ISSN 2616-5902 Vol. 6, Issue 1: 25-30, DOI: 10.25236/AJBM.2024.060104

A Study on the Impact of Digital Economy Level of RCEP Host Countries on China's OFDI

Wei Qianqing[1], Shi Qingyun[1,a,*]

[1]School of Economics/China-ASEAN Financial Cooperation Institute, Guangxi University, Nanning, China
[a]2819016916@qq.com
[*]Corresponding author

Abstract: *The digital economy has become a new type of economic form, which profoundly affects the development of the real economy, presumes changes in the economy, and accelerates the construction of China's new "double-cycle" development pattern. This paper adopts the principal component analysis method to measure the level of digital economy of the host country on five indicators, including fixed telephone coverage, fixed broadband coverage, Internet user ratio, higher education enrolment rate and mobile phone coverage. The measurement results found that the digital economy level of RCEP host countries has a large gap, and the mean value is negative. Based on the panel data of RCEP14 countries from 2003 to 2022, this paper incorporates the comprehensive indicators of digital economy into the gravity model, and concludes that the level of digital economy of RCEP host countries significantly promotes the development of China's OFDI through the bidirectional fixed effect estimation method. The conclusion is of great significance for Chinese enterprises to invest in RCEP countries.*

Keywords: *digital economy, RCEP, OFDI, gravity modelling*

1. Introduction

On 1 January 2022, the Regional Comprehensive Economic Partnership Agreement ("RCEP") was formally implemented, RCEP is an important free trade agreement in the Asian region, covering fifteen member countries, including China. The signing of RCEP is considered to be one of the world's largest FTAs, which provides participating countries with broader market access and opportunities to reduce tariffs and promote economic integration. When RCEP comes into effect, it will not only promote zero-tariff preferential policies for foreign trade among member countries and enhance intra-regional trade facilitation, but also open up corresponding business services and investment, and strengthen investment cooperation among the signatories. According to the Statistical Bulletin of China's Outward Foreign Direct Investment in 2021 jointly released by the Ministry of Commerce, the National Bureau of Statistics and the State Administration of Foreign Exchange, China's outward foreign direct investment stock in 2021 amounted to US$2.79 trillion; China's 2.86 million domestic investors have set up a total of 460,000 outward foreign direct investment enterprises in 190 countries and regions, with total assets of outward foreign enterprises amounting to US$8.5 trillion at the end of the year; and outward foreign direct investment has reached US$3.5 trillion, and the total assets of outward foreign enterprises amounted to US$3.5 trillion. At the end of the year, the total assets of overseas enterprises amounted to US$8.5 trillion; the status of outward investment as a big country is solid. In recent years, digital economy has become a hotspot in various fields of society, triggering and promoting various economic changes, and digital infrastructure, as the support for the development of digital economy, has also attracted the attention of all parties to invest. As a new economic form following the agricultural economy and the real economy, the integration and development of the digital economy with the real economy can promote the construction of China's new "double-cycle" development pattern[1].The level of development of the digital economy also profoundly affects the location choice of China's OFDI [2].Research on the impact and mechanism of digital technology and digital infrastructure on China's OFDI is of great significance for China's OFDI to go global and achieve high-quality development. As one of the largest economies in Asia, China's direct investment by its enterprises in RCEP countries also contributes to strengthening regional economic cooperation and trade relations. With the gradual implementation of RCEP, more two-way investment and cooperation opportunities can be expected in the future!

Literature related to the research of this paper focuses on digital economy and outward foreign direct

ISSN 2616-5902 Vol. 6, Issue 1: 25-30, DOI: 10.25236/AJBM.2024.060104

investment. In the context of the new generation of information technology and the booming development of the digital economy, digital infrastructure has emerged. In response to the digital economy definition, Hanseth[3] and others, in their study of standardisation and flexibility of information infrastructures, argue that digital basic information infrastructures are both infrastructures with technical and non-technical elements. In contrast, Limão[4] and others consider information infrastructure as network infrastructure related to communications, fibre optic cables, and so on. The digital economy, as an important driving force for the transformation of the economy, relies on the development of the level of digital technology on the Internet, and achieves integrated development in all fields of society and industries[5]. Starting from digital infrastructure, Wu Xiaoyi[6] et al. found that China ranks second in the world in terms of digital economic development, but there is a large gap between China and developed countries in terms of digital infrastructure, and the digital innovation talent pool is weaker than that of the US. Research on digitisation and international direct investment focuses on, first, how the digital economy affects the patterns and paths of international direct investment, For example, Yi Xianrong[7] and others, from the perspective of modern economics, believe that the numbers are an important factor driving the operation of the economy, which will affect the market property rights system, incentives and other rules to change; Secondly, the role of the digital economy in embedding itself in global value chains.

For example, Lu Yue[8] analysed the impact of Internet development on the embeddedness of global value chains from the perspective of Internet development and found that Internet development can promote the division of labor in industries, which is more obvious in developed countries. Han Jian et al[9] pointed out that the development of the Internet promotes changes in the mode of production and organisation, enhances the participation of countries in global value chains, and extends the length of participation in global value chains; Third is international investment policy in the digital sphere. In the digital economy, digital, as a factor of production, needs to be balanced with data privacy security, intellectual property protection and localisation requirements. Therefore, in the development process of digitisation and globalisation, it is important to actively participate in the formulation of digital trade rules and enhance China's right to speak in the formulation of global trade rules[10].

Compared with previous literature, the innovation of this paper's research is that, firstly, the RCEP countries are selected as the research object, starting from digital infrastructure, constructing indicators for measuring the level of digital economy, and adopting principal component analysis to measure the level of host country's digital economy development; secondly, the comprehensive indicators of digital economy are incorporated into the extended investment attraction model, and the impact of host country's digital economy on China's OFDI is found through empirical evidence. mechanism, and finally summarise the role mechanism of RCEP countries' digital economy influencing China's OFDI.

2. Model construction, data description and indicator measurement

2.1 Model construction and data description

This paper studies the impact of digital economy on China's OFDI, which involves geographical distance. Market size and other control variables, so the extended investment gravity model is used, and the model is constructed as follows:

$$lnOFDI_{it} = \alpha_0 + \alpha_1 DE_{it} + \alpha_2 lnHGDP_{it} + \alpha_3 lnCGDP_t + \alpha_4 lnDIST_{it} + \alpha_5 NR_{it} + \alpha_6 LABOR_{it} + \alpha_7 lnGGDP_{it} + \alpha_8 lnINF_{it} + country_t + year_t + \varepsilon_{it}$$

where i and t denote host country and year, respectively,$lnOFDI_{it}$ is the explanatory variable, which represents the stock of Chinese direct investment in the host country in year t; As the core explanatory variable, DE_{it} represents the digital economy indicators of the host country of RCEP, which are five indicators including fixed telephone coverage, fixed broadband coverage, Internet user ratio, higher education enrolment rate and mobile phone coverage, etc., which can be derived as the composite value of the digital economy after principal component analysis;$lnHGDP_{it}$ denotes the GDP of the host country, reflecting the size of the host country′s market; $lnCGDP_t$ denotes China′s GDP in year t;$lnDIST_{it}$ denotes the geographical distance between China and the host country, which is expressed as the product of the absolute geographical distance from China to the host country and the international crude oil price of the current year, reflecting the cost of distance;NR_{it} denotes the host country′s natural resource endowment, the richer the natural resources, the more difficult it is for OFDI to obtain resources and the cost of obtaining them decreases;$LABOR_{it}$ indicates the labour cost of the host country, cheap labour can reduce the production cost and increase the profit margin for the enterprise; $lnGGDP_{it}$

ISSN 2616-5902 Vol. 6, Issue 1: 25-30, DOI: 10.25236/AJBM.2024.060104

represents the economic growth rate of the host country, which reflects the potential of the host country′s economic development;$lnINF_{it}$ represents the rate of inflation in the host country, reflecting the degree of economic stability; $country_t$and $year_t$ denote country and year fixed effects, respectively.ε_{it} as a random disturbance term. In this paper, panel data for the last 20 years from 2003-2022 are selected.

2.2 Digital Economy Measurement

In many studies, digital infrastructure has been used as one of the important indicators when measuring the digital economy, involving fixed telephone coverage, fixed broadband coverage, and the percentage of Internet users.

Therefore, this paper refers to the framework construction of scholars such as Qi Junyan [11, 12], and includes fixed telephone coverage, fixed broadband coverage, Internet user ratio, higher education enrolment rate, and mobile phone coverage in the digital economy measurement framework. Unlike existing studies, this paper takes the above digital economy indicators and measures the level of digital economy development in each host country through principal component analysis. This method has been adopted by many scholars because it can take into account both individual dimensions and time factors[13].

3. Regression results and analyses

3.1 Variable correlation test

Before conducting the empirical regression, this paper firstly logarises the relevant economic variables to reduce the effect of heteroskedasticity, and then conducts the correlation coefficient test for all variables. The correlation coefficient test is shown in Table 1, the maximum value of correlation coefficient between the core explanatory variable DE and all variables is 0.609, and the correlation coefficient between most of the variables is less than 0.5, so the data in this paper do not have serious multicollinearity problems. For the sake of rigour, this paper carries out the multicollinearity test for all variables, and the results of the variance inflation factor regression of each variable show that the VIF value of all data is less than 5, and the average value is 1.85, so it can be assumed that the data do not have serious multicollinearity problems.

Table 1: Correlation coefficient test

	lnOFDI	DE	lnHGDP	lnCGDP	lnDIST	NR	lnGGDP
lnOFDI	1						
DE	0.502***	1					
lnHGDP	0.387***	0.609***	1				
lnCGDP	0.791***	0.519***	0.179**	1			
lnDIST	0.175**	-0.104	-0.122	0.264***	1		
NR	0.280***	-0.0950	-0.199**	0.191**	0.186**	1	
lnGGDP	0.0220	-0.409***	-0.137*	-0.207***	0.00300	0.116	1
LABOR	0.0110	-0.169**	-0.180**	-0.0760	0.178**	-0.341***	0.144*
lnINF	-0.0280	-0.455***	-0.0270	-0.271***	0.0720	0.130	0.352***
lnOPEN	-0.154*	-0.158**	-0.313***	-0.213***	-0.161**	-0.375***	0.152*
	LABOR	lnINF	lnOPEN				
LABOR	1						
lnINF	0.115	1					
lnOPEN	0.406***	0	1				

3.2 Data description

Due to some years of missing data in some countries, the data generated by linear interpolation has a large gap, so this paper chooses to eliminate missing values and outliers, and the valid observations of the empirical regression after the elimination of missing values are 157. Because of the difference in the scale of each variable, in order to reduce the sample heteroscedasticity, this paper logarizes all other variables except digital economy, natural resources, and labor cost. In order to weaken the influence of extreme values on the empirical results, this paper also carries out 1% two-sided shrinkage treatment. The descriptive statistics of the main variables are shown in Table 2. The standard deviation of the digital economy level of the RCEP countries is 1.485, and the maximum and minimum values are 2.864 and -2.520, respectively, with a large gap in the development level. The mean value of digital economy development is -0.004, indicating that most of the RCEP countries have slow and backward digital

ISSN 2616-5902 Vol. 6, Issue 1: 25-30, DOI: 10.25236/AJBM.2024.060104

economy development.

Table 2: Data description

variable	N	mean	sd	min	max	Data sources
lnOFDI	157	11.67	2.199	2.565	15.72	China Statistical Yearbook
DE	157	-0.00400	1.485	-2.520	2.864	WDI
lnHGDP	157	16.89	1.642	13.51	19.94	WDI
lnCGDP	157	20.59	0.446	19.70	21.18	WDI
lnDIST	157	12.27	0.674	10.23	13.96	WDI
NR	157	6.539	11.89	0	62.50	WDI
lnGGDP	157	1.392	0.773	-2.952	2.584	WDI
LABOR	157	66.28	5.199	56.79	77.20	WDI
lnINF	157	0.867	0.975	-2.191	3.182	WDI
lnOPEN	157	4.313	0.540	3.325	5.382	WDI

3.3 Baseline regression analysis

In this paper, when analysing China's OFDI to RCEP countries, the country and year factors have a certain impact on China's OFDI. Before doing the regression analysis, this paper carried out the Hausmann test, the test result P value is 0.0003, less than 0.01, so this paper is more appropriate to use two-way fixed effect estimation method to carry out empirical analysis.

Table 3: Baseline regression analysis

	(1)OLS	(2)RE	(3)FE
	lnOFDI	lnOFDI	lnOFDI
DE	0.131	0.349*	0.465**
	(0.095)	(0.192)	(0.235)
_cons	-78.185***	-48.924***	-34.882***
	(4.993)	(7.061)	(10.568)
control variable	YES	YES	YES
COUNTRY	NO	NO	YES
YEAR	NO	NO	YES
N	157.000	157.000	157.000
r2	0.824		0.960

Note: ***, **, * indicate significant at the 1 per cent, 5 per cent and 10 per cent levels, respectively, with corresponding standard errors in parentheses.

Table 3 reports the baseline regression results of the gravity model, which are the mixed effects, random effects and two-way fixed effects model regressions. In the mixed effects, random effects and fixed effects regressions, the digital economy (DE) positively affects OFDI, with a high level of development of the host country's digital economy, the corresponding digital infrastructure and the ability to apply Internet technology, and the higher the degree of digitisation, the higher the corresponding increase in the productivity and operational efficiency of local firms, and the more attractive multinational enterprises can be to the host country's investment. At the same time, the rise of the digital economy has brought about the rapid expansion of the global digital market. Enterprises can enter emerging digital markets through OFDI and use digital technology to provide products and services globally. Overall, the digital economy provides enterprises with broader global markets, innovation opportunities and digital production advantages, and therefore, enterprises actively participate in the development of the digital economy through OFDI in order to gain more market share and achieve sustainable growth. Geographic distance negatively affects China's OFDI, which shows that the more the absolute geographic distance between the host country and the home country reaches, the higher the transport costs required for investment, the greater the cultural differences between the two countries, the increase in the cost of cultural integration, and the rise in the difficulty in the transmission of information and corporate management, which in turn inhibits the strength of direct investment by enterprises in the host country. This result is consistent with the results of the gravity model. China's GDP significantly and positively affects China's OFDI, indicating that the larger its own economy is, the more capable it is of conducting direct investment abroad. The nature of the digital economy is driven by technology and innovation, and the continuous evolution of digital technology provides firms with opportunities to innovate. OFDI enables firms to access and integrate advanced digital technologies globally, driving innovation and competitiveness. Other variables. Host country resource endowment significantly and negatively affects China's OFDI, possibly because countries or firms that are highly dependent on natural resources, especially a single type of natural resource, may have economies that are

ISSN 2616-5902 Vol. 6, Issue 1: 25-30, DOI: 10.25236/AJBM.2024.060104

more susceptible to fluctuations in natural resource prices. In this case, firms may be more inclined to invest within their own country to ensure greater control over the natural resource market than to conduct OFDI in other countries. Natural resource prices are typically more volatile, which may expose firms to greater price risk when investing in OFDI. Firms may be concerned about the uncertainty of natural resource markets in the countries in which they invest, and therefore remain relatively conservative in their OFDI decisions. Foreign trade openness significantly and negatively affects China's OFDI, possibly because a more open trade environment may increase firms' opportunities to compete with foreign countries within their own countries. Firms may prefer to invest within their home country to take advantage of a more open market rather than conduct OFDI in other countries. In some cases, increased trade openness may be accompanied by stricter trade barriers, such as higher tariff and non-tariff barriers. This may make it more favourable to sell products within the country and more attractive relative to OFDI in other countries.

3.4 Robustness Tests

In order to test the accuracy of the paper's findings, the paper employs the core explanatory variable replacement method to robustly test the results of the benchmark regression. The results of the robustness test are reported in columns (2)(3) of Table 4, where the core explanatory variables DE are replaced with the percentage of Internet users in the host country (Inu) and the tertiary education enrolment rate (Edu). Two-way fixed effects regressions are conducted after replacing the core explanatory variables. The results show that the estimated coefficients of the proportion of Internet users (Inu) and higher education enrolment (Edu) are both significantly positive at the 1% confidence level, indicating that the level of development of the digital economy in the RCEP host country significantly promotes China's OFDI, and the above test results are consistent with the findings of the original baseline regression, which indicates that the empirical results of this paper are robust, i.e., the digital economy of the RCEP host country promotes China's OFDI. The conclusion is robust.

Table 4: Robustness tests

	(1)	(2)	(3)
	lnOFDI	lnOFDI	lnOFDI
DE	0.465**		
	(0.235)		
Inu		0.032***	
		(0.009)	
Edu			0.041***
			(0.010)
_cons	-34.882***	-26.471***	-39.460***
	(10.568)	(9.752)	(7.421)
control variable	YES	YES	YES
COUNTRY	NO	NO	YES
YEAR	NO	NO	YES
N	157.000	157.000	157.000
r2	0.960	0.965	0.964

Note: ***, **, * indicate significant at the 1 per cent, 5 per cent and 10 per cent levels, respectively, with corresponding standard errors in parentheses.

4. Conclusions and Implications

4.1 Conclusion

This paper takes the 14 RCEP countries as the research object, measures the development level of the host country's digital economy by constructing a comprehensive digital economy index evaluation system, adopts the panel data of RCEP host countries from 2003 to 2022, and empirically examines the impact of the digital economy of the host country of the RCEP on China's OFDI after a bidirectional fixed-effects estimation regression, and explores the roles of other factors in it. The study conclusions are as follows: firstly, there is a significant gap in the development level of digital economy in RCEP countries, and the overall level is low; secondly, the host country's digital economy significantly contributes to China's OFDI. The digital economy emphasises the value and analysis of data, which enables firms to make smarter decisions based on the data. OFDI can help firms to access data resources globally, and to support data-driven decision-making and business operations. Finally. in the robustness

ISSN 2616-5902 Vol. 6, Issue 1: 25-30, DOI: 10.25236/AJBM.2024.060104

test. the study's conclusions still hold after adopting the replacement of the core explanatory variables. In addition. Natural resources and trade openness are significantly inhibited with China's OFDI.

4.2 Recommendations

Firstly, companies should develop international strategies that integrate elements of the digital economy and consider how digital technologies can support and facilitate cross-border operations. This may include digital supply chains, global marketing strategies and digital production processes. Second, look for digital market opportunities. Through the development of the digital economy, new digital market opportunities are emerging. Firms should look for and assess the level of development of the digital economy in different countries, and select markets where there is a demand for digital products and services for OFDI. Thirdly, using digital technology to drive innovation, OFDI can provide firms with the opportunity to access and integrate global digital technology. Through cross-border co-operation in digital technologies, enterprises can drive innovation and improve the competitiveness of their products and services. Fourth, invest in digital production facilities. Consider digital production and smart manufacturing in OFDI. Investing in digital production facilities can improve productivity, reduce costs, and provide companies with an edge in competing in international markets. Build a global digital team: Companies need to build a global team with knowledge and skills in digital technologies, and OFDI can provide companies with a wider choice of talent, enabling them to build a diverse digital team. Comply with digital regulations. With the development of digitalisation, different countries and regions have formulated various digital economy regulations. Enterprises should understand and follow the digital regulations of the target country during OFDI to ensure compliance.

Acknowledgement

Fund Projects: Guangxi Graduate Education Innovation Program Funded Projects “Study on the Impact of Digital Economy Development in ASEAN Countries on China's Export Trade Benefits” (No. YCSW2023094)

References

[1] Zhang Hui, Zhang Mingzhe. How the digital economy can contribute to a new "double-cycle" development pattern[J]. People's Forum, 2021(23):69-71.
[2] Xu Limei. Overview of Frontier Research on the Digital Economy[J]. Social Science Frontiers Abroad, 2021(08):87-99.
[3] Hanseth O, Monteiro E, Hatling M. Developing Information Infrastructure: The Tension Between Standardization and Flexibility[J]. Science Technology & Human Values - SCI TECHNOL HUM VAL, 1996, 21:407-426.
[4] Nuno L, Venables A J. Infrastructure, Geographical Disadvantage, Transport Costs, and Trade[J]. World Bank Economic Review, 2001(3):451-479.
[5] Pei Changhong, Zheng Wen. Country-Specific Advantages: Complementary Interpretations of International Investment Theory[J]. Economic research, 2011,46(11):21-35.
[6] Wu Xiaoyi, Zhang Yajing. Status of China's Digital Economy Development and International Competitiveness[J]. research management, 2020,41(05):250-258.
[7] Yi Xianrong, Chen Yingying, Wei Yushuang. Study of Several Major Theoretical Issues in the Digital Economy - A General Analysis Based on Modern Economics[J]. Economist, 2019(07):23-31.
[8] Lv Yue, Chen Yongchang. Internet development and global value chain embedding[J]. Journal of Jiangnan University (Humanities and Social Sciences Edition). 2021,20(01):79-91.
[9] Yang Lianxing, Luo Yuhui.China's Outward FDI and the Upgrading of Global Value Chains[J]. Quantitative and Technical Economic Research, 2017,34(06):54-70.
[10] Chen Weitao, Zhu Jiying. Research Progress on Digital Trade Theory and Rules[J]. Economics News, 2019(09):114-126.
[11] Qi Junyan, Ren Yida.The Level of Development of Digital Economy in Host Countries and China's Outward FDI: An Examination Based on 43 Countries Along the "Belt and Road" Route[J]. Explorations in International Trade and Economics. 2020,36(09):55-71.
[12] Zhong X, Chen W, Ren G. Curvilinear effect of economic policy uncertainty on innovation in Chinese manufacturing firms: do managerial pay gaps matter?[J]. Chinese Management Studies, 2022, ahead-of-print(ahead-of-print).
[13] Shi Zhenkai, Shao Jun, Liu Jiawei.The Impact of Digital Infrastructure on Employment Change - Evidence from the Manufacturing Sector[J]. Journal of Hohai University (Philosophy and Social Science Edition), 2021,23(05):76-82.