A Discussion on the Transition of Development Paradigm As well as China’s Low-carbon Economy Development

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Abstract

Economic growth pattern and economic development paradigm are two different economic concepts. This article introduces the transition from economic growth pattern to that of economic development paradigm. It also discusses economic development paradigm from the perspective of ecological civilization as well as its economic form. In the end, the article emphasizes the theoretical study of low-carbon economy and the China’s path choice of low-carbon economy development.

Key words: economic growth pattern; development paradigm; low-carbon economy

1. Introduction

In September 1995, it was definitely put forward in the 5th Plenary Session of the 14th Central Committee that the aim of China’s reform and development in the coming 15 years was to achieve two “fundamental transition” of overall significance: one is the transition from the traditional Planned Economy system to socialist Market Economy system; the other is transition from extensive to intensive pattern in economic growth.

In November 2007, the Report to the Seventeenth National Congress of the Communist Party of China has changed the wording of “achieving transition of economic growth pattern” into “accelerating the transition of economic development paradigm”, clearly putting forward the main content of accelerating the “three transition” in economic development mode: the transition from relying mainly on investment...
and export to relying on a well coordinated combination of consumption, investment and export in terms of consumption structure; the transition from secondary industry serving as the major driving force to primary, secondary and tertiary industries jointly driving economic growth in terms of industrial structure; and the transition from relying heavily on increased consumption of material resources to relying mainly on advances in science and technology, improvement in the quality of the workforce and innovation in management in terms of input of factors.

2. Theoretical study of transition from economic growth pattern to that of economic development paradigm

Economic growth pattern means the distribution, input, combination as well as usage mode of factors of production, which is usually used to refer to the transition of extensive and quantity-oriented economic growth pattern into the intensive and quality-oriented one.

The transition of economic growth paradigm not only contains the transition of economic growth modes, namely from the extensive economic growth mode relying on increase of resource input and consumption into the intensive economic growth mode mainly depending on raising the efficiency of utilizing natural resources, but also includes the changes in aspects such as structure, mass, and benefits.

The concept of paradigm was firstly put forward and systematically explained by Thomas Kuhn, an American scientist, in his works The Structure of Scientific Revolutions[1]. Initially, paradigm refers to a kind of concept, theory and laws, and usually the common beliefs and behavior modes of a scientist community toward a science, which defines the common basic theory, fundamental views and basic methods for people. In recent years, some domestic scholars extends the theoretical paradigm to describe the economic development practice which is based on certain concepts and laws with certain characteristics, and has put forward the theoretical paradigm as well as a series of related concepts for economic development, such as win-win paradigm of environmental protection and economic development (Dou Xiaodong, Zhao Shengjun, 2002)[2], modernized economic paradigm (Qiao Chen, 2006)[3], economic and social development paradigm (Shen Shijun, 2006)[4], new paradigm for economic development (Zhang Bing, 2007)[5], regional economic development paradigm (Li Qingquan, 2007)[6], paradigm of cyclic economy (Zhang Luqiang, 2007)[7], paradigm for technological economy (Jia Genliang, 2004; Wang Wenjun, 2009)[8][9], industrial paradigm (Xie Chaowu, 2009)[10], paradigm for agricultural development (Deng Xinan, 2009)[11], consumption paradigm (Li Yinghong, 2009)[12]. So does abroad. As early as in 1982, G. Dosi introduced this concept into the studies of technological innovations, and proposed the concept of technological paradigm. In 1983, C. Perez proposed again the concept of techno-economic paradigm in his published paper “The structure of social and economic systems change and absorption of new technologies” in the Future, which directly linked technology and economic growth paradigm. In 1988, Freeman and Perez, both famous economists of technological innovation, co-published a paper titled “Structural adjustment crisis: economic cycles and investment behavior”, in which they further enriched and developed the concept of techno-economic paradigm (Dosi etc., 1994)[13]. Kazuhiro Ueda, a well-known economist at Kyoto University in Japan (Kazuhiro Ueta, 2010)[14], also clearly put forward the concept of development paradigm transition in his speech at the 2nd Sino-Japanese Economy & Environment Forum at Northwestern University. Not only that, the academic community has also discussed the specific content of economic development paradigm. Qiao Chen (2006) argued that the paradigm of economic development should at least include the following four aspects[3]: (1) research or the springboard of economic development paradigm, including research targets and theoretical basis of the researchers in economic development process; (2) frame of reference or bench-mark of the economic development paradigm research, including various case analysis and systematic presentation of economic development theory as well as economic development paradigm;
(3) analysis tools or analytical means for economic development paradigm; (4) theoretical faith commonly held by economic development researchers. When the practice of economic development has reached far beyond the theoretical framework and theoretical models, a lot of theoretical analysis and discussion on cases of previous economic development is needed, so as to extract the general laws and essence in economic development for absorption and application, and combine with practice to propose a new paradigm of economic development. The transition and selection of economic development is not only the objective requirements of economic modernization, but also the necessary guarantee to advance the process of economic modernization.

3. Economic development paradigm from the perspective of ecological civilization as well as its economic form

According to the twice-modernization theory or civilization development theory put forward by He Chuanqi, [15]Director of China Center for Modernization Research, the target of the first modernization is to realize modernization of industry with the industrial civilization development paradigm as its development paradigm, under which the agricultural society has developed into an industrial society while the agricultural economy into an industrial one. The main characteristics of this modernization is the realization of industrialization, urbanization, democratization, welfare society, mobilization, professionalization with the industrial characteristics of increasing proportion of industry, industrial structure supererogation, robust production industry as well as GNP&GDP per capita oriented economic development key indexes. Though advancing the economic development, this development paradigm has brought the greatest side effects of large amount of resources consumption, environmental pollution and degradation of ecological system. The target of the second modernization is to realize ecological modernization, with the development paradigm of ecological civilization as its matching development paradigm, under which the industrial society has developed into an informationized society while the substance economy into an ecological one. The main characteristics of this modernization is the realization of intellectualization, informationization, greenization, ecologicalization, globalization and diversification, with the industrial characteristics of ecologicalized industry, material reduction, energy carbonation reduction of energy, service economy, robust recycling industry. The economic growth core index is ecological efficiency (EEI = GDP/EFP) and green GDP (He Chuanqi, 2002). [15]

The development goal of modern civilization is no longer the industrial modernization, but the ability to achieve a win-win ecological modernization of economic development and environmental protection put forward by German sociologist Joseph • Huber in 1980s. Therefore, the transformation of the mode of economic development achieved through “window” of industrial civilization in the traditional process of economic modernization of in is not enough. We should also shift from the “window” of industrial civilization to the “window” of ecological civilization, thus achieving transformation from economic development paradigm of industrial civilization to ecological civilization.

3.1. Three stages of transformation process of China’s economic development in the past nearly two decades and the future:

- 3.1.1. industrial civilization “window” in the early transition phase, namely from extension type, quantity type and the extensive growth mode to the intensive-type and quality-oriented growth mode;
- 3.1.2. “window” of industrial civilization in the later transition phase, namely from focus on the allocation, investment, portfolio and usage means of factors of production to both configuration and the combination of economic factors and structural optimization of the economic development;
3.1.3. The transition phase from the industrial civilization “window” to ecological civilization “window”, namely the transition of economic development paradigm from industrial civilization to ecological civilization.

3.2. Six dimensions and processes of changes in the three stages:

- Firstly, economic system: planned economy → traditional market economy → modern market economy;
- Secondly, development direction: the pursuit of profit → pursuit of value → sustainable development;
- Thirdly, civilization type: agricultural civilization → industrial civilization → ecological civilization;
- Fourthly, pillar industries: yellow industry → black industry → green industry;
- Fifthly, development features: the extensive economy → intensive economy → low-carbon economy;
- Sixthly, measurement model: O (Output) model of economy → IO (Input-Output) model of economy → IOOE (Input-Occupation-Output-Emission) model of economy.

The points of the fifth dimension need to further explain again. We believe that, the extensive economy under the planned economic system is not sustainable due to its only focus on economic output but investment, and so is the intensive economy under the traditional market economy which cares only about corporate profits regardless of the negative externalities of production activities. In a word, only the low-carbon economy taking into account the economic, social and ecological benefits is the sustainable economy that supports the development of a modern market economy. So, why the cyclic economy featuring “3R” and non-linear production is not the basic economic structure under the development paradigm of ecological civilization? It should be said, the cyclic economy featuring “reduce, reuse and recycle”, as opposed to “resources-products-pollution emissions” characterized by linear economy, is closer to the industrial structure and development direction required by the ecological industrialization, which is the means and breakthrough to construct a new type of industrialization as well as a “resource-saving and environment-friendly”. However, it can not support the ecological industrial system and ecological civilization of a country or global level.

3.3. The main reasons of developing low-carbon economy without Cycling economy:

- (1) Cyclic economy includes three levels of the “point” (business), “line” (industry), “surface” (park), and the higher the level, the better the economic and ecological benefits, the greater the cycling difficulty;
- (2) To develop cyclic economy must meet simultaneously three conditions, namely the technical feasibility, economic rationality and policy legitimacy. However, in most regions, especially in socio-economically and technologically underdeveloped regions, the above three conditions usually are not fulfilled simultaneously to develop cyclic economy, or in other words, cyclic economy is not a universal concept;
- (3) When we compare cyclic economy’s “3R” principles with “three low and one high” (low energy consumption, low emission, low pollution and high efficiency) features of low-carbon economy, we will find that the former is only representing the form and means of economic and unnecessarily achieve the results of being resource-saving and environmentally friendly.

In fact, the development of cyclic economy is often faced with “four questions”, including diseconomies of scale, diseconomies of recycling, not being environmentally friendly of recycling, not being resource-saving of recycling (Shen Manhong, 2007)[16]. The latter is an economic development paradigm combining source of control, process control and target control, which, as a “three-dimensional”
technology economic paradigm system, is the improvement, deepening and innovation upon cyclic economy (Wang Wenjun, 2009)[9].


Low-carbon economy is the economy with “three low and one high” (low energy consumption, low pollution, low emission, high-performance) as basic features (UK Department of Trade and Industry, 2003)[17]. During the stage of rapid economic development, how to solve increasingly serious contradictions between the population, resources, environment and accelerating industrialization, rapid economic growth, is an unavoidable practice issue in China today.

Development of low-carbon economy is based on reflection upon and innovation in economic development model of agricultural civilization and industrial civilization period by human society, which aims to pursue energy efficiency on basis of low energy consumption, low emissions and low pollution, as well as to create an innovative high-level economic development paradigm with the establishment of a clean energy structure. The development of low-carbon economy is not only a response to climate change, but also an innovation in economic development paradigm as required by world trend of low-carbon economy, and the core driving force of a new round of world economic growth. Low-carbon economy, including three aspects of low-carbon production, carbon flow and carbon consumption is an ecological economic development paradigm that has greater requirement than the green economy and cyclic economy, and is the fundamental way to resolve the contradiction between economic development and energy crisis, and to achieve balance among economic and social development and ecological environment (Li Zongcai, 2010)[18]. In other words, the economic form of low-carbon economy to support and realize ecological civilization is the core of the pursuit as well as the specific expression of China’s “Two-Oriented Society.”

5. Conclusion

China has experienced two “fundamental transition” of overall significance, one is the transition from the traditional Planned Economy system to socialist Market Economy system; the other is transition from extensive to intensive pattern in economic growth. China also advocates “achieving transition of economic growth pattern” into “accelerating the transition of economic development paradigm”, clearly putting forward the main content of accelerating the “three transition” in economic development mode.

The transition of economic development paradigm not only contains the transition of economic growth modes, but also includes the changes in aspects such as structure, mass, and benefits. The transformation process of China’s economic development in the past nearly two decades and the future can be summarized into three stages: industrial civilization “window” in the early transition phase; “window” of industrial civilization in the later transition phase; the transition phase from the industrial civilization “window” to ecological civilization “window”.
References


[6] Li Qingquan. Regional Economics Course Lesson Plans, Chapter II, (see the website of Hunan Science and Technology), 2007.


