth theory is to link growth with the concept of capital and the division of labor, that is, to emphasize the importance of these two concepts to economic growth. According to Smith, the division of labor promotes social productivity in the following three ways. First, through workers’ repetition of specific jobs, their proficiency level improves, thus

enabling them to refine specialty. Second, the division of labor can reduce losses of energy and time due to workers transferring to a new type of job. Third, the division of labor allows the creation of machines to reduce and simplify labor. Regarding capital accumulation, Smith believed that economic growth depends on increasing both the number of workers and division of labor, which itself is dependent on the accumulation of capital. As the division of labor requires the use of specialized machinery and equipment—which must be purchased with capital—the finer the division of labor, the more tools are needed, and the greater the demand for capital. Accordingly, capital accumulation and the division of labor are intertwined and constitute the driving force of economic growth. Smith generally considered economic growth to be a forward process, with the division of labor as the starting point. The greater the division of labor, the greater the output, thereby increasing a country's national wealth. This increase will further improve the saving rate, thus forming a larger capital accumulation, which in turn further promotes enhancing the division of labor, thereby forming a cycle of economic growth.

David Ricardo inherited and developed the essence of Smith's economic theory, proposed the law of diminishing marginal productivity, and (on such a basis) formed the theory of graded rent and distribution, thus developing Smith's theory of capital accumulation. In his view, by accumulating capital and expanding production, employment and wages increase, which in turn generates greater demand for agricultural products. Regarding the increasing demand for food, food production will gradually expand to low-fertile land, requiring a more intensive labor force. This phenomenon will inevitably lead to a decreased marginal income of agricultural products and marginal return of land. The decline of agricultural labor productivity leads to soaring food prices, which drives the living cost of laborers and increases nominal wages, which serves to increase the production cost of industrial capitalists, thereby reducing profits and decreasing the profit margin of capital. At the same time, land rent—a source of unproductive consumption for landlords—would increase in line with rising food prices, further reducing the profit margin on capital. When the profit margin of production falls to a certain point, the incentive to accumulate capital disappears, thereby halting economic growth. Ricardo's theory suggests that economic growth is a process leading toward a "static society." Ricardo's theory of economic growth is applied in the field of actual production. The law of diminishing marginal productivity of labor on a given land proposed by Ricardo is the original form of the law of diminishing marginal productivity emphasized by neoclassical production function.

(2) Neoclassical Economic Growth theory

Classical economic growth theory has yet to establish a mathematical model framework for analyzing economic problems. One could reasonably argue that modern economic growth theory originated from the Harrod–Domar model. However, in this model, it is difficult to achieve the balanced growth of full employment of two factors due to the assumption that the proportion of capital and labor is fixed. American economists Solow (1956) and Swan (1956) combined Keynes' aggregate analysis and the production theory under perfect competition economy. In so doing, they

changed the condition that the ratio of capital and labor in the Harrod–Domar model has to remain unchanged, and assumed that capital and labor could substitute each other and be fully utilized. They thus established a new dynamic equilibrium model with which to analyze the relationship between savings, capital accumulation, and economic growth, and consequently laid the foundation for neoclassical economic growth theory. The Solow–Swan model has several key characteristics. First, the production function is a neoclassical form, that is, the marginal return decreases, and the return to scale is constant and meets the paddy field condition. Second, capital is depreciated at a fixed rate. Third, the model introduced the role of technological progress and generated fixed rate growth. The Solow–Swan model describes how an economy in a stable state, regardless of its initial position, will eventually converge to this stable state, in which the rate of technological progress generated outside the per capita output increases. Since the savings rate in the Solow–Swan model is exogenous, Cass (1965) and Koopmans (1965) based theirs on Ramsey’s (1928) continuous time model in order to internalize the savings rate. From the microcosmic perspective of consumers and manufacturers, Ramsey studied the dynamic relationship between consumption rate and capital stock and found the central problem to be the allocation of cross-time resources. Simply put, Ramsey’s model states that the output of a certain point in time is divided into current consumption and future savings, the first of which produces current utility while the latter determines future utility. Fundamentally speaking, Ramsey’s model solves a macroeconomic problem. However, the solution of this macro problem is to obtain the optimal consumption and capital accumulation paths by solving the production and utility functions from the two micro perspectives of consumers, families, and manufacturers. Since the model assumes that human life expectancy is indefinite, it has been questioned by many scholars. For instance, Diamond (1965) proposed the overlapping generations (OLG) model, which divided the personal life cycle into young adulthood and old age. People in the former would work within the market to provide labor for revenue, whereas everyone in the latter would not work, but consume. The relationship between savings, consumption, investment, and output in the process of economic growth is analyzed from a discrete perspective through the utility of savings in the consumption of the youth.

(3) New Growth Theory (Endogenous Growth Theory)

Neoclassical economic growth theory holds that steady economic growth depends on technological progress, which (in the theory) is an indecisive exogenous variable within the economic system. Simply put, without an exogenous given technological progress, neoclassical economic growth theory does not have an endogenous mechanism of sustained growth. In order to solve this fatal weakness, Romer (1986) and Lucas (1988) published a series of papers with endogenous technological progress as the core, introducing knowledge and human capital into the economic growth model. Analyzing the mechanism of increasing returns generated by endogenous technological progress can reveal the endogenous mechanism promoting sustainable economic growth. These theories have been termed the new growth or endogenous

growth theory. The new growth theory includes the following predominant viewpoints: economies can achieve sustainable and balanced growth, endogenous technological progress is the decisive factor of economic growth, and it is the product of voluntary investment by manufacturers in pursuit of profits. Moreover, the theory holds that knowledge and human capital have spillover effects, and economic policies likely influence economies' long-term growth rates—especially with government subsidies for research and development (R&D) contributing to growth.

Romer (1986) proposed the endogenous economic growth model, in which R&D into knowledge and technology are considered the source of economic growth, and the most representative is the endogenous growth model after the introduction of human capital in 1990. This model contains four factor inputs: capital, labor, competitive human capital, and non-competitive knowledge stock. There are three economic departments: research, intermediate product production, and the final product production department. The first department produces new knowledge and intermediate product design through the use of knowledge and human capital. The intermediate product department uses the new intermediate product produced by the research department to design and produce intermediate products for the final product department. The last department thus produces final goods by integrating labor and capital factors, as well as intermediate goods. A general equilibrium analysis suggests that endogenous technological change—which derives from conscious investment—is the source of economic growth. Through acting on the production of intermediate goods, their scale and type can be expanded to improve the output of final goods. Additionally, this can increase the knowledge stock, and improve the output efficiency and scale of the entire research department through the spillover and expansion effect of knowledge. Knowledge has a non-competitive, partially exclusive nature that leads to incremental marginal products. Moreover, the study also found that the marginal product growth rate is an incremental function of human capital stock, the research department has incremental income, and the doubling of human capital and knowledge stock leads to an increase in the research sector's human capital marginal products, thereby promoting a higher rate of economic growth.

(4) New Institutional Economic Growth theory

Regardless of the aforementioned theories, the source of economic growth has been traditionally discussed from the aspects of capital, labor, and technological progress. Indeed, even within the endogenous economic growth theory, the system is still regarded as an exogenous variable. The new institutional economics school represented by North opposes this view, arguing instead that the decisive role in economic growth is institutional, rather than technical, factors. This school asserts, instead of being the causes of economic growth, capital accumulation, labor input, technological progress, or human capital investment are actually aspects of the growth itself. Instead, the key to economic growth is the system, and the new institutional economic growth theory seeks to uncover the root cause of economic growth from the institutional aspect. North's theory of new institutional economic growth includes three variables: property rights that stimulate economic activities; units that define

and enforce these rights (i.e., the state); and the moral and ethical belief system that determines the transformation of personal ideas into behavior (i.e., ideology).

North believed property rights to be the most important of these factors. Property rights directly affect the efficiency of resource allocation because clearly defined property rights provide positive external incentives for individuals and social behavior. A society's sense of innovation and economic growth will increase in the presence of a clearly defined system of property rights effectively protecting the greatest personal benefits for inventors and creators. However, under the constraints of existing technology and organization, defining and implementing property rights is extremely expensive, meaning that the state functions in a low-cost and -efficiency function in this regard. Generally speaking, in the definition and implementation of property rights, the state should not only maximize the rent of the ruler, but also reduce transaction costs to maximize the total output of the entire society, thereby increasing national tax revenue. This means that countries would have to make trade-offs to promote economic growth. It costs a country to define and implement property rights, so when the costs outweigh the benefits, the country will seek ethical and moral forces to overcome "free-riding" and other opportunistic behavior. North thus introduced ideology into the system and economic growth analysis framework. Ideology can affect resource allocation by influencing opportunistic behavior, transaction costs, and the political and judicial decision-making processes (among others), thus having a significant impact on economic growth.

1.1.2 Untangle the Research About the Dynamic Mechanism of China's Economic Development

In view of the dynamic mechanism of China's economic development, prior research has predominantly focused on the two routes of demand and supply for analyses. Regarding the former, the literature has tended to focus on the role of consumption, investment, and export, namely the "three carriages." While there are different understandings on the influence of these three, their analysis paradigms all belong to the category of aggregate demand. In terms of supply, the literature has mainly focused on the role of capital, labor force and population, technology, natural resources, and institutions.

- (1) Research on dynamic mechanism based on demand perspective
 - a. *Investment and economic growth perspective*

This paper discusses the impact of domestic investment, foreign direct investment (FDI), and outward foreign direct investment (OFDI) on China's economic growth.

In terms of domestic investment, many scholars have begun their research from the enterprise level to explore the impact of enterprise investment activities on the quality of regional economic growth. Hao et al. (2014) showed that, in regions with small economic scales, investment in fixed assets and warrants reduced the quality of economic growth, while technological investment improved it. Moreover, they found

that, in economically developed areas, the market mechanism is virtually perfect, and more of them are matched with private enterprises, meaning the quality of economic growth has more opportunities for improvement. Some scholars focused on the meso-industrial level. For instance, Zhang et al. (2014), using 70 large and medium-sized urban panel data from 1998 to 2010 in 30 provinces and urban areas of China, empirically analyzed the regional economic impact of real estate investment. They found that regional real estate investment not only promotes and enhances a region's economic growth, but also drives economic growth in other regions. Zhang and Zheng (2012) reached a completely opposite conclusion, arguing for an insignificant impact of residential investment on China's economic growth. More research has been conducted at the macro level (e.g., Yi and Lin 2003; Lin and Su 2007; Lu Ming and Ou 2011).

In terms of FDI, Liu and Li (2013) argued that its apparent impacts on China's economy is mainly reflected in economic growth and employment—upon which FDI has a significant role. Moreover, FDI brings foreign advanced technology and management experience to Chinese industry, and generates significant competition and demonstration, thereby promoting China's economic transformation and upgrading. Fu et al. (2013) found that, based on FDI's spillover effect, local enterprises choose different technological progress paths to have a differentiated impact on the quality of economic growth. Among them, technology transfer (using the measure of production localization of foreign-funded enterprises) has a significant promoting effect on the quality of economic growth. The spillover effect (measured by foreign investment participation) can also improve the quality of economic growth, although it tends to be significantly smaller than technology transfer's pull effect.

In terms of OFDI, Zhao and Jiang (2010) summarized its influence mechanism on the industrial upgrading of the home country from the perspectives of industrial association, competition, and transfer, and conducted a trial test based on typical provinces. They found an emerging effect of China's OFDI on the industrial upgrading of the home country.

b. Consumption and economic growth perspective

The reverberations of the 2008 financial crisis sent the global economy spiraling into a decline from which it has not yet fully recovered. As an export-oriented economy face significant challenges, domestic consumption has become a new growth and cultivation point of China's economy. Hong (2011) argued that the consumer economy should become a new economic growth point under the New Normal of China's economy. The most fundamental problem of a consumption economy is how to raise the demand of China's citizens so as to transform consumption demand into a realistic and effective consumption power (Hong 2013). Sun and Song (2012) empirically tested the two-way interaction between China's economic growth and consumer demand by using time series data from 1978 to 2009. They found that rising consumer demand has significantly promoted China's economic growth. Ding (2014) empirically tested the impact of China's consumer credit on its economic growth through time series analysis methods, and found a long-term and stable equilibrium relationship between China's consumer credit and economic growth. However, due to the late

start of China's consumer credit and a moderate level of participation, coupled with the traditional concept of constraints on consumption, consumer credit has not been extensively developed in China. Zhao and Quan (2011) constructed a value at risk (VaR) measurement model between domestic tourism consumption and economic growth, and found a long-term equilibrium relationship between them. While the promotion effect of economic growth on domestic tourism consumption is greater than that of domestic tourism consumption on economic growth in the short term, the reverse is true in the long term. Furthermore, many scholars have taken the perspective of government consumption. For instance, Mao and Hong (2009) argued that government consumption can improve consumption rates, calm economic fluctuations, and improve the quality of workers, thereby significantly promoting economic growth in China. They found these results by combing through the theoretical mechanism of government consumption on economic growth, using 1985–2007 panel data on 31 provinces to measure the growth effect of government consumption. This kind of promotion also exists significantly in 31 provinces in China, although there are significant differences in the size of promotion between different provinces and regions.

c. Export and economic growth perspective

Since China's reform and opening up, the export-oriented economic development model has significantly promoted China's economic growth, and a wealth of studies have been conducted into the relationship between the two.

Regarding the impact of the overall scale of exports on economic growth, Lin and Li (2003) believed that, not only could exports directly promote economic growth, but they could also influence all aspects of the economy, including imports, investment, and government expenditure, thereby also having an indirect impact. Further empirical tests have shown that, since the 1990s, an increase of 10% in the scale of foreign exports has promoted approximately 1% of China's GDP growth.

Regarding export commodity structure's influence on economic growth, using time series data from 1985 to 2006, Ding (2008) based empirically analyzed the relationship between primary products and manufactured export goods and economic growth, and found that both play a significant role in promoting economic growth in the short term. However, in the long run, the export of primary products is not conducive to the sustained growth of China's economy, while the export of manufactured products plays a driving role in economic growth. Liu and Yan (2013) constructed three indicators of export horizontal diversification, vertical export diversification, and export specialization to empirically examine the effect of export commodity structure on economic growth. Their results revealed that, while both export level and vertical export diversification have a significant pull effect on China's economic growth, the latter has a significantly higher effect.

Regarding export technology structure, Hong and Liu (2013) calculated the export display technology added value index of 22 manufacturing industries in China from 1993 to 2008. This allowed them to investigate the influence of the change of export technology structure on economic growth. They found that the change of export technology structure has become an important force for promoting China's