Determinants of Foreign Direct Investment in Vietnam

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Abstract

Since the first law on foreign direct investment (FDI) in December 1987, the FDI sector has continuously played an important role in the economic growth of Vietnam. It is, therefore, important to find out what factors helps facilitate the FDI inflows into the country. By using the gravity model, the paper aims to identify determinants of FDI into Vietnam from 16 main FDI partners during the period from 2003 to 2014. The empirical results suggest that geographical distance, along with GDP, GDP per capita, trade openness and labor cost have significant impact on facilitating FDI inflows into Vietnam. The empirical results are then expected to provide useful insights for policy recommendations in area of macroeconomics, bilateral trade, logistics and transportation system and labour quality to attract larger volume of FDI into Vietnam in the future.

1. Introduction

Foreign Direct Investment (FDI) sector is an important driving force in economic growth and development of developing countries, like Vietnam. The FDI sector, in Vietnam, has been playing a growing important role in the development of socio-economy of the country. FDI enterprises have contributed to the increase in Gross Domestic Product (GDP) of Vietnam, increase in volume of export as well as in the State budget. Furthermore, FDI sector is an important supply of employments for domestic workforce and an important channel of technology transfer in Vietnam. With the growing important role of FDI sector, especially in the context of growing competition in the facilitation of FDI when Vietnam is preparing to join several free trade agreements and communities in the region, it is necessary to carry out extensive research studying determinants factors of FDI inflows into Vietnam. Thus, our paper aims to find out the determinant factors of FDI inflows into Vietnam with econometric models built on the theoretical background of gravity model with extended variables like trade openness and labor cost. The empirical evidences gained from these then expected to serve as bases for policy implications and recommendations to further promote the facilitation of foreign investment into Vietnam. The paper consists of six parts. Following the

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introduction is the overview of FDI inflows into Vietnam. The following part presents a review of theories and literatures about studying FDI determinant factors, followed by research methodology and data sources used in the paper. The fifth part presents empirical results and analysis. The final part discusses several policy recommendations and conclusions of the paper.

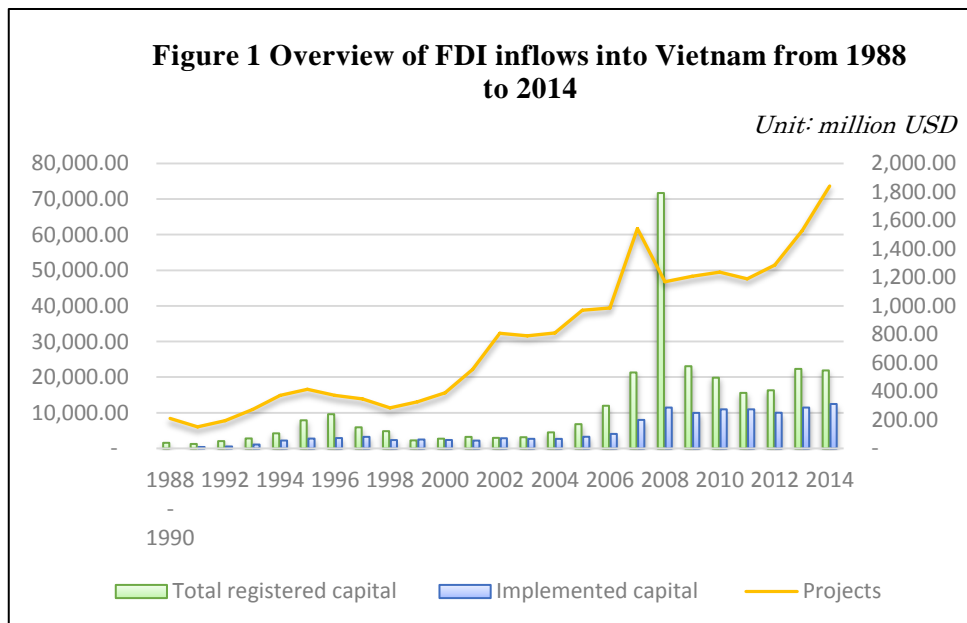## 2. Overview of FDI inflows into Vietnam

According to United Nations Conference on Trade and Development (UNCTAD)[1], foreign direct investment is defined as a type of investment that involves *"a long-term relationship and reflecting a lasting interest and control by a resident entity in one economy in an enterprise resident in an economy other than that of the foreign direct investor"*. Also, foreign investors in investment law of Vietnam[2] is defined as *"an individual holding a foreign nationality or an organization established under foreign laws who conducts business investment in Vietnam"* and foreign-invested business as business entities in which *"51% of charter capital or more is held by foreign investors or the majority of general partners are foreigners if the business organization is a partnership"*.

Being considered as a turning point of the economy of Vietnam, the economic reform by the Government of Vietnam, also known as *DoiMoi* in 1986, had liberalized the domestic economy and opened up opportunities for foreign investors to invest in Vietnam. Since then, the FDI sector has played an important role in the economic growth and development of the economy.

Starting from merely US$ 1,600 million in the period of 1988-1990, according to Foreign Investment Agency (FIA) of Ministry of Planning and Investment Vietnam, the total registered capital of FDI sector reached US$ 21,921 million in 2014 with 1,843 projects in total. Figure 1 below displays the general picture of FDI inflows into Vietnam from 1988 to 2014. It can be easily seen that there was a significant increase in the level of FDI flows into Vietnam after 2007, which was considered by many as *"an investment boom"*. The investment boom was marked by the all-time largest amount of registered capital in one year of US$ 71,726 million in 2008. These positive results reflect the benefits of the accession of Vietnam into World Trade Organization (WTO) in 2007, which liberalized the economy and trade of Vietnam for foreign investors.

According to FIA, from 1988 to 2014, FDI inflows into Vietnam come from 101 countries and territories. South Korea is the all-time leader FDI partner of Vietnam with 4,190 projects registered with total invested capital of US$ 37,726 million, following by Japan with total investment of US$ 37,334 million and Singapore with US$ 32,936 million. From figure 2 below displaying the proportion of registered FDI capital in Vietnam from 1988 to 2014 by country/territory of origin, it can be seen that a majority of top FDI partners of Vietnam comes from countries in Asia Pacific area or countries with available and favorable shipping route to and from Vietnam.

Like in many other emerging economies, FDI sector in Vietnam continues to contribute significantly to economic development of the host country. According to General Statistic Office of Vietnam, while in 2008, the FDI sector contributed only VND 281,604 billion, accounting for 17.43% GDP, in 2011, the contribution increased to VND 453,392 billion

Figure 1 Overview of FDI inflows into Vietnam from 1988 to 2014

Unit: million USD

Source: Foreign Investment Agency – Ministry of Planning and Development Vietnam (2014)

Figure 2. Top 10 FDI partners of Vietnam from 1988 to 2014
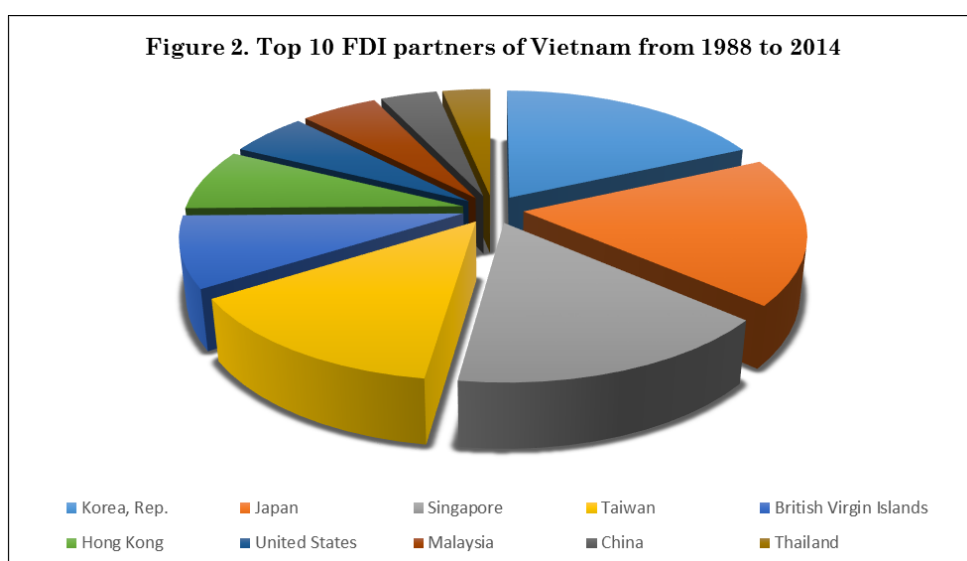
Source: Foreign Investment Agency – Ministry of Planning and Development Vietnam (2014)

(15.6%) and in 2014, it was VND 704,341 billion (17.89%). The FDI sector is also an important contributor to the State budget. In 2008, FDI enterprises contributed VND 43,953 billion and VND 77,076 billion in 2011 and in 2014, contribution to State budget from FDI sector increased to VND 111,224 billion.

The FDI sector also facilitates export volume of Vietnam and helps the country to gradually join the global value chain. Total export volume from FDI sector increased from 55.1% in 2008 to 56.9% in 2011 and 62.5% in 2014, making this sector to become the main exporting sector of the economy. Besides, FDI firms provide jobs and employments for more than 1.7 million employers in 2011 and 2.1 million employers in 2014. The FDI sector also serves as an important channel for technology transfer in Vietnam. According to MPI, from 1993 to 2014, there were 951 technology transfer projects registered in Vietnam, in which 605 projects from FDI sector, accounting for 63.6%.

3. Literature review

Within the age of increasing globalization and economic liberalization, numerous researches and studies have been conducted to study the behavior of FDI inflows into host countries. These studies cover both FDI's impacts on economic growth of host countries, spill-over effects as well as determinant factors of FDI.

In an effort to converge several existing theories of international production, including internationalization theory, Hymer-Kindleberger theory of ownership advantage to form a general and *eclectic* framework, Dunning (1980) came up with the Eclectic Paradigm, also known as OLI Framework aiming to explain factor affecting investment decision of foreign investors into a host country. The Eclectic Paradigm, as according to Dunning, discusses on each line of explanations of multinational enterprises (MNEs) activities and can be used to study and explain all types of FDI investments and modes of entry of foreign investments. In summary, Dunning pointed out three conditions for a firm to engage in FDI in a host country, which make up the so-called OLI framework:

(1) *Ownership (O-) advantages:* the O- factor in Dunning's framework refers to ownership advantages of foreign companies vis-à-vis host country companies. These advantage vary from available access to raw materials or distribution outlets, foreign firms' intangible assets (e.g.: patent, secrecy, trademark, etc.), economies of scales and advantages from *multinationalities* of foreign firms.

(2) *Location (L-) specific advantages:* L- advantages explain the motive behind investors' decisions to locate and operate abroad rather than in home countries. These advantages include favorable conditions of host countries in comparison with home countries, for example, the availability of natural resources, infrastructures, lower material and labor costs, local government policies, etc.

(3) *Internationalization (I-) advantages:* As the third strand in the Eclectic Paradigm, the I- factor explains the basic incentives for foreign firms to engage in wholly-owned subsidiary models rather than other modes of entry like exports or licensing. The internationalization helps firms to achieve advantages, such as avoiding high negotiation or transaction costs, ensuing timing of delivery, enforcement of property rights and reputation of firms, etc.

Also, as claimed by Dunning (1980), different types of economic and specific characteristic of home – host countries can affect the combined OLI configuration[3]. As a general and eclectic paradigm, Dunning's model has been used in various researches on FDI and proved

its compatibility in studies of FDI's behaviors. Early examples include studies of Schneider and Frey (1985), Wheler and Mody (1991), Ramasamy (1998) and Wadhwa (2011) in developing Asian countries' contexts. Many studies in determinants of FDI factors are applied OLI framework and also show significant results, see Mirza and Giroud (2004), Hoang Thi Thu (2006), Bui Tuan Anh (2011) and Bui QuangVinh (2011) for examples.

Since trade and FDI share many similar characteristics and patterns, many researchers applied the Gravity model, which is originally developed to study the bilateral trade flows between one pair of countries, into studies about behaviors of FDI inflows between host – home countries[4]. The Gravity model, in application into studies about FDI, has then shown its high statistical explaining power, consistency and fitness. The Gravity model of trade is an economic model used to analyze bilateral trade flows between a pair of countries. The model is built based on pairs of economic size (measured by GDP indices) and geographical distance between import and export countries. Inspired by Isaac Newton's Law of Universal Gravitation, the international trade model of gravity explains the export flows instead of gravitational force in the original model of Newton. The two mass variables in the Gravity model of trade are normally represented by GDP of a pair of countries instead of mass of a pair of objects[5]. When estimated in term of natural logarithms, the Gravity model of trade takes the form as follow:

$$ln\,E_{A,B} = \alpha + \beta_1 lnGDP_A + \beta_2 lnGDP_B + \beta_3 lnDist_{AB}$$

in which $E_{A,B}$ represents export flows between a pair of countries; GDP_A and GDP_B represent the level of GDP of importing and exporting countries and $Dist_{AB}$ is the geographical distance the two countries. In application to model to study about FDI, the explained variable will represent the FDI inflow between host and home countries instead of bilateral trade flows. Eaton and Tamura (1996) were among the first economists to adopt the gravity model to explain FDI flows between Japan and the U.S. Following Eaton and Tamura, the gravity model was also used in several other studies about FDI and showed significant statistical results and explanatory power with both traditional gravity model and extended models with GDP per capita, level of shareholder protection, corporate tax rate and openness to FDI (see Talamo (2003); Frenkel, Funke and Stadtmann (2004) for example). Studies applied the gravity model and extended variables also showed its significance and fitness in explaining FDI flows among developing Asian countries. For example, Hattari, Rajan and Thangavelu (2008) studied FDI trends in intra-ASEAN countries, China and India; Changwatchai (2010) studied FDI inflows by industry to several ASEAN countries including Vietnam with gravity model. Despite the effectiveness of the Gravity model in studying about FDI, the number of researches about FDI in Vietnam applying this model is still very limited. Among the few is a study about FDI determinants in Vietnam conducted by Hoang Chi Cuong, Tran Van Tho and Nguyen Thi Ngoc My (2013) with FDI data from the period of 1995 to 2011. Thus, in our paper, the gravity serves as a theoretical background to build the model to examine the determinants of FDI inflows into Vietnam.

4. Research methodology and Data

With the solid advantages of the gravity model and the OLI framework in explaining about FDI flows into a host country, our paper will employ the gravity model and the OLI framework as bases for model construction and for variable and empirical analysis. From the traditional gravity model, two extended variables are introduced to build an econometrical model for estimation as follows:

$$lnFDI_{ijt} = \beta_0 + \beta_1 lnGDP_{it} + \beta_2 lnGDP_{jt} + \beta_3 lnOPEN_{it} + \beta_4 lnWAGE_{it} + \beta_5 lnDIST_{ij} + \varepsilon_{ijt} (1)$$

in which, *i* and *j* represent host and home country respectively. *FDIijt* is the explained variable, representing FDI flows from home country *j* (i.e. Japan) to host country *i* (i.e. Vietnam) in the period *t*. *GDPit* indicates gross domestic product index of Vietnam during time *t* and *GDPjt* is the GDP index of host country during time *t*. *DISTij* represents the geographical distance between home country and Vietnam. *OPEN$_{it}$* represents the level of trade openness between host country Vietnam and home country in year *t*. *WAGE$_{it}$* is the average minimum wage of laborers working in FDI sectors in Vietnam in year t. And ε_{ijt} is a white noise error term.

In Model 2, GDP per capita is used as mass variables instead of GDP for the Gravity model to capture the characteristics of population and purchasing power of host country. With *GDPCit* and *GDPCjt* indicating GDP per capita of Vietnam in year *t* and GDP per capita of home country in year *t* respectively, the Model 2 will have the configuration as follows:

$$lnFDI_{ijt} = \beta_0 + \beta_1 lnGDPC_{it} + \beta_2 lnGDPC_{jt} + \beta_3 lnDIST_{ij} + \beta_4 lnOPEN_{ijt} + \beta_5 lnWAGE_{it} + \varepsilon_{ijt} (2)$$

GDP and GDP per capita variables in the two models serve as mass variable in the gravity model. GDP and GDP per capita of Vietnam, are indicators of host country's market size, which is expected to have positive relationships with explained variable FDI. Being the core of the gravity model, Distance reflects the geographical distance between home and host country. In the relationship with FDI inflows, higher distance is expected to have negative impact on FDI inflow from home countries to Vietnam. The variable *OPEN* in the models represents for trade openness, which capture the level of trade integration between host country Vietnam and home country. The variable *OPEN$_{ijt}$* is calculated by the sum of volume of export and import from and into Vietnam from home country *j* in year *t*, divided by GDP level of Vietnam in year *t*. Higher level of trade openness is expected to have positive impact on FDI inflows of the home country into Vietnam. The *WAGE* variables in our paper represent the labor cost faced by FDI firms in Vietnam. *WAGE* is calculated based on average minimum wage of employees working in FDI sector in Vietnam stipulated in numbers of official decrees and circulars by the Government of Vietnam and the Ministry of Labor, Invalids and Social Affairs (MOLISA) of Vietnam during the period of 2003 to 2014.

The empirical analysis in our paper is based on panel data estimation results of country pairs between host country, Vietnam and other 16 home countries, which are main FDI partners of Vietnam during the period from 2003 to 2014. The 16 countries are also main trading partner of Vietnam, thus, it is possible to capture the effect of trade openness on FDI. The 16 main FDI partners include Australia, Canada, China, France, Germany, Hong Kong, Japan, Korea, Rep., Malaysia, Netherlands, Russian Federation, Singapore, Taiwan, Thailand, United Kingdom and United States. Besides, data reflect country-specific characteristics are used in our panel data, including GDP, GDP per capita, geographical distance, bilateral trade data of Vietnam and home country (for calculation of trade openness), average minimum wage of employees working in FDI sector in Vietnam. The average minimum wage is calculated based on the minimum wage levels for different regions of Vietnam as stipulated in official legal documents issued by the Government and Ministry of Labour, Invalids and Social Affair from 2003 to 2014. The table below summarizes the source of data obtained for empirical analysis in our paper:

Variables	Data sources

FDI	Vietnam General Statistic Office; Foreign Investment Agency (MPI)
Distance	The French Institute for Research on the International Economy (CEPII)
GDP	World Bank Data, CIA World Factbook (for Taiwan)
GDP per capita	World Bank Data, CIA World Factbook (for Taiwan)
Bilateral trade data	Vietnam General Statistic Office
Wage	Official decrees and circulars by the Gov. of Vietnam and MOLISA

Data used in our research is arranged as balanced panel data, which reflects both cross-sectional and time series changes. Hence, it provides better control for effects of individual heterogeneity. The panel data also help reduce collinearity among regressors and increase efficiency of economic regressions. Also, before running panel data estimation, tests are also carried out to see variables used in our research are stationary or not. Thus, panel unit root tests based on Levin, Lin and Chu-t (LLC) tests are made on the series. The results of the test are presented in Table 2. According to the results, probabilities for LLC test of variables are below 5%, which means that it is able to reject the null hypothesis of unit roots. Therefore, it can be concluded that these series are stationary at level.

5. Research results and analysis

Empirical results in our paper are obtained from regression estimations of 2 models presented in the previous section, using panel data with 12 periods (from 2003 to 2014) and 16 cross-sections included (16 main FDI partners of Vietnam). The regression estimation results are obtained from pooled Ordinary Least Square (OLS) regression, Random Effect Model (REM) regression and Fixed Effect Model (FEM) with omission of time-invariant variables. With pooled OLS regression, 192 observations from 16 countries are pooled for regression run and the results from pooled OLS reflect an overall cross-countries impact on FDI. However, the pooled OLS neglects the unobserved effects of time-invariant variables that may exist among 16 FDI partner countries in the panel data set. Thus, REM regression approach is also employed in our paper. In comparison with pooled OLS, REM allows for heterogeneity and individuality for each home country and the differences across country will assert different influences on the dependent variables. Additionally, by using REM, it is able to estimate time invariant variables, like distance, in the panel data, which is the core of the Gravity Model. Results for regression results of the panel data for both pooled OLS and REM regression are presented in Table 1.

According to the regression results in Table 1, all variables in two models show statistical significance and expected signs in relation with dependent variable, *FDI* (except for two variables, *Distance* and *GDP* of home country in Model 1). Also, between the 2 models, Model 2 with *GDP per capita* variables act as mass variables for a pair of country Vietnam and home country, showed more robust results with all variables show expected sign and are significant at 1% level of significance. Besides the individual significance of variables, variables in the models also show joint significance in explaining FDI. Here, the Wald test is employed to test the null hypothesis of all intercepts of variables in the models are simultaneously equal zero. From the test results in Table 3, we can reject the null hypothesis at 1% level of significance and accept that all variables in two models are jointly significant to explain the dependent variable FDI. Additionally, test to detect residual normality to see the goodness-of-fit of models are also carried out using Jarque-Bera statistics. From Table 4 showing the results of Jarque-Bera test for two models, it can be seen that since probabilities

of the tests are all greater than 5%, the null hyphothesis of residuals are normally distributed is accepted, which fulfills the assumption of good regressions lines. The Hausman test on REM estimations is also conducted. According to Table 5, with *p-values* of Hausman test are greater than 5%, there are evidences for the appropriateness and efficiency of REM estimation in the research

Within the theoretical framework applied in our paper, all variables show its significance in relation with FDI inflows into Vietnam. Firstly, variables indicating host country's market size, such as GDP and GDP per capita of Vietnam, show their positive impacts on FDI inflows into Vietnam. The market size and purchasing power, represented in the models by GDP and GDP per capita respectively, of host country are among the location (*L-*) advantages in Dunning's OLI framework. A domestic market with potentially high growth rate and a big market with increasing purchasing power is certainly a good signal for foreign investment. This will provide opportunities for higher sales of products and services for foreign firms in Vietnam, especially for market-seeking investors who aim to distribute their products in host country's market.

Another variable that shows high significance in its relation with dependent variable *FDI* is *OPEN*. Thus, this suggests that high level of trade integration between home country and host country will facilitate FDI inflows into host country. This is especially true with efficiency-seeking or vertical FDI, which sets up production facilities aboard to export products back to its home country or adjacent markets. Foreign firms, therefore, are more interested in a host economy with lower trade barriers or higher integration of bilateral trade.

Labor cost is among the most important determinant factors in many researches about FDI[6]. The *WAGE* variable presented in our paper also once again shows its significance in studying FDI behavior. According to the regression results, the *WAGE* variable holds negative signs in its relation with the dependent variable. Thus, this is true with the expectation that the raise in minimum wage level is in correlation with the raise in the level of labor cost faced by FDI firms. For foreign firms which seek the advantages of low labor costs in Vietnam, the relative increase in labor cost of host country in comparison with other potential economies will certainly discourage these types of foreign investors.

Additionally, the geographical distance between Vietnam and home country is also a notable factor in attracting FDI. As with statistical significance result in Model 2, this confirms the expectation that higher distance may pose a barrier for foreign investments, for example, in forms of higher transportation and transaction cost, differences in language, culture as well as business mindsets. Finally, the GDP per capita of home country variable also show its significance in model explaining FDI. This suggests that sources of FDI often come from countries with higher level of income, which often leads higher level of financial ability to invest abroad.

6. Recommendation and Conclusion

From the empirical analysis based on regression results presented in the previous section, our paper also aims to present several policy implications and recommendations for central and local government to attract more FDI inflows into Vietnam.

Firstly, the robust regression results from variables indicating market size of host country, Vietnam, suggest that in order to attract FDI inflows into Vietnam, it is important to sustain and attain high levels of GDP and GDP per capita in the domestic market. Thus, in the coming years, it is essential for Vietnam to maintain macroeconomic stability, foster economic growth and expand domestic market to further benefit from advantages of market size in facilitating FDI inflows. In addition, a constant and stable economic growth is also

essential in maintaining a high level of confidence for foreign investors. This is especially crucial with regards to emerging economies, like Vietnam. Lessons can be learned from the financial crisis in 1997-98 in Thailand when foreign capital drained out of the emerging economy overnight with the plummeting foreign investors' confidence in that economy.

Secondly, it is obvious that in order to attract more FDI into Vietnam, measures to reduce trade barriers and to facilitate bilateral trade are necessary. With the establishment of ASEAN Economic Community (AEC) and the conclusion of negotiations of the Trans-Pacific Partnership (TPP) and EU-Vietnam Free Trade Agreement (EVFTA), Vietnam continues to take further steps toward higher level of trade liberalization. Thus, it is essential for the Government of Vietnam to gasp these opportunities to further facilitate trade flows and then FDI flows from countries and economies within these economic and trade communities.

Thirdly, with regard to labor, Vietnam also needs to build a competitive labor market to further facilitate FDI inflows into the country. While the regression results presented above show the negative relationship between labor cost and FDI inflow and Vietnam is losing on the advantage of 'low labour cost' as the rising in average wage level, therefore, to maintain the location advanatage of labour in Vietnam, it is our recommendation to develop the advantage of labour force in term of quality instead. Then, it is required to develop a competitive and quality labor market, especially when Vietnam plans to attract more FDI into high value-added, technical and capital-intensive industries. Measures to improve this area include improving and upgrading the workforce's skills and establishing intensive long-term plan to develop the education and vocational training systems to regional standards. This requires the Government to call for investments and consultation of not only public sectors but also from private and foreign sectors.

Also, from the regression results, it is evident that geographical distance has a negative relationship with volume of FDI inflows. Thus, to minimize the difficulties faced by foreign investors, it is also essential to ensure an efficient transportation and logistics system which, in turn, will facilitate business operation of FDI firms as well as attract FDI inflows from country located far away from Vietnam. With a more efficient, secure and reliable logistics system and infrastructure, Vietnam can increase its competitive advantages for trade with global market. In fact, Vietnam has many opportunities to create an intra-Asia transportation hub serving many mainline vessel (e.g.: sailing line to Europe from Japan, Korea, Rep. and China). Thus, it is advisable that the Government of Vietnam to further develop and expand deep sea terminals for big vessels in optimum location along the coast (e.g.: CaiMepThiVai area).

In conclusion, with the aim to study about factors affecting the FDI flows into Vietnam, our paper once again shows that the gravity model with extended variables can be successfully applied to researches about FDI's behaviors in the context of developing economy. In addition, implications from empirical results can provide useful insights into FDI flows for recommendations and policy implications. And, finally, our paper is expected to further contribute to literatures on determinants of FDI in Vietnam and the application of the gravity model and OLI framework in analysis of FDI, especially given the importance and positive effects of FDI on economic growth in Vietnam in coming years.

7. Notes

[1] *See United Conference on Trade and Development (2014), World Economy Report 2014, UNCTAD.*

[2]*See Investment Law No 67/2014/QH13 dated 26 November 2014 by the National Assembly*

[3]*Variations of OLI characteristics are discussed at Trade, Location of Economic Activity and Multinational Enterprise: A Search for an Eclectic Approach by Dunning (1988).*

[4]*See Eaton and Tamura (1996), Di Mauro (2000)*

[5]*See Tinbergen (1962) for early formalization of the gravity model of trade*

[6]*See Dermihan & Masca (2008), Changwatchai (2010) and Bui QuangVinh (2012).*

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Table 1: Regression results for the gravity models

Model 1	Dependent variable FDI		
Explanatory variables	**Pooled OLS**	**REM**	**FEM**
GDP Vietnam	4,064272 ***	3,900980***	4,038548***
GDP home country	-0,260559 *	0,0061888	0,501651
Distance	-0,223630	-0,690463*	-
Trade Openess	1,013535 ***	0,620773 **	0,178723
Wage	-2,623591 **	-2,596039 ***	-2,580481***
Constant	-22,01738	-22,07618	-17,02009
Adjusted R-squared	0,472703	0,310870	0,681620
Number of observations	192	192	192

Model 2	Dependent variable FDI		
Explanatory variables	**Pooled OLS**	**REM**	**FEM**
GDP per capita Vietnam	3,844985 ***	3,893748 ***	3,683405***
GDP per capita home country	0,656137 ***	0,608827**	0,470726
Distance	-0,923501 ***	-0,945066***	-
Trade Openess	0,846138 ***	0,71925***	0,207503
Wage	-2,524648**	3,893748***	-2.557055**
Constant	-7,689739	-7,715887	-32,45960
Adjusted R-squared	0,547167	0,363630	0,679737
Numbers of observations	192	192	192

Table 1 notes: *,**,*** denotes significance at 10%, 5% and 1% level. P-values are shown in parentheses. All regressions are estimated using E-Views 8.

Table 2. Panel Unit Root test

	Levin, Lin and Chu-t test	Test for Unit root in
FDI	-3.87212 (0.0000)	level
GDP home country	-4.94986 (0.0000)	level
GDP Vietnam	-1.87812 (0.0302)	level
GDP per capita home country	-5.10108 (0.0000)	level
GDP per capita Vietnam	-1.82855 (0.0337)	level
Wage	-7.33183 (0.0000)	level
Trade Openess	-9.72411 (0.0000)	level

Table 2 notes: Probabilities are shown in parentheses.

Null hypothesis: Panel data has unit root (assumes common unit root process).

Table 3. Wald test for joint significance of variables

Equation: Model 1

Test Statistic	Value	df	Probability
F-statistic	18.42355	(5, 186)	0.0000
Chi-square	92.11777	5	0.0000

Equation: Model 2

Test Statistic	Value	df	Probability
F-statistic	22.92212	(5, 186)	0.0000
Chi-square	114.6106	5	0.0000

Table 3 notes: Null Hypothesis: All intercepts are simultaneously equal zero: $\beta(1)= \beta(2)= \beta(3)= \beta(4)= \beta(5)=0$

Table 4. Normality Jarque-Bera test

Model 1	Model 2
Series: Standardized Residuals Sample 2003 2014 Observations 192 Mean 2.09e-14 Median -0.111188 Maximum 4.188124 Minimum -3.082671 Std. Dev. 1.262124 Skewness 0.304848 Kurtosis 2.990785 Jarque-Bera 2.974517 Probability 0.225991	Series: Standardized Residuals Sample 2003 2014 Observations 192 Mean 4.63e-17 Median -0.070360 Maximum 4.132713 Minimum -3.096936 Std. Dev. 1.254654 Skewness 0.297783 Kurtosis 2.970047 Jarque-Bera 2.844771 Probability 0.241138

Table 4 note: Null hypothesis: normal distribution

Table 5: Correlated Random Effect – Hausman test

Model 1	Chi-Sq Stat.	Chi-Sq.d.f.	Prob	Model 2	Chi-Sq. Stat	Chi-Sq.d.f.	Prob.
Cross-section Random	5.366216	4	0.2517	Cross-section Random	5.336474	4	0.2545

Table 5 note: Null hypothesis: Random Effect Model is appropriate