

OFDI and Foreign Trade: Evidence from Developing Countries

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Abstract: In this paper, we select a panel data of 64 developing and developed countries from 2010-2019 as our research sample and we use four estimation methods, pooled OLS, fixed effects estimation, random effects estimation and systematic GMM estimation models with static and dynamic panel data to explore the impact of foreign trade on OFDI. The results of the study show that export trade volume, import trade volume and openness all have a positive impact on OFDI. This is in line with the hypothesis of the study. As for the control variables, economic development level, labour force and urbanization percentage all have a positive effect on OFDI. Country dummy variables are included in this paper to differentiate between developing and developed countries. The dummy variables are not significant, which may be due to the strong effect of foreign trade, resulting in insignificant dummy variables.

Keywords: OFDI, foreign trade, GMM, developing countries.

1. INTRODUCTION

Globalisation has now become an irreversible trend in the development of the world economy and any country has to actively join in this trend. Foreign trade and OFDI are two different ways of doing this. Foreign trade, refers to the exchange of goods, labour and technology between a country (region) and another country (region). OFDI refers to the outflow of international direct investment from a country, i.e. investment made by an investor who organises and operates a business directly in a foreign country. Outward foreign direct investment can be divided into: (1) Participation in capital, only a small amount of investment, without participating in the operation, and if necessary, sending technical personnel and advisers to act as mentors. (2) Joint ventures. Both parties invest jointly and send personnel with representation to participate in the operation. (3) Acquisition of an existing business. (4) The opening of a subsidiary (or branch) financed by the head office and operated independently under local law. OFDI is generally manifested in the form of investors exporting their capital to set up factories and branches abroad directly, buy out existing local enterprises, or cooperate with local governments, groups or private enterprises, while acquiring various rights to operate enterprises directly. In OFDI, the home country refers to the country where the company is originally incorporated and where the main body of the company is located, and the host country refers to the country where the MNC's business is expanding. Looking at the global trend, the value of OFDI has been increasing from 2013 to 2020 and is on an upward trend, while the development of foreign trade has been relatively flat over the years, showing a relatively flat curve.

Increased OFDI activity in home countries may promote higher domestic investment as foreign affiliates use domestic inputs to produce output in host countries (Desai et al., 2005; Yu & Yang, 2014; He, 2019; Herzer & Schrooten, 2008; Goh et al., 2013). OFDI can also lead to the expansion of domestic output by increasing access to global production networks, markets, technology transfer and skills acquisition (Ameer et al., 2017; Globerman, 2012; Herzer, 2010; Kazemi et al., 2018; Zhao et al., 2017; Kim, 2000; Simpson, 2012; Badar et al., 2018; Chaudhary et al., 2018; Sauvart, 2005). Intuitively OFDI reduces the stock of capital factors in the home country and may inhibit economic growth in the home country. However, through OFDI, multinational enterprises can improve their human capital and technology levels, as evidenced by the increase in people's knowledge, management and technology levels and the expansion of their international horizons, which promote and improve productivity. In addition, through OFDI, home country enterprises can promote the development of industrial structure in the direction of high-end, improve the balance of payments, facilitate access to stable natural resources and market space, and improve the domestic environment. thus attracting more FDI, and through these indirect channels OFDI can promote the economic growth of the home country (Zhang, 2011; Cheng, 2021).

With the rapid growth of foreign trade, the value of exports is a significant driver of the economy. However, exports of a country's goods are often restricted in the world market by trade and non-trade barriers such as anti-dumping, technical barriers and green barriers, which seriously hinder further export growth. For example, in the trade war between China and the US, the US has taken many measures against Chinese exports. In the face of this export situation, it is difficult to expand exports to boost economic growth and capture foreign markets, while foreign direct investment can overcome many of these restrictions. By investing abroad and enjoying the same national treatment as foreign enterprises,

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Fig. (1.1). Values of Foreign Trade and OFDI in 2013-2020.

Source: UNCTAD.

the sale of goods is exempted from import and export restrictions, saving the cost of international trade and bypassing the restrictions of trade barriers. Moreover, although foreign trade can also lead to rapid economic development, if a country relies solely on foreign trade, its foreign trade dependence can be high. On the import side, a higher dependence means that the country has to rely on imports for all its goods and services, etc., which can jeopardise national security. For example, in this war between Russia and Ukraine, Russia has cut off gas to Europe because most of the gas on the European side needs to be imported. Any country that is getting growth in imports and exports leading to faster domestic economic growth should be aware of the huge risks that are hidden. This is why it is important for the country to engage in OFDI. How to deal with the relationship between foreign trade and OFDI to promote the joint growth of foreign trade and OFDI, creating a situation where the overall function is greater than the sum of the partial functions, and thus go on to have a more positive impact on the country, are real issues that need to be studied.

Foreign trade can have an impact on OFDI through exports or imports. Firstly, international trade predates international investment in terms of the development of international trade and investment, and there are a variety of companies that still adhere to this principle of sequence when entering international markets today. Compared to direct investment abroad, foreign trade is less risky and more manageable in scale, while the latter requires more knowledge, experience and skills in cross-border coordination and communication. Therefore, the preparatory phase of investment expansion requires a good understanding of overseas markets, a process that can be achieved through exporting. Secondly, the domestic production of industrial multinationals is based on the import of inputs. With a small scale of production, the impact of changes in the supply of imported inputs on production is negligible, and the additional cost of building a company's international plant is relatively high, the company will in most cases choose the trade approach to the import of inputs, while the volume of imports can lay the foundation for the continuous increase in the scale of production achieved

by the international plant. The significance of imports becomes a source of motivation for companies to vertically integrate in foreign countries under FDI. Consolidation enables the company to achieve efficient supply in times of short supply, while preventing changes in input prices and reducing the impact on production.

For developing countries, OFDI has many benefits. First, OFDI can alleviate domestic overcapacity and optimise their own industrial structure. Although the advantages of semi-industrialised countries are partial, relative and limited compared to those of developed countries, developing countries must make use of these limited advantages to fully realise the "transfer value" of such industries on the one hand; on the other hand, to make room for the development of advanced domestic industries, so as to nurture and cultivate production factors for such industries. On the other hand, to make enough space for the development of advanced domestic industries and to promote the transfer of production factors to such industries, so as to nurture and support the growth of new industries. Secondly, outward investment can be seen as a form of using foreign capital in foreign markets and attracting more foreign capital with a certain amount of capital, and giving developing countries greater initiative in the direction of capital investment; finally, successful outward investment is conducive to enhancing the external debt sustainability of developing countries and strengthening their economic strength, thus attracting more foreign capital.

OFDI from developing countries has increased over the last few decades. In 1995, developing countries accounted for only 15% of global FDI flows, while in 2014 this share reached a record 34.6%. By 2020, the share of developing countries will reach 52.3%. As we can see from this picture, the value of OFDI flows from developed countries has been increasing, but not as dramatically as in developing countries, as can be seen from the trend line, which is a straight line sloping upwards in developing countries. OFDI allows these countries to access new markets, resources, technology transfer, knowledge and skills. New locations are also being explored to reduce production costs, diversify portfolios, reduce risk and integrate into global value chains. All these

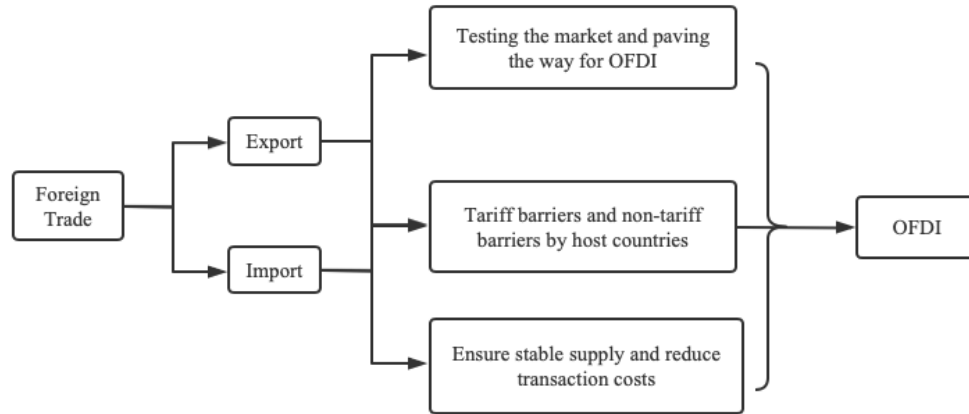


Fig. (1.2). The impact path of foreign trade on OFDI.

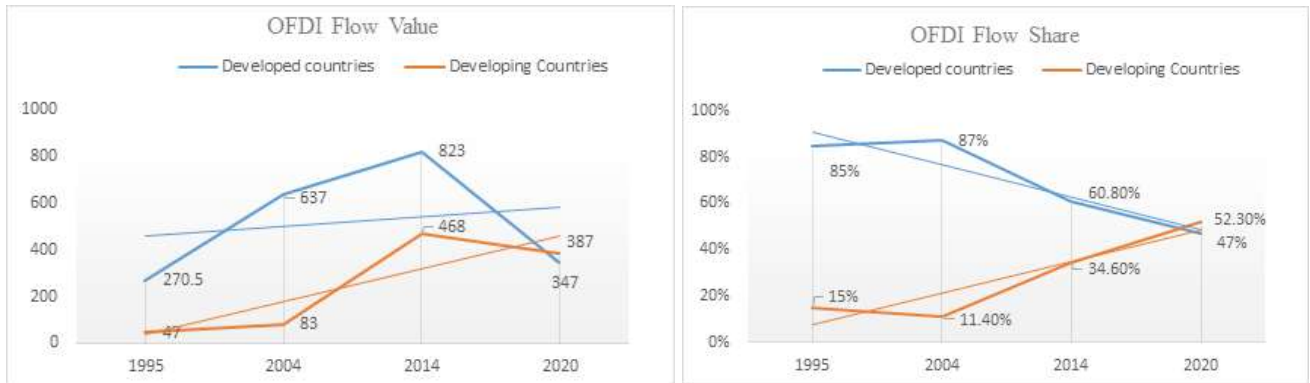


Fig. (1.3). Comparison of OFDI in developed countries and developing countries.

Source: UNCTAD.

positive spillover effects contribute to the economic growth of the investing countries (Pravakar & Ashwani, 2021). Over the past two decades, cross-border investment activities by developing country firms from a wide range of industries have increased dramatically (Khan, 2012; Nayyar & Mukherjee, 2020; Sauvant et al., 2010). This phenomenon deserves empirical study, so this paper wants to select developing countries as the main subject of the study, and developed countries as a control group.

This paper has four main contributions. First, it is evident from the literature and theory reviewed that most of the traditional economic theory explanations of OFDI are based on examples from developed countries in Europe and the US, which are relatively relevant, but mostly fail to explain why OFDI from developing countries that do not have monopoly or relative advantages has grown rapidly in recent years. Secondly, this study will contribute to the body of knowledge in the field of OFDI by addressing some gaps in the literature, in particular the lack of extensive research on developing countries, and the results of the analysis provide additional knowledge and valuable information for the further growth of OFDI in developing countries. Thirdly, the impact of foreign trade on OFDI is studied, but it focuses more on exports and ignores other aspects of foreign trade. This study captures the multiple factors of exports, imports and openness to the outside world and goes through the ap-

propriate methods to do the analysis. Finally, this study contributes to national government policies, provides a good direction for future policy formulation in developing countries, and enhances the supporting evidence in the literature for the growth of OFDI in developing countries.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1. Literature Review

Guo and Huang (2010) conducted a regression analysis using cross-country panel data for 41 major countries in the world between 1995 and 2003 and found that total social savings, level of economic development, and trade openness have a significant positive contribution to a country's OFDI, and that China's OFDI does not exhibit special characteristics. Chen et. al. (2010) present a detailed analysis of Chinese data on overseas direct investment and foreign trade for 26 countries after 2003 using a panel model. The results show that overseas investment by multinational enterprises can, to some extent, lead to the substitution of exports to the country originally due to cross-border investment in production that already meets local demand, as well as to the creation of additional exports to the country due to factors such as imports of machinery and equipment and intermediate goods from overseas subsidiaries.

Ye and Zhao (2014) empirically examined the mediating role of physical capital accumulation, outward FDI flows and technological innovation in the process of promoting economic growth through foreign trade in Fujian Province using a mediating effects model with data from 1990-2013. The experimental results show that imports contribute to the mediating variables of physical capital accumulation and outward FDI flows, which in turn affect the economic development of Fujian Province, while exports act through the mediating variable of technological innovation. From an empirical perspective, a large body of literature has established a complementary relationship between OFDI and exports (Lipsey & Weiss, 1984; Eaton & Tamura, 1994; Pfaffermayr, 1994, 1996; Lin, 1995; Fontagne & Pajot, 1997; Clausing, 2000; Hejazi & Safarian, 2001; Pantulu & Poon, 2003; Boubacar, 2016; Martínez et al., 2016; Ma & Zhou, 2017; Camarero et al., 2018; Rehman & Ding, 2020), although there is also some evidence of substitution effects (Pain & Wakelin, 1998; Türkcan, 2007; Bhasin & Paul, 2016). Therefore, we could say, in line with, for instance, Iwasaki and Sukanuma (2015), that neither the theoretical nor the empirical literature is conclusive in this regard.

Bhasin and Paul (2016) find no long-run causality between 'OFDI and exports' for ten major emerging countries in Asia, implying that multinational firms are not 'connected' to home country firms through backward and forward linkages in the production process. Chen et al. 2012 report on complementarities in Taiwan, arguing that location and industry characteristics also moderate the strength of the relationship between OFDI and home country exports. For Chinese OFDI from 2000-2006, Peng and Yu (2021) find that learning mechanisms and firm absorptive capacity can enhance export quality upgrading effects. For Indian auto parts exporters, Singh (2013) finds complementary effects of OFDI intensity and the number of non-manufacturing OFDI firms on the probability of OEM export participation (OEM) and the likelihood of being an OEM exporter despite an increase in the number of OFDI countries and/or reaching a certain level of tier decreases, reflecting the substitutability between OFDI and exports. Furthermore, Roy and Narayanan (2019) find that the home country effect of Indian OFDI is not significant overall, despite the positive effect of OFDI directed to off-shore financial centre and non-off-shore financial centre locations. Another argument is that FDI and trade opening are mutually reinforcing (Tekin, 2012; Rehman & Ding, 2020; Liargovas & Skandalis, 2012; Seyoum et al., 2014; Pradhan et al., 2015).

2.2. Hypothesis

This paper studies foreign trade by examining the export trade volume, import trade volume and openness of each region, which considers the degree of import and export of a region. Buckley et. al. (2007) found that the ability and motivation of OFDI in China depends on national credit policy, openness to the outside world, and government support by studying China's OFDI. Zheng and Liu (2012) empirically found that the level of marketisation and openness to the outside world would promote OFDI in China. Taking into account the arguments presented in the above literature, foreign trade can influence OFDI to a certain extent. Therefore,

this study concludes that foreign trade has a positive impact on economic growth.

Hypothesis 1: The export trade volume has a positive impact on OFDI.

Hypothesis 2: The import trade volume has a positive impact on OFDI.

Hypothesis 3: Openness has a positive impact on OFDI.

3. RESEARCH DESIGN

3.1. Model Setting

This study examines the impact of foreign trade on OFDI and the indicators studied are macro data, so this study uses secondary data for quantitative analysis. Panel data regressions are applicable to this study as they provide the basic mechanism for dealing with intertemporal dynamic behaviour (Soh, 2015). For example, confounding effects of time-invariant variables, i.e. omitted or hidden factors in the regression model, allow controlling for heterogeneity bias. All these advantages make our conclusions more robust than those drawn using static cross-sectional data or comparisons with time series. For this study, pooled OLS, fixed effects estimation, and random effects estimation were used to estimate the static version of the model, while the systematic GMM was used to estimate the dynamic version. We used the estimation method of GMM, which provides consistent parameter estimates (Arellano & Bond, 1991), as GMM is able to overcome both potential endogeneity and individual heterogeneity problems. In this study, the total sample is 64 countries in total, including 53 developing countries and 11 developed countries. Therefore, in order to highlight the results for developing countries, country dummy variables were included in this study to distinguish between developing and developed countries.

Because of the endogeneity and heterogeneity issues considered, the OLS estimates may be inaccurate. The fixed effects and random effects estimation have an advantage over the Pooled OLS estimation method in that they can deal with heterogeneity, but these two estimation methods do not address the endogeneity issue, especially as the model also contains the lagged first order of OFDI. Therefore, one should be cautious and sceptical about the results obtained from these three estimation methods, as their results may become inaccurate under the influence of endogeneity. The main reason for introducing these three estimation methods is to demonstrate the robustness and accuracy of the systematic GMM.

There are usually a number of tests that need to be performed before an estimate can be made. An autocorrelation test is a statistical analysis that determines whether there is a correlation between observations of a variable at different points in time. Autocorrelation tests are commonly used in various fields, including finance, economics and meteorology. A common test for autocorrelation is to test for the existence of an autocorrelation problem using the null hypothesis of the Woolrich test. Heteroskedasticity is said to exist in a linear regression model when the random error terms have different variances, as opposed to homoskedasticity. The White test is generally used to verify the existence of heteroskedasticity.

Multicollinearity refers to the presence of exact or high correlation between the explanatory variables in a linear regression model that distorts or makes it difficult to estimate the model accurately. In addition, a range of tests for econometric problems can help to avoid inaccurate results. If there are any econometric problems in the sample, a robustness test must be performed to ensure that the findings are unbiased and reliable.

3.2. Data Processing

This study analyses secondary and quantitative data from developing and developed countries. Developing countries were chosen because OFDI from developing countries has increased over the last few decades. In 1995, OFDI from developing countries accounted for only 15% of global FDI flows, while in 2014 this share reached a record 34.6%. By 2020, the share of developing countries reaches 52.3%. Over the past two decades, cross-border investment activity by developing country firms from a wide range of industries has increased dramatically (Khan, 2012; Nayyar & Mukherjee, 2020; Sauvart et al., 2010). This phenomenon deserves empirical study, so this paper wants to select developing countries as the study population and developed countries as the control group. The time period for this study runs from 2010 to 2019, a total of ten years. Data on macroeconomic variables for each country were collected from the World Bank and UNCTAD. Outliers and missing country data were excluded from the study.

Table 3.1. Country List.

Developing Countries	Developed Countries
1.Argentina 2.Bangladesh 3.Togo 4.Bulgaria 5.Cambodia 6.Chile 7.China 8.Colombia 9.Costa Rica 10.Croatia 11.Serbia 12.Egypt 13.Ghana 14.Honduras 15.Hungary 16.India 17.Indonesia 18.Jamaica 19.Jordan 20.Kazakhstan 21.Kenya 22.Lebanon 23.Malaysia 24.Mexico 25. Morocco 26.Mozambique 27.Nigeria 28.Oman 29.Pakistan 30.Panama 31.Peru 32.Philippines 33.Poland 34.Qatar 35.Romania 36.Russia 37.Rwanda 38.Saudi Arabia 39.South Africa 40.Sri Lanka 41.Thailand 42.Turkey 43.Ukraine 44.Uganda 45.United Arab Emirates 46.Uruguay 47.Bolivia 48.Vietnam 49.Zambia 50.Lao People's Democratic Republic 51.Angola 52.Bahamas 53.Belize	1.Japan 2.USA 3.France 4.UK 5.Australia 6.New Zealand 7.Sweden 8.Spain 9.Netherlands 10.Germany 11.Finland

3.3. Variable Description

Dependent Variables. As OFDI is the key variable in this study, the scientific definition of OFDI is crucial to the empirical results. In order to match the long-term process of industrial restructuring and avoid short-term fluctuations in the data, this paper uses the flow value of OFDI to define the variable of OFDI and does a logarithmic treatment to effectively

avoid the influence of special values in individual years (Song, 2020).

Independent Variables. Export trade volume(EX) is the total value of goods exported from a country to a foreign country in a certain period of time. In this paper, the export trade volume is adopted as an indicator to measure foreign trade and is treated logarithmically (Cui, 2017). Import trade volume(IM) is the total value of goods imported into a country from abroad into the country in a certain period of time. This paper adopts the import trade volume as a measure and takes a logarithmic treatment (Cui, 2017). OFDI is an expression of a higher level of external openness, and usually, countries or regions with a higher level of external openness also have a higher level of OFDI, and if a country or region has a low level of external openness, there is no OFDI to speak of (Qamruzzaman & Wei, 2020; Sadorsky, 2012). The specific measure of openness (OPEN) is total exports and imports/GDP.

Control Variables. The economic development cycle theory states that there is a very close link between the level of OFDI from a country or region and its level of economic development. To measure the level of economic development(LGDP), this study uses the GDP per capita of a region to measure (Michael & Jaebeorn, 2020). Labour(LAB), measured using the number of people in the country's workforce. Any country will consider the labour force factor of the host country when making OFDI. The higher the labour abundance, the richer the labour resources, and the more favourable it is for outward investment to gain the relevant cost advantages (Peng, 2021). The level of urbanization (UP), in the process of urbanization, the agricultural population gradually moves to the cities and towns, which leads to the concentration of factors of production, such as capital and labor, in urban areas, and the concentration of population attracts high-quality talents, who will participate in economic activities to bring technological progress, suit the needs of local development and improve the level of OFDI. This paper uses the proportion of urban population to the total population (Zhang, 2021; Song, 2020).

3.4. Regression Model

Firstly, my research sample consists of both developing and developed countries. In order to differentiate in the empirical study, a dummy variable is added to this study to distinguish between developing and developed countries, with 1 representing developing countries and 0 representing developed countries.

$$D = \begin{cases} 1 & \text{— Developing countries} \\ 0 & \text{— Developed countries} \end{cases}$$

There are three independent variables in this study, namely export trade volume, import trade volume and openness, so this study is based on three models to analyse.

Model 1

$$OFDI_{it} = \beta_0 + \beta_1 OFDI_{it-1} + \beta_2 EX_{it} + \beta_3 LGDP_{it} + \beta_4 LAB_{it} + \beta_5 UP_{it} + \beta_6 D + \epsilon_{it}$$

Model 2

$$OFDI_{it} = \beta_0 + \beta_1 OFDI_{it-1} + \beta_2 IM_{it} + \beta_3 LGDP_{it} + \beta_4 LAB_{it} + \beta_5 UP_{it} + \beta_6 D + \epsilon_{it}$$

Model 3

$$OFDI_{it} = \beta_0 + \beta_1 OFDI_{it-1} + \beta_2 OPEN_{it} + \beta_3 LGDP_{it} + \beta_4 LAB_{it} + \beta_5 UP_{it} + \beta_6 D + \varepsilon_{it}$$

where

$OFDI_{it}$: OFDI stocks from country i in year t .

$OFDI_{it-1}$: the first-order lagged term of OFDI.

EX_{it} : export trade of country i in year t .

IM_{it} : import trade of country i in year t .

$OPEN_{it}$: external openness of country i in year t .

$LGDP_{it}$: the level of economic development of country i in year t .

LAB_{it} : labour abundance in country i in year t .

UP_{it} : urbanization percentage in country i in year t .

D : dummy variables.

β_0 : constant term.

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6$: estimated coefficients.

ε_{it} : error term for country i in year t .

4. EMPIRICAL RESULTS AND DISCUSSION**4.1. Descriptive analysis**

Table 4.1 shows the results of the descriptive analysis of all variables, within developing countries, the mean value of OFDI is 1.496, the mean value of $OFDI_{it-1}$ is 1.482, the mean value of exports (EX) is 0.384, and the mean value of imports (IM) is 0.404, the mean value of openness (OPEN) is 0.788, the mean value of the degree of economic development (LGDP) mean value is 0.901, urbanisation level (UP) mean value is 0.589 and labour force level (LAB) mean value is 6.913 and the standard deviation is scattered around the mean, implying that the variation in these variables is elastic across the cross-sectional dataset. Within developed countries, the mean value of OFDI is 4.260, the mean value of $OFDI_{it-1}$ is 4.376, the mean value of exports (EX) is 0.344, the mean value of imports (IM) is 0.329, and the mean value of openness to the outside world (OPEN) is 0.673. The mean value of economic development (LGDP) is 4.623, the mean value of urbanisation (UP) is 0.841 and the mean value of labour force level (LAB) is 7.461. Within these variables, except for export value (EX), import value (IM) and openness to foreign trade (OPEN), all other variables are values are greater for developed countries than for developing countries. This may be due to the fact that in recent years developing countries have been exporting and importing more frequently, for example, in 2020, China overtook the United States as the country with the highest export value with US\$2,591.1 billion, or 14.74% of the world's export value.

4.2. Diagnostic

Table 4.2 shows the results of the autocorrelation test, the heteroskedasticity test and the multicollinearity test. The original hypothesis of the Woolrich test was used to test the existence of the autocorrelation problem. The results show that all models have autocorrelation problems. The original

hypothesis of the White test was used to test for the presence of heteroskedasticity and the results show that all models have heteroskedasticity problems. most values of VIF are less than 5, so there is no serious co-linearity problem in these data.

4.3. Result

Tables 4.3, 4.4, 4.5 and 4.6 provide the results of the pooled OLS, fixed effects, random effects and systematic GMM estimation methods respectively. Table 4.3 shows the results for the pooled OLS estimation. It shows that export value (EX) had a positive and significant impact on OFDI during the study period, although it only passed the 10% significance level. Level of economic development level (LGDP), level of urbanisation (UP) and level of labour force (LAB) all had a positive and significant impact on OFDI, passing the 5%, 1% and 1% significance levels respectively. In Model 2, imports (IM) had a positive impact on OFDI during the study period and passed the 5% level of significance. In Model 3, openness (OPEN) had a positive effect on OFDI during the study period and passed the 5% significance level. The country dummy variable, however, is insignificant, suggesting that the impact of foreign trade on OFDI does not differ significantly between developing and developed countries.

Table 4.4 provides the results of the fixed effects estimation method. Fixed effects cannot identify variables that do not change over time, and in this study, the country dummy variable is one that does not change over time, so the country dummy variable will be dropped when doing the analysis. The results of the study show that the effect of export value (EX) and openness (OPEN) on OFDI is positive, but insignificant. Imports (IM) had a positive effect on OFDI during the study period and passed the 5% significance level. However, the level of economic development (LGDP), the level of urbanisation (UP) and the level of labour force (LAB) mostly show a negative effect, which is not quite the same as the results of previous studies, where most of the literature proved that the level of economic development had a positive effect on OFDI (Sun and Liu, 2020; Tian et al, 2021; Wang, 2022).

Table 4.5 provides the results of the random effects estimation method. These results support the previous results obtained in Table 3. This reinforces the previous finding that EX, IM and OPEN play a significant role in OFDI growth. LGDP, UP and LAB all have a positive and significant impact on OFDI, but the country dummy variables remain insignificant, which is the same as the results in Table 4.3. However, the Hausman test suggests that fixed effects estimation methods are more appropriate than random effects estimation.

As mentioned above, the three estimation methods used so far do not take into account the endogeneity of the regression variables, and therefore caution should be exercised with regard to these results. The systematic GMM has been used to address questions about endogeneity. Table 4.6 presents the results of the systematic GMM estimation methods. Estimation using a systematic GMM model first requires verification of the plausibility of the instrumental variables and the model estimation method, which generally requires the

following two conditions to be met: firstly, there is no autocorrelation between the random error terms, which can usually be inferred from a p-value greater than 0.05 in the Arellano-bond AR(2) test that there is no second-order serial autocorrelation between the model error terms; secondly, the instrumental variables selected for the model are exogenous and can be indicated as valid by a p-value greater than 0.05 in the Hansen test for the selected instrumental variables. The Arellano-Bond test is used to test whether the residuals of the models are serially correlated, and the systematic GMM allows for first-order autocorrelation of the residuals after differencing, but not second-order correlation. Table 4.6 shows the results of the analysis of the three models and it can be seen that models 1,2,3 all pass the Hansen test and are first order autocorrelated but not second order autocorrelated. The OFDI lagged first order passes the 1% level of significance test and the OFDI situation in the previous period has a significant positive impact on the current period due to the fact that a better investment position in the past helps to boost confidence and also this is due to the fact that better investment performance in the past helps to boost confidence and also leads the country to set higher investment targets, thus contributing to the OFDI performance in the current period. Exports, imports and openness all pass the 5% significance level test, indicating that the foreign trade situation has a significant positive impact on OFDI, due to the fact that foreign trade has an earlier start compared to OFDI and has accumulated a lot of experience, which can provide useful information for the development of OFDI, thus contributing to the OFDI situation. However, the country dummy variable is insignificant, indicating that the impact of foreign trade on OFDI is not significantly different in developing and developed countries. This may be due to the frequent export and import activities of developing countries in recent years, or it may be due to the small number of developed countries included in the total sample.

In summary, our findings suggest that foreign trade has a positive impact on OFDI. This is confirmed by the pooled OLS, random effects and systematic GMM estimations. As the fixed effects estimation method does not deal with endogeneity, we consider the results of the fixed effects estimation to be unreliable. Although pooled OLS and random effects estimation also ignore the endogeneity issue, results based on these estimates are confirmed by the systematic GMM estimation approach (Muhammad et al., 2015).

Table 4.1. Descriptive Analysis of Variables.

Variables	Developing Countries		Developed Countries	
	mean	sd	mean	sd
OFDI	1.496	2.961	4.260	4.326
OFDI _{it-1}	1.482	2.855	4.376	4.237
EX	0.384	0.236	0.344	0.177
IM	0.404	0.175	0.329	0.145
OPEN	0.788	0.374	0.673	0.321
LGDP	0.901	1.170	4.623	0.907

UP	0.589	0.215	0.841	0.043
LAB	6.913	1.607	7.461	1.268

Table 4.2. Diagnostic Result.

Model	Wooldridge test	White test	VIF
Model 1	22.646 (0.0000) ***	88.39 (0.0000) ***	1.17~4.17
Model 2	22.631 (0.0000) ***	83.52 (0.0000) ***	1.30 ~ 4.05
Model 3	22.602 (0.0000) ***	86.20 (0.0000) ***	1.20 ~ 1.77

***Significant at 0.01 confidence level, **Significant at 0.05 confidence level, *Significant at 0.1 confidence level, "p-value".

Table 4.3. Regression Results Using the Pooled OLS Estimation.

Variables	Model 1	Model 2	Model 3
OFDI _{it-1}	0.4004*** (5.43)	0.3963*** (5.41)	0.3969*** (5.38)
EX	1.0535* (1.86)		
IM		1.8386** (2.33)	
OPEN			0.7931** (2.27)
LGDP	0.2224** (2.09)	0.2907*** (2.84)	0.2434*** (2.39)
UP	3.2907*** (5.58)	3.4537*** (5.63)	3.3647*** (5.61)
LAB	0.7076*** (7.01)	0.7768*** (7.03)	0.7449*** (7.12)
Countriesdum	0.3956 (0.92)	0.6224 (1.53)	0.4540 (1.10)
_cons	-6.9289*** (-6.75)	-8.1230*** (-6.46)	-7.5227*** (-6.79)
R-squared	0.5074	0.5099	0.5093

***Significant at 0.01 confidence level, **Significant at 0.05 confidence level, *Significant at 0.1 confidence level, p-value.

Table 4.4. Regression Results Using the Fixed Effect Estimation.

Variables	Model 1	Model 2	Model 3
OFDI _{it-1}	0.1246***	0.1232***	0.1250***

	(2.81)	(2.79)	(2.82)
EX	0.2054 (0.29)		
IM		4.0238** (1.98)	
OPEN			0.5516 (0.87)
LGDP	-0.7514* (-1.77)	-0.4977 (-1.13)	-0.7209* (-1.69)
UP	-11.0930 (-0.97)	-8.3951 (-0.73)	-10.5737 (-0.93)
LAB	-0.8025 (-0.38)	0.0067 (0.00)	-0.5480 (-0.26)
_cons	15.2613 (1.07)	6.1880 (0.42)	12.7985 (0.88)
R-squared	0.0480	0.0545	0.0492
F-Value Restricted	2.11***	2.16***	2.09***

***Significant at 0.01 confidence level, **Significant at 0.05 confidence level, *Significant at 0.1 confidence level, p-value.

Table 4.5. Regression Results Using the Random Effect Estimation.

Variables	Model 1	Model 2	Model 3
OFDI _{it-1}	0.3983*** (10.34)	0.3943*** (10.24)	0.3949*** (10.25)
EX	1.0715** (2.39)		
IM		1.8580*** (2.99)	
OPEN			0.8033*** (2.86)
LGDP	0.2213** (2.07)	0.2924*** (2.78)	0.2435** (2.31)
UP	3.3908*** (5.44)	3.5503*** (5.68)	3.4627*** (5.56)
LAB	0.7185*** (9.11)	0.7883*** (9.25)	0.7561*** (9.27)
Countriesdum	0.4160 (0.96)	0.6519 (1.55)	0.4783 (1.13)
_cons	-6.6747***	-7.8538***	-7.2622***

	(-7.06)	(-7.34)	(-7.32)
R-squared	0.5210	0.5234	0.5228
Hausman test	107.80***	108.73***	106.49***

***Significant at 0.01 confidence level, **Significant at 0.05 confidence level, *Significant at 0.1 confidence level, p-value.

Table 4.5. Regression Results Using the System GMM Estimation.

Variables	Model 1	Model 2	Model 3
OFDI _{it-1}	0.4004*** (5.21)	0.3963*** (5.33)	0.3969*** (5.27)
EX	1.0535** (2.31)		
IM		1.8386** (2.88)	
OPEN			0.7931** (3.06)
LGDP	0.2224** (2.24)	0.2907** (3.05)	0.2434** (2.49)
UP	3.2907*** (4.55)	3.4537*** (4.39)	3.3647*** (4.52)
LAB	0.7076*** (6.62)	0.7768*** (7.37)	0.7449*** (7.00)
Countriesdum	0.3956 (0.93)	0.6224 (1.49)	0.4540 (1.08)
_cons	-6.9289*** (-6.42)	-8.1230*** (-6.80)	-7.5227*** (-6.78)
Hansen test	0.422	0.423	0.421
AR(1)	0.000	0.000	0.000
AR(2)	0.770	0.795	0.783

Notes: significant at the 0.1 (*), 0.05 (**), 0.01 (***) levels, the t-values are in parentheses.

5. CONCLUSION AND POLICY RECOMMENDATIONS

This paper selects 64 countries for the study, including 53 developing countries and 11 developed countries, and constructs a dynamic panel model by selecting data from 2010 to 2019 to study the impact of foreign trade on OFDI. The results show that the export value, import value and openness to the outside world all have a positive impact on OFDI in terms of promotion. This is consistent with the results of the study hypothesis. As for the control variables, economic development, labour force and urbanisation all have a positive effect on OFDI. Country dummy variables are included to differentiate between developing and developed countries,

and the dummy variables are not significant, indicating that the impact of foreign trade on OFDI is more significant in developed countries.

This article has three recommendations. The first is to be careful in the choice of industries. In the current division of labour in national industrial systems, developing countries are clearly at a disadvantage, and although a few companies from these countries have international visibility and influence, this does not fundamentally determine the country's international economic voice. If a country's position in the international economy is to be determined, it needs to develop its own industries of strength, and OFDI is a realistic way of achieving this goal. When formulating policy, it is important to identify the relative strengths of the country's industries, as well as the volume of intra-industry trade in a given industry, i.e. the scale and volume of transactions in the process of preparing and sourcing raw materials, primary processing of products, deep processing of products and final products. When formulating outward investment policies, a focus on supporting industries with a high volume of internal trade will not only promote the export of domestic capital and technology, but also boost the production, processing and export of domestic components, primary products and raw materials.

Second, the choice of region should be appropriate. On the one hand, consolidate and expand direct investment in developing countries. Many countries have surplus industries. By setting up marketing agencies or agencies overseas, or investing in overseas factories and thus gaining access, surplus domestic products and equipment can enter the regions where they are located more smoothly. On the other hand, the focus will be on direct investment in developed countries. While the international markets of developing countries are important, developed countries should not be neglected, and even more attention should be paid to the layout of such countries. The main objectives are focused on market acquisition and technological learning. Particular attention needs to be paid to technological learning, and through direct investment and the establishment of joint ventures or R&D institutions with capital from developed countries, not only can we gain access to current high-end technology, but we can also follow technological development trends and tendencies more keenly.

Thirdly, diversification of investment subjects. In terms of the enterprise management system, direct entry of state-owned enterprises should be avoided, so as not to arouse the security suspicions of the host country. Instead, private enterprises, which are more competitive and have a more innovative philosophy and approach to experience, should be the mainstay, and growth is usually more desirable. With regard to the size of enterprises, if they are small, they will have difficulty coping with fierce competition and will be easily eliminated, thus dampening the confidence of domestic enterprises to enter international markets. Only enterprises of a certain size can form a strong risk coping capacity as the main body of OFDI. It is for this reason that many enterprises choose to join forces and eventually participate in OFDI activities in the form of a large conglomerate by building a complete industrial chain.

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