

**NEW THEORY OF FOREIGN DIRECT INVESTMENT: NEW EVIDENCE FROM VIETNAM**Hoang Chi Cuong<sup>1,2,\*</sup>, Tran Van Tho<sup>1</sup>, Nguyen Thi Ngoc My<sup>2</sup><sup>1</sup> *Waseda University, Tokyo, Japan*<sup>2</sup> *Hai Phong Private University, Hai Phong, Vietnam*\* *Email: cuonghoangchi@gmail.com; cuonghc@hpu.edu.vn*

Received date: 4.10.2013

Accepted date: 29.10.2013

**ABSTRACT**

Foreign direct investment (FDI) has become more important for the development process of Vietnam. Over the two decades since the start of renovation policy in 1986, the country has attracted a large amount of FDI capital reaching up to USD 229,913.7 million. This study employed gravity model and the Hausman-Taylor estimator to investigate whether or not the index of countries' similarity in size induces FDI inflows into Vietnam in the period from 1995 to 2011. This concern has not been mentioned on the case of Vietnam elsewhere. The empirical results indicated that the index strongly promotes FDI inflows into Vietnam. In other words, Vietnam tends to receive more FDI capital from counterparts that are "similar in terms of endowments and technology levels". The main finding presented in this research supports the New Theory of FDI in selected emerging economies.

Key words: FDI, gravity model, Hausman-Taylor estimator, Vietnam.

**Lý thuyết mới về đầu tư trực tiếp từ nước ngoài:  
Bằng chứng kiểm định từ trường hợp của Việt Nam**

**TÓM TẮT**

Đầu tư trực tiếp nước ngoài (FDI) ngày càng trở nên quan trọng trong quá trình phát triển của Việt Nam. Sau hơn hai thập kỷ kể từ khi tiến hành đổi mới năm 1986, đất nước đã thu hút được một lượng lớn vốn FDI lên tới 229.913,7 triệu USD. Nghiên cứu này sử dụng mô hình lực hấp dẫn và phương pháp ước lượng Hausman-Taylor để kiểm tra xem liệu chỉ số tương đồng về quy mô kinh tế có thúc đẩy các dòng vốn FDI vào Việt Nam hay không. Vấn đề này có thể chưa được đề cập trong các nghiên cứu trước đây cho trường hợp của Việt Nam. Kết quả thực nghiệm cho thấy chỉ số này thúc đẩy mạnh mẽ các luồng vốn FDI vào Việt Nam. Nói cách khác, Việt Nam có xu hướng nhận được nhiều vốn FDI từ các đối tác có "quy mô kinh tế và trình độ phát triển tương đồng". Kết quả này củng cố cho lý thuyết mới về FDI tại các nền kinh tế mới nổi.

Từ khóa: FDI, mô hình lực hấp dẫn, phương pháp ước lượng Hausman-Taylor, Việt Nam.

**1. INTRODUCTION**

International investment includes two main types: foreign direct investment (FDI) and portfolio investment or foreign indirect investment (FII). The International Monetary Fund (IMF) defines foreign direct investment as "cross border investment" in which an investor that is "resident in one country has control or a significant degree of influence on the management of an enterprise that is resident in

another economy".<sup>1</sup> Foreign direct investment is also considered as "a form of international capital flows".<sup>2</sup> Nowadays, the issue of FDI is being paid more attention at both national and international levels. This is probably due to its

<sup>1</sup> IMF, Balance of Payments and International Investment Position Manual 100 (6<sup>th</sup> edition 2009); see also: [http://www.law.cornell.edu/wex/foreign\\_direct\\_investment](http://www.law.cornell.edu/wex/foreign_direct_investment), accessed April 7, 2013.

<sup>2</sup> Razin, A. and E. Sadka (2007). Foreign Direct Investment: An analysis of aggregate flows. Princeton: Princeton University Press: 8.

growing economic importance for both countries of origin and host countries. FDI has become a significant source of funds for developing countries like Vietnam. On one hand, it generates new financial and managerial; and technological resources. On the other hand, it increases employment and exports. Moreover, FDI may also have the linkage effect of transferring know-how, managerial skill, and advanced technology to domestic firms, and promote the efficiency of the economy. The question is in what countries and industries should one expect to see more of them?

The Classical Macroeconomic Theory of FDI hypothesized that the rate of profit has a tendency to drop in industrialized/developed countries, often due to domestic competition, which creates the propensity for firms to engage in FDI in underdeveloped/developing countries.<sup>3</sup> The Neo-classical Theory of FDI stated that, due to the shortage of and relatively high expense of labor in affluent, capital-intensive countries, they tend to transfer production facilities to poorer, labor-intensive countries.<sup>4</sup> In both cases, FDI capital flows from capital-intensive/developed countries to capital-poor/developing countries, as firms strive to increase or maximize their overall profits.

In 1960, Hymer introduced a Microeconomic Theory of Firm, focusing on international production rather than trade. It considered the key requirements for an individual firm in a given industry to invest overseas and thus become a Multinational Enterprise (MNE)<sup>5</sup>, including tradable ownership advantages and the removal of competition.<sup>6</sup> Like the phoenix which rises from the ashes of its predecessor, the microeconomic theory of MNE was deemed necessary to replace

the seemingly redundant macroeconomic theory of FDI, due to its flaws.<sup>7</sup>

Recently, FDI has become the work of theorists like Wilfred Ethier, Gene Grossman, Elhanan Helpman, James Markusen, and Assaf Razin etc. to pinpoint why FDI differs from the classical macroeconomic theory of FDI<sup>8</sup> and the neo-classical growth models, as it became clear that FDI was increasing, but between rich countries and in tandem with intra-firm trade. This resulted in the newborn of New Theory of FDI. The new theory of FDI refers mainly to the ownership and location advantages and introduces Multinational Corporations (MNCs) in general equilibrium models, where they arise endogenously. Helpman (1984) and Helpman and Krugman (1985)-exponents of the early literature-derived the activity of MNCs when they tried to explain intra-firm trade, that is, an additional component of international trade.<sup>9</sup> For further development, Dunning (1973, 1980, and 1988) developed the so-called Eclectic Theory of FDI that is a mix of different theories of foreign direct investments.<sup>10</sup>

<sup>7</sup> Hymer noted four discrepancies: (1) the older theory suggested that flow of capital was one directional, from developed to underdeveloped countries, whereas in reality, in the post-war years, FDI was two-way between developed countries; (2) a country was supposed to either engage in outward FDI or receive inward FDI only. Hymer observed that MNEs, in fact moved in both directions across national boundaries in industrialized countries, meaning countries simultaneously received inward and engaged in outward FDI; (3) the level of outward FDI was found to vary between industries, meaning that if capital availability was the driver of FDI, then there should be no variation, as all industries would be equally able and motivated to invest abroad; (4) as foreign subsidiaries were financed locally, it did not fit that capital moved from one country to another.

<sup>8</sup> Presented in Mundell (1957).

<sup>9</sup> For more information about the New Theory of FDI see Mauro, F.D. (November 2000). *The Impact of Economic Integration on FDI and Exports: A Gravity Approach*. Working Document No. 156.

<sup>10</sup> The eclectic theory developed by Dunning is a mix of three different theories of foreign direct investments (O-L-I):

1. "O" from Ownership advantages: This refers to intangible assets, which are, at least for a while exclusive possesses of a company and may be transferred within transnational companies at low costs, leading either to higher incomes or reduced costs. To successfully enter a foreign market, a company must have certain characteristics that would triumph over operating costs on a foreign

<sup>3</sup> Term from Cantwell, in Pitelis & Sugden (2000). *The Nature of the Transnational Firm*, p. 13.

<sup>4</sup> Cantwell (2000, p. 13); Caves & R.E. Caves (1999). *Multinational Enterprise and Economic Analysis*, p. 24.

<sup>5</sup> Cantwell (2000, p. 13).

<sup>6</sup> The thesis drew influence from Coase's *Nature of the Firm* (1937), which studied the firm in relation to international activities, and discussing the efficient allocation of assets to dispersed locations.

Generally, the survey based on empirical studies revealed that for FDI there is not a unified theoretical enlightenment/illumination. While the macroeconomic theory of FDI had some drawbacks the neo-classical theory failed to explain the existence of MNCs. It was not until Hymer's work (1960) of foreign direct investment and MNE that a satisfying explanation was at hand. After all these different attempts to explain why FDI exists, the conceptual framework used until very recently was the one proposed by Dunning (1980), the OLI paradigm.<sup>11</sup> Notably, on the foundations of general equilibrium, sunk costs, asymmetric information, and economies of scale, micro-level modeling engines were slowly

emerging to form the new theory of FDI.<sup>12</sup> The new theory of FDI confirmed for example by the fact that most all of FDI was between North-North rather than North-South countries. In other words, FDI was increasing, but between rich countries in tandem with intra-firm trade and the existence of MNCs through vertical or horizontal FDI.<sup>13</sup> This raises the research question: Does the FDI flow between developing economies that are similar in terms of "endowments and technology levels"?

In the world, some scholars like Mauro (2000) have employed the index of countries' similarity in size to test the new theory of FDI on the case of selected developed countries (e.g., Canada, France, Germany, Italy, Japan, the Republic of Korea, the UK, the USA, etc.) and found the positive impact on FDI flows among them. These empirical results supported the new theory of FDI in developed countries. On the case of Vietnam, numerous empirical studies, such as Nguyen, and Haughton (2002), Nguyen, and Nguyen (2007), Changwatchai (2010), Du (2011), Pham (2011), Bui (2011), Nguyen et al. (2012), Wu et al. (2013) have been investigated for FDI determinants. Most all them focused on examining the determinants such as market size (e.g., GDP mass, size of population), economic growth (GDP growth), labor cost, human capital, infrastructure, exports, imports, institutional changes, political stability, trade openness within FTAs and the WTO, exchange rate, transport and transaction costs, taxes, cultural factors etc. However, the author found no study on the impact of the index of countries' similarity in size on FDI inflows into Vietnam. Using this inquiry as a

---

market. These advantages are the property competences or the specific benefits of the company. There are three types of specific advantages: (i) Monopoly advantages in the form of privileged access to markets through ownership of natural limited resources, patents, trademarks; (ii) Technology, knowledge broadly defined so as to contain all forms of innovation activities; (iii) Economies of large size such as economies of learning, economies of scale and scope, greater access to financial capital;

2. "L" from Location: Location advantages of different countries are the key factors to determining who will become host countries for the activities of the transnational corporations. The specific advantages of each country can be divided into three categories: (i) Economic benefits, which consist of quantitative and qualitative factors of production, costs of transport, telecommunications, market size etc.; (ii) Political advantages such as common and specific government policies that affect FDI flows; (iii) Social advantages like distance between the home and host countries, cultural diversity, attitude towards strangers etc.

3. "I" from Internalization: Supposing the first two conditions are met, it must be profitable for a company the use of these advantages, in collaboration with at least some factors outside the country of origin. This third characteristic of the eclectic paradigm OLI offers a framework for assessing different ways in which a company will exploit its powers from the sale of goods and services to various agreements that might be signed between many companies.

<sup>11</sup> Theories of FDI can also be classified under the following headings: (i) production cycle theory of Vernon (1966); (ii) the theory of exchange rates on imperfect capital markets of Itagaki (1981) and Cushman (1985); (iii) the internationalization theory developed by Buckley and Casson (1976), Hennart (1982); (4) the eclectic paradigm proposed by Dunning (1980). For further details see Denisia, V. (2010). Foreign Direct Investment Theories: An Overview of the Main FDI Theories. Available at <http://ssrn.com/abstract=1804514>.

<sup>12</sup> It seems at this point very unlikely that such a unified theory will materialize.

<sup>13</sup> Vertical FDI is undertaken for the purpose of exploiting raw materials (backward vertical FDI) or to be nearer to the consumers through the acquisition of distribution outlets (forward vertical FDI). Horizontal FDI is undertaken for the purpose of horizontal expansion to produce the same or similar kinds of goods abroad (in the host country) as in the home country. More generally, horizontal FDI is undertaken to exploit more fully certain monopolistic or oligopolistic advantage, such as patents of differentiated products (Moosa, 2002).

starting point, my research fills this gap by examining the case of Vietnam.

Vietnam offers an interesting case study for several reasons. First, in the process of transition, the country has emerged as one of the most successful countries in terms of economic development in Asia. Second, it has attracted a large amount of FDI capital from the dynamic Asia-Pacific region and EU economies. Third, the author hardly finds anyone who has tested the new theory of FDI on the case of developing economies.<sup>14</sup> Finally, an understanding about the impact of the index of countries' similarity in size on FDI flows to Vietnam will have an important implication for the design of supporting FDI policy. The remainder of this paper is organized as follows. The subsequent section will first give an overview about FDI inflows into Vietnam from 1988 to 2011. Section three, then, specifies gravity model and decrypts the dataset. Section four discusses the empirical results. Final section refers to some concluding remarks and policy implications for Vietnam.

## 2. AN OVERVIEW ABOUT FDI INFLOWS INTO VIETNAM FROM 1988 TO 2011

### 2.1. An Overview about FDI Registered and Implemented Capital in Vietnam from 1988 to 2011

Figure 1 above shows the overall trends of FDI inflows into Vietnam by the number of projects, the amount of registered and implemented capital during 1988-2011. Generally, both the number of newly licensed projects and registered capital soared rapidly in the first half of the years, and then declined dramatically in the second half of the 1990s. FDI picked up in the early years of the new millennium, and then suddenly rocketed after Vietnam's accession to the WTO. Specifically, in duration of 1988-1995, Vietnam attracted 1,620 investment projects and USD 19,265.2 million

registered capital. Implemented capital was around USD 6,517.8 million. The first half of the 1990s is usually referred to as the "first investment boom" period in attracting FDI of Vietnam. After the launch of Asian financial crisis, in 1997, FDI flows to Vietnam reduced slightly. Although it remained a relatively closed economy during the 1997 Asian financial crisis, a large portion of FDI came from the region caused a drop of FDI flows (Nguyen, N. A. & T., Nguyen, 2007). The FDI registered capital bottomed out in 1998. In the second half of the 1990s, there were 1,724 investment projects with registered capital of around USD 26,259 million. Implemented capital was some USD 12,944.8 million. The FDI inflows started to rebound as countries in the region recovered after the 1997 Asian financial crisis together with the signing of the US-Vietnam Bilateral Trade Agreement (USBTA) in 2000. FDI flows have grown up steadily from USD 3,142.8 million in 2001 to USD 6,839.8 million in 2005. The total FDI capital flowed into Vietnam in duration of 2001-2005 was USD 20,702.2 million. Implemented capital was about USD 13,852.8 million at the same period. In duration of 2007-2011, Vietnam attracted the total FDI capital of about USD 143,950.3 million. Total implemented capital of this duration was USD 51,530 million. Duration of 2007-2011 can be referred to as the "second investment boom" period of FDI in Vietnam due to the euphoria of Vietnam's accession to the WTO.

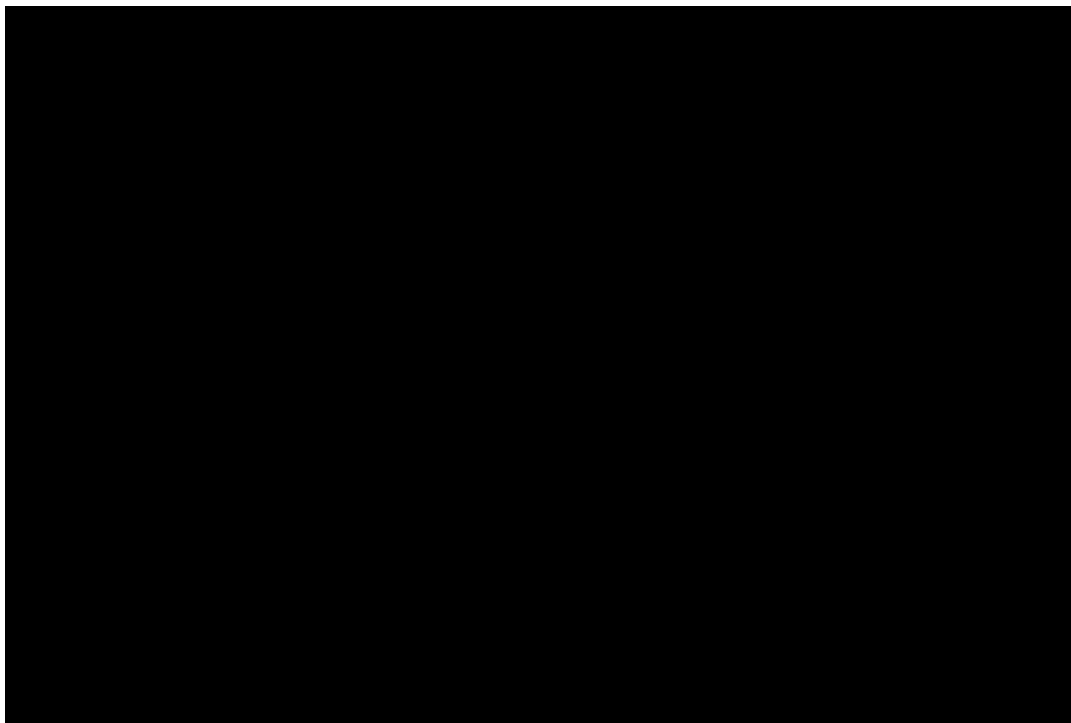
### 2.2. Foreign Direct Investment by Main Countries/Territories in Vietnam from 1988 to 2011

Table 1 above indicates the division of FDI by main counterparts in Vietnam during 1988-2011. Foreign investors in Vietnam in this duration were subjected by the Asia-Pacific investors (Japan, the Republic of Korea, Taiwan, Singapore, British Virgin Island, Hong Kong, Malaysia, the USA, Thailand, etc.). These countries are the net exporters of capital and advanced technology. Obviously, Japan is the biggest foreign investor in Vietnam accounting

<sup>14</sup> This is probably due to the fact that most all of FDI in the world flows between advanced economies.

for 10.60% of total registered capital. This is followed by the Republic of Korea (10.31%), Taiwan (10.28%), Singapore (9.99%), British Virgin Island (6.72%), Hong Kong (4.92%), Malaysia (4.82%), the USA (4.54%), and Thailand (2.55%). This is consistent with Vietnam's economic integration focusing on the dynamic Asia-Pacific region. Top 28 countries

amount to around 86.20% of total licensed projects and 85.19% of total registered capital. Wherein, the G7 countries account for 19.94% total licensed projects and 20.11% total approved capital. Developing/emerging economies share the majority of around 65% of both licensed projects and registered capital.



**Figure 1. FDI Registered and Implemented Capital in Vietnam from 1988 to 2011 (million USD).<sup>15</sup>**

*Source: The General Statistics Office of Vietnam.<sup>16</sup>*

---

<sup>15</sup> Including supplementary capital to licensed projects in previous years.

<sup>16</sup> Retrieved from [http://www.gso.gov.vn/default\\_en.aspx?tabid=471&idmid=3&ItemID=13121](http://www.gso.gov.vn/default_en.aspx?tabid=471&idmid=3&ItemID=13121), accessed on August 31, 2013.

**Table 1. Foreign Direct Investment by Main Countries/Territories in Vietnam from 1988 to 2011** (Accumulation of projects having effect as of December 31, 2011)

| Order | Countries/Territories       | Number of Projects | (%)   | Registered Capital | (%)   |
|-------|-----------------------------|--------------------|-------|--------------------|-------|
| 1     | Japan                       | 1,555              | 10.37 | 24,381.7           | 10.60 |
| 2     | The Republic of Korea       | 2,960              | 19.74 | 23,695.9           | 10.31 |
| 3     | Taipei China (Taiwan)       | 2,223              | 14.82 | 23,638.5           | 10.28 |
| 4     | Singapore                   | 1,008              | 6.72  | 22,960.2           | 9.99  |
| 5     | British Virgin Islands      | 503                | 3.35  | 15,456.0           | 6.72  |
| 6     | Hong Kong SAR               | 658                | 4.39  | 11,311.1           | 4.92  |
| 7     | Malaysia                    | 398                | 2.65  | 11,074.7           | 4.82  |
| 8     | The United States (the USA) | 609                | 4.06  | 10,431.6           | 4.54  |
| 9     | Cayman Islands              | 53                 | 0.35  | 7,501.8            | 3.26  |
| 10    | Thailand                    | 274                | 1.83  | 5,853.3            | 2.55  |
| 11    | The Netherlands             | 160                | 1.07  | 5,817.5            | 2.53  |
| 12    | Brunei                      | 123                | 0.82  | 4,844.1            | 2.11  |
| 13    | Canada                      | 114                | 0.76  | 4,666.2            | 2.03  |
| 14    | China                       | 833                | 5.55  | 4,338.4            | 1.89  |
| 15    | France                      | 343                | 2.29  | 3,020.5            | 1.31  |
| 16    | Samoa                       | 90                 | 0.60  | 2,989.8            | 1.30  |
| 17    | The United Kingdom (the UK) | 152                | 1.01  | 2,678.2            | 1.16  |
| 18    | Cyprus                      | 11                 | 0.07  | 2,357.9            | 1.03  |
| 19    | Switzerland                 | 87                 | 0.58  | 1,994.6            | 0.87  |
| 20    | Luxembourg                  | 22                 | 0.15  | 1,498.8            | 0.65  |
| 21    | Australia                   | 261                | 1.74  | 1,316.9            | 0.57  |
| 22    | British West Indies         | 6                  | 0.04  | 987.0              | 0.43  |
| 23    | The Russian Federation      | 77                 | 0.51  | 919.1              | 0.40  |
| 24    | Germany                     | 177                | 1.18  | 900.2              | 0.39  |
| 25    | Denmark                     | 92                 | 0.61  | 621.5              | 0.27  |
| 26    | The Philippines             | 61                 | 0.40  | 302.3              | 0.13  |
| 27    | Italy                       | 40                 | 0.27  | 191.9              | 0.08  |
| 28    | Belgium                     | 40                 | 0.27  | 106.7              | 0.05  |
|       | Top 28                      | 12,930             | 86.20 | 195,856.4          | 85.19 |
|       | Others                      | 2,068              | 13.80 | 34,057.3           | 14.81 |
|       | Total                       | 14,998             | 100   | 229,913.7          | 100   |

Source: Author calculated from figures published by the General Statistics Office of Vietnam.<sup>17</sup>

<sup>17</sup> Retrieved from [http://www.gso.gov.vn/default\\_en.aspx?tabid=471&idmid=3&ItemID=13119](http://www.gso.gov.vn/default_en.aspx?tabid=471&idmid=3&ItemID=13119), accessed on August 31, 2013.

### 3. THE SPECIFICATION OF GRAVITY MODEL AND DECRYPTING THE DATASET

#### 3.1. The Specification of Gravity Equation

The gravity model in international economics was first used by Tinbergen in 1962. It was given the name gravity model for its analogy with the Newton Law of Universal Gravitation which also takes into consideration the distance and physical size between two objects. The gravity model can be applied to bilateral FDI in a similar way as the model is applied to bilateral trade. Given the similarity between trade and FDI in terms of trends, gravity model has also been employed to estimate bilateral FDI flows (see more Brenton (1996), Eaton and Tamura (1996), and Brenton and Di Mauro (1999)). Accordingly, FDI is considered as a force of gravity, which depends on the GDP (mass) of two countries and the distance between them.<sup>18</sup> In this study, the benchmark specification model takes the following formula:

$$\begin{aligned} \text{LnFDI}_{jt} = & \beta_{10} + \beta_{11}\text{LnDIS}_{\text{VNj}} + \beta_{12}\text{LnGDP}_{\text{VNt}} \\ & + \beta_{13}\text{LnGDP}_{jt} + \beta_{14}\text{Ln}[1 - (\text{GDP}_{\text{VNt}}/(\text{GDP}_{\text{VNt}} + \text{GDP}_{jt}))^2 - (\text{GDP}_{jt}/(\text{GDP}_{\text{VNt}} + \text{GDP}_{jt}))^2] \\ & + \beta_{15}\text{LnEX}_{jt-1} + \beta_{16}\text{LnIM}_{jt-1} + \beta_{17}\text{LnRER}_{\text{CURj/VNDt}} + \\ & \beta_{18}\text{Ln}(\text{ins}_{\text{VNt}} * \text{ins}_{jt}) + \gamma_{11}\text{AFTA} + \gamma_{12}\text{USBTA} + \\ & \gamma_{13}\text{ACFTA} + \gamma_{14}\text{AKFTA} + \gamma_{15}\text{JVEPA} + \\ & \gamma_{16}\text{AJCEP} + \gamma_{17}\text{AANZFta} + \gamma_{18}\text{Bothin}_{\text{VNjt}} + \\ & \gamma_{19}\text{Onein}_{\text{VNjt}} + \gamma_{110}\text{BOR}_{\text{VNj}} + \varepsilon_{1\text{VNj}} \end{aligned}$$

In which:

$\text{FDI}_{jt}$  is the amount of implemented FDI capital of country j at year t in Vietnam in USD.

$\text{DIS}_{\text{VNj}}$  is the weighted distance between Vietnam and country j in km (obtained from CEPII).

<sup>18</sup> For more information about how to adjust a gravity model and use the Hausman-Taylor estimator see Hoang, C.C. et al. (2013). Trade Liberalization and Foreign Direct Investment in Vietnam: A Gravity Model Using Hausman-Taylor Estimator Approach. Journal of Science and Development, Vol. 11, No. 1: 85-96. For further empirical evidence of gravity model and FDI see Changwatchai, P. (2010). The Determinants of FDI Inflows by Industry to ASEAN (Indonesia, Malaysia, Philippines, Thailand, and Vietnam). Doctoral dissertation, University of Utah: 19-23.

$\text{GDP}_{\text{VNt}}$  is the real GDP of Vietnam at year t in USD (2005 price).

$\text{GDP}_{jt}$  is the real GDP of country j at year t in USD (2005 price).

$\text{EX}_{jt-1}$  is the real Vietnam's exports to country j at year t-1 in USD (2005 price).

$\text{IM}_{jt-1}$  is the real Vietnam's imports from country j at year t-1 in USD (2005 price).

$\text{RER}_{\text{CURj/VNDt}}$  is the Real Bilateral Exchange Rate between Vietnam Dong and currency of country j at year t.<sup>19</sup>

$\text{ins}_{\text{VNt}}$  is the average value of government indicator of Vietnam at year t.

$\text{ins}_{jt}$  is the average value of government indicator of country j at year t.<sup>20</sup>

AFTA is a binary dummy variable which is unity after Vietnam and partners have joined/signed the ASEAN Free Trade Area at year t and otherwise.

USBTA is a binary dummy variable which is unity after Vietnam and the USA have signed the Bilateral Trade Agreement at year t and otherwise.

ACFTA is a binary dummy variable which is unity after Vietnam and partners have joined/signed the ASEAN-China Free Trade Area at year t and otherwise.

<sup>19</sup> The real exchange rate is calculated by the following formula:

$\text{RER}_{\text{CURj/VNDt}} = e_{\text{CURj/VNDt}} * (\text{CPI}_{jt} / \text{CPI}_{\text{VNt}})$ , In which:  
 -  $\text{RER}_{\text{CURj/VNDt}}$  is the Real Exchange Rate between VND and Currency of country j at year t  
 -  $e_{\text{CURj/VNDt}}$  is the Nominal Exchange Rate between VND and Currency of country j at year t (this expresses the number of VND used to exchange with 1 currency unit of country j at year t)  
 -  $\text{CPI}_{jt}$  is the Consumer Price Index of country j at year t  
 -  $\text{CPI}_{\text{VNt}}$  is the Consumer Price Index of Vietnam at year t

<sup>20</sup> Each of them will be taken from the average of five indicators: (1) the Political Stability and Absence of Violence/Terrorism; (2) Government Effectiveness; (3) Regulatory Quality; (4) Rule of Law; and (5) Control of Corruption indicators, which are provided by the World Bank. Percentile rank among all countries ranges from 0 to 100. The higher the figure means the better the governance. The institutional variable in this study reveals the interaction in governance between Vietnam and country partners. It reveals that better governance may facilitate the FDI inward.

AKFTA is a binary dummy variable which is unity after Vietnam and partners have joined/signed the ASEAN Korea Free Trade Agreement at year  $t$  and otherwise.

JVEPA is a binary dummy variable which is unity after Vietnam and Japan have signed the Japan-Vietnam Economic Partnership Agreement at year  $t$  and otherwise.

AJCEP is a binary dummy variable which is unity after Vietnam and partners have joined ASEAN-Japan Comprehensive Economic Partnership Agreement at year  $t$  and otherwise.

AANZFTA is a binary dummy variable which is unity after Vietnam and partners have joined the ASEAN-Australia-New Zealand Free Trade Agreement at year  $t$  and otherwise.

Bothin<sub>VNjt</sub> is a binary dummy variable which is unity if both Vietnam and country  $j$  are WTO members at year  $t$  and otherwise.

Onein<sub>VNjt</sub> is a binary dummy variable which is unity if either Vietnam or country  $j$  is a WTO member at year  $t$  and otherwise.

BOR<sub>VNj</sub> is a binary dummy which is unity if Vietnam and country  $j$  share the land border and otherwise.

$\varepsilon_{1VNj}$  is random error.

$[1 - (\text{GDPVNt}/(\text{GDPVNt} + \text{GDPjt}))^2 - (\text{GDPjt}/(\text{GDPVNt} + \text{GDPjt}))^2]$  is the index of countries' similarity in size (SIMSIZE in short) that takes the value in the phase  $(-\infty, -0.69)$ . In case of perfect dissimilarity (GDPVN has a huge difference with the GDPj at year  $t$ ), then  $\ln[1 - (\text{GDPVNt}/(\text{GDPVNt} + \text{GDPjt}))^2 - (\text{GDPjt}/(\text{GDPVNt} + \text{GDPjt}))^2] \approx \ln[1 - (0)^2 - (1)^2]$  or  $\approx \ln[1 - (1)^2 - (0)^2] \approx \ln(\text{near Zero}) = -\infty$ . In case of perfect similarity (GDPVN has a very pretty/small difference with the GDPj at year  $t$  or  $\text{GDPVNt} \cong \text{GDPjt}$ ), then  $\ln[1 - (\text{GDPVNt}/(\text{GDPVNt} + \text{GDPjt}))^2 - (\text{GDPjt}/(\text{GDPVNt} + \text{GDPjt}))^2] \approx \ln[1 - (1/2)^2 - (1/2)^2] \approx \ln[1 - (1/4) - (1/4)] \approx \ln(1/2) = -0.69$ .<sup>21</sup> This is the most important variable in

my gravity equation as it assesses the impact of the index of countries' similarity in size on FDI inflows into Vietnam. In other words, it helps us find the answer for the research question presented in the preamble of this paper. The index of countries' similarity in size should have positive impact on FDI inflows into Vietnam. If this prediction holds true, my empirical study will support the new theory of FDI as those models were motivated by the observation that FDI arises more among similar countries. To avoid the endogenous issues such as the exits of bidirectional causality between the added variables and GDP in the gravity model, the author used a one time period lag for the real Exports and real Imports variables. All the variables, except the dummies, are in natural logarithm form in my gravity equation.

### 3.2. The Dataset

For the data, the empirical analysis presented in this research is based on a panel data of country pairs set in the period from 1995 to 2011 which involves 18 Vietnam's major/stable FDI partners including: Australia, Belgium, Canada, China, France, Germany, Hong Kong, Japan, Malaysia, the Netherlands, the Philippines, the Russian Federation, Singapore, the Republic of Korea, Taiwan, Thailand, the United Kingdom (UK), and the United States. 18 FDI counterparts listed above amount to around 70% of Vietnam's FDI inwards in duration of 1988-2011. The data are obtained from different reliable sources such as Vietnam's authorities (e.g., the General Statistics Office (GSO), the Ministry of Industry and Trade (MOIT), the Ministry of Planning and Investment (MPI)) and the international organizations (e.g., the Asian Development Bank (ADB), the International Monetary Fund (IMF), the United Nations Statistics Division (UNSD), the World Bank (WB), and the WTO). In regards to the special case of Taipei China (Taiwan), the figures are collected from ADB and the World Economic Outlooks October

<sup>21</sup> This index was used in Mauro (2000).



2012, available on Knoema's website. Table 2 below presents variables employed in my gravity model and data resources.

#### 4. AN ANALYSIS OF THE EMPIRICAL RESULTS

The gravity model estimations of the  $\ln FDI_{it}$  Equation using the Fixed-Effects (FE) and the Random-Effects (RE) techniques are presented in Table 4 above. Probably, the estimated results are quite robustness compared with the estimations using the Hausman-Taylor estimator in Table 3. This suggests that the model fits the data well. And, the estimated results are reliable.

Table 3 above presents the gravity model estimations using the Stata 11 and the Hausman-Taylor estimator.<sup>22</sup> Table 3 includes the estimated results of 5 FDI gravity models from simple equation to the most complicated one. This is to observe the stable significance of the coefficient of the SIMSIZE variable. Anyway, the author respects the estimated results of the

FDI-5 gravity equation as it can reflect the interaction between the SIMSIZE and other variables, which can have the possible impacts on FDI inflows into Vietnam. Within the analysis framework, the author is interested in the coefficient  $\beta_{14}$  of the  $\ln SIMSIZE$  variable. The estimated results presented in Table 3 suggest that the coefficient of the  $\ln SIMSIZE$  variable is statistically significant at the level of 5% in all gravity equations. This means the index of countries' similarity in size has a strong and positive impact on FDI inflows into Vietnam. In other words, Vietnam tends to receive more FDI capital from the counterparts that are "similar in terms of endowments and technology levels". These empirical results reflect the real situation of FDI in Vietnam recently.

It is clear that FDI in Vietnam is seeking for export-orientation resulting from trade liberalization under FTAs and the WTO that Vietnam has joined recently. Notably, FDI focuses on processing and assembling industries to enjoy/exploit the cheap domestic labors and natural resources. In which, the USA, Japan, the Republic of Korea, EU and Singapore firms tend to undertake investment in more capital-intensive industries such as automobile/motorcycle and metal mechanics, and electronics that are Vietnam's import-substitute industries. The firms from these advanced countries are usually large in sizes as well. Enterprises from other countries such as Hong Kong, Taiwan, Thailand, the Philippines, and Malaysia that are, to some extent, "similar in terms of endowments and technology levels" concentrate in labor-intensive industries such as in shoes, apparel, and textiles. They are characterized by medium and small sizes (Tran, V.T., 2004). According to a survey (PCI-FDI) conducted by the GSO/VCCI of Vietnam in 2011, the median foreign invested enterprise (FIE) in Vietnam remains relatively small, export-oriented, and operating a low-margin business that is subcontracting to a larger multinational producer-and is therefore usually situated in the lowest node in a

---

<sup>22</sup> There are many traditional estimation techniques for the estimation of gravity model such as the Ordinary Least Square (OLS), the Fixed-Effects (FE) or the Random-Effects (RE). However, they have their own disadvantages. Specifically, an OLS analysis only asks about cross-sectional variation. Thus, with a panel dataset, the OLS method is not very reliable for it can lead to a significant bias. A fixed-effects analysis avoids the problems that unobserved heterogeneity can create. However, a fixed-effects model could not estimate coefficients of time invariant variables since they reveal the *distance* between two countries and reveal whether they *share a land border*. In fact, these variables are quite interesting in a gravity model. A random-effects model can give us estimates of coefficients of the time invariant variables but it cannot incorporate country fixed-effects, which are likely to be presented in a heterogeneous country sample.

The author employs the Hausman-Taylor (1981) estimator for the empirical analysis presented in this research for its superior than the OLS, FE and RE estimation techniques. Historically, Hausman and Taylor (1981) proposed a new model that could *incorporate the advantages of the random-effects and the fixed-effects models*. Egger (2005) stated that the Hausman-Taylor (1981) estimator is consistent and the performance is at least equivalent to the random-effects and the fixed-effects estimators. McPherson and Trumbull (2003) also tested different estimators and found the Hausman-Taylor (1981) estimator to be superior in the estimation results.

**Table 2. Variables and Data Resources**

| Variables  | Data Resources  |
|--|---|
| $\text{LnFDI}_{it}$                                    | Vietnam Ministry of Planning and Investment, Vietnam General Statistics Office    |
| SIMSIZE  | Calculation from figures published by the United Nations Statistics Division & WB |
| $\text{LnEX}_{jt-1}$                                   | Vietnam Ministry of Industry and Trade, Vietnam General Statistics Office, ADB    |
| $\text{LnIM}_{jt-1}$                                   | Vietnam Ministry of Industry and Trade, Vietnam General Statistics Office, ADB    |
| $\text{LnDIS}_{\text{VNj}}$                            | CEPII (the French Institute for Research on the International Economy)            |
| $\text{LnGDP}_{\text{VNI}}$                            | United Nations Statistics Division, World Bank                                    |
| $\text{LnGDP}_{jt}$                                    | United Nations Statistics Division, World Bank                                    |
| $\text{LnRER}_{\text{CURj/VNDt}}$                      | United Nations Statistics Division, World Bank, Asian Development Bank            |
| $\text{Ln}(\text{ins}_{\text{VNI}} + \text{ins}_{jt})$ | World Bank  |
| AFTA   | WTO's website page, Vietnam WTO central website page                              |
| USBTA  | WTO's website page, Vietnam WTO central website page                              |
| ACFTA  | WTO's website page, Vietnam WTO central website page                              |
| AKFTA  | WTO's website page, Vietnam WTO central website page                              |
| JVEPA  | WTO's website page, Vietnam WTO central website, Japan Customs website page       |
| AJCEP  | WTO's website page  |
| AANZFTA  | WTO's website page, Vietnam WTO central website page                              |
| $\text{Bothin}_{\text{VNjt}}$                          | WTO's website page  |
| $\text{Onein}_{\text{VNjt}}$                           | WTO's website page  |

product's value chain. Sixty-five percent of operations are manufacturing, while only 30 percent of FIEs operate in the services sector. Foreign operations in Vietnam are quite small by international standards. Seventy-five percent of FIEs in Vietnam have less than 300 employees. Indeed, 37 percent have less than 50 employees. Large firms remain a clear minority, representing only 5.3 percent of the sample. In regards to capital size-63 percent of FIEs have licenses that are less than USD 2.5 million and only 13 percent of the sample is licensed for more than USD 25 million (see Table 6 below).

What do FDI enterprises want from Vietnam? Local investment promotion agencies have emphasized low labor cost, natural resources, tax and land incentives and political stability in Vietnam as the basic advantages when introducing the nation's potential. Meanwhile, the PCI-FDI survey also indicated that all FDI businesses highly valued four factors of low labor cost, political stability, workforce quality, and tax and land incentives. This is a short-term and precarious business thinking that is popular

among small and flexible business models. Such businesses only focus on producing low value products like footwear and garments to provide the markets outside Vietnam. It is undeniable that the lack of skilled labor force, poor infrastructure, and weak institution are factors that prevent Vietnam from attracting capital-intensive and high technology projects of advance economies. The expertise comes from the cases of Intel and Japanese firms. Intel had surveyed human resources in several provinces before deciding on investment in Vietnam. It finally chose HCM City as its destination because the city meets its requirement on the largest number and the best quality of information technology employees. A large number of Japanese businesses who plan to build plants in Vietnam got disappointed with the results of the surveys, saying they had found no suitable component suppliers here.<sup>23</sup>

<sup>23</sup> See "Improvements For Quality FDI Attraction". Retrieved September 1, 2013 from website: <http://english.thesaigontimes.vn/Home/business/investment/22194/>

**Table 3. The Estimations of the  $\text{LnFDI}_{jt}$  Equation Using the Hausman-Taylor (1981) Estimator**

| Explanatory variables                    | Dependent variable: $\text{LnFDI}_{jt}$ |                      |                      |                      |                      |
|--|---|----------------------|----------------------|----------------------|----------------------|
|  | (FDI-1)                                 | (FDI-2)              | (FDI-3)              | (FDI-4)              | (FDI-5)              |
| Time varying exogenous                   |   |                      |                      |                      |                      |
| SIMSIZE                                  | 3.9898**<br>(0.040)                     | 3.7599**<br>(0.051)  | 3.8528**<br>(0.044)  | 3.9660**<br>(0.055)  | 4.6109**<br>(0.018)  |
| $\text{LnRERCURj/VNDt}$                  | -                                       | -0.1981<br>(0.458)   | -0.1410<br>(0.585)   | -0.0446<br>(0.848)   | -0.0129<br>(0.944)   |
| $\text{Ln}(\text{insVNT}^*\text{insjt})$ | -                                       | 0.7106<br>(0.342)    | 0.5563<br>(0.462)    | 0.5150<br>(0.517)    | 0.5784<br>(0.430)    |
| AFTA                                     | -                                       | -                    | -                    | -0.9250**<br>(0.043) | -0.4673<br>(0.331)   |
| USBTA                                    | -                                       | -                    | -                    | 0.4010<br>(0.474)    | 0.3701<br>(0.517)    |
| ACFTA                                    | -                                       | -                    | -                    | 0.7127***<br>(0.085) | 0.4877<br>(0.259)    |
| AKFTA                                    | -                                       | -                    | -                    | 1.0351*<br>(0.010)   | 0.9299**<br>(0.029)  |
| JVEPA                                    | -                                       | -                    | -                    | 0.2500<br>(0.768)    | 0.1245<br>(0.884)    |
| AJCEP                                    | -                                       | -                    | -                    | 0.2794<br>(0.628)    | 0.2962<br>(0.607)    |
| AANZFTA                                  | -                                       | -                    | -                    | -0.9955**<br>(0.026) | -1.0402**<br>(0.021) |
| BothinVNjt                               | -                                       | -                    | -                    | -                    | 1.1680**<br>(0.011)  |
| OneinVNjt                                | -                                       | -                    | -                    | -                    | 0.7880**<br>(0.028)  |
| Time varying endogenous                  |   |                      |                      |                      |                      |
| $\text{LnGDPVnt}$                        | -4.0431**<br>(0.016)                    | -3.9525**<br>(0.018) | -4.0900**<br>(0.015) | -4.2492**<br>(0.020) | -5.8215*<br>(0.001)  |
| $\text{LnGDPjt}$                         | 4.7107*<br>(0.007)                      | 4.6975*<br>(0.007)   | 4.8883*<br>(0.005)   | 4.6645**<br>(0.012)  | 4.8602*<br>(0.006)   |
| $\text{LnEXjt-1}$                        | -                                       | -                    | -                    | -                    | 0.1065<br>(0.445)    |
| $\text{LnIMjt-1}$                        | -                                       | -                    | -                    | -                    | 0.1456<br>(0.456)    |
| Time invariant exogenous                 |   |                      |                      |                      |                      |
| $\text{LnDISVNj}$                        | -2.1682*<br>(0.000)                     | -2.1989*<br>(0.007)  | -2.4740*<br>(0.002)  | -2.2448*<br>(0.003)  | -1.7819*<br>(0.007)  |
| BORVNj                                   | -                                       | -                    | -3.0363<br>(0.217)   | -2.9283<br>(0.165)   | -2.1796<br>(0.170)   |
| Constant                                 | 15.8299*<br>(0.007)                     | 9.6135<br>(0.273)    | 11.2294<br>(0.194)   | 19.0965**<br>(0.023) | 43.2178*<br>(0.000)  |

Notes: \*, \*\*, and \*\*\* indicate significance at the levels of 1%, 5%, and 10% respectively; Values in parentheses are P. values.

**Table 4. The Gravity Model Estimations of the  $\text{LnFDI}_{jt}$  Equation Using the Fixed-Effects (FE) and the Random-Effects (RE) Techniques**

| Explanatory variables                                  | Dependent variable: $\text{LnFDI}_{jt}$ |             |               |             |             |                     |             |             |              |             |
|--|---|-------------|---------------|-------------|-------------|---------------------|-------------|-------------|--------------|-------------|
|  | Fixed-Effects (FE)                      |             |               |             |             | Random-Effects (RE) |             |             |              |             |
|  | FE-1                                    | FE-2        | FE-3          | FE-4        | FE-5        | RE-1                | RE-2        | RE-3        | RE-4         | RE-5        |
| SIMSIZE  | 4.049697**                              | 4.546365**  | 4.546365**    | 4.408096*** | 4.593877**  | 3.388574**          | 2.923631*** | 3.632407**  | 4.032659**   | 4.309657**  |
| $\text{LnRER}_{\text{CURj/VNDt}}$                      | -                                       | -0.86829*** | -0.8682986*** | -0.6434077  | -0.4073603  | -                   | -0.1103138  | -0.0277686  | -0.012234    | -0.0616861  |
| $\text{Ln}(\text{ins}_{\text{VNI}} * \text{ins}_{jt})$ | -                                       | 0.4166111   | 0.4166111     | 0.1362294   | 0.3120695   | -                   | 1.157419*** | 0.7515263   | 0.6182931    | 0.5105266   |
| AFTA   | -                                       | -           | -             | 0.8954155** | -0.5372779  | -                   | -           | -           | -0.9222327** | -0.5010929  |
| USBTA  | -                                       | -           | -             | 0.3730388   | 0.3038745   | -                   | -           | -           | 0.4286359    | 0.3331526   |
| ACFTA  | -                                       | -           | -             | 0.5923323   | 0.5296957   | -                   | -           | -           | 0.7310021*** | 0.5201221   |
| AKFTA  | -                                       | -           | -             | 0.989614**  | 0.9293823** | -                   | -           | -           | 1.040886*    | 0.9159455** |
| JVEPA  | -                                       | -           | -             | 0.2285959   | 0.1552538   | -                   | -           | -           | 0.2361662    | 0.1527557   |
| AJCEP  | -                                       | -           | -             | 0.2248139   | 0.2600929   | -                   | -           | -           | 0.2866515    | 0.2928524   |
| AANZFTA  | -                                       | -           | -             | -1.017189** | 0.9953795** | -                   | -           | -           | -0.9921219** | -1.020472** |
| BothinVNjt   | -                                       | -           | -             | -           | 1.25149**   | -                   | -           | -           | -            | 1.247311*   |
| OneinVNjt  | -                                       | -           | -             | -           | 0.8862748** | -                   | -           | -           | -            | 0.8437546** |
| $\text{LnGDPVnt}$                                      | -4.432238*                              | -4.910735*  | -4.910735*    | -4.769758** | -5.578758*  | -3.487199**         | -3.051129** | -3.779917*  | -4.295404**  | -5.471226*  |
| $\text{LnGDPjt}$                                       | 5.386569*                               | 5.894102*   | 5.894102*     | 5.427894*   | 4.921444**  | 4.104089*           | 3.620772**  | 4.47387*    | 4.680601*    | 4.603609**  |
| $\text{LnEXjt-1}$                                      | -                                       | -           | -             | -           | 0.1401995   | -                   | -           | -           | -            | 0.1327063   |
| $\text{LnIMjt-1}$                                      | -                                       | -           | -             | -           | 0.0033091   | -                   | -           | -           | -            | 0.0654647   |
| $\text{LnDISVNj}$                                      | (omitted)                               | (omitted)   | (omitted)     | (omitted)   | (omitted)   | -2.041279*          | -1.937437*  | -2.36782*   | -2.24838*    | -1.755345** |
| BORVNj   | -                                       | -           | (omitted)     | (omitted)   | (omitted)   | -                   | -           | -2.56529*** | -2.824078*** | -2.125425   |
| Constant   | -10.92806                               | -8.37377    | -8.37377      | 0.9903413   | 27.95729*** | 16.3081*            | 8.535893    | 11.06613    | 18.88486**   | 42.66553*   |

Notes: \*, \*\*, and \*\*\* indicate significance at the levels of 1%, 5%, and 10% respectively.

**Table 5. GDP at 2005 Price of Country Samples (USD billion)**

|                        | 1995    | 1996    | 1997    | 1998    | 1999    | 2000    | 2001    | 2002    | 2003    | 2004    | 2005    | 2006    | 2007    | 2008    | 2009    | 2010    | 2011     |
|------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|
| Australia              | 531.38  | 552.49  | 577.82  | 607.64  | 631.65  | 644.73  | 669.90  | 691.83  | 720.58  | 741.90  | 764.76  | 792.02  | 822.37  | 834.28  | 853.26  | 874.47  | 1069.75  |
| Belgium                | 302.85  | 307.16  | 318.63  | 324.78  | 336.28  | 348.62  | 351.43  | 356.21  | 359.09  | 370.83  | 377.25  | 387.44  | 398.68  | 402.49  | 391.06  | 399.92  | 455.61   |
| Canada                 | 816.66  | 829.88  | 864.95  | 900.39  | 950.20  | 999.92  | 1017.76 | 1047.52 | 1067.23 | 1100.53 | 1133.75 | 1165.76 | 1191.41 | 1199.61 | 1166.38 | 1203.88 | 1509.80  |
| China                  | 948.49  | 1043.33 | 1140.36 | 1229.32 | 1322.74 | 1433.85 | 1552.86 | 1694.17 | 1863.59 | 2051.81 | 2283.67 | 2573.69 | 2939.16 | 3221.32 | 3517.68 | 3883.52 | 5303.26  |
| Hong Kong              | 127.48  | 132.82  | 139.54  | 131.13  | 134.48  | 145.18  | 145.90  | 148.58  | 153.05  | 166.01  | 177.77  | 190.25  | 202.40  | 207.07  | 201.56  | 215.61  | 226.55   |
| France                 | 1725.64 | 1744.06 | 1782.15 | 1842.35 | 1903.00 | 1973.03 | 2009.25 | 2027.92 | 2046.16 | 2098.23 | 2136.55 | 2189.26 | 2239.29 | 2237.48 | 2176.40 | 2208.61 | 2502.28  |
| Germany                | 2448.68 | 2468.05 | 2510.92 | 2557.67 | 2605.53 | 2685.2  | 2725.86 | 2726.14 | 2715.9  | 2747.44 | 2766.25 | 2868.6  | 2962.38 | 2994.46 | 2840.94 | 2945.78 | 3388.5   |
| Japan                  | 4068.39 | 4175.69 | 4240.98 | 4154.08 | 4148.23 | 4265.77 | 4274.74 | 4285.95 | 4346.53 | 4465.81 | 4552.19 | 4645.03 | 4754.78 | 4699.37 | 4403.9  | 4578.54 | 6361.42  |
| Malaysia               | 86.6    | 95.27   | 102.24  | 94.72   | 100.53  | 109.44  | 110     | 115.93  | 122.65  | 130.97  | 137.95  | 146.02  | 155.48  | 162.96  | 160.29  | 171.82  | 223.57   |
| The Netherlands        | 490.38  | 507.09  | 528.79  | 549.53  | 575.27  | 597.95  | 609.46  | 609.93  | 611.97  | 625.66  | 638.47  | 660.14  | 686.02  | 698.39  | 673.69  | 685.08  | 774.1    |
| The Philippines        | 69.12   | 73.17   | 76.96   | 76.52   | 78.87   | 82.35   | 84.74   | 87.83   | 92.19   | 98.37   | 103.07  | 108.47  | 115.65  | 120.45  | 121.83  | 131.13  | 172.98   |
| The Republic of Korea  | 526.72  | 564.57  | 597.128 | 563.00  | 623.42  | 678.27  | 705.22  | 755.64  | 776.82  | 812.70  | 844.86  | 888.61  | 933.98  | 955.45  | 958.50  | 1017.57 | 975.91   |
| The Russian Federation | 524.11  | 505.20  | 512.18  | 484.80  | 515.59  | 567.39  | 596.27  | 624.56  | 670.13  | 718.22  | 764.01  | 826.30  | 896.83  | 943.90  | 870.14  | 905.24  | 911.03   |
| Singapore              | 74.85   | 80.64   | 87.54   | 85.69   | 91.02   | 99.28   | 98.07   | 102.22  | 106.92  | 116.80  | 125.42  | 136.34  | 148.30  | 150.51  | 149.35  | 170.96  | 219.74   |
| Thailand               | 134.46  | 142.40  | 140.45  | 125.68  | 131.27  | 137.51  | 140.49  | 147.96  | 158.53  | 168.58  | 176.35  | 185.33  | 194.68  | 199.51  | 194.87  | 210.07  | 277.26   |
| The United Kingdom     | 1654.44 | 1702.17 | 1760.44 | 1828.03 | 1894.85 | 1979.32 | 2041.68 | 2095.94 | 2169.81 | 2233.94 | 2280.53 | 2339.99 | 2421.10 | 2394.40 | 2289.68 | 2330.01 | 2087.23  |
| Taiwan                 | 287.6   | 292.82  | 295.48  | 262.38  | 288.16  | 314.98  | 286.06  | 294.40  | 306.85  | 335.35  | 364.80  | 380.43  | 399.42  | 418.84  | 392.34  | 454     | 522      |
| The USA                | 9019.9  | 9361.4  | 9783.2  | 10213.8 | 10711.1 | 11158.1 | 11280.1 | 11486.3 | 11779.5 | 12189.4 | 12564.3 | 12898.4 | 13144.4 | 13097.2 | 12635.2 | 13017   | 13238.28 |
| Vietnam                | 26.33   | 28.79   | 31.13   | 32.93   | 34.50   | 36.84   | 39.38   | 42.17   | 45.27   | 48.79   | 52.91   | 57.27   | 62.11   | 66.03   | 69.54   | 74.26   | 60.89    |

Source: United Nations Statistics Division (UNSD)

**Table 6. Correlation Matrix**

| Correlations                              | LnFDI <sub>t</sub> | LnSIMSIZE | LnEX <sub>t-1</sub> | LnIM <sub>t-1</sub> | LnDIS <sub>VNI</sub> | LnGDP <sub>VNI</sub> | LnGDP <sub>t</sub> | LnRER <sub>CURVNDI</sub> | Ln(ins <sub>VNI</sub> *ins <sub>t</sub> ) | AFTA   | USBTA   | ACFTA   | AKFTA   | JVEPA   | AJCEP   | AANZF <sub>A</sub> | Bothin <sub>VNI</sub> | Onein <sub>VNI</sub> | BOR <sub>VNI</sub> |  |
|---|--------------------|-----------|---------------------|---------------------|----------------------|----------------------|--------------------|--------------------------|---|--------|---------|---------|---------|---------|---------|--------------------|-----------------------|----------------------|--------------------|--|
| LnFDI <sub>t</sub>                        | 1.0000             |           |                     |                     |                      |                      |                    |                          |   |        |         |         |         |         |         |                    |                       |                      |                    |  |
| LnSIMSIZE                                 | -0.0948            | 1.0000    |                     |                     |                      |                      |                    |                          |   |        |         |         |         |         |         |                    |                       |                      |                    |  |
| LnEX <sub>t-1</sub>                       | 0.3029             | -0.2077   | 1.0000              |                     |                      |                      |                    |                          |   |        |         |         |         |         |         |                    |                       |                      |                    |  |
| LnIM <sub>t-1</sub>                       | 0.5406             | 0.0290    | 0.7413              | 1.0000              |                      |                      |                    |                          |   |        |         |         |         |         |         |                    |                       |                      |                    |  |
| LnDIS <sub>VNI</sub>                      | -0.3119            | -0.6802   | -0.0742             | -                   | 1.0000               |                      |                    |                          |   |        |         |         |         |         |         |                    |                       |                      |                    |  |
|   |                    |           |                     | 0.4521              |                      |                      |                    |                          |   |        |         |         |         |         |         |                    |                       |                      |                    |  |
| LnGDP <sub>VNI</sub>                      | 0.0030             | 0.1061    | 0.6920              | 0.5483              | -0.0000              | 1.0000               |                    |                          |   |        |         |         |         |         |         |                    |                       |                      |                    |  |
| LnGDP <sub>t</sub>                        | 0.0865             | -0.9676   | 0.3476              | 0.0884              | 0.7099               | 0.1281               | 1.0000             |                          |   |        |         |         |         |         |         |                    |                       |                      |                    |  |
| LnRER <sub>CURVNDI</sub>                  | -0.2972            | -0.2000   | -0.0630             | -                   | 0.5159               | -0.0028              | 0.1978             | 1.0000                   |   |        |         |         |         |         |         |                    |                       |                      |                    |  |
|   |                    |           |                     | 0.4182              |                      |                      |                    |                          |   |        |         |         |         |         |         |                    |                       |                      |                    |  |
| Ln(ins <sub>VNI</sub> *ins <sub>t</sub> ) | 0.1801             | -0.1977   | 0.1114              | -                   | 0.2974               | -0.0004              | 0.2023             | 0.4807                   | 1.0000                                    |        |         |         |         |         |         |                    |                       |                      |                    |  |
|   |                    |           |                     | 0.0552              |                      |                      |                    |                          |   |        |         |         |         |         |         |                    |                       |                      |                    |  |
| AFTA                                      | -0.0265            | 0.4911    | 0.1364              | 0.2144              | -0.5286              | 0.2534               | -0.4825            | -0.1107                  | -0.2318                                   | 1.0000 |         |         |         |         |         |                    |                       |                      |                    |  |
| USBTA                                     | 0.1236             | -0.4434   | 0.3111              | 0.0779              | 0.2636               | 0.1036               | 0.4313             | 0.1667                   | 0.0894                                    | -      | 1.0000  |         |         |         |         |                    |                       |                      |                    |  |
|   |                    |           |                     |                     |                      |                      |                    |                          |   | 0.0828 |         |         |         |         |         |                    |                       |                      |                    |  |
| ACFTA                                     | 0.0209             | 0.3498    | 0.2509              | 0.3510              | -0.5083              | 0.3199               | -0.3182            | -0.1082                  | -0.3311                                   | 0.8265 | -0.0893 | 1.0000  |         |         |         |                    |                       |                      |                    |  |
| AKFTA                                     | 0.1275             | 0.2946    | 0.2296              | 0.3196              | -0.3230              | 0.3583               | -0.2352            | -0.2205                  | -0.1382                                   | 0.5578 | -0.0603 | 0.5136  | 1.0000  |         |         |                    |                       |                      |                    |  |
| JVEPA                                     | 0.1396             | -0.1377   | 0.2283              | 0.1976              | -0.0069              | 0.1443               | 0.1678             | -0.1682                  | 0.0574                                    | -      | -0.0233 | -0.0509 | -0.0343 | 1.0000  |         |                    |                       |                      |                    |  |
|   |                    |           |                     |                     |                      |                      |                    |                          |   | 0.0472 |         |         |         |         |         |                    |                       |                      |                    |  |
| AJCEP                                     | 0.0944             | 0.1895    | 0.2779              | 0.2995              | -0.2760              | 0.3315               | -0.1403            | -0.1379                  | -0.1131                                   | 0.4946 | -0.0534 | 0.4553  | 0.6935  | 0.4352  | 1.0000  |                    |                       |                      |                    |  |
| AANZF <sub>A</sub>                        | -0.0222            | 0.2233    | 0.2171              | 0.2078              | -0.2099              | 0.2900               | -0.1722            | -0.0194                  | -0.0896                                   | 0.4246 | -0.0459 | 0.3909  | 0.5954  | -0.0261 | 0.6748  | 1.0000             |                       |                      |                    |  |
| Bothin <sub>VNI</sub>                     | 0.0819             | 0.0699    | 0.5423              | 0.4460              | -0.0190              | 0.7449               | 0.1021             | 0.0130                   | 0.1122                                    | 0.1617 | 0.0626  | 0.2193  | 0.4810  | 0.1856  | 0.4264  | 0.3661             | 1.0000                |                      |                    |  |
| Onein <sub>VNI</sub>                      | -0.0494            | -0.0709   | -0.4024             | -                   | 0.0393               | -0.5588              | -0.0718            | 0.1009                   | 0.1806                                    | -      | -0.0241 | -0.1294 | -0.3982 | -0.1536 | -0.3530 | -0.3031            | -0.8278               | 1.0000               |                    |  |
|   |                    |           |                     | 0.3946              |                      |                      |                    |                          |   | 0.0812 |         |         |         |         |         |                    |                       |                      |                    |  |
| BOR <sub>VNI</sub>                        | 0.0091             | -0.1829   | 0.1816              | 0.2154              | -0.1434              | -0.0000              | 0.1884             | -0.0356                  | -0.3531                                   | -      | -0.0490 | 0.2787  | -0.0723 | -0.0279 | -0.0641 | -0.0551            | 0.0088                | -0.1454              | 1.0000             |  |
|   |                    |           |                     |                     |                      |                      |                    |                          |   | 0.0994 |         |         |         |         |         |                    |                       |                      |                    |  |

**Table 7. Summary the Statistics (Period: 1995-2011; Countries: 18; Observations: 306)**

| Variables        | Observations | Mean    | Standard Deviation | Min     | Max     |
|------------------|--------------|---------|--------------------|---------|---------|
| LnFDIjt          | 306          | 17.9667 | 1.8493             | 10.6048 | 21.7692 |
| LnSIMSIZE        | 306          | -2.2742 | 1.1348             | -5.1491 | -0.7707 |
| LnEXjt-1         | 306          | 20.2589 | 1.2556             | 15.2265 | 23.4143 |
| LnIMjt-1         | 306          | 20.2065 | 1.4982             | 16.1206 | 23.7405 |
| LnDISVNj         | 306          | 8.3099  | 0.9309             | 6.7140  | 9.5226  |
| LnGDPVNt         | 306          | 24.5363 | 0.3192             | 23.9940 | 25.0309 |
| LnGDPjt          | 306          | 27.2633 | 1.3520             | 24.9592 | 30.2141 |
| LnRERCURj/VNDt   | 306          | 7.8679  | 2.0986             | 2.2857  | 10.3280 |
| Ln(insVNt*insjt) | 306          | 7.9462  | 0.3711             | 6.6646  | 8.3058  |
| AFTA             | 306          | 0.1437  | 0.3514             | 0       | 1       |
| USBTA            | 306          | 0.0392  | 0.1944             | 0       | 1       |
| ACFTA            | 306          | 0.1633  | 0.3703             | 0       | 1       |
| AKFTA            | 306          | 0.0816  | 0.2743             | 0       | 1       |
| JVEPA            | 306          | 0.0130  | 0.1137             | 0       | 1       |
| AJCEP            | 306          | 0.0653  | 0.2475             | 0       | 1       |
| AANZFTA          | 306          | 0.0490  | 0.2162             | 0       | 1       |
| BothinVNjt       | 306          | 0.2777  | 0.4486             | 0       | 1       |
| OneinVNjt        | 306          | 0.6405  | 0.4806             | 0       | 1       |
| BORVNj           | 306          | 0.0555  | 0.2294             | 0       | 1       |

**Table 8. Characteristics of the FIEs in the PCI-FDI Survey in 2011**

| Sectors                                | (%)    |
|--|--------|
| Industry/Manufacturing                 | 65.0%  |
| Service/Commerce                       | 29.4%  |
| Construction/Infrastructure Investment | 4.1%   |
| Agriculture/Forestry/Aquaculture       | 1.4%   |
| Finance/Banking/Insurance              | 1.1%   |
| Mining/Natural Resource                | 0.3%   |
| Size of Labor Force                    | (%)    |
| Less than 5                            | 3.57%  |
| 5 to 9                                 | 5.10%  |
| 10 to 49                               | 28.43% |
| 50 to 299                              | 38.00% |
| 300 to 399                             | 5.70%  |
| 400 to 499                             | 8.25%  |
| 500 to 999                             | 5.64%  |
| 1000 and over                          | 5.31%  |
| Licensed Investment Size               | (%)    |
| Under 0.5 billion VND (USD 25,000)     | 3.57%  |

Above all, over the two decades since the start of renovation policy in the late 1980s, Vietnam has attracted a large amount of FDI capital from both advanced countries (e.g., the G7 economies) and emerging/developing economies (e.g., Hong Kong, Malaysia, Taiwan, Thailand, the Philippines, the Republic of Korea, etc.). In which, Vietnam tends to attract more FDI capital from counterparts that are “similar in terms of endowments and technology levels”. This is consistent with the national advantages in cheap labor, abundant natural resources, and preferential policies in the early stage of the industrialization and modernization process. The situation of FDI in Vietnam supports the empirical results presented in this study.

## 5. CONCLUDING REMARKS AND POLICY RECOMMENDATIONS

By employing gravity model and the Hausman-Taylor estimator, the author finds empirical evidence that the index of countries' similarity in size strongly promotes FDI inflows into Vietnam. In other words, Vietnam has received more FDI capital from counterparts that are “similar in terms of endowments and technology levels”. This supports the new theory of FDI as those models were motivated by the observation that FDI arises more among similar countries. The empirical results also suggest that FDI may flow between emerging/developing economies in the globe.

What are policy implications for Vietnam? Generally, Vietnam's FDI attraction policy has just successfully fascinated small and medium FDI projects from similar emerging/developing economies. These projects have aimed at exploiting natural resources, local cheap workforce or enjoying tax and land incentives to maximize their overall profits. Current incentives are just attractive to those low-tech manufacturers relying on input cost cut to survive. To lure high quality FDI projects from industrialized countries like the G7 economies Vietnam should train a skilled labor force, perfect infrastructure, establish a dynamic and

high-level local business community as well as improve the environment, mechanism in line with international standards. Improving the investment environment and mechanism is a sustainable and long-term solution to entice MNCs from the world. This is necessary for the process of industrialization and modernization in Vietnam.

In conclusion, this investigation may cast light on the existing literature on the new theory of FDI in terms of testable implications from gravity model on the case of selected emerging/developing economies. Since, existing data are quite limited, evaluating the impact of the countries' similarity in size (SIMSIZE in short) on FDI outflows of Vietnam to sample countries or on FDI flows between selected countries merits further research to understand how this factor affects to FDI.

## REFERENCE

- Brenton, P. (1996). The Impact of the Single Market on Foreign Direct Investment in the EU. Report for DG II, mimeo.
- Brenton, P. and F. Di Mauro (1999). The Potential Magnitude and Impact of FDI flows to CEECs. *Journal of Economic Integration*, Vol. 14 No. 1: 59-74.
- Buckley, P.J. and M. Casson (1976). *The Future of the Multinational Enterprise*. Homes & Meier: London.
- Bui Anh Tuan (2011). Determinants of foreign direct investment in Vietnam 1988-2009. PhD thesis, University of Greenwich.
- Cantwell, J. (2000). A survey of theories of international production, in Pitelis & Sugden (2000). *The Nature of the Transnational Firm*. London: Routledge: 13-17; 20-14.
- Caves & R.E. Caves (1999). *Multinational Enterprise and Economic Analysis*. Cambridge: Cambridge University Press: 3-11; 24-27.
- Changwachai, P. (2010). *The Determinants of FDI Inflows by Industry to ASEAN (Indonesia, Malaysia, Philippines, Thailand, and Vietnam)*. A doctoral dissertation, University of Utah.
- Cushman, D.O. (1985). Real Exchange Rate Risk, Expectations and the Level of Direct Investment. *Review of Economics and Statistics*, 67 (2): 297-308.



- Denisia, V. (2010). Foreign Direct Investment Theories: An Overview of the Main FDI Theories. Available at <http://ssrn.com/abstract=1804514>.
- Du, Juan (2010). What are the determinants of FDI to Vietnam? Master Thesis for Supply Chain Management Program, Tilburg University.
- Dunning, J. H. (1973). The determinants of international production. *Oxford Economic Papers* 25.
- Dunning, J. H. (1980). Toward an eclectic theory of international production: Some empirical tests. *Journal of International Business Studies* issue 11.
- Dunning, J. H. (1988). The Eclectic Paradigm of International Production: A restatement and some possible extensions. *Journal of International Business Studies* issue 19 (Spring).
- Eaton, J. and A. Tamura (1996). Japanese and US exports and investment as conduit of growth. NBER Working Paper N. 5457.
- Egger, P. (2005). "Alternative Techniques for Estimation of Cross-Section Gravity Models", *Review of International Economics*, 13(5): 881-891.
- Ethier, W. and S.A. Ross (1971). International capital movements and long run diversification. *Journal of International Economics* 1: 301-314.
- Grossman, G.M., E. Helpman, and A. Szeidl (2006). Optimal integration strategies for the multinational firm. *Journal of International Economics* 70: 216-238.
- Helpman, E. (1984). A Simple Theory of International Trade with Multinational Corporations. *Journal of Political Economy*, Vol. 92, No. 31.
- Helpman, E. and P. Krugman (1985). *Market Structure and Foreign Trade*. MIT Press, Cambridge.
- Hennart, J.F. (1982). *A theory of multinational enterprise*. University of Michigan Press.
- Hoang, Chi Cuong, Thi Bich Ngoc, Do, Thi Phuong Mai, Bui, and Huyen Linh, Dang (2013). Trade Liberalization and Foreign Direct Investment in Vietnam: A Gravity Model Using Hausman-Taylor Estimator Approach. *Journal of Science and Development*, 11(1): 85-96.
- Hymer, S.H. (1960). *The International Operations of National Firms: A Study of Direct Foreign Investment*. A PhD. dissertation (published in 1976).
- Itagaki, Takao (1981). The theory of the multinational firm under exchange rate uncertainty. *Canadian Journal of Economics* 14: 276-297.
- Markusen, J.R. and A.J. Venables (1998). Multinational Firms and the New Trade Theory. *Journal of International Economics*, 46: 183-203.
- Markusen, J.R. and A.J. Venables (1999). Foreign direct investment as a catalyst for industrial development. *European Economic Review* 43: 335-356.
- Mauro, F.D. (November 2000). The Impact of Economic Integration on FDI and Exports: A Gravity Approach. Working Document No. 156.
- McPherson, M. and W. Trumbull (2003). "Using the Gravity Model to Estimate Trade Potential: Evidence in Support of the Hausman-Taylor Method", Western Economic Association International, Denver, Colorado, retrieved December 25, 2012 from website: <http://www.be.wvu.edu/div/econ/McPherson.pdf>.
- Moosa, I.A. (2002). *Foreign Direct Investment: Theory, Evidence and Practice*. Palgrave Macmillan Publisher.
- Mundell, R.A. (1957). International Trade and Factor Mobility. *The American Economic Review*. Vol. 47, No. 3: 321-335.
- Nguyen, Dinh Chien, Z.K. Zhong, and Thi Giang, Tran (2012). FDI and Economic Growth: Does WTO Accession and Law Matter Play Important Role in Attracting FDI? The Case of Viet Nam. *International Business Research*, 5(8): 214-227.
- Nguyen, Ngoc Anh and Thang, Nguyen, (2007). Foreign direct investment in Vietnam: An overview and analysis the determinants of spatial distribution across provinces, MPRA Paper No. 1921: 7-38, retrieved May 4, 2012 from website [mpra.ub.uni-muenchen.de/.../MPRA\\_paper\\_1921.pdf](http://mpra.ub.uni-muenchen.de/.../MPRA_paper_1921.pdf).
- Nguyen, Nhu Binh and J. Haughton (2002). Trade liberalization and foreign direct investment in Vietnam. *ASEAN Economic Bulletin*, 19 (3): 302-18.
- Pham, Thi Hong Hanh (2011). Does the WTO Accession Matter for the Dynamics of Foreign Direct Investment and Trade? *Economic of Transition*, 19(2): 255-285.
- Razin, A. and E. Sadka (2007). *Foreign Direct Investment: An analysis of aggregate flows*. Princeton: Princeton University Press: 8.
- Tran, Van Tho (2004). *Foreign Direct Investment and Economic Development: The Case of Vietnam*. Working paper.
- Vernon, R. (1966). International investment and international trade in the product cycle. *Quarterly Journal of Economics* 80: 190-207.
- Wu, Chung-Min, Thi-Ngoan, Nguyen, Quoc-Dat, Luu (2013). Determinants of Foreign Direct Investment in Vietnam: A comparison. Working paper.
- Zhang, K.H. and J.R. Markusen (1999). Vertical multinationals and host-country characteristics. *Journal of Development Economics*, 59: 233-252.