

Export of foreign enterprises and quality of domestic enterprises' export products

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Abstract: Based on the matching data of industrial enterprise database and customs database, this paper investigates the impact of foreign enterprises' export on the quality of domestic enterprises' export products from the perspective of industrial association. The results show that: (1) the export of foreign-funded enterprises can significantly promote the export product quality of domestic enterprises through the horizontal spillover of the same industry and the vertical spillover of inter industry correlation. (2) after further distinguishing domestic enterprises with different ownership and industrial technology levels, it is found that the export of foreign-funded enterprises has a more significant promotion effect on domestic enterprises in private and low-tech industries. Therefore, how to better identify and utilize the export spillover effect of foreign-funded enterprises is of far-reaching significance to promote the quality upgrading of domestic enterprises' export products.

Keywords: export product quality, foreign enterprises export, industrial linkage

1. Introduction

The proportion of domestic enterprises' total exports in China's total exports has been steadily increasing since 2009, reaching 61.35% in 2019, which has significantly promoted China's macroeconomic and regional economic development, and promoted the growth of export trade. However, China's export trade is also facing some problems in recent years: on the one hand, with the continuous decrease of demographic dividend and the continuous increase of labor cost, the low labor cost and low price advantages that China's export-oriented foreign trade economy used to rely on are gradually disappearing; On the other hand, with the growth of export volume, China's products that rely on price advantage for a long time often suffer from trade barriers of other countries.

In order to get rid of the current export trade dilemma, how to better change the development mode of domestic enterprises and improve the quality of export products has become a hot topic for many scholars. There are many literatures on FDI. For example, Swenson and Chen (2014) used the data of China's product level from 1997 to 2009 to find that FDI investment will significantly improve the export product quality, export transaction volume and transaction frequency of domestic enterprises in the industry. They believe that this will affect the pace and direction of China's integration into the world economy. At the same time, based on the perspective of Industry Association, poupakis (2021) selects the combined data of Russian customs and ORBIS from 2007 to 2016, and finds that upstream FDI investment can significantly improve the quality of domestic enterprises' export products, and the promotion effect is not affected by the source country of FDI and the export destination of domestic enterprises. Harding and javorcik (2012) considered the heterogeneity of FDI promotion, and used the export data of 105 countries and regions from 1984 to 2000 to find that FDI has a significant promotion effect on the quality of export products of developing countries, but the promotion effect is not significant in the sample of developed countries.

Although the existing literature on the impact of FDI on the quality of domestic enterprises' export products has been relatively rich, the literature on the impact of foreign enterprises' export on the quality of domestic enterprises' export products is relatively scarce. As an important carrier of China's participation in the global value chain, foreign-funded enterprises not only directly promote the development of China's foreign trade, but also have an important impact on the export of domestic enterprises in terms of technological progress and market development.

On the basis of existing literature research, this paper uses micro data from the perspective of enterprise level and Industry Association to study the impact of foreign-funded enterprises' export on the quality of domestic enterprises' export products, which provides a reference for domestic enterprises to better change their development mode and improve the quality of export products.

2. Data selection and model setting

The empirical analysis of this paper is divided into two parts. The first part is to measure the quality of export products of Chinese enterprises, and the second part studies the influence of export of foreign enterprises on the export quality of domestic enterprises.

Early scholars generally used unit value as a measure of product value, such as Hummels et al. (2005) and Hallak (2006). However, considering the influence of some factors on product quality, such as the degree of market competition, supply and demand, and consumer preferences, which may be ignored by this method, many scholars choose to start with the utility and demand function of consumers, trying to describe the quality of corresponding products through the choice of consumers' needs and the degree of preference. In this paper, the Dixit Stiglitz model is constructed to express the consumer utility function, and the Lagrange multiplier method is used to maximize the consumer effect to measure the quality of export products. Based on the data of 399206 enterprises exporting 5043 kinds of products to 277 countries and regions from 2000 to 2013, the quality of products is calculated by regression. After standardization, the export volume is taken as the weight to sum up, and finally the quality of export products at the enterprise level in each year is obtained.

According to the above analysis, after rejecting the original hypothesis through Hausman test, this paper adopts the fixed effect model, referring to the practice of Javorcik et al. (2004), introduces the forward and backward correlation between industries, and sets the econometric model of the impact of foreign-funded enterprises on domestic enterprises' export quality as follows:

$$quality_{ijt} = \alpha_0 + \alpha_1 hor_{jt} + \alpha_2 for_{jt} + \alpha_3 back_{jt} + \beta_0 X_{ijt} + \eta_j + \lambda_t + \varepsilon_{ijt}$$

Among them, i represents the enterprise, j represents the unified 2-digit industry, and t represents the year. $quality$ is the quality of domestic enterprises' export products, hor is the logarithm of the total export volume of foreign-funded enterprises in the same industry, for is the forward industrial foreign export, $back$ is the backward industrial foreign export, X is the control variable. The last three items represent industry fixed correspondence, time fixed effect and residual respectively.

3. Empirical analysis

According to the processed data, the control related variables are regressed according to the above formula. From the regression results, we can find that the export volume of the same industry and the upstream foreign-funded enterprises has a significant positive impact on the quality of the export products of domestic enterprises, but the export volume of the downstream foreign-funded enterprises has no significant impact on the quality of the export products of the domestic enterprises. In conclusion, the export of foreign enterprises in the upstream and the same industry will have a significant positive impact on the quality of domestic enterprises' export products through the level spillover within the industry and the forward correlation between the industries. The downstream foreign-funded enterprises have no significant impact on the quality of export products of domestic enterprises. Among them, the export of foreign-funded enterprises in the same industry will promote the quality of export products of domestic enterprises through export demonstration, export competition and export information spillover. The export of upstream foreign-funded enterprises will promote the upgrading of the quality of export products of upstream domestic enterprises, which will increase the overall quality of domestic intermediate market, thus directly improving the quality of export products of domestic enterprises. The export of downstream foreign-funded enterprises has no significant impact on the quality of export products of domestic enterprises. This may be because the middle investment products used by the downstream foreign enterprises with more export volume, especially the high-quality intermediate inputs are more from foreign imports rather than local domestic enterprises. As a result, the export increases, market development and the development of the market. The reverse force effect brought by the improvement of intermediate quality requirements is not reflected in the upstream domestic enterprises.

I select the investment in Sizewell C nuclear power plant by the vehicle of direct investment in a specific project as an example to discuss how I will allocate money and the rationale for the investment, as well as the risks associated with the investment. The construction of new nuclear power stations in the UK is becoming an increasingly critical component of satisfying energy needs as the country shifts further away from its dependence on fossil fuels. Nuclear energy is vital to keeping the lights on across the country, supplying 21% of the country's electricity and serving as a backup during severe weather events. By 2030, 14 of the 15 nuclear power plants currently operating in the UK are due to come offline, reducing electricity generation by the equivalent of 35% of the UK's total electricity. Sizewell C power plant in Suffolk which will be built by EDF Energy and China General Nuclear Power Group (CGN) is projected to be constructed in 2022 and estimated to take minimum 10 years to complete. The power plant will cost at least £20 bn and generate 7% of the UK's needs for electricity. I will invest £0.2 bn in the project via direct private equity investment. The investment in this project represents only 10% of the total budget due to the relatively high risk associated with the nature of direct investment vehicle and the capital-intensive feature of the power plant. The majority of the cost of the nuclear power plant is the up-front construction cost and the construction phase will last for 10 years or more. And the payback time can be over 30 years. Because of the long construction period and payback time, investors are more likely to be exposed to financial risks from incorrect forecasts and potential demand shifts. Several risks that need to be taken into account. Firstly, Construction risk will continue to be a major risk for investors. During the construction of a nuclear power plant, actual construction times and costs can greatly exceed initial estimates. The delays and cost overruns at the Olkiluoto and Flamanville nuclear power projects are examples. Additionally, the technical complexity of nuclear power plants is more likely to present relatively high risks in the period of operation, including equipment breakdowns and unplanned stoppages. The incidents during operation lead to reduced electricity production and additional repair and maintenance costs. Apart from that, changes in government and/or nuclear policy may undermine fiscal, financial or contractual arrangements. Additional regulatory requirements may result in forced abandonment of the plant under construction or premature closure of the plant in operation (NEA 2009). Another risk is the market risk since the market for nuclear-produced electricity will vanish by the time of other new plants are completed despite the increasing electricity demand. The falling production costs of other renewable energy could erode the market for nuclear power.

In order to verify the robustness of the conclusion, this paper analyzes the robustness from the following aspects

1) In this paper, the total export volume of foreign-funded enterprises as the main explanatory variable in the benchmark regression may not reflect the average export level of the industry, so we use the average export volume of foreign-funded enterprises instead of the total export volume regression as the robust regression.

2) Considering the complexity of data processing and the lack of some indicators, most of the existing literatures use the matching data of industrial enterprises and customs from 2000 to 2007 to study the impact of foreign-funded enterprises on the quality of domestic enterprises' export products. In order to make the results more robust, we use the data from 2000 to 2007 to conduct benchmark regression again.

3) More control variables are introduced to describe the relationship between the export volume of foreign-funded enterprises and the export product quality of domestic enterprises. First, the age of the enterprise. According to the data from the establishment time of enterprises in the industrial enterprise database to the year when the samples participate in the regression, it can describe the stability and competitiveness of enterprises in the market. Second, whether the enterprise will withdraw from the market in the next period. If the enterprise withdraws from the market in the next period, take 1; If the enterprise does not withdraw from the market in the next period, 0 will be taken. We can separate and characterize the instability of the enterprises that are about to exit the market, so as to make the explanatory variables more explanatory. Third, the number of employees of enterprises. It can reflect the level of human resources of enterprises.

At the same time, for the endogenous problems that may exist in the benchmark regression, such as the reverse causality between the explanatory variable and the explained variable, this paper uses the export volume of the same industry, upstream and downstream foreign-funded enterprises that lag one period as the explanatory variable, and carries out the benchmark regression again through the two-stage least square method.

From the regression results, the regression results of the above regression and benchmark regression are basically consistent, so the regression results in this paper are robust.

The impact of foreign-funded enterprises on the quality of domestic enterprises' export products may vary with the nature, type, industry and other factors of domestic enterprises. In this paper, domestic enterprises are classified and regressed according to the nature of enterprises, mode of trade, technical level and quality level. The results show that the impact of foreign-funded enterprises' export on private enterprises, processing trade, low-tech, domestic enterprises with lower quality level have more significant impact.

4. Conclusion

This paper studies the impact of foreign enterprises' export on domestic enterprises' export quality, and finds the following main conclusions: (1) foreign enterprises' export will play a positive role in promoting domestic enterprises' export product quality through horizontal spillover of the same industry and vertical spillover of inter Industry Association, and foreign enterprises in the same industry have the greatest role in promoting domestic enterprises, The promotion effect of upstream foreign-funded enterprises is the second, and that of downstream foreign-funded enterprises is the least (3) This kind of promotion effect will be different because of the nature and type of domestic enterprises and the technical level of the industry. Specifically, private enterprises, low-tech industries, processing trade, and domestic enterprises whose quality is lower than the average level of the industry are more promoted.

Based on the above research conclusions, this paper puts forward relevant policy suggestions from the two levels of government and enterprises

First, the commercial department of our government should take the initiative to investigate the foreign market, and convey the relevant overseas market information and product information to the domestic enterprises, so as to reduce the export cost and overseas market operation cost of domestic enterprises, and improve the R & D efficiency of domestic enterprises. At the same time, the government should provide favorable conditions for the transformation and upgrading of domestic enterprises from the aspects of infrastructure, financial services, labor market and information services. On the one hand, we should further improve the division of labor in the domestic industrial chain, realize the differentiated positioning of different industries, and strive to promote the cooperation and exchange in product technology, market operation and management between the upstream and downstream of the industrial chain, domestic and foreign enterprises, so as to achieve a win-win situation. On the other hand, we should encourage domestic enterprises to innovate independently, and formulate relevant policies to encourage domestic enterprises' R & D innovation from the perspective of Taxation, so as to promote the transformation and upgrading of domestic enterprises and the improvement of export product quality.

Second, the government should recognize that the quality of export products of different types of domestic enterprises is affected by the heterogeneity of foreign enterprises' exports. For enterprises with different levels of technology and quality, the government should give priority to those with low technology and low quality, and encourage high-tech and high-quality enterprises to strengthen independent innovation. At the same time, the government should identify the impact of geographical factors on the export spillover effect of foreign-funded enterprises, continue to give play to the more efficient learning advantages of domestic enterprises in eastern cities and large-scale cities, and strengthen cross regional exchanges and cooperation among enterprises, so as to promote the upgrading of export product quality of domestic enterprises in relatively backward areas.

Third, domestic enterprises should fully understand the promotion effect of foreign enterprises' exports in the same industry and related industries on the quality of their export products. Comply with the development direction of the enterprise, and actively learn the overseas market and product information brought by the export of the government and foreign-funded enterprises. At the same time, domestic enterprises should pay more attention to improving the quality of their export products, walk in the front line of the transformation of enterprise development mode, constantly optimize and upgrade the internal personnel management and production line management, and optimize and upgrade the product production structure, product sales channel and overall operation mode according to different export markets. In addition, domestic enterprises should increase investment in enterprise innovation and R & D, improve the learning and reference for foreign export enterprises' advanced technology, management and operation mode, and strive to promote the quality upgrading of their

export products, so as to add bricks and tiles to the overall development mode of China from high-speed development to high-quality development.

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