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Human Capital, Business Environment Optimization and Foreign Enterprise Innovation

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Abstract

Under the background that business environment optimization has become a new competitive advantage in cultivating investment and technology introduction, the influence of business environment optimization in developing countries on the innovation willingness of foreign-funded enterprises and the moderating effect of human capital of foreign-funded enterprises are investigated. The results show that: the business environment optimization reduces the willingness of foreign enterprises to carry out technological innovation, process innovation and product innovation, and the average marginal effect increases in turn; The internal mechanism is the reduction of preferential degree of foreign enterprises and the enhancement of competitive power of domestic enterprises brought about by the optimization of business environment. The human capital of foreign-funded enterprises enhances the effect of business environment optimization on their innovation willingness, and this is achieved by enhancing the preferential degree of foreign-funded enterprises, reducing the inhibition of their innovation willingness, and promoting the competitiveness of domestic enterprises by optimizing the business environment. It is further found that the introduction of foreign enterprises has a significant innovation spillover effect, and the absorption capacity of domestic enterprises has a positive regulatory effect.

Keywords: Business environment, Foreign-funded enterprises, Innovation willingness, Human capital, Introduction of knowledge

1. Introduction and Literature Review

In the second half of 2019, China issued the Notice of The General Office of the State Council on Doing a good Job of Copying, Promoting and Learning from Reform Measures to Optimize the Business Environment and the Regulations on Optimizing the Business Environment, respectively, which clearly pointed out that optimizing the business environment is an important measure to promote high-quality economic development. In

recent years, most developing countries have actively promoted the optimization of their business environment. At the same time, limited to the continuous rise of labor costs, the disappearing of investment dividend and the gradual attention to the quality of investment and technology introduction, developing countries began to optimize the business environment as a new advantage in the current cultivation of investment and technology introduction competition. Most of the existing research results show that the optimization of the business environment in developing countries can reduce institutional transaction costs, create a legalized and convenient production and business environment for enterprises, replace factor advantages and policy dividends, and play a positive role in attracting capital and technology.

Therefore, the optimization of the business environment of developing countries has become a new advantage for their competition in fostering investment and technology introduction. However, in this context, existing studies have ignored an important question, namely, does the optimization of the business environment in developing countries affect the spillover potential of foreign enterprises? Business environment optimization is not an overnight process, but a gradual process. Business environment optimization in developing countries may have an impact on the production and operation behaviors of foreign-funded enterprises, and thus affect their spillover potential in host countries. Liu Jun and Wang Changchun's research on the impact of business environment optimization in developing countries on the FDI motivation of foreign-funded enterprises found that the business environment optimization in host countries leads to the enhancement of the competitiveness of domestic enterprises and the cancellation of preferential resources for foreign-funded enterprises, which in turn weakens (strengthens) the market-seeking FDI motivation of foreign-funded enterprises. The above conclusions show that the optimization of the business environment in developing countries has shifted the target market of foreign-funded enterprises from the host country to overseas, which means that their production and operation behavior has changed, which may affect their spillover potential in the host country. So, has the business environment optimization in developing countries affected the spillover potential of foreign enterprises? In order to answer this question, based on the dimension of innovation willingness, this paper will systematically examine the impact of business environment optimization in developing countries on the innovation willingness of foreign-funded enterprises.

However, at present, few scholars pay attention to and study the above problems. A review of the existing relevant results mainly focuses on the research on the impact of business environment optimization on the innovation of domestic enterprises, and most of them find that business environment optimization in developing countries can enhance the degree of market competition and tax administration, bring higher law enforcement and intellectual property protection, and reduce the degree of corruption, thus promoting enterprises to engage in innovative activities. Wu et al. further investigated Chinese multinational enterprises from the perspective of the home country and found that the maturity of the domestic market, intellectual property protection and cultural differences with the host country can improve the innovation performance of multinational enterprises, and their strong

absorptive capacity enhances the innovation performance of their production and business activities in the developed market. Subsequently, the academic community conducted a more in-depth study from the perspective of heterogeneity of business environment and enterprise innovation, and found that political connection makes enterprises in developing countries tend to engage in radical innovation activities, but has no significant impact on progressive innovation, and corruption weakens the role of political connection in promoting enterprises to carry out radical innovation.

As for foreign-funded enterprises, the existing researches mainly investigate the impact of business environment optimization on FDI inflow in developing countries at the macro level, and most of them find that business environment optimization can significantly promote FDI inflow. Some scholars further investigate various measures of business environment optimization in the Doing Business Report published by the World Bank. But no consensus has been reached. NaPgpiUe et al.'s investigation of sub-Saharan African countries found that protection of minority investors, cross-border trade and bankruptcy treatment in optimizing the business environment significantly promoted FDI inflows. According to Janachovie and Petro vie-Rand elovie's study on Serbia, protecting minority investors can promote FDI inflow, and handling construction permits can also significantly promote FDI inflow, but access to electricity and contract execution have a significant inhibitory effect. Using data from 177 countries, Hossain et al. found that contract execution in business environment optimization significantly promoted FDI inflow, while obtaining credit and property rights registration inhibited FDI inflow, while starting a business and paying taxes had no significant impact.

Compared with the existing research, the marginal contribution of this paper is mainly reflected in: (1) Based on the research object of foreign-funded enterprises, the paper reveals that the optimization of the business environment in developing countries reduces the innovation willingness of foreign-funded enterprises from a microscopic perspective, and analyzes the internal mechanism of the preferential degree of foreign-funded enterprises and the competitiveness of domestic enterprises from two dimensions of foreign capital and domestic capital respectively, namely "phenomenon disclosure" and "reason analysis"; (2) The moderating effect of the human capital of foreign-funded enterprises on the reduction of their innovation intention in the business environment optimization of developing countries, and the moderating effect on the two internal mechanisms of the preferential degree of foreign-funded enterprises and the competitiveness of domestic enterprises, namely "phenomenon change"; (3) Further clarify the innovation spillover effect of the introduction of foreign enterprises to domestic enterprises, and the adjustment effect of the absorption capacity of domestic enterprises on the innovation spillover effect, that is, the "late benefit"; (4) Not only the above aspects are investigated based on the overall innovation dimension, but also the specific performance of technological innovation, process innovation and product innovation of foreign-funded enterprises in each aspect is clarified and compared from the innovation mode dimension, which not only enriches the research system of this paper, but also makes the research conclusions contain more profound policies.

2. Theoretical Analysis

2.1 The Innovation Willingness of Foreign Enterprises

First, the innovation willingness of foreign enterprises is analyzed without considering the business environment in developing countries. Using the D-S model for the setting of CES utility function, it is assumed that the consumers in the host country or overseas market facing a foreign-funded enterprise have diverse preferences, and their total expenditure is M.

$$U = \left[\int_{\omega \in \Omega} q_{\omega}^{(\sigma-1)/\sigma} d\omega \right]^{\frac{\sigma}{\sigma-1}} \tag{1}$$

Where q is the demand for the products or services produced by the foreign enterprise g; P is the price of a product or service; σ is the elasticity of substitution of a product or service and meets $\sigma > 1$. Under the condition of utility maximization, we can get the demand function that foreign-funded enterprises face when they do not engage in innovative activities:

$$q = Mp^{-\sigma} P^{\sigma-1} \tag{2}$$

Among them, p is the price index of all products. Due to the large number of enterprises in the market, the price change of the product or service of a single foreign-funded enterprise will not cause the change of the price index. In addition, it is assumed that the marginal cost c in the production process of foreign-funded enterprises is fixed, but it will be affected by internal innovation behavior and external business environment. At this time, the profit function of foreign-funded enterprises without innovation activities can be obtained, namely:

$$\pi_0 = (p - c) Mp^{-\sigma} P^{\sigma-1} \tag{3}$$

Under the condition of profit maximization, it can be concluded that:

$$p = c\sigma/(\sigma - 1) \tag{4}$$

Therefore, it can be further concluded that the maximum profit of foreign-funded enterprises when they do not engage in innovative activities is:

$$\pi_0 = \frac{M}{\sigma}\left(\frac{p}{P}\right)^{1-\sigma} \tag{5}$$

2.2 Different Innovation Models

In terms of the innovation mode of foreign-funded enterprises, this paper divides the innovation mode of foreign-funded enterprises into technology innovation, process

innovation, product innovation and other innovation. Among them, other innovations include management innovation and market innovation. In terms of the relationship between overall innovation and different innovation modes, if a foreign-funded enterprise carries out one or more of the four types of innovation modes, namely technological innovation, process innovation, product innovation and other innovation, it is considered that the foreign-funded enterprise has carried out innovation at the overall level. For the purpose of analysis, the following linear relationship between overall innovation and different innovation models is assumed:

$$I^{f}_{total} = \xi_1 I^{f}_{tech} + \xi_2 I^{f}_{proc} + \xi_3 I^{f}_{prod} + \xi_4 I^{f}_{other} \quad (6)$$

$I^{f}_{tech,}$ $I^{f}_{proc,}$ I^{f}_{prod} and I^{f}_{other} are respectively technological innovation, process innovation, product innovation and other innovation, and all of them are increasing function compared with $I^{f}_{total.}$ Since the empirical samples in the following paper only show the relevant data of foreign-funded enterprises in technology innovation, process innovation and product innovation, this paper only analyzes the influence of business environment optimization in developing countries on the above three innovation models and the moderating effect of human capital.

Therefore, the human capital of foreign-funded enterprises has a moderating effect on the willingness of business environment optimization to reduce technological innovation, process innovation and product innovation, that is, it enhances the decreasing effect on technological innovation, process innovation and product innovation.

3. Research Design

3.1 Sample and Data

This paper uses data from the World Bank's Business Survey Group. The sample data covers a sample period of 2202-229 and includes 92,100 firms in 663 cities in 139 developing countries. According to the definition standard of foreign-funded enterprises in the sample data adopted in this paper, that is, the proportion of equity is greater than or equal to 17%, this paper excludes domestic enterprises and enterprises with missing equity structure information. Then, the remaining 94,200 foreign-funded enterprises are selected as samples for the subsequent empirical analysis. After sample selection, this paper further processed the samples as follows: First, the sample enterprises with missing values and outliers in each variable in the empirical model were eliminated; Second, since all the dependent variables in the empirical model are binary variables, this paper again excluded the sample enterprises whose dependent variables are both 2 or 1 at the industry level and at the national level. In the end, a sample of 7,357 foreign-funded enterprises was retained. The sample covers 396 cities in 172 developing countries and covers most of the double-digit sectors in both industry and services classified by ISIC Rev.3.

Finally, due to the differences in the survey years of enterprises in different countries, the innovation willingness of foreign-funded enterprises may change with the increase of their

production and operation years. Therefore, on the one hand, firm age, a control variable reflecting firm characteristics, is introduced into the empirical model in the following paper. On the other hand, annual dummy variables are included in the empirical model to further eliminate the possible impact of different survey years in different countries on the estimated results.

4. Innovation Willingness Effect of Business Environment Optimization

4.1 Robustness Test

4.1.1 The Definition of Foreign-funded Enterprises Has Changed

This paper tests the reliability of the conclusion by changing the definition standard of foreign-funded enterprises. In the new definition of foreign-funded enterprises, learn from Lu Jiangyong's ideas, the proportion of foreign equity greater than or equal to 27% of the enterprise, defined as foreign-funded enterprises. The estimation results show that the estimation results of the main independent variables and the relationship between the size of the average marginal effect of the three innovation models have not substantially changed, indicating that the conclusions obtained in this paper are reliable and will not have substantial changes due to the change of the definition criteria of foreign-funded enterprises.

4.1.2 Instrumental Variable Has Changed

In this paper, foreign enterprises are excluded when constructing the instrumental variables of Bf, that is, the average business environment faced by domestic enterprises in the city is taken as the instrumental variable. The results of Wald exogenous test and weak instrumental variable test show that the adopted instrumental variables are valid and reasonable. In addition, the estimated results of the main independent variables and the relationship between the size of the average marginal effect of the three innovation models have not substantially changed, which indicates that the conclusions obtained above are robust.

5. Conclusions and Enlightenment

This paper reveals the phenomenon that the optimization of business environment in developing countries reduces the willingness of foreign enterprises to innovate, analyzes the internal mechanism of the above phenomenon, and explores the solution of the above phenomenon from the perspective of human capital. Finally, the benefits brought to domestic enterprises after the above phenomenon is investigated. The main conclusions are as follows: (1) The business environment optimization in developing countries reduces the innovation willingness of foreign-funded enterprises, including overall innovation, technological innovation, process innovation and product innovation, and the average marginal effect on the three innovation modes is enhanced in turn. (2) The reduction of the preferential degree of foreign-funded enterprises and the enhancement of the competitiveness of domestic enterprises are the internal mechanisms of the phenomenon that the optimization of the business environment reduces the innovation willingness of foreign-funded enterprises. (3) The human capital of foreign-funded enterprises has a significant moderating effect on the business environment optimization to reduce their innovation intention, and its internal

mechanism in the preferential degree of foreign-funded enterprises and the competitiveness of domestic enterprises exists in the "second half" and "first half" respectively. (4) There is a significant innovation spillover effect of the introduction of foreign enterprises, and the absorptive capacity of domestic enterprises has a significant moderating effect on the innovation spillover effect.

The above general research conclusions for developing countries can provide certain policy implications for China in terms of optimizing the business environment, attracting wisdom and utilizing foreign capital. (1) Continue to increase efforts to optimize the business environment and gradually eliminate preferential resources for foreign-funded enterprises. Although the optimization of business environment reduces the willingness of foreign-funded enterprises in overall innovation, technological innovation, process innovation and product innovation, the internal mechanism is the reduction of preferential degree of foreign-funded enterprises and the enhancement of competitiveness of domestic enterprises. The reduction of the preferential degree of foreign-funded enterprises means that local governments can give more limited resources to domestic enterprises, that is, the implementation of the generalized system of preferences, which can help the rapid development of domestic enterprises, coupled with the improvement of the competitiveness of domestic enterprises brought about by the optimization of the business environment, is conducive to the realization of high-quality and conformal economic development. (2) In the process of optimizing the business environment to promote the introduction of investment and technology, increase the encouragement and support for the introduction of foreign capital enterprises, and realize the organic combination of investment, technology and intelligence introduction. While promoting the introduction of capital and technology through the optimization of the business environment, we should not neglect the introduction of knowledge. Local governments should strengthen the encouragement and support for the introduction of wisdom by foreign-funded enterprises, promote foreign-funded enterprises to introduce high-quality labor such as middle and senior management personnel and technical personnel, improve or even reverse the effect of business environment optimization on the innovation willingness of foreign-funded enterprises, and enhance the innovation spillover potential of new and existing foreign-funded enterprises, and promote the independent innovation of domestic enterprises.

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