



Research on the multi-agent synergetic supply of rural public goods under the rural revitalization strategy

WU-Ning Xia

School of Economics and Management, Northwest University, Xuefu Road, Chang'an District, Xi'an, Shaanxi, China
Nanjing Xiaozhuang University, Hongjing Avenue, Jiangning District, Jiangsu China

Abstract

New requirements on the supply of rural public goods were put forward by the strategy of rural revitalization. The high-quality supply of rural public goods was the solid foundation for the realization of the strategic goal of rural revitalization. This paper, guided by the thought of Marxism public products, carried out logic deduction of multi-agent synergetic supply of rural public products from following three aspects: benefits of multi-agent synergetic supply, dilemma solving of singular supply failure and response to the dynamic multi-supply demand. Furthermore, internal and external factors affecting the multi-agent synergetic supply of rural public goods were analyzed systematically. A multi-agent synergetic supply mechanism of rural public products was designed with combination of dominant position of the government and the rich non-governmental resources.

Keywords: rural revitalization; rural public goods; multi-agent; synergetic supply

Introduction

As an important driving force for economic development and social progress, public goods existed as a historical concept rather than with the market, let alone the product of market failure. From the land reform movement to agricultural cooperative, from the people's commune system to the household contract responsibility system, and from the socialist new rural construction to the rural revitalization strategy, there's political and economic logic in the content, scale and efficiency of China's rural public goods supply. Throughout the course of institutional change and evolution, the main body of public goods supply in China's rural areas involved in governments (departments), markets (enterprises), social organizations, village/community collective economic organizations, rural elites, farmers or peasant organizations at various levels, and showed different characteristics in different historical periods. Under the strategy of rural revitalization, government financial input had been increasing steadily, but the supply of public goods in rural areas was still confronted with problems such as insufficient supply quantity, unbalanced supply structure and low supply efficiency.

In addition to macro factors such as the urban-rural dual system and the supply decision-making system, the failure of effective interaction and benefit balance among all kinds of supply agents at the micro level was one of the deep-rooted reasons. The contradiction between supply and demand of rural public goods seriously affected the credibility of the government. To resolve the realistic dilemma, the government was forced to seek a supply way integrating various agents. Under the circumstances, this paper, proposed to establish a multi-agent synergetic supply mechanism and form an efficient and orderly supply system for rural public goods, which was in line with the characteristics of rural public goods and the specific circumstances of urban and rural economic and social

development, and complied with the requirements of historical development and demand of the times.

The Logic Deduction of Multi-agent Synergetic Supply of Rural Public Goods

Rural public product synergetic supply aimed to effectively respond to the rural public product type differences and dynamic change and to meet the common interests of the rural social existence and social development needs. Such agents as the government, market, social organizations and farmers supplied rural public products on the basis of information sharing and equal consultation so that respective interests of the multiple agents were realized smoothly. In practice, such steps as supply demand expression, decision-making and financing, production, performance evaluation, as well as supervision and accountability were involved in.

Benefits of multi-agent synergetic supply

Benefits of multi-agent synergetic supply could be measured from perspective of the whole market and also of individual agents. In terms of the benefits to the whole market, multi-agent synergetic supply could improve overall quality and efficiency of rural public goods supply by means of specialized division of labor, competition mechanism, scale merits and complementary benefits and reduced transaction costs. If such non-governmental bodies as enterprises, social organizations and villagers' autonomous organizations, farmers engaged in the product supply, the law of value would take effect, which meant supply in a cooperation competition mode would prevail over the government's monopoly supply. As a result, the rural public product supply was better matched with demand and the internal management of enterprises and social organizations was stimulated and enhanced with more input of public product and diversified financing channels. As for benefits to

individual agents, multi-agent synergetic supply was also beneficial to such individual agents as the government, market organizations, social organizations and farmers. For example, for the government, the financial pressure could be alleviated, vertical decision-making conflict and horizontal buck-passing of the government (department) could be eliminated, and credibility could be enhanced. For enterprises, they may fulfill their social responsibilities and give consideration to social benefits while obtaining profits, so that their brands could be publicized and promoted. For social organizations, their flexibility and professional advantages may be brought into play, and their autonomy and social status may be improved. For farmers, as active participants of the supply chain, their demands for public goods may be effectively spoke out and responded to, and their sense of gain and happiness would continue to improve.

Failure of singular supply

In the supply process of rural public goods, the phenomena of "government failure", "market failure" and "social organization failure" occurred frequently. Government, enterprises and social organizations and other single suppliers were impossible to make a holistic response to rural public goods due to their inherent defects. Due to the "top-down" supply decision-making, "selfish departmentalism" of local government departments, excessive pursuit of economic growth index and relative negligence to public needs by officials, financial governance right not matching with the authority as well as limited financial resources, absence or managerial offside of government were commonly seen in rural public product supply. As a result, resources were wasted and absolute shortage of rural public products coexisted with relative surplus. As a beneficial complement to government supply and market supply, the supply by social organizations (third sector) also had its own problems. For example, the social organizations were strongly attached to the government due to its own mechanism. The external legal rigid support was not enough. Farmers had cognitive bias to social organizations and the social organizations have problems in own professional personnel, capital equipment as well as the internal management. Driven by interests, public charity was inadequate, and social organizations only undertook or supplied limited rural public products.

Response to the real demand for rural public goods

Based on the methodology of historical materialism and the logical starting point of making necessary "deduction" for the total social product, the rural public product was the part of the total social product used to meet the common interest needs of the rural social existence and social development. The contents of rural public products varied with the development of social productivity. During the rural reform progress and rural economic and social development, the scope of rural public goods of different types and levels varied dynamically. In China, rural areas have a broad geographical distribution. Agricultural production resources and the integrated development of the three industries varied from region to region. Household differentiation and rural population structure were also different. Therefore, real demands of rural public products were characterized of dynamic diversification. Guided by the rural revitalization strategy, we need to balance between

the principal position of the government and resources of various non-governmental bodies in following aspects in a close connection with "Sannong" Problems (Agriculture, Farmer and Rural area): infrastructure construction, research and development of science and technology, free flowing of products, education, health care, pension and culture, ecological environment, etc., based on the abstract nature and dynamic diversification property of public products. As a result, we may be able to promote integrative development of urban and rural area, sustainable development and achievements shared by the people.

The Influencing Factors for Multi-agent Synergetic Supply of Rural Public Goods

The multi-agent synergetic supply of rural public goods covered the collaboration between the same kind of organizations and also the cooperation between different kinds of organizations. As a system, pursuit of interests of respective organizations during the supply process of rural public goods was subject to both internal factors and external factors.

Internal factors

Suppliers of rural public product multi-supply performed like rational economic men to a large extent. However, interests and value orientation varied from supplier to supplier. The interest relationship was the obvious internal factor influencing multi-agent synergetic supply of rural public goods because supplying rural public products was driven by the pursuit of interests. The key to sustainable multi-agent synergetic supply was the balanced interests and free flowing of supply elements since only fair supply could maintain stable public interests of rural areas. With the development of the rural land system reform and the integrative development of the three industries, the traditional rural society was transforming into a modern rural society. The rural social capital based on trust, norms, network and the ability to absorb resources was the implicated internal factor influencing multi-agent synergetic supply of rural public goods. Higher level of social capital facilitated to reach agreement between suppliers of rural public products. The maximization of individual behavior may not enable maximized interests of collective supply. The heterogeneity of power, information and resource endowment of individual suppliers may go against their collective behavior and may even lead to a discrete state of public product suppliers. Interest coordination and information sharing among multiple suppliers of rural public products were important to resolve conflicts, increase the frequency of interaction and establish stable relationships.

External factors

The synergetic supply among multiple suppliers occurred under certain political, economic and cultural background. Therefore, the main external factors influencing multi-agent synergetic supply of rural public products may be political, economic and cultural factors. The degree of government decentralization and social autonomy were highly positively correlated to the synergetic supply behavior. As for political ecology environment, we may insist on the people-oriented approach, give full play to the advantages of socialist democracy, transform government functions, improve the system evaluating officials' performance and promote the reform of government institutions. The supply of rural

public goods highly depended on the state financial support, which was affected by the financial resources of the central government and local governments at all levels. Furthermore, the financial resources of the government were subject to the level of economic development. The reform of the economic system had contributed to the optimization of the allocation of resources and the improvement of efficiency. The increase of financial input in rural public goods benefited from economic development. The imbalance in the supply of public goods between urban and rural areas and between rural areas was mainly caused by the imbalance in economic development between urban and rural areas and between rural areas. Economic growth and development would promote the upgrading of consumption needs and scientific and technological advancement in rural areas, and would expand the scope and the governance platform of multi-agent synergetic supply of rural public products. Culture was closely related to politics and economy, which influenced supplier's understanding of the multi-agent synergetic supply. The rural acquaintance society and integrative development between urban and rural areas, rural traditional culture and socialist core values all had comprehensive impacts on the multi-agent synergetic supply of rural public goods under the background of diversified value orientation.

Mechanism for Multi-agent synergetic supply of Rural Public Goods

On the basis of deep understanding of functions of the state, social needs, and social development rule, as well as the essence and nature of public product supply, this paper, in the context of rural revitalization strategy and community-level governance practice, proposed the following mechanism for multi-agent synergetic supply of rural public products. From macro perspective, we may insist on the demand oriented principle, uphold the leading role of the government, make adjustments to local conditions, advance the supply in stages, and give full play of "RMB Yuan governance" and resource advantages of non-government organizations. In microscopic practice, we may introduce cooperation mechanism, competition mechanism and balance mechanism to dynamically evolve the multi-agent synergetic supply of rural public products, to dissolve the contradiction between supply and demand, to form a synergetic network of multiple suppliers, and finally to release the internal impetus of common interests among multiple suppliers.

Supply quality improvement through cooperation

For purpose of multi-agent synergetic supply of rural public products, in the initial stage, we may need to get clear of quantity and preference of rural public product contents and demands. Then, farmers would be no longer passive receivers or consumers, but be able to actively express their true demands directly to the grassroots government or indirectly to the grassroots government through village representatives, two committees of the village, professional cooperatives or social organizations. As a result, the imbalance of demand and supply or resource waste may be overcome and avoided. As for the cooperative supply decision-making dominated by the government, the process of "establishing information collection platform → decision-making meeting → supply target → plan design and choice" was suggested in order to prevent from

bureaucratism, formalism, sole decision based on superior instruction or leader preferences without participation of social public. As for common financing for rural public products among multiple suppliers, on the one hand, the governments of five levels from the central government to the township government were primary source of funds. The fiscal right should be matched with administrative authority for governments at each level and the financial transfer payment should be perfected. On the other hand, we should deal with the financing partnership between the government and non-government organizations, and expand financing channel such as donation, rural collective economy, allocation/financing, government procurement, contract outsourcing, franchising and service charging so as to improve the financial award and subsidy fund as well as project performance of rural public welfare undertakings. As for cooperative production, suitable production organizations should be chosen and adjusted dynamically according to rural public product natures, and regional economic, social and cultural differences under the leading of government. The quality of products and services purchased by the government could be improved through establishing network management platform, increasing the degree of participation of social public and improving the undertaking ability of social organizations.

Cost reduction through competition

Efficiency of resource allocation was highly affected by competitive or monopolistic market structure. In accordance with the law of value, the competition mechanism should be introduced in the production stage of the multi-agent synergetic supply of rural public products so as to reduce supply cost and improve supply efficiency. On the one hand, supplying rural public products is the nature duty of governments at various levels. However, direct supply and production by the government of a large amount of rural quasi-public products does not have a comparative advantage. Because, production functions are undertaken by non-government organizations, which brings specialized economy. Therefore, competition mechanism should be introduced between governments at various levels and non-government organizations. Governments put focus on creating a fair, orderly, free and open competition environment. On the other hand, competition mechanism should be introduced between different kinds of non-government organizations and same kinds of non-government organizations. Competition can stimulate producers to improve production technology, improve operation and management, reduce production cost and improve product quality. Competition among the market (enterprises), social organizations, village/community collective economic organizations and farmers determines the survival of the fittest. At last farmers can also "vote with their feet" to a certain extent. More importantly, due to the public welfare nature and the aim to satisfying common interests for rural and even the whole society development, fair value orientation should be highlighted for the supply of rural public products. More competitive public products should be produced by multiple suppliers in a relationship of both competition and cooperation.

Responsibility and accountability through check-balance mechanism

As a complex system, in addition to the above mentioned

demand expression, decision-making, financing and production steps, the multi-agent synergetic supply of rural public goods also involves in subsequent maintenance and management, supply performance evaluation and supervision and accountability steps. Therefore, a check and balance mechanism should be introduced to prevent from divorce between powers and responsibilities. Accountability should be investigated specifically. Wide geographical distribution of rural areas, the large rural population as well as strong heterogeneity in China require the government and non-government organizations to invest huge amounts of human force, financial resources and material resources in the supply of rural public products. To solve the problems such as power rent-seeking, imbalance of supply and demand, resource waste, funding interception and jerry-built phenomenon, we may need to take following measures: empowering supervisory authority to supply participants; enhancing the supervision to the main leaders of the government and the production organization so as to prevent from the collusion between the government and the businessmen; implementing supervision to the supervision personnel so as to prevent from bribes bribery; expand the supervision channels of the rural social public and the news media opinion. The results and performance of the multi-agent synergetic supply may be measured by means of input-output ratio and farmers' satisfaction. Performance evaluation always plays an important role in summarizing experiences and revealing problems. We should give full play to the evaluation by farmers and the third parties. The evaluation process of "establishing a plan → determining evaluation criteria and evaluation method →collecting information → evaluating performance →assessing the results" was proposed to respond to stakeholder's demands, make up for the information asymmetry and raise enthusiasm of stakeholders.

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