

Analysis on the Path of Government Procurement Promoting High-quality Development of Small and Medium-sized Enterprises from the Perspective of Big Data

Qihui Wen

Guangxi College of Finance and Economics, Nanning, 530003, Guangxi, China

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Abstract: Through government procurement, on the one hand, it greatly improves the efficiency of financial capital utilization and effectively curbs the occurrence of corruption; on the other hand, it plays a positive role in the macroeconomic adjustment of the country. Promoting the high-quality development of small and medium-sized enterprises is currently the focus of government procurement, and the theoretical and practical experience is continuously enriched. Based on the perspective of big data, this paper briefly expounds the function of government procurement and the high-quality development of small and medium-sized enterprises, and analyzes the impact of government procurement on small and medium-sized enterprises from two aspects: promoting the high-quality development of small and medium-sized enterprises and promoting the innovation of small and medium-sized enterprises. At the same time, it proposes to use the basic functions of government procurement and public policy functions to promote the high-quality development of Chinese small and medium-sized enterprises, especially science and technology small and medium-sized enterprises, and propose countermeasures and suggestions on policy guidance, policy implementation and policy supervision in the construction of policy system.

1. Introduction

Promoting high-quality development is an inevitable requirement to follow the law of high-quality economic development and enhance the capability of sustainable high-quality development. It is also an inevitable requirement to build a modern and powerful socialist country. Small and medium-sized enterprises can not only promote high-quality economic development but also help maintain social harmony and stability. They play an irreplaceable role in the modern economy [1]. In recent years, in order to promote the high-quality development of small and medium-sized enterprises, our government has promulgated more preferential policies for small and medium-sized enterprises. The aim is to realize the improvement of the overall economic level of society through the innovation and high-quality development of small and medium-sized enterprises. On the one hand, the government promotes independent innovation by providing strong policy support; on the other hand, the government can also support independent innovation by investing a large amount of financial funds. Government procurement is one of the important financial tools [2]. But on the whole, the high-quality development of SMEs is not optimistic. Due to system failure, market failure and lack of strategic management ability, the survival state and high-quality development level of small and medium-sized enterprises are far from the expected ideal. Under the background of big data, large amounts of data are gradually valued by small and medium-sized enterprises. Small and medium-sized enterprises collect comprehensive data related to enterprise operation, use mathematical modeling method, and apply data mining and classification integration function in big data [3]. Standardization is an important means for the survival and high-quality development of modern enterprises. It plays an important role in the management and high-quality development of modern manufacturing enterprises. How to make good use of big data to serve the formulation and management of enterprise standards in the era of big data and promote the establishment of enterprise standardization has become an important topic in the field of enterprise

standards research.

2. Government Procurement

Purchasing, generally speaking, means the economic activity that the purchasing subject purchases the human and property needed for the development of height and quality by some way according to their own needs. Government procurement is mainly to carry out all kinds of procurement activities according to the requirements of the current “government procurement law”, and obtain relevant goods, projects and services through financial expenditure. With the evolution of government procurement system, the boundary between the basic function and policy function of government procurement is blurring, or the primary and secondary division has begun to change [4].

Publicity of sources of procurement funds. The biggest difference between government procurement and private procurement is that the main source of funds is financial allocation, including public funds of taxpayers, which also requires strict management of government procurement. Visible, the main body of government procurement mainly includes procurement units, centralized procurement agencies and suppliers, and the object of government procurement is goods, projects and services within the centralized procurement catalogue or above the procurement quota standard established by law [5]. It can produce a certain consumption guiding role, which will have a greater impact on consumer behavior and investment behavior. Secondly, the policy function can also be called indirect function, which is the indirect effect and additional effect generated in the transaction activity. Government procurement targets all areas of social life. This is unmatched by private procurement and corporate procurement. Therefore, procurement specialization has become an important feature of government procurement.

3. Big Data

Usually “big data” refers to a large data set collected from many sources in multiple forms. It is not a quantitative description of the size of the data, but a kind of diversified data in a large variety and a large number. The technology and thinking of information transfer information extraction. In the era of big data, information is generated and updated faster, and information dissemination and integration efficiency is significantly improved [6]. Under this general environment, SMEs can obtain more data information in the shortest time, and use their own data information to predict their future high-quality development trends in advance. “Big data is a new strategic resource in the era of digital survival, an important factor driving innovation, and is changing human production and lifestyle [7]. It is a solution characterized by real-time data processing and real-time result orientation. Of course, it also has a certain degree of uncertainty. In general, big data provides us with a brand-new way of looking at the world [8]. In the process of informatization, with the help of powerful tools of big data, an adaptable solution is proposed for technological innovation, product development, accurate marketing, etc. If enterprises master more network marketing data, they will have a better understanding of the future high-quality development and construction of the market. Very accurate market analysis can help small and medium-sized enterprises to adjust and perfect their own high-quality development and construction trends. In the big data environment, active service, knowledge exchange service, knowledge recommendation service, personality recommendation service and semantic retrieval service will become the most important ways and methods of knowledge service.

4. The Influence of Government Procurement on Promoting High-quality Development of Small and Medium-sized Enterprises

4.1 Promote the high-quality development of small and medium-sized enterprises

In the process of government procurement, we can learn from other developed countries' government procurement strategies. For example, centralized procurement is mainly for some basic materials, while individual procurement is aimed at some innovative products, and some small and

medium-sized enterprises with innovative characteristics can be considered. Functionally, policy procurement has its basic function and policy function [9]. Basic function refers to the government's purchase of products and services that meet the quality requirements; Policy function refers to the ability of purchasing activities to regulate economic operation and protect the environment. The government market is a huge market. It can support and protect small and medium-sized enterprises by adjusting the market. Government procurement demand has become an important force in market demand. However, in government procurement practice, there is also information asymmetry [10].

This paper mainly uses the comprehensive evaluation method to calculate the evaluation index index step by step, and then evaluates the high-quality development level of the manufacturing enterprises. The calculation formula of the enterprise development quality score is as follows:

$$S_j = \frac{1}{\sum_{i=1}^n (S_r)}, (0 < (S_j) \leq 1) \quad (1)$$

In order to find problems from multiple perspectives, the main difficulties faced by small and medium-sized enterprises in the process of government procurement are understood from the perspective of questionnaires, and the main difficulties faced in the implementation process are understood from the perspective of policies through interviews with relevant staff in the financial sector. Table 1 and Figure 1 show the statistical results of the nature of the enterprises to which the questionnaire objects belong.

Table 1 Statistical results of the nature of the enterprises to which the questionnaire objects belong

Nature of enterprise	Frequency	Percentage(%)
State-owned	36	15.36
Privately operated	78	48.66
Foreign capital	19	10.34

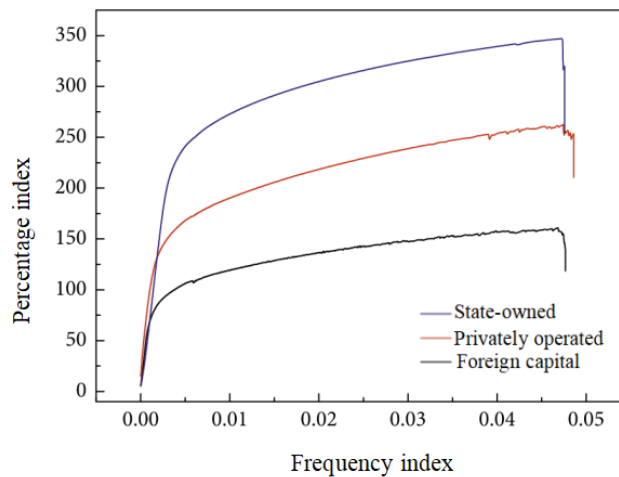


Figure 1 Statistical results of the nature of the enterprises to which the questionnaire objects belong

The government procurement system is determined by the function of public policy and the principle of commercial market, which are opposite in nature. The principle of commercial market is dominated by the cost-benefit relationship. The principle of public policy is a deviation or distortion of the principle of commercial market. Therefore, in government procurement, the government needs to pay more attention to small and medium-sized enterprises, encourage more small and medium-sized enterprises to actively participate in government procurement activities, and give certain preferential conditions.

4.2 Promoting innovation of small and medium-sized enterprises

To promote the innovation of small and medium-sized enterprises in the era of rapid and

high-quality development of modern science and technology, science and technology has become a key factor restricting the high-quality development of small and medium-sized enterprises. Technological innovation can directly affect the future high-quality development of enterprises, so it is necessary to strengthen the research on the high-quality development of innovation of enterprises. When the total social demand is insufficient, increasing government procurement can stimulate the high-quality economic development and balance the total social supply; when the total social demand is strong, reducing a certain amount of government procurement, so as to realize the government's counter cyclical control policy. Government procurement uses public finance, and the function of public finance lies in the field of market failure. Therefore, as a means of public finance management, government procurement should have policy function objectively. Looking at the actual situation of government procurement in our country, small and medium-sized enterprises are facing huge high-quality development problems, and government procurement activities help to overcome the commercial risks of technological innovation and application of small and medium-sized enterprises. Under such circumstances, Chinese small and medium-sized enterprises need to gradually shift to the upstream of products and services from the mode of low risk and low income to compete with high-quality developing countries and cooperate with developed countries. However, when its high quality develops to a certain scale, the growth of capital accumulation will be limited by the absolute growth amount of social wealth. At this time, it is not enough to develop rapidly and with high quality by itself. Therefore, in order to effectively promote the technological innovation of small and medium-sized enterprises, government procurement must consider the specific situation of small and medium-sized enterprises in our country, and specifically analyze the constraints of government procurement in promoting the technological innovation of small and medium-sized enterprises from their own factors.

5. Countermeasures and Suggestions for Government Procurement to Promote High-quality Development of Small and Medium-sized Enterprises

5.1 Strengthen the functional orientation of public policies and form a government procurement legal system conducive to the high-quality development of small and medium-sized enterprises

There are two misunderstandings in government procurement activities: policy implementation and enterprise awareness. Because enterprises, especially small and medium-sized enterprises, lack theoretical knowledge of government procurement and relevant operating experience, small and medium-sized enterprises are at a disadvantage in government procurement. The definition standard of independent innovation products, government procurement support for independent innovation, support for small and medium-sized enterprises, support efforts, support forms, etc. will be shown in the form of legal provisions so that there are laws to follow in the operation process. On the premise of meeting the basic requirements of procurement, we will effectively promote the technological innovation of small and medium-sized enterprises, realize the effective interaction between small and medium-sized enterprises and technological innovation through government procurement, and further promote the sustained, healthy and rapid high-quality development of our economy. The government procurement system will be improved in terms of legislation, government procurement system arrangements and specific operations, so that the financial funds spent will serve the technology-based small and medium-sized enterprises more efficiently. Under the current situation, the government must create market conditions conducive to the high-quality development of small and medium-sized enterprises, establish a market-oriented policy, promote the high-quality development of small and medium-sized enterprises, and give full play to the macro-control capabilities. The government needs to strengthen the value of its functional policy guidance, continuously improve relevant regulations in government procurement activities, increase support for technology-based and innovative small and medium-sized enterprises, promote the high-quality development of small and medium-sized enterprises, and give more Help and support.

5.2 Improve the policy implementation supporting policies and form a government procurement regulation system that is conducive to the high-quality development of small and medium-sized enterprises

Improve the policy implementation supporting policies and form a government procurement regulation system that is conducive to the high-quality development of small and medium-sized enterprises. In the process of implementing the government procurement system, it is necessary to establish a government financial special fund system for the procurement of technical products for small and medium-sized enterprises, and set up a business department to be responsible for the technology of small and medium-sized enterprises. The procurement of products, as well as the establishment of inspection and supervision agencies. The knowledge service of SMEs in the era of big data is more characterized by individualization, autonomy, virtualization, technology, networking and intelligence. Therefore, the knowledge structure, service awareness and service of professional and technical personnel engaged in knowledge services Higher requirements are put forward in terms of ability and overall quality. Government procurement personnel, especially leaders, should learn from the advanced foreign legal system. They should not blindly ignore the behaviors that are conducive to independent innovation and high-quality development of small and medium-sized enterprises, but should cultivate forward-looking legal awareness.

In the research, through the way of questionnaire and interview, the actual operation of the current government procurement policy is investigated. Starting from the actual data, the problems and constraints in the implementation of the government procurement policy are analyzed. Table 2 and Figure 2 below show the results of statistical analysis of the original data obtained by SPSS. The analysis results of the questionnaire survey show that most of the respondents hold a positive attitude towards government procurement. Most of the respondents believe that government procurement provides convenience and preferential treatment to all aspects of small and medium-sized enterprises and provides great support to the development of small and medium-sized enterprises, especially in the following three aspects:

Table 2 The effect of government procurement on providing preferential treatment and convenience for small and medium-sized enterprises.

Effect degree	Frequency	Percentage(%)
Very useful	45	22.35
Have effect	83	40.12
No effect	21	15.64

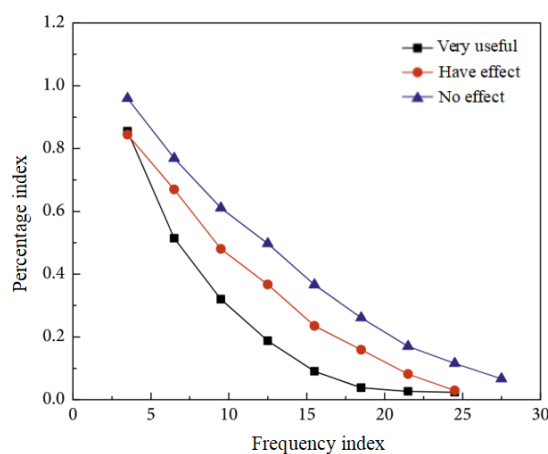


Figure 2 The effect of government procurement on providing preferential treatment and convenience for small and medium-sized enterprises.

For positive indicators such as total assets and operating revenue, the larger the value is, the better. Therefore, extreme value standardization is adopted for treatment. The formula is:

$$S(t) = \frac{y(t)}{l} \quad (2)$$

Indicators such as quarterly fluctuation range of employed personnel are negative indicators, and the smaller the value, the better. Positive treatment is required for such indicators. The standardized formula is:

$$k_j = \frac{R_j}{D_j} \times U_j \times Re_j \quad (3)$$

For the various solvency of the enterprise, they are all reference comparison indicators, that is, the closer the value is to a certain reference value, the better. Such indicators are first normalized to the absolute value of the reference value and then normalized. The formula is:

$$R_j = \frac{f_{ij}}{T_j} \times S_j \quad (4)$$

Where T is the reference value of the i-th indicator.

In order to ensure the smooth development of government procurement activities, Article 3 of Chinese “Government Procurement Law” clearly stipulates that the four basic principles that government procurement should follow are the principles of openness and transparency, fair competition, fairness, and good faith. The big data environment will inevitably have an important impact on the concept, methods and methods, modes, platforms and technical means of knowledge service for small and medium-sized scientific and technological enterprises and put forward higher requirements. To speed up the informatization construction of government procurement, use modern computer information network, establish a procurement information disclosure system and service system for small and medium-sized science and technology enterprises, and implement a more flexible price policy for small and medium-sized enterprise technology products.

5.3 Strengthen supervision and electronic construction to form a government procurement supervision system conducive to the high-quality development of small and medium-sized enterprises

The sources of knowledge resources for the knowledge services of small and medium-sized scientific and technological enterprises in the big data environment are very extensive and varied, and the knowledge resources are mainly unstructured. Major changes will take place in the way and method of information retrieval; At the same time, the knowledge needs and requirements of small and medium-sized technological enterprises will be higher. No matter vertically or horizontally, standardization is a kind of management mode with strong systematicness and wide and deep coverage. For small and medium-sized enterprises, it is a systematic but relatively complicated large project with large investment in early construction and long lead-in period. It is suggested to set up a government procurement supervision committee beyond all government departments as a direct agency of the people's governments at all levels. If enterprises do not actively seek cooperation with government procurement, it is the will of government departments to support policies no matter how good they are, and it is meaningless. Enterprises, especially small and medium-sized enterprises, should actively and actively use the preferential policies to support independent innovation to improve the ability of independent innovation and the competitiveness of enterprises. But based on the background of big data era, some small and medium-sized enterprises can reasonably obtain and analyze a large number of market dynamic data information. Then, it will make it in the actual high-quality development process, constantly improve the needs of some designated customer groups, and analyze and design the products it needs. In the formulation and implementation of government procurement policies to promote technological innovation of small and medium-sized enterprises, only by adhering to the principles of openness, fairness and justice, can small and medium-sized enterprises committed to technological innovation obtain relevant information of government procurement in a timely and comprehensive manner and participate in

government procurement activities equally.

6. Conclusion

China is paying more and more attention to technological innovation and high-quality development of small and medium-sized enterprises. Government procurement is an effective bridge to effectively combine the two and produce positive interaction. It can play an irreplaceable role in promoting technological innovation and realizing technological progress of small and medium-sized enterprises. In the era of big data, the increase of production software and hardware facilities, the acquisition of effective information, the safety of enterprise production core data, production and management costs and other issues will make enterprise standard informatization in a dilemma. In the context of the new era, government departments can guide and build new policies that contribute to the high-quality development of enterprises by strengthening public policy functions, establish supporting policies for procurement activities, improve the management model of government procurement activities, and establish an electronic supervision and management system to enhance the government. The degree of transparency of purchasing information. On the basis of Chinese actual national conditions, we will dare to explore and innovate and explore practical and feasible government procurement support policies suitable for China. This article is in the rigorous situation of rushing to get rid of the predicament, improving the government procurement measures to support SMEs, can provide some inspiration for improving support policies.

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