Analysis of the Effects of Investment Facilitation Levels on China's OFDI: Focusing on RCEP Member States

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Abstract

Purpose – purpose of this paper is to analyze the effects of the investment facilitation levels of 11 RCEP countries (excluding Myanmar, Brunei, and Laos due to lack of data) on China's outward foreign direct investments(OFDI) using balanced panel data from 2010 to 2019.

Design/methodology – First, four investment facilitation measurement indicators (regulatory environment, infrastructure, financial market, ease of doing business) were selected,investment facilitation scores of the 11 countries were obtained using the principal component analysis, an investment gravity model was established with nine explanatory variables (investment facilitation level, market size, population, geographic distance, degree of opening, tax level, natural resources, whether the country is an APEC member or not, and whether a valid bilateral investment treaty with China has been concluded) were used to establish an investment gravity model, and regression analyses were conducted with OLS and system GMM.

Findings – The results of the regression analyses showed that investment facilitation levels had the greatest effect on China's OFDI, all four first-level indicators had positive effects on China's OFDI, and among them, the institutional environment had the greatest effect. In addition, it was shown that explanatory variables such as market size, population, geographical distance, degree of openness, natural resources, and whether or not a valid bilateral investment treaty has been concluded would have positive effects on China's OFDI, while tax levels and APEC membership would impede China's OFDI to some extent.

Originality/value – Since the Regional Comprehensive Economic Partnership (RCEPT) came into effect not long ago, there are not so many studies on the effects of investment facilitation levels of RCEP member states on China's OFDI, and the investment facilitation measurement index constructed in this paper is relatively systematic and scientific because it includes all the contents of investment facilitation related to the life cycle of company's foreign direct investments.

1. Introduction

Currently, the international community is facing significant changes such as COVID-19, the Russo-Ukrainian War, the deepening trade friction of USA and China, and the reorganization of global value chains. In the complex and stern international situation, the

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Regional Comperhensive Economic Partnership (RCEP) was signed on November 15, 2020 and officially entered into force on January 1, 2021. It will accelerate regional economic recovery, further promote regional economic integration, and accelerate the realization of regional economic integration in Asia. The RCEP is the world's largest free trade agreement jointly developed by 15 member states consisting of 10 ASEAN countries and Australia, New Zealand, China, Japan, and South Korea, and accounts for about 30% of the world population and 29.1% of foreign trade.

The effectuation of the RCEP not only accelerates the formation of China's new development pattern, but also helps RCEP member states share development opportunities, promotes the reconstruction of value chains, and creates a new round of regional economic integration patterns. The RCEP Agreement includes the most important issues in traditional economic and trade agreements, such as commodity trade and service trade, and covers new issues such as movement of resources, investments, and government procurement. Among them, in the case of investments, the RCEP Agreement integrated and upgraded the related rules of the existing 'ASEAN 10+1 Free Trade Agreement', and explained in detail the range of investments, national investment treatment protection, investment promotion, investment loss compensation, etc. thereby presenting what efforts should be made by individual member states to promote investment facilitation.

Investment facilitation is strong support for individual countries' commitment to promote investment liberalization, and improving the level of investment facilitation is an effective way for countries to continuously attract foreign investments. However, due to differences in individual countries' levels of economic development, cultural traditions, location environments, etc., difficulties are faced to some extent when carrying out outward foreign direct investments (OFDI) in many case, and in the RCEP region, the revenues of China's investment projects are closely related to the investment facilitation levels of the countries in the region. Therefore, the investment facilitation levels of RCEP member states are an area that must be urgently identified during the process of expanding the size of China's OFDI.

With technological progress and economic development, China is not only focusing on trade and investment, but also gradually increasing OFDI. According to the "2020 China Foreign Direct Investment Statistical Report", due to COVID-19 in 2020, China was shown to be the country with the largest OFDI among the world's major economic powers for the first time. In 2020, China's OFDI was 153.71 billion US dollars, with an increase by 12.3% compared to the previous year. In the process through which China's trade and investments continuously develop, investment facilitation is a big issue in China's OFDI. The investment facilitation levels of RCEP countries are helpful for the analysis of effects on China's OFDI to shift toward host countries as well as multinational companies' establishment of OFDI and government policies.

Currently, there is no unifed definition of investment facilitation. APEC (2008) defined investment facilitation as "acts adopted by the government to attract foreign investments and maximize the efficiency and effectiveness of the investment cycle management process", explained investment facilitation in terms of cost and efficiency, and presented principles regarding investment guidelines.

The China-ASEAN Investment Agreement crearly proposed the construction of a free, convenient, transparent, and competitive investment system to gradually realize the liberalization of investment systems, strengthen cooperation in the field of investments, promote investment facilitation, and improve the transparency of investment-related laws. The OECD

defines investment facilitation as a convenient procedure and a high-quality investment environment that can be provided to investors and businesses in international direct investment activities. Currently, investment facilitation is a hot topic in the field of international investments, and although there are abundant studies on investment facilitation and China's OFDI, respectively, there are not many literatures yet that systematically examine the relationship between the two from an economic point of view. Existing studies also focus on qualitative analysis to analyze the levels of investment facilitation.

Based on the above content, this paper first selected four first-level indicators of investment facilitation to evaluate the investment facilitation levels of RCEP countries, used the principal component analysis to obtain the investment facilitation scores of RCEP countries, established a gravity model to empirically analyze how investment facilitation levels would affect China's OFDI, and can provide theoretical support for better OFDI hereafter.

2. Literature Review

Since the investment facilitation evaluation system has not yet formed a unified definition, many scholars added certain indicators to measure investment facilitation based on a comprehensive trade facilitation measurement system to repeat innovation.

However, with regard to effects on OFDI, Peter J. Buckley et al. (2007) analyzed the effects through data on direct investments of China vs. 49 countries from 1984 to 2001, and the results showed that whereas the economic scales and cultural accessibility had significant positive (+) effects on China's OFDI, geographical distance had no significant effect on China's OFDI.

Some studies examined the effects of FDI on the economic growth of Asian countries, studied the non-linear relationship between FDI and exports in the process of the economic growth process of the Asian countries being considered, and found that both FDI and export contributed to the growth process. The studies also informed that capital and labor also play an important role in the development of Asian countries. (Aviral Kumar Tiwari, Mihai Mutascu, 2011).

Some studies conducted empirical analyses using FDI data of China vs. 104 countries from 2003 to 2006. The results of the study showed that the quality of host country government's governance had negative effects on China's OFDI, and that institutions and natural resources interacted with China's OFDI. The worse the host country's institutional environment, the more foreign capital will be attracted by China's natural resources. (Kolstad, Wiig, 2012)

Some studies suggested that if the Philippines wants to attract more foreign direct investmets, transparent and predictable investment norms, convenient investment procedures and policies, etc. should be established, and at the same time, the expansion of the ASEAN market will help Philippines attract foreign direct investmentsd (Aldaba R M, 2013).

Some studies researched into the determinants of FDI of three ASEAN countries (Cambodia, Laos, Vietnam) and five other ASEAN countries (Indonesia, Malaysia, Philippines, Thailand, Singapore). In the case of the three ASEAN countries, inflation, telephone lines, and trade ratios were found to largely determine FDI inflows. The results as such are consistent with the hypothesis of this study, and are also consistent with the fact that these countries have great potential to attract FDI despite that they are the poorest countries in ASEAN. In the case of the five ASEAN countries, the effects of GDP and telephone lines on

FDI are consistent with the assumptions of this study, suggesting the importance of market size and infrastructure in attracting FDI inflows. (Phonesavanh Xaypanya, Poomthan Rangkakulnuwat and Sasiwimon Warunsiri Paweenawat, 2015)

Some studies announced the results indicating that foreign direct investments have significant positive (+) effects on the GDP of Brazil through the analysis of the influencing factors for direct investments in Brazil. The higher the GDP growth rate, the largher the direct investments in Brazil. This is also the case with the aspect of production rates and the wages. This means that information on foreign direct investments is the most important factor in determining foreign direct investment inflow. However, it was said that infrastructures are determined by the inflow of foreign direct investments and the size of the domestic market. (Eduarda Martins Correa da Silveira, Jorge Augusto Dias Samsonescu and Divanildo Triches, 2017)

Following the findings of some studies, in addition to the host country's market size, other criteria such as distance, common language and common borders also affect foreign investors. Inflation rates and other macroeconomic factors such as real interest rates are key factors in attracting more FDI. In addition to economic factors, institutional factors such as communication, opening factor, the degree of openness, globalization openness index, and economic freedom index and infrastructures were also said to stimulate international investors from developed countries to major Asian countries. (Bikash Ranjan Mishra, Pabitra Kumar Jena, 2019)

As examined above, first, scholars have conducted many studies on investment facilitation as a subject, but although there are many related literatures in which the study subjects are the ASEAN region or mature international organizations, study literatures on the level of investment facilitation in which the study subjects are RCEP countries are not yet plentiful because the RCEP was concluded not long before. Also, when building a system for measuring the level of investment facilitation, plentiful contents are included but the contents are not yet unified. Based on the perspective of investment facilitation, this paper aggregated all contents of investment facilitation in the life cycle of companies' foreign direct invest-ments, established four first-level indicators of investment facilitation to measure the level of investment facilitation, and thereafter empirically analyzed the effects of the investment facilitation levels of RCEP countries on China's OFDI based on explanatory variables such as investment facilitation levels, openness, and tax levels using a gravity model.

3. Selection of Indicators to Measure Investment Facilitation Level

3.1. Selection of Methods

Since no unified definition of investment facilitation has been established initially, there was no standardized evaluation system. In 2008, the APEC adopted the "investment facili-tation action plan" and provided a country with investment facilitation actions and mea-surement standards as Key Performance Indicators (KPIs) to evaluate member countries' level of investment facilitation. However, due to the availability of measurement data, this method has not yet been applied. In 2002, the World Bank made a series of indicators of business investment and operating processes across 100 economic blocks. Although the World Bank published the results in its 'Doing Business Report' every year, continuously assessing the business environments of various economies and measuring the management

states of companies at the microscopic level could not fully reflect the level of investment facilitation of a country.

When evaluating investment facilitation, most scholars established an investment facilitation level evaluation system in analogy with the establishment of a trade facilitation level evaluation system based on the study conducted by Wilson, Mann, and Otsuki (2003). Among them, Kejzar (2011) adopted an analysys framework that includes indicators such as market access, administrative approval, financial markets, investment protection, and dispute resolution when assessing investment facilitation levels. Mingxia Zhu and Siming Zuo (2019) made five first-level indicators; infrastructure level, legal environment, finance, e-commerce, and labor market, and established an investment facilitation evaluation system using the entropy method for the weight of each indicator.

Therefore, referring to previous studies, this paper also expanded the measurement method of Wilson and Mann (2003) to select indicators to measure investment facilitation in combination with the characteristics of international investment according to the 'Doing Business Report' published by the World Bank. In this method, four first-step indicators were determined as regulatory environments, infrastructures, financial market, and the ease of doing business, and the four first-level indicators were further subdivided into 21 second-level indicators to establish an investment facilitation measurement index system. This system has a characteristic of being relatively systematic and scientific because it basically includes all the contents of investment facilitation related to the life cycle of FDI of companies. The concrete contents are as shown in Table 1 below.

Regulatory environments are measured by measuring a country's legal environment such as legal efficiency, the burden of government regulations, intellectual property protection, and judicial independence. When making OFDI, investors should have stronger intentioins to invest in countries where government efficiency is high and intellectual property rights are actively protected. Therefore, the higher the value of this index, the stronger the intention of of foreign investment companies to invest.

Infrastructures are an essential condition for countries to attract foreign direct investments, include four major indicators; roads, railways, ports, and aviation, and play an important role in improving the overall investment environment. The higher the value of this index, the more help foreign investment companies will have in their production and management activities.

The financial market includes the relevant country's affordability of financial services, venture capital availability, soundness of banks, affordability of financing, availability of latest technologies, and ease of access to loans. A country's sound financial system can reduce financial risks and promote investment scales of Chinese multinational corporations. The higher the value of this index, the easier the act of investment.

Ease of doing business mainly means that foreign investment companies must obtain cooperation from relevant administrative departments in order to conduct production and operation activities of them in other countries, such as starting a business, supplying electricity, paying taxes, obtaining building permits, registering properties, and handling bankruptcy. The higher the value of this index, the easier the attraction of foreign investments.

When measuring the investment facilitation levels of RCEP member states, in this paper, only the data of 11 countries out of RCEP member states from 2010 to 2019 because Myanmar, Laos, and Brunei had many missing values. These data are available in 'The Global

Competitiveness Report' published by the World Economic Forum and 'Doing Business Report' published by the World Bank.

Table 1. Investment Facilitation Level Measurement Index System

Categories	Indicator Name	Scoring range	Source	Attribute
Regulatory Environment (RE)	Effifiency of legal framework in settling disputes(RE1)	1-7	GCR	Positive
	Burden of government regulation(RE2)	1-7	GCR	Positive
	Intellectual property protection(RE3)	1-7	GCR	Positive
	Judicial independence(RE4)	1-7	GCR	Positive
Infrastructure (IF)	Quality of roads (IF1)	1-7	GCR	Positive
	Quality of railroad infrastructure(IF2)	1-7	GCR	Positive
	Quality of port infrastructure(IF3)	1-7	GCR	Positive
	Quality of air transport infrastructure(IF4)	1-7	GCR	Positive
Financial Market development (FM)	Affordability of financial services(FM1)	1-7	GCR	Positive
	Venture capital availability(FM2)	1-7	GCR	Positive
	Soundness of banks(FM3)	1-7	GCR	Positive
	Financing through local equity market(FM4)	1-7	GCR	Positive
	Availability of latest technologies(FM5)	1-7	GCR	Positive
	Ease of access to loans(FM6)	1-7	GCR	Positive
Doing Business (DB)	Starting a business(DB1)	1-100	DB	Positive
	Dealing with construction permits(DB2)	1-100	DB	Positive
	Getting electricity(DB3)	1-100	DB	Positive
	Registering property(DB4)	1-100	DB	Positive
	Protecting investors(DB5)	1-100	DB	Positive
	Paying taxes(DB6)	1-100	DB	Positive
	Resolving insolvency(DB7)	1-100	DB	Positive

3.2. Interpret Date Processing and Measurement Methods

First, before measuring the investment facilitation levels, the original data should be normalized to values of 0 to 1 because the value ranges of individual indicators are different. In the case of second-level indicators, due to correlations, before conducting factor analysis, KMO test and Bartlett test were performed first using the SPSS 29.0 statistical program to measure the reliability and correlations of data. According to Table 2 below, the KMO value is 0.876 and the closer the KMO value is to 1, the stronger the correlation. Since the Sig value out of the Bartlett test results is 0.000, which is smaller than 0.05, the principle component analysis method is applied. Second, to process the data, as shown in Table 3, the variance was maximized and rotated to obtain the variance contribution rate. Since the above four principal components extracted 83.588% of the information on the 21 indicators, measuring the weights with them has strong validity, and the expression of individual principal component is as shown in equations (1) to (4) below.

Table 2. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.876
Bartlett's Test of Sphericity	approximate chi-square	3874.985
	df	210
	sig	0.000

Table 3. Total Variance Explained

Com-ponent	Initial eigenvalues			Extraction Sum of Squares Loading			Rotational sum squared loading		
	total	% of Variance	Cumulative %	total	% of Variance	Cumulative %	total	% of Variance	Cumulative %
1	12.823	61.061	61.061	12.823	61.061	61.061	4.819	22.947	22.947
2	2.23	10.619	71.679	2.23	10.619	71.679	4.648	22.135	45.082
3	1.476	7.029	78.708	1.476	7.029	78.708	4.28	20.38	65.462
4	1.025	4.88	83.588	1.025	4.88	83.588	3.807	18.126	83.588

$$
\begin{aligned}
\text{Comp}_1 = {} & 0.612RE1 + 0.644RE2 + 0.408RE3 + 0.341RE4 + 0.639IF1 + 0.346IF2 \\
& + 0.74IF3 + 0.688IF4 + 0.573FM1 + 0.333FM2 + 0.396FM3 \\
& + 0.061FM4 + 0.058FM5 + 0.115FM6 + 0.162DB1 + 0.019DB2 \\
& + 0.17DB3 + 0.342DB4 + 0.722DB5 + 0.697DB6 + 0.276DB7
\end{aligned}
\tag{1}
$$

$$
\begin{aligned}
\text{Comp}_2 = {} & 0.235RE1 + 0.022RE2 + 0.448RE3 + 0.324RE4 + 0.699IF1 + 0.803IF2 \\
& + 0.49IF3 + 0.489IF4 + 0.238FM1 + 0.098FM2 + 0.133FM3 \\
& + 0.454FM4 + 0.528FM5 + 0.112FM6 + 0.535DB1 + 0.597DB2 \\
& + 0.82DB3 + 0.013DB4 + 0.233DB5 + 0.421DB6 + 0.738DB7
\end{aligned}
\tag{2}
$$

$$
\begin{aligned}
\text{Comp}_3 = {} & 0.523RE1 + 0.659RE2 + 0.507RE3 + 0.409RE4 + 0.166IF1 + 0.132IF2 \\
& + 0.225IF3 + 0.23IF4 + 0.533FM1 + 0.89FM2 + 0.536FM3 \\
& + 0.7FM4 + 0.082FM5 + 0.911FM6 + 0.22DB1 + 0.101DB2 \\
& + 0.197DB3 + 0.072DB4 + 0.368DB5 + 0.254DB6 + 0.085DB7
\end{aligned}
\tag{3}
$$

$$
\begin{aligned}
\text{Comp}_4 = {} & 0.499RE1 - 0.017RE2 + 0.475RE3 + 0.706RE4 + 0.17IF1 + 0.165IF2 \\
& + 0.316IF3 + 0.384IF4 + 0.212FM1 + 0.074FM2 + 0.045FM3 \\
& + 0448FM4 + 0.275FM5 + 0.137FM6 + 0.717DB1 + 0.724DB2 \\
& + 0.119DB3 + 0.883DB4 + 0.23DB5 + 0.195DB6 + 0.222DB7
\end{aligned}
\tag{4}
$$

According to the above four principal component formulas, each principal component coefficient was multiplied by the corresponding contribution rate and divided by the cumulative contribution rate of the extracted principal components, and the values obtained as such were summed up to obtain a comprehensive evaluation model for investment facilitation, and the result is as shown in Equation 5 below. Table 4 below shows the annual investment facilitation scores of RCEP member countries obtained by multiplying the second-level weight indicators of the comprehensive evaluation model by the coefficients of the standardized second-level indicators of each year and adding them up.

$$
\begin{aligned}
IFI = {}& 0.057RE1 + 0.041RE2 + 0.056RE3 + 0.054RE4 + 0.052IF1 + 0.045IF2 \\
& + 0.055IF3 + 0.055IF4 + 0.048FM1 + 0.043FM2 + 0.046FM3 \\
& + 0.051FM4 + 0.045FM5 + 0.040FM6 + 0.05DB1 + 0.044DB2 \\
& + 0.041DB3 + 0.039DB4 + 0.048DB5 + 0.048DB6 + 0.041DB7
\end{aligned}
\tag{4}
$$

Table 4. Evaluation of Investment Facilitation in RCEP Countries from 2010 to 2019

Country	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Australia	0.69	0.67	0.66	0.64	0.64	0.65	0.66	0.67	0.66	0.65
Cambodia	0.23	0.27	0.30	0.26	0.19	0.16	0.20	0.19	0.20	0.23
Indonesia	0.36	0.35	0.36	0.40	0.43	0.42	0.45	0.49	0.51	0.51
Japan	0.64	0.66	0.66	0.68	0.71	0.72	0.75	0.75	0.74	0.74
Korea	0.54	0.53	0.54	0.53	0.51	0.54	0.57	0.59	0.60	0.62
Malaysia	0.60	0.66	0.66	0.66	0.71	0.73	0.71	0.68	0.70	0.71
New Zealand	0.73	0.74	0.77	0.78	0.79	0.77	0.77	0.79	0.75	0.74
Philippines	0.24	0.26	0.31	0.35	0.38	0.35	0.32	0.31	0.36	0.38
Singapore	0.87	0.88	0.88	0.86	0.87	0.87	0.91	0.89	0.86	0.85
Thailand	0.52	0.49	0.49	0.50	0.49	0.50	0.50	0.51	0.54	0.55
Vietnam	0.26	0.23	0.21	0.23	0.25	0.29	0.31	0.33	0.33	0.37

3.3. Measurement Result

Based on Table 4, when seen from a vertical point of view, the investment facilitation scores of RCEP countries from 2010 to 2019 are relatively stable without significant changes, and when seem from a horizontal point of view, there are considerable differences in the investment facilitation levels of RCEP countries. Among them, the investment facilitation level of Singapore differed by at least 0.8. This shows that Singapore has the best investment attractiveness among RCEP member countries. Next to Singapore, New Zealand, Australia, Japan, Malaysia, etc. presented results indicating that investment facilitation levels were quite high, at least 0.6. On the other hand, Cambodia, Vietnam, Philippines, and Indonesia showed low scores, which are basically lower than 0.4, and theie investment facilitation levels are relatively low. In general, the investment facilitation levels of RCEP countries have large rooms for improvement, and efforts should be made to build overall investment environments in countries with low investment facilitation levels while strengthening economic construction in both countries by actively utilizing the predominance of countries with high investment facilitation levels.

4. Empirical Analysis

4.1. Reserch Model

Tinbergen (1962) and Poyhonen (1963) studied the trade flow between the two countries using the gravity model derived from Newton's concept of universal gravitation, and presented the results indicating that trade volumes have a direct proportional correlation with economic scles while being inversely proportional to the distance between the two countries. The gravity model has been widely used as an empirical study tool in international trade thanks to the high availability and reliability of the data. Subsequent researchers built and

analyzed independent variables based on the main factors of trade flow between the two countries centering on their studies. This paper also added variables such as population (POP), natural resources (REC), investment facilitation level (IFI), tax level (Tax), and APEC, bits, etc., which are dummy variables, to the base of the basic gravity model to establish the following research model.

$$\ln OFDI_{ijt} = \beta_0 + \beta_1 IFI_{jt} + \beta_2 \ln GDP_{jt} + \beta_3 \ln POP_{jt} + \beta_4 \ln Dist_{ij} + \beta_5 Rec_{jt} + \beta_6 Tax_{jt} +$$
$$\beta_7 Open_{jt} + \beta_8 APEC_{ij} + \beta_9 Bits_{ijt} + \lambda_t + \varepsilon_{ijt} \qquad \text{(Model 1)}$$

where, $OFDI_{ijt}$ is a dependent variable, which is designated as foreign direct investment by China (country i) in another RCEP member state (country j) in year t. IFI_{jt} is the investment facilitation index of country j calculated in the previous section and is measured as a key variable in this paper. GDP_{jt}, and POP_{jt} are country j's gross domestic product and total population in year t, respectively.

$Dist_{ij}$ represents the geographical distance between the capital of country i and the capital of country j. Rec_{jt}, Tax_{jt}, and $Open_{jt}$ refer to the natural resource level, tax level, and openness of country j, respectively. $APEC_{ij}$ refers to whether or not country i and country j are APEC member countries, is set to 1 if the countries are APEC member countries, and 0 otherwise. $Bits_{ij}$ refers to whether or not there is an existing and effective investment agreement between State j and China. If there is, the value is 1; if not, 0. ln means that the natural logarithms of the variables are taken, β_0 is a constant term, β_i is a variable to be estimated, and ε_{ijt} is a random disturbance term. Considering that there may be some general shocks that affect China's OFDI in different periods and can be hardly measured, a time-fixed effect λ was introduced into the model.

The variables and data sources in this paper are as shown in Table 5 below. Table 6 below shows the results of basic descriptive statistical analysis of independent and dependent variables.

Table 5. the Variables in the Model and Data Source

Variable	definition	source
$OFDI_{ijt}$	The Outward Foreign direct investment stock of country i to country j in year t	www.stats.gov.cn
IFI_{jt}	The Investment Facilitation Level of country j in year t	Previous calculation results
GDP_{jt}	The GDP of country j in year t	Word Bank
POP_{jt}	The Total population of country j in year t	Word Bank
$Dist_{ij}$	The capital distance of country i and country j	CEPII
Rec_{jt}	The Ore and metal exports as a share of merchandise exports of country j in year t	Word Bank
Tax_{jt}	The Total tax rate as a percentage of business profits of country j in year t	Word Bank
$Open_{jt}$	The degree of openness of country j in year t	Word Bank
$APEC_{ij}$	Whether country i and country j both are trading partner country of APEC	www.apec.org
$Bits_{ij}$	Whether country i and country j have signed an effective bilateral investment agreement	UNCTAD

Table 6. Descriptive Statistics

Variable	Obs	Mean	SD	Min	Max
lnOFDI	110	12.762	1.315	9.675	17.161
IFI	110	0.556	0.209	0.164	0.905
lnGDP	110	31.092	3.600	26.121	36.932
lnPOP	110	17.475	1.236	15.286	19.412
lnDist	110	8.412	0.783	6.862	9.575
Rec	110	5.454	9.163	0.080	38.223
Tax	110	35.095	8.885	18.000	50.400
Open	110	109.066	85.075	28.498	379.099
APEC	110	0.909	0.289	0	1
Bits	110	0.909	0.289	0	1

4.2. Empirical Analysis

The global economic crisis that occurred in 2008 immensely affected macroeconomic policies and small business behaviors in countries in other regions. Since some data are absent due to the explosion of COVID-19 in 2020, in order to ensure the stability and acceptability of data, this paper collected and organized data on RCEP member states from 2010 to 2019. Since dada on Brunei, Laos, and Myanmar were insufficient, panel data on a total of 11 countries except for China were selected, STATA 16.0 statistical program was used, the logarithm of the variables controls the heteroscedasticity problem, and all the variance inflation factors (VIF), which measure the degree of multicollinearity, are smaller than 10, indicating that there is no systematic multicollinearity problem between variables. In addition, since the time-fixed effect λ was introduced into the model, the data were estimated using the corresponding Least Squares Dummy Variables (LSDV) method. The results are as shown in Table 7 below.

The results of the empirical analysis indicated that the effect of RCEP countries' investment facilitation levels on China's OFDI passes significance at the 1% confidence level. This is consistent with the results of Jiyong Chen, Yishuang Liu, and Wei Liu (2020) indicating that the host country's investment facilitation level will have a positive (+) effect on the foreign capital stock of China's OFDI. The results indicated that among all the independent variables, the investment facilitation level (IFI) had the greatest positive (+) effect on China's OFDI. If the level of investment facilitation increases by 1%, China's OFDI will increase by 3.25%. This is because multinational corporations prefer countries with a high level of investment facilitation when choosing locations for overseas investments.

The growth of a country's GDP and POPs has significant positive (+) effects on OFDI. First, the larger the market size of the host country, the higher the level of diversification of product demand and the higher the potential investment demand. Second, multinational companies tend to choose regions with relatively developed production markets. In addition, population growth not only expands the demand of potential consumers, but also expands the labor market thereby providing human resources and technical support so that multinational companies can increase production. Therefore, the overseas market size and population have gradually become one of the important factors that enterprises must measure when choosing overseas locations.

Table 7. Baseline Estimations Results of Model

Variable	logofdi
IFI	3.250***
	(0.000)
lnGDP	0.136***
	(0.000)
lnDist	0.147*
	(0.058)
lnPOP	0.404***
	(0.000)
Rec	0.120***
	(0.000)
Tax	-0.052***
	(0.000)
Open	0.008***
	(0.000)
APEC	-1.310***
	(0.001)
Bits	0.307
	(0.265)
_cons	-1.141
	(0.561)
year -fixed effect	Yes
Obs	110
R-squared	0.884

Notes 1: significance levels of 10%,5%, and 1% are denoted by *, ** and ***, respectively
Notes 2: () is P value.

The geographic distance between the two countries (DIST) has positive effects on the choice of OFDI location. In general, the distance will have negative (-) effects on China's OFDI. Currently, the "Go globally" strategy of Chinese companies increasingly focuses on OFDI in the service industry, and the influence of the geographical distance between the two countries is gradually weakening due to the intangibility of the service industry and the simultaneity of production and consumption of services. This is consistent with the results of analysis of the effect of host country characteristics on Chinese OFDI by Kailin Wen (2008) indicating that the geographical distance factor had positive (+) effects on both the foreign capital stock and capital flow of Chins's OFDI. In addition, the foregoing proved to some extent, the results presented by some scholars indicating that geographic distance will become extinct the role of geographic distance will be gradually weakened. (Shi Benye and Zhang Yongliang, 2014, Zuo Siming, 2019)

The natural resource endowment of the RCEP member states can promote China's OFDI to some extent. Every 1% increase in the endowment of natural resources can increase China's OFDI by 0.12%, which means that China's OFDI favors countries rich in natural resources more. On the other hand, the level of tax burden shows relatively significant negative effects, which can prove to some extent, the fact that Chinese companies invest more intensively in tax havens.

The results of regression analysis of the Asia-Pacific Economic Cooperation (APEC) indicators showed that the joining of RCEP member states in the APEC has significant negative effects on OFDI. That is, the joining of RCEP member states in APEC is disadvantageous to the inflow of multinational capital.

A result of the study indicating that investment agreements between the two parties have no positive (+) effect on China's OFDI was presented. This is generally consistent with the result of Hallward's (2003) study, based on data from OECD countries and 31 developing countries from 1980 to 2000, indicating that the effect of BIT on FDI was not large.

According to the above results of regression analysis, in the activities to invest in RCEP member countries, China prefers countries with high investment facilitation levels, and IFI as a key variable has the greatest impact on China's OFDI. Given that the focus of the study in this paper is on the level of investment promotion in RCEP countries, it is meaningful to analyze how individual indicators belonging to investment facilitation will affect China's OFDI concretely. Therefore, in order to concretely analyze the effects of various indicators belonging to investment facilitation on China's OFDI, this paper used regulatory environments, infrastructures, financial market, and ease of doing business as independent variables on behalf of investment facilitation level(IFI) and maintained remaining variables to establish the following models 2 through 5.

$$\ln OFDI_{ijt} = \beta_0 + \beta_1 RE_{jt} + \beta_2 \ln GDP_{jt} + \beta_3 \ln POP_{jt} + \beta_4 \ln Dist_{ij} + \beta_5 Rec_{jt} + \beta_6 Tax_{jt} + \beta_7 Open_{jt} + \beta_8 APEC_{ij} + \beta_9 Bits_{ijt} + \lambda_t + \varepsilon_{ijt} \quad \text{(Model 2)}$$

$$\ln OFDI_{ijt} = \beta_0 + \beta_1 IF_{jt} + \beta_2 \ln GDP_{jt} + \beta_3 \ln POP_{jt} + \beta_4 \ln Dist_{ij} + \beta_5 Rec_{jt} + \beta_6 Tax_{jt} + \beta_7 Open_{jt} + \beta_8 APEC_{ij} + \beta_9 Bits_{ijt} + \lambda_t + \varepsilon_{ijt} \quad \text{(Model 3)}$$

$$\ln OFDI_{ijt} = \beta_0 + \beta_1 FM_{jt} + \beta_2 \ln GDP_{jt} + \beta_3 \ln POP_{jt} + \beta_4 \ln Dist_{ij} + \beta_5 Rec_{jt} + \beta_6 Tax_{jt} + \beta_7 Open_{jt} + \beta_8 APEC_{ij} + \beta_9 Bits_{ijt} + \lambda_t + \varepsilon_{ijt} \quad \text{(Model 4)}$$

$$\ln OFDI_{ijt} = \beta_0 + \beta_1 DB_{jt} + \beta_2 \ln GDP_{jt} + \beta_3 \ln POP_{jt} + \beta_4 \ln Dist_{ij} + \beta_5 Rec_{jt} + \beta_6 Tax_{jt} + \beta_7 Open_{jt} + \beta_8 APEC_{ij} + \beta_9 Bits_{ijt} + \lambda_t + \varepsilon_{ijt} \quad \text{(Model 5)}$$

For individual variables in the above four models, the unit root test and the variance expansion coefficient (VIF) were first measured and all variables passed the test. Since all the VIF values of all explanatory variables were smaller than 10, no multicollinearity exists in each model. The results of individual regression analyses are as shown in Table 8.

Table 8 . The Regression Results of the Primary Indicators of Investment Facilitation

Variable	Model (2)	Model (3)	Model (4)	Model (5)
RE	0.617***			
	(0.000)			
IF		0.501***		
		(0.000)		
FM			0.553***	
			(0.000)	
DB				0.515***
				(0.000)
lnGDP	0.130***	0.076*	0.245***	0.093***
	(0.000)	(0.004)	(0.000)	(0.000)
lnDist	-0.009	0.180**	0.05	0.186**
	(0.903)	(0.033)	(0.541)	(0.024)
lnPOP	0.469***	0.328***	0.118	0.426***
	(0.000)	(0.002)	(0.235)	(0.000)
Rec	0.128***	0.117***	0.124***	0.113***
	(0.000)	(0.000)	(0.000)	(0.000)
Tax	-0.072***	-0.046***	-0.057***	-0.015**
	(0.000)	(0.001)	(0.000)	(0.0238)
Open	0.007***	0.007***	0.008**	0.011***
	(0.000)	(0.000)	(0.000)	(0.000)
APEC	-0.690***	-0.896***	-0.756***	-2.167***
	(0.004)	(0.000)	(0.004)	(0.000)
Bits	0.856**	0.086	0.859**	-0.682***
	(0.01)	(0.749)	(0.021)	(0.009)
_cons	-0.428	2.224	-0.317	-0.815
	(0.832)	(0.21)	(0.886)	(0.68)
year -fixed effect	Yes	Yes	Yes	Yes
Obs	110	110	110	110
R-squared	0.876	0.876	0.860	0.881

Note 1: significance levels of 10%, 5%, and 1% are denoted by *, ** and ***, respectively.
Note 2: () is P value.

According to the results of regression analyese of individual indicators in models 2 to 5 above, it was found that all four first-level indicators of investment facilitation had positive (+) effects advantageous for China's OFDI, but there are differences in the degree of effects. Among the indicators, the host country's regulatory environment has the greatest effect on the selection of location of OFDI, and every time the host country's regulatory environment increases by 1%, the inflow of China's foreign capital increases by about 0.671%. Next, multinational corporations have a stronger will to invest directly in countries with relatively stable financial markets. Every time a country's financial market level rises by 1%, China's OFDI capital rises by 0.553%. The indicator infrastructure level is shown to have the smallest effect on China's OFDI, and when the infrastructure level improves by 1%, the inflow of foreign capital from China's OFDI increases by 0.501%. Therefore, in order to improve investment facilitation between countries, the countries should first focus on the regulatory environments and financial market to improve the regulatory environments. The higher the stability of the financial market, the higher the investment facilitation level of RCEP member countries.

4.3. Robustness Test

In order to secure the reliability of the basic conclusion, the following robustness verification was performed.

First, since there may be outliers in China's OFDI's foreign capital stock data, regression analysis was performed after specifying winsorizing at the 1% and 99% quartiles.

Second, the foreign capital stock data of China's OFDI was replaced with the capital flow data, and a random effects model was used for estimation.

Third, there may be an endogeneity problem between the investment facilitation level of RCEP countries and China's OFDI. The endogeneity problem is a problem that is frequently encountered in the modeling process, and if not solved, it can lead to adverse effects such as estimation bias and misinterpretation of the results. Therefore, a general method is to verify the robustness by selecting appropriate instrumental variables. Therefore, based on previous studies, life expectancy at birth was selected as a new instrumental variable to estimate the robustness using the two stage least square (2SLS) method, and the results are as shown in Table 9 below. The robustness and endogeneity were geneally considered and according to the results, the magnitudes, directions, and significance of the coefficients of related variables in the model were not much different from those of the existing regression, indicating the robustness of the empirical results.

Table 9. The Regression Results of the Robustness Test

	LSDV	RE	IV-2SLS
Variable	logofdi	logofdi	logofdi
IFI	3.255***	4.112***	5.543***
	(0.000)	(0.000)	(0.000)
lnGDP	0.134***	0.141***	0.151***
	(0.000)	(0.000)	(0.000)
lnDist	0.147**	0.256**	0.408**
	(0.026)	(0.012)	(0.000)
lnPOP	0.402***	0.574***	0.813***
	(0.000)	(0.000)	(0.009)
Rec	0.115***	0.122***	0.125***
	(0.000)	(0.000)	(0.000)
Tax	-0.052***	-0.072***	-0.094***
	(0.000)	(0.000)	(0.000)
Open	0.008***	0.007***	0.005***
	(0.000)	(0.000)	(0.000)
APEC	-1.287***	-1.539***	-2.012***
	(0.001)	(0.000)	(0.000)
Bits	0.288	0.696*	1.171***
	(0.217)	(0.056)	(0.001)
_cons	-0.998	-8.397***	-9.269***
	(0.548)	(0.001)	(0.000)
year -fixed effect	Yes	yes	Yes
Hausman test		0.622	
Obs	110	110	110
R-squared	0.911	0.866	0.715

Note 1: significance levels of 10%, 5%, and 1% are denoted by *, ** and ***, respectively.
Note 2: () is P value.

4.4. Heterogeneity Analysis

A country's level of economic development is closely related to its current level of investment facilitation and the conditions for capital and technology that can be used later to improve investment facilitation. In the case of China, the selections of policies for cooperation in investment facilitation with countries with different levels of economic development must have different characteristics. Therefore, this paper classified the 11 RCEP countries according to their average GDP per capita from 2010 to 2019 and arranged them in an ascending order, and regression analyese were conducted for six countries with low average GDPs as low-income level countries, and the remaining 5 countries as high-income countries,, respectively. The results are as shown in Table 5 below. Regardless of whether the countries were low-income or high-income countries, the results showed that the investment facilitation levels and the first-level indicators of investment facilitation (excluding infrastructure) had quite positive effects on China's OFDI. High-income countries had greater effects on China's OFDI than low-income countries, which means that high investment facilitation levels are more advantageous in promoting China' OFDI in high-income RCEP member countries. This means that high-income countries can attract more investment from China because their financial markets are relatively stable, their business environments are more open, and their regulatory environments are relatively mature. However, the levels of infrastructures of high-income countries rather had certain inhibitory effects on China's OFDI. Since high-income countries have high infrastructure levels, their territories and total populations are relatively small, and their labor costs are high, so that China's demand for investment in these countries is relatively low.

Considering the fact that there may be bidirectional causal relationships between investment facilitation and OFDI, this paper regarded that all the comprehensive indicators of investment facilitation and the four first-level indicator variables are first-order lagging as shown in Table 6 below, and conducted robustness checking. Through the results, it can be seen that the investment facilitation level (IFI) and the four first-step indicators are completely consistent with the results of previous regression analyses in terms of signs and significance, and the control variables basically are basically consistent with those in previous results in terms of signs and significance. Therefore, the results of estimation in this paper are reliable.

Table 10. Sub-sample Regression Results

Variable	Lower-middle Income	Higher-Income
IFI	6.328***	7.833**
	(0.000)	(0.028)
RE	1.187***	1.088*
	(0.000)	(0.071)
IF	0.500**	-2.013**
	(0.039)	(0.039)
FM	0.870***	0.968***
	(0.000)	(0.000)
DB	1.010***	2.327**
	(0.000)	(0.010)
Obs	60	50

Note 1: significance levels of 10%, 5%, and 1% are denoted by *, ** and ***, respectively.
Note 2: () is P value.

5. Conclusion

Measurement indexes for the investment facilitation levels of RCEP member countries from 2010 to 2019 were selected to measure the investment facilitation levels of individual countries through the principal component analysis method, and the effects of the investment facilitation levels of RCEP member countries on China's OFDI were analyzed thereafter to draw conclusions.

First, the results of empirical analysis showed that the investment facilitation levels had significant effects on China's OFDI, and that if the investment facilitation levels go up, China's OFDI will also go up. The results presented that economic scale(GDP), population (POP), degree of openness (Open), and bilateral investment treaties (Bits) were also positive factors for attraction of China's OFDI, but tax levels (Tax) and joining in APEC had negative effects on OFDI. Although individual level-1 indicators of the investment facilitation level also have positive effects on China's OFDI, the effects of the regulatory environment and financial market on China's OFDI are more evident. Ease of doing business was also shown to have a positive (+) effect on China's OFDI. Therefore, it can be interpreted that the ease of doing business that companies can experience throughout the entire life cycle of OFDI is an important factor in attracting China to OFDI.

Second, the results of the subsample regression analysis indicate that the absolute values of the investment facilitation levels of high-income countries are greater than those of low-income countries, but the significance level is the same. This indicated that the improvement of the investment facilitation levels of high-income countries has greater effects on China's OFDI than that of low-income countries.

Based on the results of theoretical analysis and empirical studies, the following implications were presented. First, since there are big differences in investment facilitation levels among RCEP countries, China should conduct OFDI according to the investment facilitation levels of RCEP countries. Countries with high investment facilitation levels should realize the backflow of technology, promote the transformation and upgrading of domestic iudustrial structures, and seek strategic assets to transform China's OFDI from labor-intensive one to capital-intensive and technology-intensive one. OFDI in countries with low investment facilitation levels should mainly fulfill state responsibilities and obligations, maximally utilize the resources and platforms provided by the Asian Infrastructure Investment Bank, strengthen cooperation in the infrastructure sector of underdeveloped regions, provide more international public goods conducive to sustainable development of investment cooperation, and provide new opportunities to promote economic development in underdeveloped regions.

Second, RCEP countries should actively improve their investment facilitation levels, and can do it co0ncretely based on four aspects. First, the institutional environment should be optimized by improving the efficiency of government's dispute resolution, strengthening government supervision, and strengthening the protection of intellectual property rights. Next, the construction of infrastructure such as roads, railways, airports, ports, and other facilities should be actively developed to provide foreign investment companies with the most basic convenience of investing in production. Alternatively, the efficiency of financial market services should be improved. For example, the domestic capital market's ability to raise funds should be improved, cheap and convenient services should be provided so that foreign investment companies can raise funds, thereby strengthening the ease of doing business.

Internationally, it is necessary to simplify local investment procedures for companies, strengthen investor protection, and provide a better and more convenient business environment to investors. Through these four aspects, the level of hardware for investment attraction can be improved, host countries' business environments can be improved, and excellent investment atmospheres can be created so that more OFDIs can be attracted from China and other countries.

Third, in the context of restructuring global investment rules, China not only promotes the negotiation of bilateral, multilateral and regional investment facilitation rules, establishes the authority of the large country, and acquires the right to speak internationally, but also adjusts the attitudes of major countries and the profits of all parties.

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