

Analysis of the Supply and Demand Side of Postgraduate Education and Construction of the Regulation Mechanism Model from the Perspective of Supply-side Reform

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Abstract

Since the "supply-side structural reform" was put forward, Chinese scholars have been paying more and more attention to it. The supply side reform is rooted in the Chinese practice and has become an important integrated innovation of theory. As a crucial part and guarantee of education, the basic demand and operation mechanism of postgraduate education control are highly consistent with the theoretical framework of supply-side reform. In this paper, by drawing lessons from the domestic and foreign achievements of supply-side theory, a theoretical analysis framework of supply-side reform is established by combining supply and demand. On this basis, the supply and demand sides of postgraduate education are analyzed, and the model of supply-demand regulation mechanism is constructed.

Keywords: supply-side structural reform, demand-side, supply-side, postgraduate education, regulation mechanism

1. Theoretical analysis framework of supply-side reform established by combining supply and demand

Using the analysis perspective of modern economics to distinguish the total supply and the total demand for reference, the supply-side reform actually includes the policies of reducing the tax burden, streamlining government and delegating authorities, etc. to stimulate the micro vitality of the market, which is interlinked with the theories and opinions of supply school, and is a significant innovation of the political economy of socialism with Chinese characteristics in the new normal stage. Considering the contents of supply-side reform, the theory of three engines on the supply side and the research questions of this paper, a theoretical analysis framework of supply-side reform which is suitable for this research is built: focusing on the mechanism of the supply-side reform, the main idea is to connect the supply and demand simultaneously and achieve the overall leap in the combination of supply and demand, and it is embodied in the main body reform, institutional innovation and structural optimization. As an important part and guarantee of education, the basic appeal and operation mechanism of postgraduate education regulation mechanism is highly consistent with the theoretical framework of supply-side reform. This chapter makes both concrete explanation of and corresponding study on the theoretical analysis framework of the supply-side reform.

1.1 Combination of supply and demand, highlighting the system of the supply-side reform

The demand side points to the consumer, while the supply side points to the consumer, which form the two sides of the economy together. Compared with western supply economics' research ideas which are developed from the perspective of mere supply, the theory and practice of supply-side reform in China all emphasizes the balance between supply and demand, that is, supply and demand are interactive and synergistic. Stiglitz, Nobel Prize winner in Economics and professor of Columbia University, points out that it is childish to put a one-sided emphasis on the supply-side reform when analyzing the new normal state of China's economy, and both the demand-side reform and the supply-side reform need to be better designed in the process of regulation. Thus, the supply-side reform does not mean the withdrawal of demand management and policies, on the contrary, they should cooperate with each other to achieve mutual promotion. Under the current economic circumstances in China, more efforts should be made to improve the supply system, thus creating an innovative situation for the combination of supply and demand. At the economic level, the balance of supply and demand needs to adopt the two basic means of macro economy, and the management of demand and supply. Demand-side management focuses on short-term regulation and solves problem of total amount by stimulating or restraining demand through taxation, fiscal policy, monetary policy, etc. Supply-side management are mainly medium- and long-term regulation, paying more attention to solving structural problems by controlling production, which improves the flexibility and adaptability of supply structure to demand changes through effective product consumption, promotion of industrial optimization and reorganization, reduction of enterprise cost, activation of enterprise vitality and other ways.

From the perspective of supply-side reform, different logic exists between demand and supply of postgraduate education. And its object to be regulated is the balance between supply and demand. The combination of supply and demand shows that the supply-side reform is also applicable to the reform of the

postgraduate education regulation mechanism. For a long time, the regulation mechanism of postgraduate education in China has followed a demand-oriented way, such as increasing investment and expanding the enrollment scale, which has promoted the rapid development of postgraduate education in China at that time, however, it also brings some problems, including mismatch of supply and demand, quality crisis and characteristic shadowing. The fundamental reason is that postgraduate education fails to pay enough attention to the supply side, and lacks a regulatory mechanism of supply and demand, thus leading to the fact that the scale, quality and structure of talent training can't be well adapted to and provide active service for the society. The first point of the theoretical analysis framework of the supply-side reform is the combination of supply and demand, and highlights the supply-side reform. Under the guidance of this theory, the postgraduate education mechanism introduces the concept of supply side and demand side, which enriches the connotation of postgraduate education regulation mechanism, is conducive for the postgraduate education to forming the combination of supply and demand, and shifts the focus from is there demand to is the supply good enough.

1.2 Reform of the main body, reexamining the relationship between the government and the market

The reform of the main body is an important aspect of the supply-side reform, and the relationship between the market and the government is especially regarded as the core issue of it. Yong-Nian Zheng (2016) pointed out that since the reform and opening up, the relationship between the government and the market had not been very clear, and the government had been playing an important and even leading role in the process of economic development, becoming a typical development-oriented government. Because of the large scale of the economy, the government's economic governance has become extremely difficult. Under such circumstances, the rise of the supply school helps people to think about the development of Chinese economics. The matter of the utmost importance for supply-side reform is the rational reform and exploration of the relationships between the government and market, seeking for balance between them. The fundamental reason for the mismatch of supply and demand lies in government's excessive intervention and the market's lack of vitality, the core of which is to deal with the relationship between the government and the market. For the market, it is necessary to activate its vitality, make it play a decisive role in the allocation of resources, and then form an effective market. Meanwhile, the government must respect and follow the rules of market and solve problems according to its mechanism; at the same time, enhance its public service function and play its role in a better way, thus forming a promising government. Besides the government and the market, other subjects and the third sectors being involved need to be discussed, exploring how should these subjects divide labor in the process of optimizing the allocation of resources and how to cooperate and interact with other subjects.

In view of supply-side reform, postgraduate education and economy are facing a similar problem of government dominant, that is, a development-oriented government, while the theory and practice of the main body reform will help to straighten out the relationship between the regulation mechanisms of the postgraduate education and bring a breakthrough to its reform. Some institutions of postgraduate education is regulated by the government and related educational departments, as a result, the enthusiasm of stakeholders who are closely related to the development of postgraduate education has not been stimulated. The traditional educational administrative departments have the problems of offside, vacancy and dislocation to the management of postgraduate education. On the one hand, the education authorities are in sole and direct control, and at the same time, also set various functions of enrollment plan, resources allocation, major setting and quality evaluation in one body, leading to highly centralized power. All in all, the educational resources related to the development of postgraduate education are basically centralized in the government. On the other hand, the education authorities put too much effort into the implementation of specific policies, and micro management and administrative means is more highly advocated than macro management and legal means, resulting in the dislocation of functions. Despite the excessive and dull management, there is still absence in the practical matters in need of guidance, which has deeply affected the quality and efficiency of public products and services for the postgraduate education, and caused the vicious spiral of strict control leads to dull development, while decentralization leads to chaos. Behind this phenomenon is the imbalance in the role positioning of the education authorities in the regulatory mechanism of postgraduate education. The service-oriented regulation mechanism requires the education authorities to change from administer to manager, and to build a public-service government.

1.3 System innovation, exploring the effective institutional supply in depth

The system is one of the basic breakthrough of the research on the supply-side reform. The related researches of the institutional school and the new institutional economics show that the concept of system is directly connected with the supply side. At present, institutional barriers have become an important factor restricting the level and quality of China's economic development, such as the failure of market competition mechanism, lag of law and regulation system construction, lack of motivation for the transformation of government functions, etc. Therefore, to explore the effective system supply is beneficial to the transition of economy and society, the formation of a

breakthrough situation and the opening of the reform bonus space. Veblen, the founder of institutional school, regards the system as a specific type of social structure, which surrounds and solves the relationship between the subject and the social structure. From this point of view, the most profound transformation of institutional innovation is to deal well with the relationship between the government and the market, and unswervingly carry out market-oriented policies, so as to develop the rational government dominant and yield more than it should have. Institutional innovation should also build modern governance system and become an important logical connection from modern state governance, modern market system and modern financial system to modern civilization.

In the view of supply-side reform, postgraduate education is also facing the situation of imperfect regulation system, for example, the pertinence of the law and the hierarchy of the system are still not sufficient enough to guide the scientific development of postgraduate education, the policy documents of each sub item cannot serve the requirements of the overall coordinated development of postgraduate education, and the main bodies of postgraduate education are often trapped in the dilemma of no legal basis in the activities of innovative education mode, innovative education means and innovative education content. Institutional innovation is conducive to breaking the shackles in the development process of postgraduate education regulation, and providing institution bonus for the reform of the regulatory mechanism of graduate education.

1.4 Structural optimization, focusing on the adjustments of structural outstanding problems

The core of the supply-side reform is structural reform. Over the years, China's economic development has implemented the extensive development mode, which makes China's economic growth face many problems, and has accumulated a lot of structural contradictions. Structural imbalance has become a realistic basis for supply-side reform. The supply-side reform must begin with the structural problems and solve the prominent contradictions in the structural problems. The structure optimization should start from two aspects: the adjustment of the economic structure and the deepening of the reform of the system. Jing-Lian Wu (2016) generalized the meaning of structure mentioned in the supply-side reform as two layers, the first meaning referred to the structure of the economy, that is, the allocation of resources, and the second one was structure of institutional mechanism, which was of the same significance and could not be identified with the former one. Therefore, the optimization of the structure should be carried out simultaneously from the aspects of both economic structure and institution reform. On the one hand, the stock should be adjusted, and the increments, the industrial structure, the regional structure, the growth dynamic structure, the wealth distribution structure and the input structure should be optimized. On the other hand, it is necessary to advance from the root of the structural problem--the institution. In addition, the adjustments of the structure do not equal to the strengthening of the administrative plan. The government should still pay attention to the optimization and reconfiguration of resources through market mechanism and further strengthen the decentralization, so as to transform its functions and advance the series of institutional reforms related to economic structural problems.

Postgraduate education is also facing structural imbalance. In terms of personnel types, the supply of academic talents is far greater than that of scientific research posts, while the supply of applied talents is significantly less than that of non-scientific research posts. When it comes to the subject categories, the contradictions between the supply and demand structure of the postgraduate education structure is prominent. Graduates of different majors face different situations when seeking for jobs: graduates of popular subjects and majors are in short supply, while graduates of some majors are in excess of supply. There is a great contradiction between the talent supply and the social demand. This phenomenon reflects the poor adaptability of the postgraduate education structure to the whole social and economic structure, especially the industrial structure. The quantity and quality of the demand for talents varies in different periods or stages of social and economic development. The social and economic structure, especially industrial structure, keeps changing constantly, however, the structure of postgraduate education has not followed the pace, resulting in the fact that the trained personnel can't satisfy the modernization drive and the demand of the labor market. Furthermore, the contradiction between large scale unemployment and large numbers of vacancies in the graduates' employment market has been caused. Therefore, the reform of the regulatory mechanism of postgraduate education and the supply-side reform share the same mission and demand. The theory and practice of structural optimization can provide beneficial reference for the reform of postgraduate education regulation mechanism, which is conducive to the transformation and upgrading of postgraduate education control mechanism.

2. From the perspective of the supply-side reform, the analysis of the supply and demand of postgraduate education and the construction of the regulation model

The supply and the demand are the two sides of the economy. The supply-side analysis is to discuss the motive force of the economic development based on the supply, such as the labor force, the production factors, etc. The demand side focuses on the demand factors, and the most common analysis framework is the troika made up of consumption, investment and export. The description of these appellations on the supply side and the demand

side can be traced to the late Japanese economist Aoki Masahiko. On March 25, 2015, he delivered the article named A Study of the New Normal Economy in China from the Perspective of Comparative Economics in China Finance 40 Forum, defining the two different analysis methods analysis of demand side factors and analysis of supply side factors respectively. Since then, Chinese economists have also started to use the expressions of supply side and demand side. Economic regulation also involves both the supply side and the demand side, and the regulation of supply is called supply management, which mainly covers structural adjustment and belongs to medium- and long- term regulation; the regulation of demand is called demand management, which is mainly to prevent the overheating and shortage of demand and belongs to short-term regulation. Similar to economic reform, postgraduate education also has the different logic between the supply side and the demand side. The supply side and demand side of postgraduate education will be explained and analyzed in this chapter. On this basis, combining with the theoretical analysis framework of supply-side reform, a reform model of postgraduate education regulation mechanism will be established.

2.1 Supply side analysis of postgraduate education

Most of the scholars in the field of economics define the supply side as labor, capital, land, technological innovation and institutional innovation; while some other scholars also suggest that all supply factors or supply forces that play a role in economic development and economic efficiency can be seen as supplies in the broad sense, and on this basis, they put forward that supply includes the main bodies of economic activities (enterprises and individuals), the production factors (capital, human resources, technology and knowledge), structural changes (industrialization and urbanization), institutional innovation, etc.

At present, scholars have not introduced the related theories or concepts of the supply side into the researches of postgraduate education, but some scholars have begun to explore the supply-side reform of higher education. The same as the economic market, higher education can also be considered as a product market. Wei Zhang et al. (2006) explored the product market of higher education, and thought that the service of higher education was a special commodity, which was exchanged on the product market of higher education. The suppliers of the product are the colleges and universities, and the demand side is the students and parents who receive higher education. Zhao-Hui Jiang (2016) corresponded the concept of supply and demand of the economic reform to the supply-side and demand-side reform of higher education one by one, and in accordance with the theory of five elements, he matched the supply-side reform of higher education with teachers and students, basic resources, school resources and reputation, as well as thoughts, ideas, institutions and cultures, and so on; in the light of the troika theory, the demand side reform of higher education corresponded to the investment in higher education, the consumption of higher education and the study abroad.

This paper holds that, although higher education has similarities with economic reform, they are also quite different. As the top of higher education, postgraduate education has its own rules and characteristics, which should not be compared to the demand side and the supply side of economic reform simply. This paper is more inclined to regard postgraduate education as a complex social system, whose supply and demand sides should not only be interpreted from the perspectives of universities and students and parents. The stakeholders of postgraduate education and the social systems they live in should be taken into account as a whole. Therefore, this paper defines the supply side of postgraduate education as an ecosystem composed of factors such as scale, structure, quality, system, culture and innovation, which are characterized by high-end talents, faculty, scientific research outputs and institutional culture. Starting from the improvement of supply quality of talent, the supply-side structural reform of graduate education is a dynamic adjustment process to meet the needs of all parties and realize organic integration of various elements by increasing the adaptability and flexibility of the changes in demand under the joint action of multi subjects and modern governance means.

2.2 Demand side analysis of postgraduate education

Economists define the demand side as three major needs, namely, consumption, investment and export. Among them, consumption is the demand of the masses, including demands for life, public service, employment and spiritual consumption, at the present stage, it is people's demand for quality products and services; investment demand is to meet the needs of national construction and reproduction; export demand is the result of international division of labor and a way to improve the competitiveness by increasing production efficiency. The demand side management, starting from these three aspects, is reflected in the regulation of consumption, investment and export. The demand side is also the service orientation of postgraduate education. The current systems of higher education and postgraduate education is not clear about their roles, and so is the government, because they do not know how to guide different colleges and universities to suitable social services through macro regulation and control. Only with a clear understanding of the demand side of postgraduate education, can the definite target be obtained in the process of regulation. From the perspective of the supply-side reform, the reform of the postgraduate education regulation mechanism must be further close to the social needs and grasp the characteristics and trends of the changes in demand. Therefore, it is a must to further explore the demand side

of postgraduate education. Through analyzing the service orientation of postgraduate education, its adaptation to different fields of society and its various requirements for postgraduate education can be understood comprehensively.

Postgraduate education involves many subjects, so it is not easy to determine its service orientation. The study on the demand side of postgraduate education can still search for enlightenment from higher education. According to Hong-Cai Wang (2003), higher education activities could be divided into four basic participants: colleges and universities, nation, society and individuals, and thus constituting the four dimensions of the development of higher education: university dimension, national dimension, social dimension and individual dimension. Yong-Xia Ma (2005) generalized the demand side of higher education as the duality subject formed by the students and the society. Jue Zhang (2016) divided demand into two parts: national strategy and local economic and social development, and believed that higher education should not only adapt to and serve the national strategy, but also meet the local and regional development functions. Shu-Bing Yang (2017) defined the demand of postgraduate education development as demands for research, career, market, region and personal growth. Based on the existing research and combining with the characteristics of postgraduate education, this paper interprets the demand side of postgraduate education from four dimensions: national dimension, economic dimension, social dimension and academic dimension. Overlapping and paralleling one another, these four dimensions have both common interests and relative independence, so as to determine the dimension of postgraduate education regulation mechanism.

2.1.1 National dimension: a major strategic demand for the service of the country

At present, China has entered a new era of socialism with Chinese characteristics, and is at the critical stage of building a well-off society in an all-round way. Building the great power of higher education has become the basic project of the great rejuvenation of the Chinese nation. At the top of the national education sequence, postgraduate education is of great significance to the realization of the national strategy and the support of the construction of a modern power. As the heights of top-notch innovative personnel training, postgraduate education must take the initiative to serve the needs of the national strategies, actively butt with major national strategies, such as the strategy of invigorating the country through science, technology and education, the strategy of reinvigorating China through human resource development, the strategy of innovation-driven development, etc., undertake major scientific research tasks and projects, and produce iconic research results that serve the national strategies and is endowed with international influence, thereupon then turn the demographic advantage into talent bonus in a better way, build a well-off society in an all-round way and realize the Chinese dream of the great rejuvenation.

2.1.2 Economic dimension: the demand for the development of service industry

Postgraduate education and economy are interactive and inseparable. On the one hand, economy is the foundation of postgraduate education, providing essential human resources, financial support and materials, and directly deciding and affecting the quality, scale and development speed of postgraduate education. The structure of economy also determines the structure of the talent demand, and imperceptibly influences the subject setting and the talent training scale. On the other hand, postgraduate education will also be counteracted on economic development. Economists generally believe that the growth of the contemporary economy and the composition of national wealth are mainly the result of human capital. As a high-level human capital construction activity, postgraduate education should make full use of its professional technology and values, to satisfy the needs of industries and economic development.

2.1.3 Social dimension: serving the needs of human beings' overall development

With the improvement of people's living standard and popularization of higher education, people's demand for quality postgraduate education keeps increasing, and their enthusiasm to receive higher levels of education and to get a higher academic degree goes up day by day. The main contradictions of higher education have changed into the contradiction between people's demand for fair and quality higher education and the imbalanced development of higher education. Postgraduate education is an important embodiment of the self-realization of individual life. According to Maslow's theory of hierarchy of needs, the highest level of human needs is self realization. As the education system with the highest qualification and academic degree, postgraduate education itself is a kind of self realization in a certain stage of individual life, or at least in the learning stage. Therefore, graduate education has to meet the public's demand for self-growth and achieving higher degrees.

2.1.4 Academic dimension: serving the education's needs of development

Academia is where universities' charm, soul and the spring of life lies. As an important engine and booster of top-notch innovative talents training highland and first rate schools, postgraduate education should serve academic logic and follow the inherent law of academic development. Postgraduate education should pursue academic excellence, give full play to the functions of scientific researches, explore the major theoretical and technical problems in the field of science and technology, probe into the exploration, development, preservation, spread and continuation of knowledge, serve the self construction of colleges and universities, and accelerate the construction of the great power of postgraduate education under the background of the dual first-class schools.

2.3 Construction of the model of graduate education regulation mechanism from the perspective of supply-side reform

Combining with the existing situation and problems of postgraduate education mechanism, and drawing lessons from the existing research results of domestic and foreign scholars on postgraduate education regulation mechanism, this paper constructs a new model of the regulatory mechanism of postgraduate education under the perspective of supply-side reform (as shown in Figure 1).

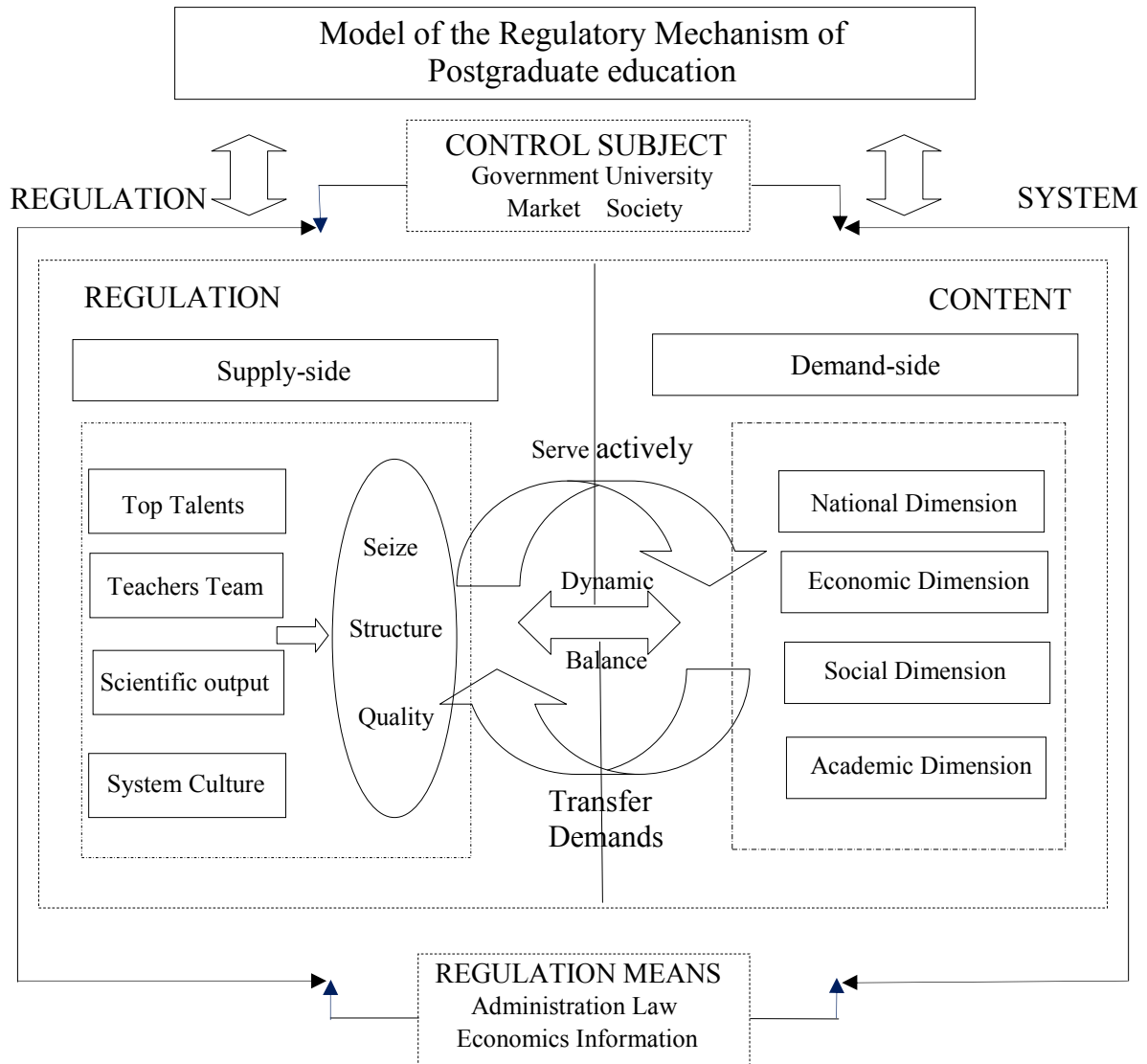


Figure 1. Figure 1 Model of the Regulatory Mechanism of Postgraduate Education under the Perspective of Supply-side Reform

The new model is divided into two modules and three parts. The two major modules are the supply side and the demand side, and the four parts are the control subject, the control content, the regulatory methods and the regulation system.

In the supply side module, from the perspective of system theory, the supply side of postgraduate education is implicit in high-end talents, teaching staff, research output and institutional culture; it is explicit in the scale, structure and quality of postgraduate education. The balance between the supply side and the demand side of postgraduate education is more likely to be expressed as the balance between the scale, the structure, the quality and the needs of the social parties. In the demand side module, the demand side of postgraduate education is the unity of national dimension, economic dimension, social dimension and academic dimension, whose needs of all dimensions are crossed and balanced. The two modules, namely supply side and demand side, constitute the core of postgraduate education regulation mechanism, and also its main content. The biggest difference between the new model and the existing regulation mechanism is that the former one introduces the concept of supply side

and demand side, and regards the regulation mechanism as a dynamic balance process of postgraduate education. Through the optimization of the scale, the structure and the quality, the supply side of graduate education takes the initiative to serve the demand side, at the same time, the requirements of the demand side flow to the supply side in a steady stream. The above aspects transmit information effectively and keep getting close to the ideal state of the balance between supply and demand.

As for the control subject, the differences between the new model and the existing regulation mechanism lie in that the former one is a unified model of government, colleges and universities, market and society as well. The government's regulation focuses on macro management and public service, as well as the formation of a promising government through the transformation of the function and the decentralization of power; market regulation highlights the demand transmission and the competition mechanism, and better plays the role of effective market in the regulation of postgraduate education by strengthening market orientation and deepening market mechanism; university regulation pays more attention to self discipline and connotative development, and it forms self organizations of postgraduate education by enhancing school running autonomy and creating high-quality cultural atmosphere; the social regulation puts particular emphasis on quality evaluation and information feedback, and the development of objective, realistic, timely and effective feedback platform for social evaluation with the help of setting up professional, mature, rational and responsible social organizations and cooperating with the news media and network media.

The regulation means of the new model has overcome the disadvantages of existing regulatory mechanism, which is dominated by government and administrative means, and adopts various methods, covering the fields of administration, law, economy and information. In terms of regulation system, using the institutional supply theory of supply-side reform for reference, the cooperative governance system, the reform of management system and modern college system are improved respectively from the macro, middle and micro perspectives.

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