

Analysis of the Development of the Host Country's Digital Economy and China's OFDI Location Selection

Jiahui Huang

School of Economics, Guangdong University of Technology, Guangzhou 510520, China.

Abstract: The digital economy is developing rapidly. Studying the relationship between the digital economy and the location choice of outbound direct investment is of guidance to the rational layout of multinational enterprises' investment and the construction of China's digital economy. Based on the panel data of outbound investment events of Chinese listed companies from 2016 to 2020, this paper finds that the development of the digital economy in host countries has a significant positive impact on the location choice of enterprises' outbound investment by constructing a fixed-effects model.

Keywords: Digital Economy; OFDI; Location Selection; Fixed-Effects Model

1. Introduction

According to the Global Digital Economy Conference 2021, China's digital economy has ranked second in the world for many years. Digital technology has played an important role in the fight against the Newcastle Pneumonia epidemic and in restoring production and livelihoods. As a new economic form, the digital economy has increased the intelligence of traditional industries and reshaped the international production layout of multinational companies' overseas investments.

Under the rapid development of the world's digital economy, traditional international investment dynamics have weakened relatively and international capital flows have taken on new characteristics. Therefore, summarising the current situation and characteristics of the geographical distribution of Chinese multinational enterprises' overseas investments is beneficial to enterprises in addressing the opportunities and challenges brought by the new situation of the digital economy.

2. Review of the Literature

Whether it is the monopoly advantage theory, the product life cycle theory, the internalised advantage theory or the marginal industrial expansion theory, they all focus on the motivation of firms to invest abroad, with location issues only implicitly included. It was Dunning (1980) that really combined location factors with OFDI and explicitly raised the issue of location choice for outward investment ^[1]. The World Investment Report classified the locational choice motives of multinational corporations into four categories: market-seeking, efficiency-seeking, resource-seeking and strategic asset-seeking, which informs the choice of control variables in this paper. At this stage, China's OFDI is influenced by the host country's economic size, natural resource endowment, technology level, internal conflicts in the host country, freedom of trade, freedom of investment and the construction of domestic infrastructure in the host country (Hu Hao et al., 2017) ^[2]. Internet coverage in host countries is conducive to promoting FDI activities in China (Ren Xiaoyan and Yang Shuihui, 2016) ^[3].

In the digital economy, six major characteristics have emerged in the international investment patterns and paths of multinational enterprises: lighter overseas assets, lower employment rates, changing factors in location selection decisions, a rising share of service sector investments, more non-equity investments, and more flexible global layouts for multinational enterprises. Digital technology is

increasingly becoming an important locational determinant in the international investment process (Zhan, Xiaoning and Ouyang, 2018) [4].

There are still relatively few empirical studies combining the digital economy and OFDI, and there are no unified indicators to measure the digital economy in international studies on the digital economy, and there are difficulties in the statistics of indicators to measure the digital economy in each country.

3. Research Design

3.1 Sample selection and description

The research object of the empirical test in this paper is Chinese listed companies with new and surviving overseas subsidiaries in the CSMAR overseas direct investment database between 2016 and 2020. The final sample is a sample of 9691 overseas subsidiaries of 1553 Chinese listed companies in 21 countries and regions over the period 2016-2020. The 21 countries selected are the US, Italy, Brazil, Germany, Canada, South Africa, Australia, the Netherlands, Russia, Japan, Thailand, Switzerland, the UK, Indonesia, Poland, India, South Korea, Egypt, Vietnam, France and Argentina.

3.2 Construction of a digital economy development indicator system

The NRI (Network Readiness Index) released by the World Economic Forum (WEF) provides a more objective and accurate assessment of the level of digital development of the world's leading countries in terms of environment, readiness and adoption. Zhou Jing, Wu Kexin (2021) measured the level of digital economy in the host country from three aspects: Internet penetration rate, digital industry ecology and digital public services [5]. This paper refers to the international mainstream digital economy index measurement dimensions, selects three sub-indicators of secure Internet servers, fixed broadband users and personal use of the Internet to consider the host country's digital environment, readiness and application level, and uses the principal component analysis method to comprehensively score the three sub-indicators to construct the host country's economic development index (Digital).

3.3 Digital Index Construction

Table 1 Construction of Digital Economy Development Indicator System

Sub-indicators	Weights (Principal Component Analysis)	Numerical range	Indicator attributes
Secure Internet Server (SIS)	0.403	36.2-70412.1	positive
Fixed Broadband Subscription (FBS)	0.302	1.3-46.3	positive
Individuals using the Internet (IUI)	0.295	18.2-95.1	positive

Sub-indicator weights: calculated by the authors based on principal component analysis of the SPSSAU software.

As can be seen from the Table 1, the values of each sub-indicator vary considerably between and within groups, so it is important to standardise the positive and negative indicators separately.

3.4 Variables and data sources

As this paper is about the relationship between digital economy and OFDI, the explanatory variables and the main explanatory variables are as follows:

- (i) Explanatory variable: location choice of OFDI by firms(DN)

Multinational enterprises choose the final OFDI destination among many alternative regions, and the result of their decision is whether to set up new overseas subsidiaries in a certain country or region.

- (ii) Core explanatory variable: digital economy development in the host country (Digital)

The variable is composed of three sub-indicators SIS, FBS and IUI to synthesise the digital economy evaluation system, which is constructed as described in the previous section.

(iii) Control variables:

1. Host country market size(gdp): Measured by GDP in constant 2015 US dollars.
2. Natural resources(resor): Measured by exports of ores and metals as a percentage of merchandise exports.
3. Level of technological development(tech): Measured by information and communication technology (ICT) product exports as a percentage of total product exports.
4. Labour resources(labour): Measured by the number of people in the labour force as a proportion of the total population.
5. Total tax rate(tax): Measured by the amount of tax payable and mandatory contributions as a percentage of business profits.

3.5 Model building

This paper uses panel data to analyse the factors influencing the location choice of OFDI. A regression model is developed as follows.

$$DN_{it} = c + \beta_1 Digital_{it} + \beta_2 gdp_{it} + \beta_3 resor_{it} + \beta_4 tech_{it} + \beta_5 labour_{it} + \beta_6 tax_{it} + \varepsilon_{it}$$

$i = 1, 2, \dots, N; t = 1, 2, \dots, T; \beta_i$ is the corresponding independent variable; ε_{it} is the random error term.

4. Empirical Analysis

4.1 Descriptive statistics and correlation coefficient analysis

In this paper, descriptive statistics and correlation coefficient analysis were first conducted for the relevant variables, followed by regression analysis.

The mean Digital score for the host country's level of digital economy development was 0.4656, while China's Digital score for the same period was 0.3328, indicating that China's outward FDI is mainly invested in countries with a higher level of digital economy development.

The maximum correlation coefficient between the explanatory variables and the explained variables is 0.9346, which tentatively suggests that the location choice DN of China's outbound investment may be more influenced by the size of the host market than other variables. The maximum correlation coefficient between the explanatory variables is 0.5641, which is less than 0.8, indicating that there is no serious multicollinearity between the explanatory variables and will not have unfavourable impact.

4.2 Regression analysis

The difference in location choice of China's OFDI across countries or regions can be captured by either a random effects model or a fixed effects model. The Hausman test is used to determine which model is more appropriate. The Hausman test in Eviews needs to be based on the estimation results of the random effects model, so the random effects model was first estimated for the sample panel data. The Hausman test was then performed and the results were as Table 2:

Table 2 Hausman test

Test Summary	Chi-Sq.Statistic	Chi-Sq.d.f.	Prob.
Cross-section random	82.925459	6	0.0000

The Hausman test was then performed and the p-value was less than 0.05. The original hypothesis was rejected and a fixed-effects model should be developed. Finally, a two-way fixed-effects model was chosen for the overall regression estimation.

From the regression results, the coefficient of the main explanatory variable Digital is significantly positive at the 1% level, indicating that the development of the digital economy in the host country has a significant contribution to the choice of OFDI location. the higher the level of development of the digital economy in the host country, the more inclined the enterprises are to make OFDI in that country.

The coefficients on host country market size (gdp), level of technological development (tech) and natural resource endowment (resor) are significantly positive, indicating that all three factors have a positive contribution to outward investment by multinational enterprises.

The coefficient on labour resources (labour) is insignificant in all models, a finding that is inconsistent with many previous location choice studies, possibly due to the development of the global digital economy, which allows for remote manipulation through the internet and a reduced reliance on host country labour. The negative and insignificant coefficient on the total tax rate (tax) in the host country suggests that high taxes may reduce firm location choice, but this effect is not significant.

5. Conclusions and Recommendations

5.1 Main Conclusions

Based on the empirical results, we can draw the following insights: In the context of the digitisation and intelligence of the global industrial value chain, the business models and international investment paths of Chinese enterprises have undergone profound changes, and new trends have emerged in outbound investment by multinational enterprises.

(i) Low employment and high technology

Global digitisation has led to a reduction in the workforce by enabling companies to increase productivity at a lower labour cost. The composition of assets of technology-based multinational enterprises is increasingly shifting towards intangible assets, which create fewer jobs and are mainly concentrated in high-skilled positions.

(ii) Changes in locational choice factors

In the digital economy, there is a structural shift in the sources of corporate value, with a relative reduction in the importance of traditional means of production and an increase in the share of strategic digital assets (innovative technologies, R&D capabilities, patents and other intangible assets) allocated.

5.2 Related Policy Recommendations

(i) Seizing new opportunities for industrial transformation in the digital economy. In the new round of industrial restructuring, Chinese enterprises should clarify their industrial positioning in the global value chain, give full play to their advantages and achieve leapfrog development.

(ii) Strengthening cross-regional cooperation in the digital field and building a standard system for assessing the development of the digital economy. Promote initiatives such as data sharing and internet service optimisation to strengthen exchanges and cooperation with countries around the world in the digital sector. The development and application of unified international assessment standards for the development of the digital economy should be accelerated to form a multi-dimensional assessment system.

(iii) Strengthening the cultivation of digital talents and building a science and technology innovation ecosystem. The development of China's digital economy is also facing a structural shortage of talent. Universities should be encouraged to set up high-tech laboratories, and schools and enterprises should cooperate to train talents with the ability to research and apply cutting-edge technologies.

(iv) Innovative foreign investment regulation. The more complex business models in the digital economy have posed newer challenges to foreign investment regulation, requiring regulatory reform and innovation.

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