

**DETERMINANTS OF FOREIGN DIRECT INVESTMENT
AND ITS EFFECTS ON TRADE AND ECONOMIC
GROWTH IN VIETNAM**

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ปรากฏการณ์การพัฒนาทางเศรษฐกิจของประเทศเวียดนามซึ่งเกิดขึ้นในช่วงเวลาเดียวกันกับการไหลเข้าของการลงทุน
โดยตรงจากต่างประเทศจำนวนมาก ทำให้นักวิจัยหลายคน รวมทั้งผู้ศึกษาเองเชื่อว่า การลงทุนจากต่างประเทศที่เพิ่มขึ้นนั้น เป็นส่วน
สำคัญที่ช่วยให้การค้าและเศรษฐกิจของประเทศเวียดนามขยายตัวในหลายทศวรรษที่ผ่านมา วิทยานิพนธ์ฉบับนี้ ศึกษาถึงปัจจัยต่างๆ
ที่กำหนดการไหลเข้าของการลงทุนโดยตรงจากต่างประเทศ และผลกระทบของการไหลเข้าของการลงทุนดังกล่าวต่อการ
เจริญเติบโตทางเศรษฐกิจและการค้า ทั้งในระดับประเทศและในระดับภาคต่างๆ ของประเทศเวียดนาม ระหว่างปีพ.ศ. 2536 และ
พ.ศ. 2549 การศึกษาครั้งนี้แสดงให้เห็นว่า ค่าจ้าง รายได้ต่อคน อัตราการเจริญเติบโตของเศรษฐกิจ ปริมาณการลงทุนสะสมจาก
ต่างประเทศ การเปิดตลาดการค้า ตลอดจนเขตเศรษฐกิจพิเศษ ส่วนเป็นปัจจัยสำคัญที่ช่วยดึงดูดการลงทุนจากต่างประเทศให้ไหลเข้า
ในประเทศเวียดนาม สำหรับทุนมนุษย์นั้น พบว่ายังไม่เป็นปัจจัยสำคัญในการกำหนดการลงทุนโดยตรงจากต่างประเทศ เนื่องจากการ
การลงทุนจากต่างประเทศส่วนใหญ่เกี่ยวข้องกับอุตสาหกรรมที่เน้นแรงงานเป็นหลัก แรงงานที่มีทักษะจำนวนมากจึงยังไม่เป็นที่
ต้องการเท่าใดนัก ระบบสาธารณสุขโลกในประเทศก็มีได้ช่วยดึงดูดการลงทุนจากต่างประเทศแต่อย่างไร ซึ่งสะท้อนให้เห็นว่า ระบบ
สาธารณสุขโลกยังต้องพัฒนาคุณภาพอีกมาก

การเจริญเติบโตทางเศรษฐกิจและการลงทุนจากต่างประเทศในประเทศเวียดนามมีความสัมพันธ์ไปในทิศทางเดียวกัน
กล่าวคือ การลงทุนโดยตรงจากต่างประเทศมีส่วนผลักดันให้เกิดการเจริญเติบโตทางเศรษฐกิจของประเทศ เนื่องจากการลงทุน
ดังกล่าวช่วยเพิ่มการสะสมของทุนให้สูงขึ้น เมื่อพิจารณาในระดับภูมิภาคแล้ว พบว่า การไหลเข้าของการลงทุนจากต่างประเทศที่
เพิ่มขึ้น เป็นปัจจัยหลักที่ส่งผลให้ภาคเหนือมีการเจริญเติบโตทางเศรษฐกิจเพิ่มขึ้น ในภาคกลางนั้น การถ่ายเทเทคโนโลยีขั้นสูง
จากบริษัทต่างประเทศที่เข้ามาลงทุนโดยตรง สามารถเพิ่มอัตราการเจริญเติบโตทางเศรษฐกิจได้โดยผ่านการเปิดตลาดการค้าเสรี
ส่วนในภาคตะวันออกเฉียงใต้ การลงทุนโดยตรงจากต่างประเทศช่วยกระตุ้นเศรษฐกิจ โดยช่วยเพิ่มทุนสะสมจากต่างประเทศ และ
การถ่ายเทเทคโนโลยีและความรู้ใหม่ๆ ของบริษัทต่างประเทศให้กับทุนมนุษย์ ซึ่งเมื่อพิจารณาทุกภาคแล้วพบว่า การลงทุน
โดยตรงจากต่างประเทศช่วยส่งเสริมการส่งออก การนำเข้า และปริมาณการค้าโดยรวมของประเทศเวียดนาม แสดงให้เห็นว่าการ
ลงทุนดังกล่าวเป็นไปในลักษณะที่เป็นแนวตั้งซึ่งการค้าและการลงทุนจากต่างประเทศต่างเป็นปัจจัยเกี่ยวพันซึ่งกันและกัน อย่างไรก็ตาม
ดี ความสัมพันธ์ทางการค้าและการลงทุนจากต่างประเทศระหว่างประเทศเวียดนามและกลุ่มคู่ค้าต่างๆ ก็แตกต่างกันออกไปอย่าง
ชัดเจน

การศึกษานี้เสนอแนะว่า เพื่อจะดึงดูดการลงทุนจากต่างประเทศให้ไหลสู่ประเทศเวียดนามมากขึ้น และรักษาระดับการ
พัฒนาของประเทศไว้ได้ ประเทศเวียดนามควรใช้นโยบายส่งเสริมการเพิ่มขึ้นของรายได้ต่อคน อัตราการเจริญเติบโตทางเศรษฐกิจ
และการเปิดเสรีทางการค้าให้มากขึ้น รัฐบาลควรให้ความสำคัญต่อการเพิ่มคุณภาพของทุนมนุษย์และสิ่งสาธารณูปโภคต่างๆ รวมทั้ง
การสร้างบรรยากาศที่เอื้ออำนวยต่อการลงทุน เพื่อให้การลงทุนโดยตรงจากต่างประเทศในอนาคต เป็นไปในทิศทางที่เน้นการผลิต
สินค้าที่มีระดับเทคโนโลยีสูงขึ้น

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PROF. PAITON WIBOONCHUTIKULA, PHD., COADVISOR: ASST. PROF. BANGORN
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Vietnam's phenomenal economic development has coincided with a substantial increase in FDI inflows and hence led researchers, including the author, to believe that increased inflows of FDI into Vietnam have had important implications for the country's trade and economic expansion over the past decades. This dissertation investigates factors determining foreign direct investment (FDI) inflows and the effects of FDI inflows on economic growth and trade in Vietnam and its different regions over the 1993-2006 period. The study reveals that wages, income per capita, GDP growth and accumulated FDI stock as well as openness to trade and special economic zones are important factors attracting FDI inflows into Vietnam. Human capital has not yet been a significant factor determining FDI inflows because FDI activities in Vietnam are mainly in labor-intensive industries in which a large number of skilled labor is not yet required. The existing physical infrastructure in Vietnam does not help attract FDI inflows either and this implies that an improvement in its quality is needed.

Economic growth and FDI in Vietnam have a positively significant relationship. The beneficial effect on growth of FDI comes from stock of foreign capital that has been accumulated over the years. At the regional level, higher capital flow of foreign direct investment is a major factor stimulating economic growth in the Northern region. The flow of superior technologies transferring from FDI firms can also help to increase the growth rate of the Central region by interacting with the region's open trade regime. The contribution of FDI to economic growth in the Southeastern region is explained by both foreign capital accumulation and new technologies and knowledge transferred from FDI enterprises through human capital. In all regions, inward FDI has a complementary relationship with Vietnam's exports, imports and total trade, implying that the FDIs are mostly of the vertical type. However, the patterns of the FDI-trade relationships between Vietnam and different partner countries show major variations.

To attract more FDI inflow into Vietnam and sustain the economic development, Vietnam has to improve the country's income per capita, GDP growth rate and trade openness. The Vietnamese government needs to pay more attention to improved quality of human capital, physical infrastructure as well as putting effect to enhance the investment environment in order to attract FDI inflows into a more technology-intensive line of production in the future.

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LIST OF ABBREVIATIONS

Abbreviation	Explanation
APEC	Asia Pacific Economic Cooperation
ADB	Asian Development Bank
AFTA	Asian Free Trade Association
ASEAN	Association for Southeast Asian Nations
BOT	Build-Operate-Transfer
BT	Build-Transfer
BTO	Build-Transfer-Operation
BCC	Business Cooperation Contract
CEPT	Common Effective Preferential Tariff
ERP	Effective tariff rate of protection
EU	European Union
EPZ	Export Processing Zones
FDI	Foreign Direct Investment
FOC	foreign owned companies
FTA	Free trade agreement
GSO	General Statistic Office, Vietnam
GDP	Gross Domestic Product
HS	Harmonized system
HTZ	High-Tech Zone
IZ	Industry Zone
IMF	International Monetary Fund
LOI	Law on Investment
MPI	Ministry of Planning and Investment, Vietnam
MFN	Most Favored Nation
MNE	Multinational Enterprise

Abbreviation	Explanation
NTB	Non Tariff Barrier
OLS	Ordinary Least Squares
PTA	Preferential Trading Agreement
QR	Quantitative Restriction
SME	Small and Medium Scale Enterprises
SITC	Standard International Trade Classification
SOE	State Owned Enterprise
TRQ	Tariff Rate Quota
TRIM	Trade-Related Investment Measure
UN	United Nations
UNDP	United Nations Development Program
USD	United States Dollar
VAT	Value added tax
VND	Vietnamese Dong
WTO	World Trade Organization

CHAPTER I

INTRODUCTION

1.1. Motivation

Among different types of international capital flows, foreign direct investment (FDI) is the subject of many researches. FDI is an investment made abroad either by establishing a completely new enterprise in a host country or by acquiring enough shares to gain full managerial control in an existing foreign enterprise. According to the IMF's *Balance of Payments Manual* (5th Edition, 1993) and the OECD's *Benchmark Definition of Foreign Direct Investment* (3rd Edition, 1996), FDI is characterized by "the existence of a long-term relationship between the direct investor and the direct investment enterprise and a significant degree of influence by the direct investor on the management of latter". A direct investor could be any individual, an enterprise, a group of related individuals or incorporated enterprises, a financial institution or a government. A direct investment enterprise is an incorporated or unincorporated enterprise in which a direct investor owns 10 percent or more of the ordinary share or voting power. Direct investment enterprises may be subsidiaries, associates or branches (OECD glossary, 1996)¹. Because distinguished by involving some degree of ownership control and a long-term capital flow, FDI has been more stable than others have, so that it is attracting most of the countries in the world. However, it may bring to the host economy through several modes of transmission with both benefits and costs.

Foreign direct investment brings clear benefits in the socio-economic development of host economies. Firstly, as an important source of development financing,

¹ A subsidiary is an incorporated enterprise in which the foreign investor controls directly or indirectly (through another subsidiary) more than 50% of the shareholders' voting power. An associate is an enterprise where the direct investor and its subsidiaries control between 10% and 50% of the voting shares. A branch is a wholly or jointly owned unincorporated enterprise. However, the choice between setting up subsidiary / associate or a branch in a foreign country is dependent on the existing regulations in the host country

FDI increases productivity and economic growth through increasing the volume of investment and its efficiency, better technology, accelerated spillover effects and the accumulation of human capital (Solow, 1956; Romer, 1986 and 1990; Grossman and Helpman, 1991; Borensztein et al. 1998; Chakrabati, 2001; Asiedu, 2002; Durham, 2004). Next, FDI contributes to market access and export growth. Multinationals can provide access to export markets as FDI could be associated with export trade in goods, and the hosting country can benefit from a FDI-led export growth. Multinational enterprises may help developing host countries process and export locally produced raw materials, using their marketing skills, superior technology, and general knowledge. They facilitate the export of local production through their distribution networks, and they often account for a significant share of host country exports (Fontagne and Pajot, 1997; Goldberg and Klein, 1997; Shan, Tian and Sun, 1997). Finally, FDI can have positive influence on the institutional system of the host country. The entry of a foreign subsidiary into local markets can force more active rivalry and improvement in performance than would a domestic entry at the same scale (Moosa, 2002). The knowledge brought in by multinationals often spills over to other firms in the industry through cooperation between firms, suppliers and consumers. The movement of enhanced human capital between industry and imitation of more productive activities through reverse engineering and industrial espionage also appear. Domestic firms are forced to absorb and utilize the new information and technology to keep competitive. Moreover, to attract FDI, a host government will improve itself in education, law, trade and tax policies that meet requirements of multinationals.

However, there are also potential costs associated with FDI that have indirect impacts on overall domestic welfare and long run economic growth. FDI could impact on domestic competition by causing a “stealing market” effect. Even if FDI can create strong linkages with domestic suppliers, subcontractors, and increase investment and business opportunities; it may crowd out less productive domestic firms, which may not be capable of absorbing new technology and competing effectively (Zhang, 2001). Moreover, Calvo et al (1996) said that whenever FDI inflows into a country are large,

they could result in rapid monetary expansion, inflationary pressures, real exchange rate appreciation and widening current account deficits. They suggest that host countries have to carefully consider specific policies to reduce unexpected effect from FDI.

The strong benefits of FDI have led to extensive research on its determinants and effects in many countries. Given the importance of FDI to multinational enterprises and policy makers, the present study seeks to identify the determinants of the inward FDI as well as to evaluate the effect of FDI inflows on economic growth and international trade in Vietnam as it is still undiscovered by many researchers.

1.2. Statement of the problem

Since the launch of market-oriented economic reforms in 1986 (the so called Doi Moi or renovation), Vietnam has been among the fastest growing countries in the Southeast Asia with the active participation of foreign investors in all fields of the economy. The Vietnamese government has quickly jointed competition for foreign direct investment into regional and global markets by restructuring of the domestic economy and opening up of the economy to the external trade and investment.

Foreign direct investment is one of the most significant features of Vietnam's movement from a planned economy toward a market economy. Since the first law on Foreign Investment in the late 1987 that granted legal status for FDI inflows, Vietnam has been greatly attracted attention from foreign investors. FDI inflows into Vietnam increased rapidly during the 1990s and in the first five years of twenty first century. The share of FDI sector under Vietnam's gross domestic product increased from 7.4% in 1996 (VND 20106 billion) to 13.3% in 2000 (VND 58626 billion) and up to 17 % at the end of the year 2006 (VND 165682 billion). By ownership structure, FDI sector accounted for 37.2% of the total industrial output in 2005 and reported for 57.2% of total export and 36.7% to total import value of good in 2006 (GSO, 2005 and 2006). Moreover, FDI absorbed more than 700000 workers directly and hundreds of thousands of workers

indirectly, but only contributed 1.6% to overall employment². In short, over the last 20 years, FDI greatly contributed to Vietnamese's economic development process through economic sectors, international trade, market expansion, investment capital generation, technology and management knowledge transfer, and stimulation of structural change. Not only brings additional capital to the Vietnamese economy, FDI also provides modern technology, managerial expertise and more industries, product and jobs.

Although Vietnam has seen both increase in FDI and economic growth and trade, very few previous researches have been used any econometrics methods to investigate the relation between FDI and economic growth, international trade, and other determinant factors³. The reason that Vietnam has been excluded from most of the regional studies is mainly by the lack of data for analysis. Before 1995, Vietnam's data are not available in any website. Even though the data after 1995 are published in some websites of World Bank, ADB and others, it was not sufficient. The data presented in most of the country's statistical yearbook and not published widely. Moreover, Vietnam began its transaction into the market orient economy in 1986. In 1987, the Law on Foreign Investment was first published. From that time, there is beginning having FDI investors in the country. It shows that, for studying about FDI in Vietnam, data insufficiency and short time period prevents the precise approximation of capital stock. It is known that, estimating capital stock is the crucial step in investigation of the role of capital accumulation in the growth process.

Moreover, even though the country look strongly developed some recent years with GDP growth is average 7.5% annually, Vietnam is still a developing country in the region and in the world. The total GDP, imports, exports and FDI inflows are still small

² Ministry of Labor-Invalid and Social Affairs (2006)

³ Most of published paper on FDI in Vietnam are described its general nature such as Le Dang Doanh (2002), Estrin and Meyer (2002), Freeman (2001) and Leproux and Brooks (2004). There are only two papers studied about FDI in Vietnam using regression analyses are published in international journals as Pham Hoang Mai (2002) and Nguyen Thanh Xuan (2006). Some other discussion papers in this issue were Tran Trong Hung (2005), Nguyen Phi Lan (2006) and Vu, Noy and Gangnes (2006). The papers show a positive picture of FDI flows in Vietnam by saying that FDI helped to cover the saving- investment, foreign exchange and hence had a significant impact on GDP growth. Moreover, it argues that government intervention was fairly successful in making use of FDI flows in Vietnam over the 1988-1998 period.

in comparison to the region and the world. Therefore, economists were no motivation to study about Vietnam.

The above limitations, this study tries to conduct an empirical research and develop some econometric models to hope finding out the crucial factors that enhance foreign direct investment in Vietnam. Moreover, it also wants to expose the effects of FDI inflows on Vietnam economic growth and international trade in the relations with other variables.

1.3. Objectives and Research questions of the Study

My thesis is about the location determinants of FDI and FDI effects on international trade and economic growth in Vietnam on two aspects: the country's level and the regional levels. I select the time from 1988 to 2006 as the time window for my study because of the available data consistency and the maturity of FDI inflows into Vietnam. The present study attempts an investigating into the trends, patterns, impacts and determinants of FDI in Vietnam over the twenty years of its renovation, from 1986 to 2006. The major objectives of this study are:

(1) *To discover the location determinants of FDI in Vietnam and its regions.* The general location patterns are not expected to be stationary, but rather changing through time. These changes represent a dynamic process between foreign investors and host country (Vietnam) and host provinces/ regions. This study should be able to answer what are the major factors that attract foreign investors invest in Vietnam and what make foreign investors prefer some provinces/regions to others as possible location choices for their investment.

(2) *To investigate the effect of FDI on economic growth in Vietnam and its regions.* In numerous papers studied about the effect of FDI on economic growth in the world, the conclusion is remaining ambiguous. Most of the studies observe a positive

effect of FDI on economic growth⁴, while others detect a negative relationship between the two variables as in papers of Carkovic and Levine (2002), Athukorala (2003), and Durham (2004). This study seeks to analyze effect of FDI inflow on economic growth in Vietnam at two levels: country as a whole and its regions. The effects of FDI on economic growth could be differences in different levels due to data consistency.

(3) *To examine the effect of FDI inflows on trade in Vietnam.* The unresolved question that is addressed in this thesis is whether FDI and trade are complementing or substitutes, that is, whether inward direct investments are trade creating or trade replacing for the host country: Vietnam. FDI is said to be complement for a country when its investments made in a host economy lead to higher levels of both export from and import to the host country. On the other hand, FDI is said to be substitute when FDI lead to a decrease in trade between the home and the host economy. In this case, FDI and trade are seen as alternative modes of internationalization.

Specifically, the study aims to answer some main questions as following:

1. Which factors have determined FDI inflows into entire Vietnam and its regions?
2. What are the effects of FDI inflow on economic growth of the whole Vietnam and its regions? What are the effects of other factors on the growth?
3. What are the effects of FDI inflow on international trade (total trade, exports and imports) of Vietnam? What are the effects of other factors on the trade?
4. What policy implications could be served for Vietnam's economy to attract and increase quality of the FDI inflow?

1.4. Scope of the study

This country case study, first, focuses on the determinants and effect of FDI inflow on economic growth in the whole country and the regions/provinces. Because of

⁴ Borensztein, De Gregorio and Lee (1998), Balasubramanyan et al. (1996), De Mello (1996), Blomstrom et al. (2000), Zhang (2001) and Bende-Nabende et al (2003) show the positive effect of FDI on economic growth in the relationship with various variables such as initial income, financial development, trade, human capital development, and other proxies for host country absorptive capacity

Vietnam topographical characteristics running from the North to the South, the geographical regions differ a lot in terms of natural conditions as well as natural resources and topography. To utilize the best of each zone's potentials as well as to strengthen cooperation and mutual assistance among them, Vietnam has been divided into 61 provinces in 1996 and 64 provinces in 2003 and into eight regions - the Red River Delta, North East, North West, North Central Coast, South Central Coast, Central Highlands, South East and the Mekong River Delta - as shown in the Appendix A. The Regions use up their advantages to develop and build up their own strength under the market economy mechanism to satisfy international and domestic demands, making it easy to improve living standard of the whole people and quickly achieve social parity nationwide. Depending on advantages and strengths of different regions and provinces, the distribution of the determinants and effects arising from FDI inflow will differ.

Second, in case study of the effect of FDI inflows in international trade, I concentrate doing my research on the relationship of FDI inflow and import/export came from the world economies to Vietnam due to the availability of the data. Up to now (2006), Vietnam established the international trade relationship with more than 200 countries. The import and export shares in the total value are on strong movement. In 1986-1990 period, Export to and import from Europe was largest (65.3%), of which, the trade value of Eastern Europe accounted for 57% of the total. Since the year of 1991, the Asian countries distributed two thirds to Vietnamese foreign trade. The share of America market in Vietnam increased quickly with the signification contribution of United States. The study hope to contribute the effect of FDI inflow on trade over the time by using data of 30 countries having both exports and imports in Vietnam which accounted for 90% of the total trade. This part will find the effect in a group of 30 countries as a whole and in different groups by world region.

1.5. Methodology of the study

The research's information will be gathered by a combination of literature review, descriptive and regression analyses.

Literature Review is used to collect information on FDI related to the study through study documents, academic literature review, World Bank, OECD, IMF reports and other magazines, websites and government publications.

Descriptive and regression analyses are employed to analyze the characteristics and contributions of FDI in Vietnam over 1986-2006. Descriptive analyses used to evaluate the trends and patterns of FDI inflows into Vietnam. The regressions used to estimate the determinants and impacts of FDI into Vietnam. Based on the research done prior to field work, they were developed and adjusted to be suitable with Vietnamese's data and economic situation. The study used time series, panel data and causality analysis to investigate the purposes. The data used was collected from several official publication sources such as the Vietnamese's Statistical Yearbooks, World Bank, International Monetary Fund, Asian Development Bank and the United Nations. However, most of them came from Vietnamese Statistical yearbooks.

1.6. Structure of the study

The study was organized in seventh chapters as follows:

Chapter II provides an overview picture of the economic development in Vietnam as well as the FDI and international trade policies in their changing of development towards a market-oriented economy. Based on the official data, it focuses on the trends, sources, ownership, regional distribution and sector characteristics of foreign direct investment inflows and international trade into Vietnam, and Vietnam's economic growths during 1986-2006. Some issues of the economic development plan of Vietnam in the 2006-1010 period are also discussed.

Chapter III is the first empirical chapter of this study. It identifies which factors and locations of Vietnam attract foreign direct investment inflows at different stages: country level and regional level. It first presents a review of the literature on theoretical and empirical aspects that focuses on the determinants of FDI inflow. The presentation of the methodology is followed by a discussion of the estimation results and the chapter summary.

Chapter IV is the second empirical chapter of this study, and it analyses the FDI inflow effect on economic growth in Vietnam. After theoretical and empirical reviews of the effect of FDI inflow on economic growth, this presents a framework of economic growth with FDI and some other factors to investigate the relationship. The estimation results and discussions as well as the chapter summaries are presented.

Chapter V is the third empirical chapter. It investigates the effect of FDI inflow on international trade in Vietnam by developing a gravity model. This chapter, first, provides theoretical studies and empirical evidence of the FDI-trade relationship. Second, it presents the model applied for the study in Vietnam. Third, it discusses the estimation results for the Vietnam' study and concludes a summary at the en of the chapter.

Chapter VI looks for casual relationship between FDI, trade and economic growth in Vietnam. As the research used three main factors such as economic growth, trade and foreign direct investment in all models, the objective of this part is to recognize possibly direct links among FDI inflows, economic growth and total trade based on a systematic approach - Vector Auto Regression (VAR). It means that we will find out how each variable response is shocked by other variables of the system.

Chapter VII is the final chapter. It highlights the major findings of the study and its contributions to the exiting literature. It also discusses some of the limitations of the study undertaken here and suggests potential research directions for the future.

CHAPTER II

THE OVERVIEW OF VIETNAMESE ECONOMY'S DEVELOPMENT IN TRANSITION

2.1. Introduction

After the country independence in 1975, Vietnam was adopted the centrally planned economic regime. This economic model was implemented from a classic Soviet type command economy with strongly governmental control over all economic decisions. At this time, all of economic decisions were by the State, not by market. The State not only took management functions such as issuing policies, laws, regulations, monitoring and inspecting foreign trade activities, but also fulfilled the functions of guiding business skills such as fixing the list of trade products, trade markets, and export-import prices. Non-state companies cannot directly carry out trade activities as only some permitted State-owned companies and enterprises can have the right to do it. Domestic prices were isolated from the influence of international prices through a complex system of multiple exchange rates and trade subsidies. Exports were discouraged through overvalued exchange rates and low procurement prices, while imports were impeded by an extensive system of quotas and licenses.

The centrally planned economy was presented an irrational economic structure in many respects and serious imbalances at the macroeconomic level. Economic growth rates, agriculture and industry sectors could not keep up with the needs of the national economic development. The average economic growth rate reached only 3.4% with agriculture-forestry sector and industry growth rate grew at 3.64% and 4.1%, respectively (GSO, 1995). Import-export values of Vietnam at this time were quite low. Export slumped and the import values were nearly 4 times greater than that of export. The

enveloping system of subsidies in foreign trade led to the large trade deficit. The inflation rates increased from 21.2% in 1975-1980 up to 74.2% in 1981-1985 period. The low economic efficiency led to decline in the Vietnamese living standard. During the time, living standard of Vietnamese was decreased from \$101 in 1976 to \$91 in 1980.

To escape this situation and develop the country to get a better life, in one speech on Nhan Dan, 25 October 1986, the General Secretary Nguyen Van Linh said: “For our country, renovation is all the more necessary: *it is matter of life or death*. Only by renovation our way of thinking and acting - especially economic thinking, renovating our style of work, our organization and our cadres - will be able to extricate ourselves from current very difficult situation”. The Sixth Party Congress was organized in December 1986 and decided that renovation is the way to develop. It was set some objectives of Vietnam’s economic reform as follows:

- Readjusting the national economic structure and investment policy.
- Developing a multi-sectoral economy by including both state-owned sector and non state-owned sector.
- Shifting the economy from the bureaucratically central planned and State – subsidized mechanism to the socialist-oriented market economy under State’s management.
- Diversifying and broadening of Vietnam’s external economic relations
- Democratizing all fields of the socio-economic life, implementing administration reforms and building a state governed by law.

The Sixth Party Congress in December 1986 was a turning point in Vietnam’s economic policies. It recognized the existence and the essential role of multi-ownership structure in Vietnam’s economy with the encouragement of the two sectors: the private sector and FDI. Market oriented and open the economy were also the two important policies to help Vietnam moving to the trade liberalization. Prices have been set according to demand and supply relationship on the market since 1989. The official

exchange rate and the market exchange rate have been drawn closer to each other, and since mid-1991, a unique exchange rate has prevailed. For the first time since unification in 1976, the private companies were allowed to engage directly in trade in 1991.

Since Vietnamese's renovation (so-called Doi Moi) in 1986, Vietnam's economy has been among the fastest growing country in the ASEAN. The economy achieved all major socio economic targets that GDP growth of more than 8% in 1991-1995 and about 7.5 % for the 1990s and the first five years of the XXI century, with the growth recorded in all three sectors: industry, agriculture and services. The economy has been not only performing remarkably in increasing people's living standard and reducing the poverty but also presenting the achievement in controlling inflation, opening trade liberalization and attracting foreign direct investment into Vietnam.

This chapter presents the background and key indicators of the Vietnamese economy's development on the period 1986 up to date. Firstly, it presents some characteristics of Vietnam's geography, natural resource and population. Secondly, some macroeconomic, trade and investment policies are presented. The third part shows the major economic performances of Vietnam with stress on economic growths, international trade and foreign direct investment. The shortcomings and weaknesses of the economy include in the final part.

2.2. Geography, natural resources and Population

2.2.1. Geography

Vietnam is a small developing country of 329,560 square kilometers with 4639-km land boundaries and 3444 -km coastline (excludes islands)⁵ in the center of Southeast Asia, comprising the eastern boundary of the Indochinese Peninsula. It borders China to the North, Laos and Cambodia to the West, the Gulf of Tonkin and the South China Sea to the East and the Gulf of Thailand to the South. The S-shaped country has a north-to-south distance of 1,650 kilometers and is about 50 kilometers wide at the narrowest point.

⁵ From Central Intelligence Agency CIA- The World Factbook 10 January 2006

With a long coastline of 3444 kilometers, excluding islands, Vietnam claims 12 nautical miles as the limit of its territorial waters, additional 12 nautical miles as a contiguous customs and security zone, and 200 nautical miles as an exclusive economic zone. The geographical location gives facilities Vietnam for providing opportunities for fishing and tourism and opening its economy to East Asian, to Asia and the world.

Vietnam is running from the North to the South and has been divided into 61 provinces in 1996 and 64 provinces in 2003 and into 8 regions – the Red River Delta, North East, North West, North Central Coast, South Central Coast, Central Highlands, South East and the Mekong River Delta. Based on the socio-economic and natural conditions, the economic regions can be fixed in a different and reasonable way in an effort to utilize the best of each region's potentials as well as to strengthen cooperation and mutual assistance among them. Regions use up their advantages to develop and build up their own strength under the market economy mechanism to satisfy international and domestic demands, making it easy to improve living standard of the whole people and quickly achieve social parity nationwide.

The Red River Delta region lies in the central contact of the North East, the North West and the northern mountains of the Central region. It is also in the Northern focal economic zones and includes Hanoi- the national capital. Based on the physical geography, it is the gateway to the sea of all the Northern provinces and can develop many activities through the nation and international countries. Together with the Mekong River Delta region, the Red River Delta region is one of the two biggest markets producing agricultural production in Vietnam such as rice, peanut, bean, maize, and so on.... Moreover, the industrial sector in this region is quite developed, in comparison to other regions, as it is an exchange centre of politics, trade, services and tourism of the Northern part and the country.

The North East region contains eleven provinces that lie to north of the highly populated Red River lowlands. The East is 250-kilometer coastlines with 3000 islands. The North is contiguous to China with 1180-kilometer borders and many border gates such as Huu Nghi, Mong Cai and Lao Cai. With three-fourth of the area is hills and

mountains and land is dismembered, the region is difficult to develop the large-scale production.

The North West region lies contiguous to 870-kilometer borders of Lao and China, and three other national regions such as Red River Delta, North East and North Central coast. Same as the North East region, most of the area is the high sloping road and many of the high mountains of 2090-3080m. Between the high mountains are rivers, streams and narrow valleys, so that the land is dismembered and difficult for the region to develop the large-scale production. Moreover, it is difficult for people to move around and travel and for economic exchanges between the provinces and regions.

The North Central Coast region contains six provinces in the northern half of Vietnam's narrow central part and locates next to two special economic zones of the North and Central. All provinces in this region stretch from the coast in the east to Lao in the west. With the 80% of the area is mountains and the 20% of the land is white sand dunes and warps, the region is also met difficulties of economic development. However, the region lies in the main road from the North to the South, having many airports, wharfs, 670 kilometers of coastline and 23 estuaries, it could increase its economic development by concentrated investing in tourism and collective economics from the sea.

The South Central Coast region has well-located geography as it lies in the main highways, railways, airways and sea routes of the nation, from the North to the South. Moreover, it borders Lao, the key economic zones of triangle South East and the gateway of the Central Highlands region and the trans-Asia road to the sea. As containing five coastal provinces and the independent municipality of Da Nang in the southern half of Vietnam's central part, the biggest resource of this region is the sea resources. Besides, the region has some deep-sea ports for big load ships, and infrastructure and land for developing the industrial zones.

The Central Highlands with the five inland provinces of the south central Vietnam located in the mountain area, alongside with Lao, Cambodia and Vietnam's South Central coast and South East regions. The most specific characteristic of the Central Highland terrain is primeval mountains, including many 2000m high mountains, many lower 2000

m high mountains and many 300-800 m high plateaus from the west to the southwest and the south. The plateaus are approximately 2637.7 thousands ha, accounted for 47% of the total region's area. The 800 m – 2598 m high mountains accounted for 34.5% of the total region's area and the rest is valleys between those mountains (MPI, 2000). This topography could be suitable to develop agriculture and forestry.

The South East region locates in the lowland southern Vietnam, which is the north of the Mekong River Delta. It borders Cambodia, and three other regions of Vietnam such as South Central Coast, Central Highland and Mekong River Delta. The other side of the region is the sea. The region has very convenient position to develop the socio-economics and is one of the regions got highest the economic potential as it is lying in the main roads of the Asian and international countries, many gateways to come in and out. The region contains Ho Chi Minh City, the centre of economics, industry, international trade, services and science and technology. Moreover, it contains Vung Tau, a coastline city in the South connecting the South East region with the world.

The Mekong River Delta is the Vietnam's southernmost region, mostly containing small but populous provinces in the delta of the Mekong. This has long coastline of 700 kilometer, bordering with the Gulf of Tonkin, Gulf of Thailand, Cambodia and the best economic region of Vietnam –the South East. Moreover, it lies in the region having the important international sea and air routes, in the middle of the South and East Asia as well as Australia and the other islands of Pacific Ocean. It is so important for international exchanges in economics and others. The region's area covers about 3.96million hectares, excluding islands, in which 2.6 million hectares used to develop agriculture and aquatic productions. The region is the biggest one in producing agricultural productions, accounted for 22% of the total agricultural productions of Vietnam. Rice is the main product in this region, followed by shortly industrial crops.

2.2.2. Natural Resources

The country's location and length results in great variations in climates, ranging from tropical to temperate zones and allows for a diversity of flora and fauna. The

southern and central areas are tropical and humid. The northern areas are also humid, but temperatures are much more variable with average temperatures ranging from around 30 degrees in July to 16–18 degrees in January. Average temperatures in the south range from 26 to 28 degrees throughout the year. Typhoons are experienced in most parts of the country, but are most severe in the central provinces. Rainfall variability is very high in the North and Central provinces, contributing to variability in agricultural output and incomes. Rainfall is more reliable in the southern areas, but all parts of the country suffer from frequent natural calamities.

Viet Nam has rich biological diversity in its forests, rivers and oceans. A great variety of crops, cultivars and domesticated animals are used in its agricultural systems. Some 275 different animal, 826 bird, and 180 reptile species are found in Viet Nam. Wild animals include elephants, dapple deer, leopards, tigers, bears, wild buffalo, samba deer, mountain goats, monkeys, goats, bobcats, foxes and squirrels. Three out of the seven new species of wild animals identified during the twentieth century were found in Viet Nam's forests. More than 1000 medicinal plant species have already been identified. An indication of the richness of Viet Nam's biodiversity is shown in Table 1.

Table 1: Biodiversity in Vietnam

	Number of species in Vietnam (VS)	Number of species in the World (WS)	VS/WS (%)
Mammals	275	4000	6.8
Birds	800	9040	8.8
Reptiles	180	6300	2.9
Amphibians	80	4148	2.0
Fish	2470	19000	13.0
Plants	7000*	220000	3.2

Note: * It has been estimated that another 5000 species have still not been formally identified

Source: Arkadie and Raymond (2003), Table 2.1, pp.13

Moreover, Vietnam is one country having rich resources of energy, minerals and water. One of the important contributions to rapid export growth during the late 1980s and 1990s was the development of the country's oil resources. New oil and gas resources continue to be found and developed mostly offshore from Vung Tau province and in the South. The North East, North West and North Central Coast regions have high volume of coal, apatite, copper, limestone, zinc, lead, antimony, pyrites, manganese, and precious stones. The Central Highland region is the rich and nutritive soil resources region with eight kinds of land: alluvial soil, over cropped, black soil, basalt soil, humus. Coffee and pepper produced in this region are famous in taste and quality in Vietnam.

Viet Nam is endowed with river systems that have been potential for hydropower development, estimated at about 18,000 megawatts. Some 3,700 megawatts' capacity has already been developed. The North East, North Central Coast and South East regions are the ones holding this strength. The South East region is the biggest place supplying and using of hydroelectricity. The reserve of hydroelectric energy is about 27 millions KW and can supply 10 billions KW each year.

2.2.3. Population

Vietnam is a populous country. The average population in 2005 was about 83.12 million people, increasing by 1.33 % as compared with 2004 (GSO, 2005). The crude birth rate fell from 31 per thousand (1985–89) to 19.9 per thousand in the 1999 Census (GSO, 2000). Declining fertility reflects wide spread adoption of family planning practices. The government has maintained a population policy that discouraging families of more than two children, but without draconian controls. The decline in the birth rate must also have been associated with success of health policies that increased life expectancy at birth, and with the achievement of high educational enrolments. The estimated rate of population growth fell from 1.7 % per annum from 1989-1999 to 1.35 % in 2001 and continued to fall to 1.04 percent in 2004 (GSO, 2004). The declining population growth rate is reducing the burdens on the education system, increasing the

proportion of income earners and making it easier to achieve increases in per capita income.

The average population density of Vietnam in 2005 is about 252 persons per km², the third highest rate in South East Asia, only followed Singapore and the Philippines. Inside the country, the Red River Delta and Mekong River Delta regions are the two densely populated regions of Vietnam. In 2005, the population in the Red River Delta is about 18 million persons, accounted for 21.7% of total population. The Mekong River Delta followed with the percentage of 20.8. The highest populated density region of Vietnam was the Red River Delta region with the rate of 1218 persons per km² in 2005, tripled the rate of the second one (the Mekong River Delta region, about 435 persons per km²) and was 17 times of the lowest -rate region, the North West.

Vietnam is an agrarian country as nearly 80% of its population is living in rural area. In 1995, only 20.75% of the population resided in urban areas. It increased up to 24.18% in 2000 and up to 27% in 2005. Labors working in the agriculture, forestry and fishery sector accounted for 65.1% in 2000 and 56.8% in 2005 of total employed population. Only 13% and 12.2% of total employed population worked in the industry and trade sectors, respectively. The remained percentage engaged for all other sectors such as construction, hotels-restaurant, transportation-communications, cultural, health, education and others. The Mekong River Delta is biggest one in producing agricultural productions, accounted for 22% of total agricultural productions of Vietnam. Rice is the main product in this region, followed by shortly industrial crops. Vietnam is the second largest country in exporting rice in the world, in which 80% exported rice is from the Mekong River Delta region. Fishery production is also strength of the region, accounted for 50%-60% of the total exported fishery.

2.3. Macroeconomic, foreign investment and international trade policies

The Doi Moi reform aimed to stabilize the economy, develop a multi sectoral economy, shift the economy to the market oriented and open the Vietnam's external economic relations. Many policies have been started to execute the purposes.

2.3.1. Some macroeconomic policies: *stable and developing the economy*

Since 1989, Vietnam has been combined of some policies together such as tight monetary policies, fiscal policies and the appropriate exchange rate policy in order to stabilize and develop the economy.

As one important part of Vietnam's stabilization program, the tight fiscal policy was adopted to constrain the budget deficit. The current expenditure of the government was curtailed to comply with the scope of fiscal revenue. The fiscal deficits dropped sharply and were tightly controlled. Since 1988, the capital that granted by the state budget to state economic entities was replaced with investment credit. Some capital construction projects previously received capital allocated from state budget were funded with loans. Contribution to the state budget by state owned enterprises was substituted by taxes as applied to all other economic sectors. The financing of the state budget deficits by printing money was halted and has been stopped since 1992. Borrowing to finance budget deficits has only been used for development investments emphasizing infrastructure investment. However, with the changes in the economic conditions in the late 1990s when the economic growth slowed down and inflation was curbed at a safe level, the tight fiscal policy seemed less suitable. A more flexible policy should be considered.

Since 1989, the new banking system was established in Vietnam by replacing the old mono banking system with a two-tier banking system that included the State Bank of Vietnam as the central bank and large numbers of competitive commercial banks. To curb the hyperinflation rate happened before 1989, Vietnam increased in its nominal interest rate and then a positive real rate aiming to stop credit subsidies contributed greatly. The money supply was strictly controlled by the credit ceiling imposed for every commercial bank from 1994. Since then, the inflation has gradually been curbed, reducing the inflation rate from a three-digit one, which protracted all through the 1980s, to a one-digit one during the 1990s. For a long time, prices of goods, interest rates, ceiling lending rates were set by the State. At present, most prices of goods and services in Vietnam are determined by market, except prices of electricity, water, and post and

telecom service, air transport determined by specific corporations of a monopoly feature. The lending rate ceiling on foreign currency loans was abolished in November 2001 and the fully interest rates were liberalized since June 2002. Banks are now allowed to set lending rates based on their own appraisal and negotiation with their customers.

The exchange rate policy was also considered as a main part of the stabilization policy in Vietnam. The exchange rate between the Vietnamese dong (VND) and a foreign currency was formerly decided by the State, with various rates depending on goods line, having a rigid feature, and differing by far from the market rates⁶. Since March 1989, the VND has been pegged to the US dollar. The official exchange rate was adjusted based on the inflation rate, interest rate, balance of payment situation and the exchange rate in the free market. The commercial banks were allowed to set exchange rates for their own transactions within a band of 5% more or less than the official exchange rate. Since 1999, the State Bank of Vietnam introduced a new exchange rate mechanism. Viet Nam now maintains a managed floating exchange rate regime for the VND. The State Bank of Viet Nam uses the average exchange rate between VND and USD in the interbank market during the previous business day as the official exchange rate. Banks may then use the exchange rate with a very narrow band of $\pm 0.1\%$. The current exchange rate mechanism that based on averaging of the previous day's interbank exchange rates is imperfect since it is merely a technical procedure without analytical linkage with economic fundamentals. Since the exchange rate policy and operational rules are not defined in terms of economic fundamentals, it is hard to know the policy intention of the State Bank. Without an effective criterion, it is also difficult to evaluate whether or not the current level of the VND is appropriate. Vietnam needs to reformulate its exchange rate policy in a way that clarifies its economic objectives.

⁶ The multiple exchange rates were used with different purposes as follows:

- a. Official Rate (Basic rate)
- b. Commercial Rate: Rate for the foreign trade purposes, export receipts
- c. Noncommercial Rate: Rate for the inward remittances and all other invisible transactions like tourism
- d. Convertible Currency: Exchange rate for transactions with the convertible currency
- e. Effective Rate: A controlled, floating rate which linked to a basket of foreign currencies

Despite some defects, above policies in Vietnam are being increasingly characterized and determined by market. This essential change makes it possible for market mechanism to exert an effective impact in Vietnam.

2.3.2. Foreign investment policy: attractive law for foreign investors

Right after Vietnam's renovation in 1986, the first "Law on Foreign Investment" promulgated by the National Assembly of Socialist Republic of Vietnam in December 1987. The law shows that Vietnam welcomes and encourages foreign organizations and nationals to invest capital and technology in Vietnam "on the basis of respect for national independence and sovereignty, full observance of the Laws of Vietnam, equality and mutual benefit. The State shall guarantee the ownership of the invested capital and other rights of the foreign investors, and extend to the latter favorable conditions and easy formalities"⁷. The capital and other assets of foreign organizations and individuals are not appropriated or confiscated by administrative measures. Foreign capital enterprises invested in the country are not nationalized.

The law on FDI in 1987 stated some main provisions as follows:

- ❖ Foreign direct investment in Vietnam could be invested in some following forms:
 - Business Cooperation Contracts
 - Joint Ventures
 - Wholly Foreign owner Companies
- ❖ The major goal of Vietnam's FDI policy is to attract capital, advanced technology, and management skills in order to effectively develop the country's potential, increase savings, improve people's living standard and realize the cause of modernization and industrialization.
- ❖ Foreign organizations and individuals can invest in various fields of Vietnamese economy. However, investments in major development programs were especially encouraged with official promotion such as development of remote areas, production

⁷ Vietnam Permanent Mission to the United Nations,
http://www.un.int/vietnam/dev_bus/Foreign%20direct%20investment%20in%20Vietnam.htm.

- of export commodities and import substitutes, high technology manufacturing products, building infrastructure and utilization of natural resources and labors.
- ❖ The foreign party to a joint venture enterprise may make its contribution to the legal capital in: foreign currency, equipment, machinery, plant and other construction works; the value of industrial property rights, technical know-how, technological processes and technical services. Beside the legal capital needed as foreign partners, Vietnamese organizations and individuals could contribute in Vietnamese currency, natural resources, materials, the value of the right to use water and sea surfaces.
 - ❖ The legal capital of foreign organizations and individuals cannot be smaller than 30% of total capital. Operating time of a FDI enterprise in a host country is not more than 20 years.
 - ❖ The FDI enterprise has the right to open accounts in Vietnamese and foreign currencies at the State Commerce Bank or branches of foreign banks in Vietnam which are approved by the State Bank of Vietnam and to open accounting books according to international principles and Vietnamese standards.
 - ❖ Business Cooperation Contracts, Joint Ventures and Wholly Foreign owner Companies have to pay income-tax about 15% to 25% of its profits earned. However, they can exempt from income-tax with maximum in two years when the firms begin to have benefits and reduce 50% income tax for maximum next two years depending on the field and size of investment, volume of exports, nature and time of firms' activities.

Since 1987, the Law on Foreign Investment has been amended and revised in 1990, 1992, 1996, 2000, and 2005. The evolution of the rules and the regulatory system for FDI is to fewer difficulties for foreign-invested firm operations, better rights for foreign investors doing business in Vietnam and closer to conformity with national treatment.

In 1990 and 1992's Laws, there are some major changes that make the Law more attractive to foreign investors.

- In the 1990's law, a Vietnamese private organization alone now allowed to enter a joint venture with a foreign partner that was not allowed in the 1987's law saying that if a Vietnamese private organization wants to enter a joint venture with a foreign partner, it had to join capital with a state owned organization before the cooperation.
- The land lease terms of running the company was extended from 20 years to 50 years and up to 70 years in some special cases (in 1992's law). This new change can attract more long-term investment in Vietnam.
- In some important economic sectors, Vietnamese enterprises can increase its contributed capital in legal capital or can buy back the partial capitals in the joint venture.
- The FDI enterprise has the right to open accounts in Vietnamese and foreign currencies at the State Bank, joint venture Bank or branches of foreign banks in Vietnam.
- Adding the investment form of Build -Operate -Transfer (BOT) contracts, Build-Transfer-Operate (BTO) contracts, and Build-Transfer (BT) contracts in the 1992's law. This is a contract between foreign investors and Vietnamese government to build and operate a project for certain period of times and then transfer it to the Vietnamese government without any compensation. Most BOT, BTO and BT projects are related to infrastructure such as road, bridge, airport and seaport.
- Setting up the Export Processing Zones (EPZs) is opened to both foreign and Vietnamese enterprises. To promote investing in export, the laws state that enterprises operating in EPZs are granted the most favorable incentives as well as custom duties free.

In order to expand economic co-operation with foreign countries and to support the cause of modernization, industrialization and development of national economy based on the basis of the efficient exploitation and utilization of national resources, Vietnam's FDI law was replaced the old one in 1996 and amended it in 2000. The Law in 1996

makes clearer the one in 1992 and more over expanded some investment incentives for foreign investors.

Even though foreign investors may invest in Vietnam in many sectors and regions of its national economy, the State of Vietnam encourages foreign investors to invest in some special tasks. Still keeping the encouraged investments in 1992 in some special sectors such as production of exports, construction of infrastructure facilities, utilization of high technology and modern techniques and utilization of natural resources and labors, the law in 1996 is also encouraged foreign investment in animal husbandry, farming and processing of agricultural produce, forestry, and aquaculture; protection of ecological environment and investment in research and development labour intensive activities, processing of raw materials and efficient utilization of natural resources in Vietnam and construction important industrial production establishments (Article 3).

However, The State of Vietnam will not license any foreign investment project in sectors or regions which may have adverse effects on the national defence, national security, cultural and historical heritage, fine custom and tradition, or the ecological environment.

In Article 38 and 39 of 1996's law, they modified and made clearer about the Rights and Obligations of Foreign Investors when invested in Vietnam, compared to the one in 1992. The law said that Enterprises with foreign owned capital and foreign parties to business co-operation contracts shall pay corporate income tax at a rate of 25% on the profits earned. Wherever investment is encouraged, satisfied many investment promotion criteria and where is especially encouraged, the rate of corporate income tax could be 20%, 15% and 10% on the profits earned, respectively (Article 38).

Moreover, depending on the investment sector and region as stipulated in this Law, an enterprise with foreign owned capital and a foreign party to a business co-operation contract may be exempted from corporate income tax for a maximum period of two years commencing from the first profit-making year and may be entitled to a 50% reduction of corporate income tax for a maximum period of two successive years. For a

project which satisfies a high number of investments promotion criteria, the corporate income tax is exempted for a maximum period of four years commencing from the first profit-making year and may be entitled to a 50% reduction of corporate income tax for a further maximum period of four (4) years. For cases where investment is especially encouraged, exemption from corporate income tax may be allowed for a maximum period of eight (8) years” (Article 39).

The amended Law on Foreign Investment, effective July 1, 2000, aims to make Vietnam more attractive and friendly to FDI enterprises. The most important amendment grants foreign enterprises the right to mortgage their land-use rights. This power gives foreign enterprises the ability to borrow from foreign banks using the assets and property of their companies as collateral. Previously, only Vietnamese banks had the statutory authority to foreclose on land and property. This change is important to foreign firms that wish to invest in the Vietnamese economy because it creates a new means of financing through which capital may be raised.

The Law also allows FDI enterprises to decide for themselves whether to set up reserve funds and to determine their size; forms of their investments and the reorganization of their capital structures. The law reduces the profit-remittance tax for FDI enterprises, minimizes much of the red tape that burdens enterprises, such as governmental restrictions and procedures that are more burdensome in Vietnam than in other foreign investment areas and allows FDI firms to buy foreign exchange from commercial banks in Vietnam to pay for their imports.

The import and export duties for foreign owned capital enterprises and parties of a business cooperation contract are applied according to the law on Import and Export duties. Nevertheless, the foreign enterprises above could be exempted from import duty on goods imported to form fixed assets and to cases of expanding the scale of a project and of replacing and renewing the technology.

In March 2003, a new Decree (Decree 27) provided some enhancements to the year 2000 Decree (Decree 24), including: allowing the creation of new joint-ventures

between existing 100 per cent foreign-owned enterprises and Vietnamese enterprises; enabling existing wholly foreign owned companies (FOCs) to cooperate with other FOCs or foreign investors to create new enterprises; and simplifying investment approval procedures.

One of the most significant legal developments has been shown on November 29, 2005. For the first time in Vietnam's regulations, all foreign, domestic and state-owned investment and corporate activities have been seen under a single regulatory regime on the new law of Investment, which was combination from the Law of Domestic Investment, and the law of foreign investment. From 1 July 2006 – the time of the new law takes effect – the new Law on Investment sweeps away the old foreign investment regime⁸ and influences the livelihood of enterprises for the foreseeable future. Some of the important changes in the new laws bring benefits to Vietnam and investors.

➤ The new Law on Investment (LOI) covers both direct and indirect investment activities in Vietnam, although its focus is on direct investment. *Direct investment* means “a form of investment whereby the investor invests its invested capital and participates in the management of the investment activity”. Direct investment includes the following forms:

- Wholly owned economic organization
- Joint venture with domestic investors
- Business Cooperation Contract (BCC), Build-Operate-Transfer (BOT), Build-Transfer-Operate (BTO) and Build-Transfer (BT)
- Investment in business, technological expansion
- Purchasing shares or contributing capital in order to participate in management of investment activities
- Merger and acquisition

⁸ The Old Investment Law consists principally of the Law on Foreign Investment dated 12 November 1996 (as amended 9 June 2000); Decree 24-2000-ND-CP of the Government dated 31 July 2000 Providing Detailed Regulations on Implementation of the Law on Foreign Investment in Vietnam; and Circular 12-2000-TT-BKH of the Ministry of Planning and Investment dated 15 September 2000 Providing Guidelines for Foreign Investment Activities in Vietnam.

Indirect investment means “a form of investment through the purchase of shares, share certificates, bonds, other valuable papers or a securities investment fund and through other intermediary financial institutions and whereby the investor does not participate directly in the management of the investment activity” (Article 3). An investor shall be permitted to carry out the following forms of indirect investment in Vietnam: Investment in stocks, shares, bonds and other valuable instruments; Investment through securities investment funds and Investment through financial institutions. The driving line in here is the participation directly or indirectly in the management of the investment activity.

- Currently, foreign invested enterprises can only be in the form of a limited liability no-share company. Under the new LOI, investors can select the appropriate form of business entity for carrying out investment projects in Vietnam from among several forms prescribed under the new LOI and other laws, such as limited liability no-share company, Limited Liability Share Company (or Joint Stock Company); Partnership and Holding company.
- For many years, all FDI require an “*investment license*”, the literally investment permit, before a foreign investor can legally commence an FDI project. From the law’s effective date, the word *license* or *permit* will be replaced by *certificate*. It means that the new LOI only requires an investment certificate before a foreign investor can lawfully begin an FDI project in Vietnam. Even though the key functions of *license* and *certificate* are no change, the word of *certificate* is a softer terminology and less authoritarian than *license (permit)*.

With domestic investment projects which have an invested capital of below 15 billion VND and which are not included in the list of sectors of investment subject to conditions⁹, the investors are not being required to perform the procedures for investment

⁹ According to Article 29, Sectors in which investment is subject to conditions shall comprise:

- (a) Sectors impacting on national defense and security, social order and safety;
- (b) Banking and finance sector;

registration. However, with domestic investment projects which have an invested capital of between 15-300 billion VND and which are not included in the list of sectors of investment subject to conditions, the investors have to perform the procedures for investment registration. With foreign investment projects which have an invested capital of below 300 billion VND and which are not included in the list of sectors of investment subject to conditions, the investors have to perform the procedures for investment registration. The investment certificate was issued within 15 days from the date receipting the complete and valid file for investment registration.

- Beside some incentive investment sectors listed, the new law is encouraging some other sectors that needed for development of the economy such as professional development of education, training, health, sports, physical education and Vietnamese culture. Investment in technology transfers in order to create new products, to improve production capacity, competitiveness and product quality and effective use of raw materials, fuel, energy and natural resources are special supported. Moreover, the investment in infrastructure systems for industrial zones, export processing zones, high-tech zones and economic zones are also special encouragement.
- The rates of income taxation of each investment project have been applied the same as in the previous law. However, investors are allowed to tax incentives on that portion of income which is distributed to them from an activity being capital contribution or purchase of shareholding in an economic organization in accordance with the law on tax after such organization has paid in full corporate income tax. Moreover, income from activities of technology transfer applicable to projects entitled to investment incentives shall be exempt from income tax in accordance with the law on tax.

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- (c) Sectors impacting on public health;
 - (d) Culture, information, the press and publishing;
 - (dd) Entertainment services;
 - (e) Real estate business;
 - (g) Survey, prospecting, exploration and mining of natural resources; the ecological environment;
 - (h) Development of education and training;
 - (dd) A number of other sectors in accordance with law

In summary, with respect to foreign-invested enterprises, during the past 20 years, foreign direct investment activities in Viet Nam had been regulated by the Law on Foreign Investment of 29 December 1987 together with its amendments and additions of 1990, 1992, 1996 and 2000 and other guiding documents mentioned therein. The representative of Viet Nam stated that this Law, along with the legal system and policies concerned, had created a favorable environment for foreign investors. According to Vietnam Statistical Yearbook, there are 7086 FDI projects received investment licenses with total registered capital amounting to USD 63936.3 million since 1988 up to December 2005. As of December 2005, based on the “Report of the Working Party on the Accession of Viet Nam” in 2006, there were 6341 foreign investment projects in operation in Viet Nam – with a total registered capital of USD 53.6 billion. Foreign investment projects accounted for 18% of the total invested capital, 31% of Viet Nam's export revenue and 37% of industrial output, contributing nearly 14% of Viet Nam's GDP. Foreign investment projects had created about 620000 jobs directly, and several hundred thousand jobs were indirectly dependent on these projects. The new Investment Law in November 2005, which had entered into force on 1 July 2006, regulated investment activities, investors' rights and obligations, the allocation of incentives, State administration of investment activities in Viet Nam and offshore investment from Viet Nam. This could be viewed as a further enhancing the investment environment for investors of all economic sectors and increasing the capital invested in Vietnam's future.

2.3.3. International Trade policy: mixed import substitution and export oriented promotion strategy

In 1992, the Vietnamese New Constitution was adopted. It officially stated that Vietnam will develop a multi sector economy, expand external economic activities and built the economic relations with all countries, all international organizations on the principle of respect for each other's independence and sovereignty (article 24, 1992 Constitution). Moreover, the Decree 114/HDBT in April 1992 also shown that Vietnam will remove the state monopoly on foreign trade and going to trade liberalization, in

which trade management will encourage by expanding rights of import-export activities for all enterprises of all economic sectors. All goods, except goods forbidden, goods under quota management and some special inputs, can be imported and exported freely under import-export's regulations. All producers can export their products and import their needed materials for production. Other decrees issued in 1993, 1994 and 1995 supported for the Decree 114/HDBT to make it become reality. Moreover, there are many new tariff codes, import substitution and trade protection regulations introduced to protect and help the newly domestic industries and enterprises.

In May 1997, the first Vietnamese Law on Commerce was issued by Vietnamese National Assembly and came into force in January 1, 1998. It was served as the legal framework for the development of a socialist oriented market driven multi-sector commodity economy under State administration where the State owned sector played the leading role. The main objectives of the law are to develop goods and the commercial service market in all parts of the country, expand commercial exchanges with foreign countries, contribute to the reinforcement of production activities, improve the people's life and protect legitimate rights of the producers, consumers and business entities. The law was an official announcement of Vietnam to the world by saying that Vietnam was following trade liberalization policy and encouraging all of enterprises in all economic sectors to join the international trade directly. The quality of products has been dramatically improved and then increased the competitiveness of Vietnamese goods in the world markets. The enterprises can only import and export the commodities that have been registered in the business registration certificate.

In addition, the law issued incentive policy in order to promote export, produce competitive goods for export and enhance export of commercial services. Even though it restricted import of goods that have been sufficiently produced and supplied by domestic producers and gave reasonable protection to local producers, the law gave priority to import of materials, equipment, high technology and modern techniques required for the production development, industrialization and modernization (Article 16). Foreign

business entities who satisfy the conditions stipulated by Vietnamese laws may establish representative offices and branches in Vietnam.

So, like many other developing countries, Vietnam' trade regime has operated within a rather comprehensive framework of regulations on trading rights and trade barriers such as tariffs and non tariff barriers with efforts to promote exports as well as protect import substituting production. The policies can be characterized as "export-led protectionism", whereby import substitution is encouraged with trade protection and export industries promoted by providing subsidies to countervail the high relative costs of intermediary products. Moreover, the monopoly position of the Government's role in management trade policies is also other characteristics. The following discussion first looks at instruments used for protecting domestic market oriented industries and followed by a discussion on policies implemented the export promotion.

2.3.3.1. Instruments of Import Protection

A. Import tariffs

Vietnam import-export tariffs were first launched on 1 January 1988 and adjusted frequently since then to balance supply and demand for commodities. Before 1988, tariffs were applied on noncommercial imports and revenues on trading activities were mainly raised through contributions made by state trading corporations. On 1 January 1988, the *law on import and export duties* was introduced and marked the beginning of the present trade tax system.

Under the Decree No. 110/HDBT in March 1992, Vietnam adopted the Harmonized system (HS) of tariff nomenclature. A fully codified, consolidated tariff based on this system was published. The tariff schedule has changed in May 1995, March 1997, April 1997, February 1998, December 2001 and December 2003 to keep suitable with the nation economy. Currently, the Vietnam's tariff schedule is composing of three different tariff rate categories:

- ❖ The Most Favored Nation (MFN) tariff rates applied to goods from any country that already had a bilateral trade agreement with Vietnam or had granted MFN treatment

to Vietnamese exports (such as The European Union, Japan, most Asian countries outside ASEAN, New Zealand, Australia and so on..)

- ❖ Preferential tariff rates are applicable for goods under the Common Effective Preferential Tariff (CEPT) agreement of the member countries in ASEAN Free Trade association (AFTA), and for textile and garments under the Vietnam-EU agreement.
- ❖ Normal tariff rates that are usually 50 percent higher than the MFN ones are used in other circumstances.

In practically, the largest share of imports (over 95% in 2002) enters Vietnam under MFN rates. The preferential rates are currently applicable to only about 3.5% of total import value. Imports under nominal rates are believed to be negligible.

The import tariff structure was modified in subsequent years reflecting a trend towards an increasingly selective protection of consumer goods (cosmetics and some categories of food products), upstream activities related to textiles and garments (silk, cotton, and certain fibbers) and some specifically protected intermediate goods (metal products, cements and glass). Table 2 shows some changes in tariff rates in Vietnam during 1995-2003.

The maximum tariff rate came down from 200% in 1997 to 120% in 2001 and then to 113% in 2003. Less than 1% of total tariff lines had tariff rates above 60%. These high tariff rates are applied to beverages, spirits, vinegar (in HS22); beer; tobacco and manufactured tobacco (HS24); second hand clothing (HS63) and vehicles and vehicle parts (HS87). In general, each tariff rate of 0%, 1-10% and 10-60% accounted for average one-third of the tariff rates in the four years. However, in specifically, there are the declines in degree of low rates (1-5% and 15-20%) and the increase in percentage of high rates of 30-60%. This situation could be explained by the patterns of all developing countries.

The number of tariff bands in the tariff schedule declined from 36 in 1995 to 15 in 2001. This trend towards simplification of the tariff system seems to have unfortunately reversed in the process of fine-tuning of tariffs over the past two years. By mid-2003, the

number of tariff bands stood at 60. A reason behind the increase in average rate was the tariff of some goods that had been subject to quantitative restrictions. It also comes from the introduction of fractional rates at the lower end, presumably reflecting the government's attempt to respond to lobbying pressure from importers of intermediate goods, especially for the SOEs (Athukorala, 2005).

Table 2: Summary of the Import Tariff Structure in Vietnam (1995-2003)

Applied rates	May 1995		June 1996		March 1997		Dec. 2001		Dec. 2003	
	Number	%	Number	%	Number	%	Number	%	Number	%
0	976	31.1	1035	32.2	978	31.3	2049	32.5	1620	31.7
1- 5	645	20.5	754	23.4	697	22.3	1170	18.7	878	17
5-10	299	9.6	314	9.8	301	9.6	540	8.6	412	7.9
10-15	66	2.1	86	2.7	96	3.1	0	0	103	2
15-20	572	18.2	317	9.9	317	10.2	0	0	418	8.2
20-25	40	1.3	43	1.3	46	1.4	3	0	43	0.8
25-30	215	6.9	331	10.3	244	7.8	649	10.3	487	9.5
30-35	49	1.6	1	0	26	0.8	0	0	21	0.4
35-40	144	4.5	182	5.6	253	8.1	667	10.6	580	11.4
40-60	104	3.2	150	4.7	152	4.8	586	9.3	513	10
60-80	10	0.3	3	0.1	7	0.3	2	0	9	0.1
80-100	1	0	0	0	2	0.1	50	0.8	16	0.3
> 100	14	0.5	0	0	6	0.2	8	0.1	7	0.1
Total tariff lines	3135	100	3216	100	3126	100	5724	90.9	5107	100
Total tariff bands		36		31		35		15		60
Range		0 - 200%		0 - 200%		0-200%		0 - 120%		0-113%
Mean tariff rate		12.8		12.3		13.4		15.7		16.65
Coefficient of variation (CV)		131		127		128		116.3		114.77

Note: CV: Standard deviation as a percentage of the mean

Source: CIE (1998, 2000) and Athukorala (2005)

Tariff rates are generally higher for manufacturing compared to agriculture and other primary product sectors as the belief that industrialization is the way of economic independence and riches. Within the manufacturing category, tariff rates are particularly high for food processing and for certain consumer goods (notably pharmaceuticals, garments, footwear, ceramic products and leather goods). Industries producing intermediate goods (chemicals, fertilizer, metal products and construction material, for example) have relatively low rates of tariff protection. It is important to note that, while intermediate goods tariffs are generally lower than tariffs on final products, intermediate goods imported for use as inputs in product sectors where Vietnam has comparative advantage in export trade are much higher than those on inputs to import-competing industries. Most of the zero- or low-tariff rates are on items mainly used by public sector enterprises as inputs in the production of intermediate goods or final goods for the domestic market.

Table 3: Nominal and Effective Tariff Rates by Sector in Vietnam (%)

	1997		2001		2002		2003	
	NRP	ERP	NRP	ERP	NRP	ERP	NRP	ERP
Agriculture	8.12	7.74	6.28	7.43	6.2	12.6	11.06	12.52
Mining	9.42	6.05	8.91	16.39	17.8	0.13	3.55	-0.03
Manufacturing	30.63	121.47	25.28	95.97	21.9	77.8	29.23	43.94
All traded goods	20.95	72.22	17.92	58.46	15.9	54.2	18.2	24.87

Note: NRP = nominal rate of protection (nominal tariff rate).

ERP = effective rate of protection (effective tariff rate)

Source: Athuokorala (2002 and 2005)

The summary estimated of the import effective rates by sector are presented in Table 3. Athuokorala (2005) stated that the estimated effect rates of protection (ERP) for import-competing production in all traded-goods sectors in 1997, 2001, 2002 and 2003 were 72.2%, 58.5%, 54.2% and 25%, respectively. It means that recent changes in tariff policy in Vietnam have reflected in considerable decline in the level of effective protection. ERPs for agriculture increased from 7.4% in 2001 to 12.5% in 2003 due to the

increase in the output tariff. ERPs for manufacturing declined steadily from 121% in 1997 to 96% in 2001 and then to 44% in 2003 because of increasing in input tariff. Consequently, the effective tariff rates in manufacturing in the table are almost four times the nominal rate, suggesting a significant bias in favor of import-competing industries, typically dominated by SOEs. The reason is that smuggling of many goods into Vietnam is widespread, especially goods from China. Vietnamese firms often must compete directly with smuggled goods, then creating and diminishing a quite tough competitive environment is the actual impact of the protective policies.

Table 4: Effective tariff Rates of protection by Sector, 2003

Code	Sector	NRP	ERP
	Agriculture	11.06	12.52
1	Tea	50	65.41
2	Coffee beans	28.6	39.19
3	Sea and aquatic fishing	30	32.85
4	Fish farming	30	31.15
5	Rice	13.84	17.84
6	Forestry	5	4.63
7	Cow (all kinds)	5	3.99
8	Other Livestock	5.2	3.83
9	Natural rubber (piece, sheet or tape)	3	3.1
10	Sugar cane	0	-0.58
13	Poultry	2.5	-0.64
14	Pig meat (all kinds)	0	-6.49
15	Other crops	1.24	1.05
	Mining	3.55	-0.03
16	Stone/granite	7.56	1.17
17	Sand, Gravel	5	1.09
18	Coal	2.47	-0.05
19	Metallic ore	1.22	-0.14
20	Other none-metallic minerals	2.16	-2.84
	Manufacturing	29.23	43.94
22	Liquor (excluding beer)	102.15	151.24
23	Beer	100	148.6
24	Rice, processed	30	123.18
25	Motorcycles and accessories	60	87.91

Table 4: Effective tariff Rates of protection by Sector, 2003 (continuous)

Code	Sector	NRP	ERP
26	Non-alcoholic beverages	50	87.41
27	Motor vehicles	68.75	79.22
28	Clothing	49.58	76.92
29	Bricks, tiles	49.96	72.16
30	Textile	38.67	70.97
31	Carpets and tapestry textile	40	69.51
32	Cakes, jams, candy, coca, chocolate products	48.17	65.25
33	Coffee, processed	43.62	58.65
34	Plastic products	30.98	58.41
35	Cigarettes and other tobacco products	34.28	55.3
36	Home appliances and parts	35.97	53.83
37	Soap, detergents	21.42	52.84
38	Tea, processed	50	52.2
39	Processed and preserved fruits and vegetables	34.3	51.98
40	Cement	40	49.73
41	Leather goods	30.08	44.61
42	Ceramics and by products	23.38	41.53
43	Bicycles and accessories	30.83	39.27
44	Weaving and embroidery of textile (except carpets)	30.91	36.61
45	Processed seafood and by products	31.15	36.31
46	Sugar of all kind	18.65	34
47	Perfumes and other toiletry preparation	18.05	33.99
48	Concrete, mortar and other cement products	25.2	31.32
49	Glass and glass products	23.94	29.81
50	Milk, butter and other dairy products	23.76	27.22
51	Processed vegetable, and animal oils and fats	13.61	24.57
52	Processed, preserved meat and by-products	10	18.08
53	Paper pulp and paper products and by products	15.62	17.09
54	Broadcasting, TV and communication machines	16.11	13.43
55	Transformers	11.68	13.35
56	Processed rubber and by products	7.99	9.41
57	Precision and optical equipment	7.63	5.46
58	Medicine	4.72	4.01
59	Paints	3.77	2.63
60	Ink, varnish and other painting materials	4.96	2.55
61	Leather (products of tanneries)	7.64	1.6
62	Fibbers, thread (all kinds)	4.94	1.32
63	Processed wood and wood products	4.48	1.15
64	Machine tools	6.44	0.88

Table 4: Effective tariff Rates of protection by Sector, 2003 (continuous)

Code	Sector	NRP	ERP
65	Pesticides	3.2	0.34
66	Animal feeds	10	0.12
67	Basic inorganic chemicals	1.99	0.09
68	Publishing	4.77	-0.09
69	Plastic, original and semi-processed	1.01	-2.36
70	Chemical fertilizer	0.36	-2.45
71	Veterinary drugs	0	-2.91
72	Medical instrument and apparatus	0.13	-4.7
73	Products of printing industry	8.9	-5.9
74	Basic organic chemicals	1.48	-8.18
75	Others	-	-
All traded goods sectors		18.20	24.87

Souse: Authukorala (2005)

The effective protection estimated for import-competing production for 2003 by Athukorala (2005) are reported in Table 4. Liquor, beer and processed rice products have ERPs well over 100%. The 14 products (tea and processed tea, motorcycles, non-alcoholic beverages, motor vehicles, clothing, bricks and tiles, textiles, carpets, cakes, jams, candy, coca, chocolate products, processed coffee, plastic products, cigarettes and other tobacco products, home appliances, and processed and preserved fruits and vegetables) range with the rates of 50% - 88%. All other goods have ERPs in the range of 0 to 50%. The high protection provided to some products such as tea, coffee, rice, textiles and wearing apparels because the country has a clear comparative advantage in those products. The other goods such as beverages, vehicles and processed goods remain a major anomaly in Vietnam's tariff structure because they are encouraged products to import. Since the nominal protection rates on final goods are generally higher than those on intermediate goods, the net effect of the nominal tariff structure has been to yield ERPs that exceed the nominal tariff rate in most industries. The significant decline in ERPs for manufacturing as well as ERPs for total traded good production has come from increase in input tariff introduced with the objective of protecting SOEs involved in intermediate production, rather than from reduction in final good tariffs.

B. Non-tariff barriers

Non-tariff barriers (NTB) were introduced in Vietnam when the country shifted from a centrally controlled economy toward trade liberalization in the late 1980s to early 1990s and quickly became a key component of Vietnam's trade policy. In the past few years, Vietnam has made significant progress in reducing the use of NTBs. Under the terms of the bilateral trade agreement, Vietnam agreed to eliminate all non-tariff barriers, including import and export restrictions, quotas, licensing requirements and controlled for all product and service categories over a period of three to seven years, depending on the product.

Entry Barriers to Import/export Trade of firms

As early as the mid 1990s, only licensed (authorized) trading companies were allowed to engage in foreign trade. In order to obtain an import/export license, enterprises needed to have a foreign trade contract and a shipping license and to meet the requirements on minimum working capital (USD200000) as well as skills in trade. In 1996, the requirements on foreign trade contracts and shipment permission were removed, but the minimum working capital requirement continued to remain as a major entry barrier, especially for new enterprises.

In the Decree 57/1998, Vietnamese enterprises are no longer required to obtain a license from the Ministry of Trade to undertake import or export transactions. All enterprises have to import or export goods consistent with the field of business identified in their business registration certificate. Before importing and exporting, the enterprise needed to register its business code at the provincial customs office. The procedures by which joint ventures, foreign owned enterprises and other businesses with foreign participation are authorized to engage in international trade are linked to the foreign investment licensing process. Along with this decree, the number of enterprises registered in foreign trade increased so much. However, it is difficult to move from one kind of business to another without approved modification of the licenses.

Commodities controls

To control of entry into trading commodity activities, the government controlled trade by prohibitions, means of quotas or targets on each traded commodity, shipment licensing, duties and the other regulations on certain types of goods since 1989. However, in 1994, the shipment licensing system was phased out for all export commodities except rice, timber and petroleum. In 1995, import shipment licensing was lifted for a wide range of producer and consumer goods. Since January 1998, quotas and licensing for consumer goods were lifted on all commodities. In the Decision on Management of Import and Export of Goods in 2001-2005, those administration methods were still taking effect. On 7 December 2005, Vietnamese government decided to extend the validity of the above-mentioned Decision to 30 April 2006.

Import and export quota

According to the Decision 11/1998/QĐ-TTg of the government, the export goods managed by quota are rice, textiles and garments exported to the EU, Canada and Norway. Latter, the Ministries of Trade and Industry announce the quotas agreed under appropriate bilateral agreements. The objectives in setting quotas appear to reflect a continual balancing of the local consumer needs against returns on the export market in light of local seasonal conditions and production, and international demand and prices. The Ministry of Trade in conjunction with the Ministry of Agriculture and Rural Development manages Rice exports. The rice export quota will be based on the evaluation of production and export performance and be set early in the year and revised in September. The Prime Minister will review the lists of exporters each year and grant rice export quota for provinces and some enterprises under the central government. Export quotas for textiles and garments are administered jointly by the Ministry of Trade and the Ministry of Industry. The quotas are determined under bilateral agreements with the European Union, Norway and Canada.

Table 5: Products subject to Quantitative Restriction (QR)

1998	1999	2000	2001	2002	2003
Petroleum	Petroleum	Petroleum	Petroleum	Petroleum	Petroleum
Sugar	Sugar	Sugar	Sugar	Sugar	Sugar
Fertilizer	Fertilizer	Steel	Steel	Cement*	
Steel	Steel	Cement/Clinker	Cement/Clinker	Motorcycles*	
Cement/Clinker	Cement/Clinker	Glass	Motorcycles		
Glass	Glass	Motorcycles	Cars		
Motorcycles	Motorcycles	Cars	Vegetable oil		
Cars	Cars	Paper			
Paper	Paper	Vegetable oil			
	Electric fans				
	Ceramic tiles				
	Porcelain				
	Caustic soda				
	Bicycles				
	Vegetable oil				
	Plastics				
	Plastic packaging				

* Removed as of December 31, 2002

Source: Decision of the Prime Minister on managing exports and imports in the 2001-2005 period, No.: 46/2001/QD-TTg, April 4, 2001 and Athulorala (2005)

Import quotas have been used in Vietnam equal with import tariffs in order to limits imports that directly participate with domestic production by State Owned Enterprises. By 1998, nine major products were remained under import quotas such as petroleum, fertilizer, steel, cement, construction glass, motorcycles, 12 seat cars, paper, sugar and liquor. These products accounted for approximately 40% of imports (CIE, 2000) and over 45% of total manufacturing production (Athukorala, 2002). In 1999, the number of products under quota restrictions was doubled mainly as a temporary measure to avert balance of payments pressure in the wake of the Asian Financial crisis. Over the past two years, quotas have been gradually eliminated as part of the new emphasis on speeding up trade liberalization. Currently only two products, namely sugar and petroleum products, are subject to quotas, and the government has committed to lifting quotas on sugar imports by 2005 (Table 5).

Prohibitions

The prohibition of imports and exports of some commodities in Vietnam aims to protect the national security, social order and safety, traditional culture, fine customs, health of human beings and animals and environment. According to Decision 11/1998/QD-TTg dated in January 1998 and Decision 46/2001 dated in April 2001, there are small number of goods banned from exports and imports as follows:

Table 6: Goods prohibited from Imports and Exports

Goods prohibited from Exports	Goods prohibited from Imports
<ul style="list-style-type: none"> ▪ Weapons, ammunition, explosive materials, military technical equipment ▪ Antiques ▪ Narcotics ▪ Toxic chemicals ▪ Logs, sawn and peeled timber, firewood, charcoal made from wood or firewood, wood and forest products and planks from selected timber, and rattan materials; ▪ Wild animals, scarce and precious natural animals and plants ▪ Special machinery and encryption software using in State security protection 	<ul style="list-style-type: none"> ▪ Weapons, ammunition, explosive materials, military technical equipment ▪ Narcotics ▪ Toxic chemicals ▪ Depraved and reactionary cultural products, children toys that may have negative effects on their dignity and social order and safety ▪ Firecracker of all kinds ▪ Cigarettes, cigar and other tobacco products ▪ Second-hand consumer goods (including: textile and footwear products, electronic goods, air conditioning products, electric appliances, interior decorations and home products such as ceramics, glass metal, plastic... wares) ▪ Right steering-wheel vehicles

Source: Decision 11/1998/QD-TTg and Decision 46/2001/ QD-TTg

Tariff Rate Quota (TRQ)

Depending on conditions of domestic production and foreign trade, Vietnamese Ministry of Trade authority introduces tariff rate quotas (or duty quotas) applied in seven agricultural commodities since 1 July 2003 (Decision 91/2003/QD-TTg). The products were raw milk, condensed milk, poultry eggs, maize, raw tobacco, salt, and cotton. The market access rules under TQRs generally introduce scope for discriminating in the

allocation of TRQs between source countries and domestic importers. The administration of such quotas tends to legitimize a role for state-owned trading agencies. When such agencies have been selling rights on the domestic market in addition to a monopoly on imports of the given products, they can charge excessive mark-ups and thereby distort domestic prices (Hoeckman and Kosteki, 2002).

Special authority regulation

There are number of import items as pharmaceuticals, some chemicals, some food items, fertilizer, and recording and broadcasting equipment still require approval from relevant ministries. The regulation is generally maintained for health and security reasons. About 10% of import values of goods were subject to this form of regulation in 2000.

2.3.3.2. Export promotion strategy

The restrictions on imports could increase the cost of inputs to all industries, reducing relative profitability of exporting compared to production for the domestic market. Like other developing countries, Vietnam has used some instruments to promote exports in the context of the restrictive trade regime.

Export subsidies (export credit)

Even though does not provide direct subsidies to exports to any significant extent, Vietnam does have special facilities to provide credit to exporters. The Export Promotion Fund managed by the Ministry of Finance, provides subsidies in the form of interest rate support and direct financial support to first-time exporters, for exports to new markets, or for goods subject to major price fluctuations. The Fund also provides export rewards and bonuses. Provision of export bonuses, originally targeted for exports of agricultural products, was expanded in 2002 to include non-agricultural products such as handicrafts, rattan and bamboo ware, plastic products and mechanical products.

Duty free access to Imported Inputs

When a country attempts to promote exports side by side with a protected trade regime for production for the domestic market, it is important to assure uninterrupted duty-free access to the imported intermediate inputs needed for export production. There are two tools widely used for this purpose: foreign trade zone (FTZ) and import duty rebate.

The Government passed legislation for setting up of foreign trade zones in 1991, in which foreign trade zone included Export Processing Zones (EPZs) and Industry Zones (IZs) and High-Tech Zones (HTZs)¹. Firms operating in Vietnamese FTZ have duty free access to all inputs and enjoy various tax concessions comparable to or more attractive than those located in FTZs in other countries in the region. Bearing the same VAT, but investors in EPZs, IZs and HTZs enjoy more favorable profit tax incentives than those offered to investors outside. In EPZs, manufacturing operations will pay only 10% corporate income tax, after four year tax exemption commencing from the date profits are first making. Service operations will bear a rate of 15% with a two-year tax holiday. In IZs, corporate income tax rates applicable to enterprises vary from 10%, 15% to 20%. The rate of 10% together with a two-year holiday and two-year reduction are given to producers with export rate of more than 80%. The rate of 15% is applicable to producers having exported rate of less than 80%. Service operations in IZs will bear the tax rate of 20%. In HTZs, the enterprises enjoy up to 8 years of corporate income tax exemption, and the tax rate of 10% for the rest years.

The duty rebate scheme in Vietnam was introduced in 1991. In 1993 a duty suspension facility was added to the scheme, enabling export-oriented firms (firms exporting more than 50% of output) to suspend duty payments up to 90 days. The suspension period was further extended to 275 days in 1998 for all enterprises that import inputs for export production. The operation of the duty drawback scheme in Vietnam has been examined in detail as part of a recent World Bank study on export policies and performance (World Bank 2002). According to this study, the operation of the scheme has improved considerably over the years. The time involved in processing duty rebate

claims has become considerably shorter (now around 3-5 weeks compared to over 3 months at the formative stage of the scheme) as the custom officials gained experience in the implementation of the scheme. However, the operation of the scheme still has left much to be desired, particularly for firms that export only parts of their output or newcomers to exporting.

Export Duty Removal

In the early years of the market-oriented reform, Vietnam introduced export duties on a number of export items. They were justified at the time on grounds of protecting environment, natural resources conservation and reserve inputs for domestic production. These duties were subsequently eliminated. By 1998, only two products such as crude oil and scrap metal were subject to export duties.

Exemption from domestic taxes

Vietnam has a wide array of domestic taxes: corporate income tax, value added tax (VAT), special sale tax, license tax, agricultural land use tax, tax on land transfers, and natural resource tax. Concessions are given to exporters relating to corporate income tax and turnover tax, creating a tax wedge in favor of export production over production for the domestic market.

From 1999 to 2003, Vietnam had a two-band corporate income system that is 25% tax for industries and 32% tax for services. This was unified at 28% affecting since 1 January 2004. Profit from export production is taxed at concessionary rate depending on the degree of export orientation of production. Firms exporting between 50-80% of production are taxed at 20% for twelve years (from the date when the project commences its production) while firms exporting at least 80% of production are taxed at the favorable rate of 15% for fifteen years. Non-exporting firms are also eligible to this concession depending on criteria such as contribution to employment, size of the work force, use of advanced technology, intensive use of local raw material, investment in rural areas, and contribution to infrastructure construction/development.

VAT was introduced in January 1999 in place of the turnover tax. It has four tax lines: 0% for all exports, 5% for essential goods and services (such as water, fertilizer, insecticides, medicine, educational equipment, baby toys and animal foods); 20% for some specific services; and 10% for all other goods and services. The 20% rate was abolished on 1 January 2004, resulting in a three-band VAT system of 0%, 5% and 10%. Imports are subject to VAT at the same rates as domestically produced goods under each tax bracket.

In summary, Vietnam has accelerated its pace down a road toward international economic integration. Trade and investment agreements have confirmed to be important vehicles for the ambitious development of a set of institutions, laws and policies to support the market-based economy that is increasingly integrated into world markets. However, despite some significant recent efforts to rationalize the taxes structure, the rates remain high, many levels and non-uniform in Vietnam. Effective rates of protection for traded goods have recorded a significant decline over time. However, they are still high compared to some other ASEAN countries. The high rates may help protect local enterprises, but it is barriers on import flows and the complicated list of the protected products could cause troubles to the government management. The export promotion strategies are most in incentive structure to expansion in manufactured exports of the foreign invested enterprises in Vietnam, not for small and medium-scale local firms. While the trade policies are still complex and not efficient, the foreign investment policies are much more progress. The different changes in the law improve the investment's environment and attract capital.

2.4. Vietnam's Economic performance since 1986

After the Sixth National Party Congress in December 1986, the *Doi Moi* process has been achieved some good results: a gradual elimination of mandatory plan targets, expansion of the economic growths and its sectors, broadening of the confines market prices. However, until 1989, the renovation just started having achievements in inflation

control, trade liberalizations, open door integration into the world, high economic growth rate, social stability and improvements of people's living conditions.

2.4.1. Economic growths and structures

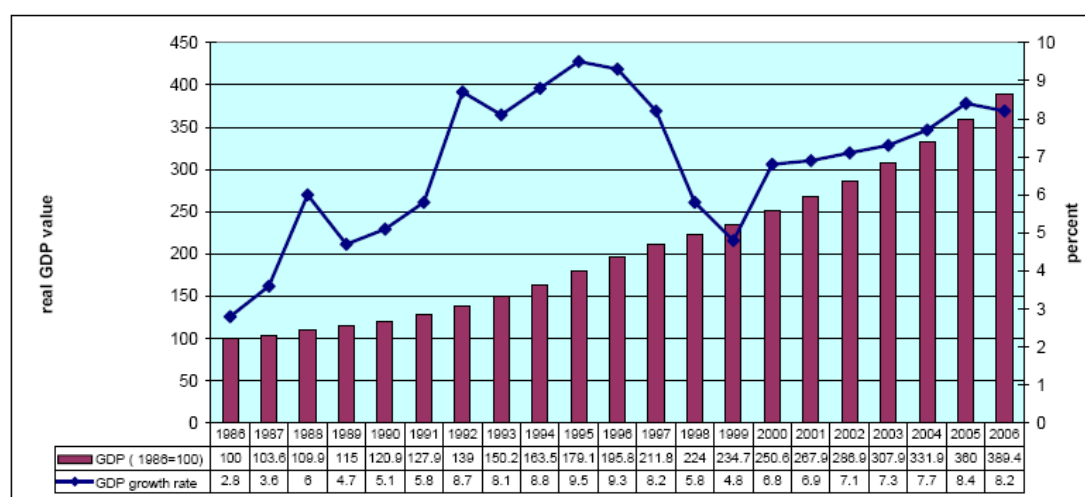
Economic growth:

The economic reforms of 1986 have dramatically transformed the country. The economy continued to grow at a high rate, helping the country out from hyperinflation and economic crises. Figure 1 presents the value of Vietnam's GDP and GDP growth rates over the twenty-one years of its renovation. In general, Vietnamese's economy has been achieving a continuously steady growth from 1986 to 2006. In 2006, the GDP value was nearly 4 times of that in 1986. However, a closer look at the growth rate may tell us a more interesting and concrete story. From a low economic growth rate of 2.8% in 1986, the annual growth rate of Vietnam has increased to 6% in 1988 and increased to over 9% in both 1995 and 1996. This resulted in increasing per capita income from \$100 in 1987 to over \$300 in 1996. However, due to the collapse of the Socialism system of Soviet Union and Eastern Europe in 1989-1990 and the effectiveness of Asian financial crises in 1997-1998, the GDP growth rates were declined to the lowest rate at 4.8% in 1989 and 1999. Overcoming several difficulties and challenges, the economy was successfully recovered and developed at the growth rate of 7.48% at the 2001-2005 period and increased at 8.17% in 2006. This achievement and the stable development of the society showed the chosen renovation of Vietnamese leader going in the right goals, contents and implemented measures at the macro level to ensure growth and overcome the country's crisis.

Even though Vietnam was among the countries having the highest average GDP growth rates in 1996-2005 in Asia, it was low in comparison with the average annual GDP growth rates in 1996-2005 of China (at 8.58%) and the two-number growth rates of Korea and Singapore in the late years of the previous century. In 2006, the GDP per capita of Vietnam was \$722 dollars, double of that in 1997 and about 8 times of that in 1986. However, it was too low compared to the average GDP per capital of the most

Asian countries, only about 23% of Thailand, 53% of Philippines, 44% of Indonesia and 36% of China (Table 7).

Figure 1: Economic growths in Vietnam (1986-2006)



Source: own calculations based on data obtained from Vietnam statistical Yearbook 1995-2006

Table 7: GDP growth rate and GDP per capita of Vietnam and Asian countries

	GDP growth rate (%)				GDP per capita (USD)			
	1996-2005	2003	2005	2006	1996-2005	2003	2005	2006
Indonesia	2.86	4.9	5.7	5.5	1028.7	1105.9	1302.2	1635.5
Malaysia	4.67	5.3	5.1	5.9	4411.4	4253.9	5134.4	5769.9
Thailand	2.79	6.9	4.4	5.0	2477.3	2263.4	2749.4	3252.3
Lao	6.08	6.1	7.0	7.6	394.7	377.6	481.9	596.8
Cambodia	4.99	5.3	7.0	10.8	307.4	321.4	383.4	511.3
Philippines	4.15	4.7	5.1	5.5	1077.9	1004	1183.6	1362.8
Singapore	4.91	2.5	6.4	7.9	24146.9	22570	26833.6	29474.0
Korea	4.67	3.1	4.0	5.0	12220.9	12709.7	16308.9	18340.8
China	8.58	9.3	9.9	10.7	1030.8	1273.6	1708.6	2016.1
Vietnam	7.24	7.3	8.4	8.2	436.9	491.9	639.1	723.0

Source: own calculations based on data obtained from the IMF website, 2007

The main reason of the achievement was the high development of all economic sectors, especially the industrial sector. One of the most important achievements was the development of agriculture due to the encouragement of new policy in agriculture in 1988. Based on the KHOAN 10 (Resolution No.10) on management renovation in Agriculture on 5 April 1988, farmers were allowed to enjoy 40% of contracted output, thus encouraging them to invest more labor and capital to develop production. The agriculture-forestry and fishing sector's growth rates were continuously increased from an average rate of 2.72% in the year 1986-1990 to 4.12%, 4.4%, 3.84% and 3.4% in 1991-1995, 1996-2000, 2001-2005 and 2006, respectively (Table 8). From the positive changes in agriculture with KHOAN 10 and other policies in late 1988, Vietnam changed from an importing rice country to become the third biggest exporter of rice in the world since 1989 with exported 1.4 million tones in 1989, 1.4 million tones in 1990, 4.06 million tones in 2004 and 5.25 million tones in 2005. Moreover, Vietnam is also one of the largest exporting countries in pepper, coffee, rubber and tea.

Table 8: Average annual growth rate of GDP in Vietnam, 1986-2006 (%)

Period	Annual GDP growth rate	Of which		
		Agriculture, forestry and fishery	Industry	Services
1986-1990	4.44	2.72	4.82	5.84
1991-1995	8.18	4.12	12.02	8.60
1996-2000	6.98	4.40	10.64	5.72
2001-2005	7.48	3.84	10.24	7.04
2006	8.17	3.40	10.37	8.29
1986-2006	6.84	3.77	9.43	6.80

Source: Vietnam statistical Yearbook 1990-2006

The industry and construction sector have been grown impressive. In 1988, the regulation 217/HDBT of Vietnamese's government gave the right of autonomy in doing

business for state-owned enterprises (SOEs) and stated that the government would no longer continuously subsidize SOEs. By the end of 1988, the SOEs stopped receiving capital from the government budget for their activities and were required to obtain bank loans and pay interest. At the difficulties of adaptations with the new mechanism, the industrial and construction sector grew at average growth rate (5%) in 1988 and fell out to -2.6% in 1989. Due to the biggest change policies, SOEs were faced some major problems in selling produced goods and finance. In 1988-1989, the value of unsold produced goods in the stocks cross the country was exceeded VND 1.2 billion. The reasons that products cannot sell were too high selling price (22.8% of the products), no demand by consumers (14.5% of the products), too low quality, failing to satisfy consumers (5.6% of the products) and customers did not know the products as producers and contributors did not advertise (8% of the goods). In the survey of total exiting 12084 SOEs in January 1990, there were 4584 enterprises incurred losses in 1989, especially in industries of building material, leather and shoe marking and garment and textile. The average growth rate of this sector in the period of 1986-1990 was 4.82%. However, after the difficulties of adapting in new regulation, the industrial sector expanded quickly and became the main source of economic growth. It grew at the rates of 12.02% in 1991-1995 and more than 10% during the 1996 -2006 period. The development was the results of increasing in crude oil exploitation, booming in inflows of foreign capital in industries of gas, electricity, cement, steel, garment and paper. Some key products of processing industries greatly influenced the economy are aquaculture processing, papers, garment, coal, textiles, chemical, fertilizers, cement, iron and steel.

Service sector has been continuously increased since 1988 and had high growth rate (about 8.6%) during the first half of the 1990s due to the openness economy policies of the government. The growth was mainly from the improvement in administration, banking reform, trade liberalization and tourism.

Economic structure's changes:

Besides the increasing of growth rates in GDP and its economic sectors, the economic structures have been shifted in the direction of industrialization and modernization. Vietnam economy has been transformed in the direction of increasing the proportion of industry and construction sector, decreasing the proportion of agriculture, forestry and fishery sector. Table 9 showed the real situation.

During 1986-1990, the agriculture, forestry and fishing factor was accounted for 41% of total GDP output. It continuously decreased its share to 31.8% in 1991-1996 and to 20.4% in 2006. The industry and services sectors are increasing their roles in the country by raising their shares in the country's GDP. In 2006, the industry and service sectors accounted for 41.6% and 38.1% of the total GDP respectively, increasing nearly 16.2% in the industry sector and 4.6% in the service sector compared to the period of beginning the *Doi Moi* 1986-1990. Even though the service sector decreased its share in 2001-2006, several sub sectors such as banking and finance, communication, import trade, insurance and tourism grow faster than previous years. The change in the economic structure was right direction and suitable with the industrialization and modernization policy issued by the government.

Table 9: Structure of GDP (%)

Period	Share of GDP by sector				Share of GDP by ownership			
	Total	Agriculture, forestry and fishery	Industry	Services	Total	State	Non-State	Foreign investment
1986-1990	100	41.15	25.36	33.49	100	35.26	63.60	1.14
1991-1995	100	31.78	27.52	40.70	100	33.78	57.54	5.68
1996-2000	100	25.85	33.10	41.05	100	39.54	49.82	10.40
2001-2005	100	22.29	39.44	38.27	100	38.68	46.54	14.60
2006	100	20.36	41.56	38.07	100	37.32	45.66	17.02
1986-2006	100	30.27	31.26	38.38	100	37.55	54.06	8.39

Source: own calculations based on data obtained from Vietnam statistical year book 2006

Aimed to develop a socialist-oriented market economy under State's management, Vietnamese government was keeping the central leading role of the state sector as well as facilitating the development of other economic sectors. As the result, although the decline numbers of the state owned industrial enterprises¹⁰ along with the growth numbers of the foreign owned and non state enterprises, the share of the state sector in GDP changed slightly, while the share of the foreign investment sector quickly increased (from 1.14% in 1986-1990 to 17% in 2006) and the proportion of the non state sector in GDP was decreased from 63.6% in 1986-1990 to 45.6% in 2006.

2.4.2. International trade and integration

The Sixth Party Congress in December 1986 was a turning point in Vietnam's economic policies. The market oriented and open economy were the two important policies to help Vietnam moving to trade liberalization. Prices have been set according to the demand and supply relationship on the market since 1989. The official exchange rate and the market exchange rate have been drawn closer to each other, and since mid 1991, a unique exchange rate has prevailed. In order to create its own position, Vietnamese government had the policies that Vietnam will establish the multilateral trade relationship with other countries and find new foreign trade markets. In the presence of free trade, Vietnam had the chance to join the world economy and prosperity. The country signed a preferential trade agreement with the European Economic Community in 1992, with ASEAN in 1995 and the bilateral trade agreement with the United States in 2001. It became a member of Asian Free Trade Area (AFTA) in 1995, APEC in 1998 and the World Trade Organization in 2007. All of the positive significances offer substantial potential for Vietnam to expend its exports and imports.

¹⁰ Numbers of the state owned enterprises (SOEs) were reduced from 12000 in 1990 to about 6000 by April 1995 and to 4845 enterprises at the end of 2003 (GSO, 2003)

Total Trade performance

The successes of Vietnam's international trade are shown by statistical figures in the four five-year periods and in 2006 presented in Table 10 and Figure 2. The total trade of Vietnam in 1986-2006 was 498.58 billion USD. The total trade in the year of 2006 exceeded 84.72 billion USD, increasing by 28.8 times compared to that in 1986. In the period of 1996-2000, total value of trade reached more than 100 billion USD, tripled of that in the previous period, even though the average growth rate is lower than 1991-1995. Total trade value in the period of 2001-2005 was doubled that of the 1996-2000 period, with the average growth rate was 18.2%.

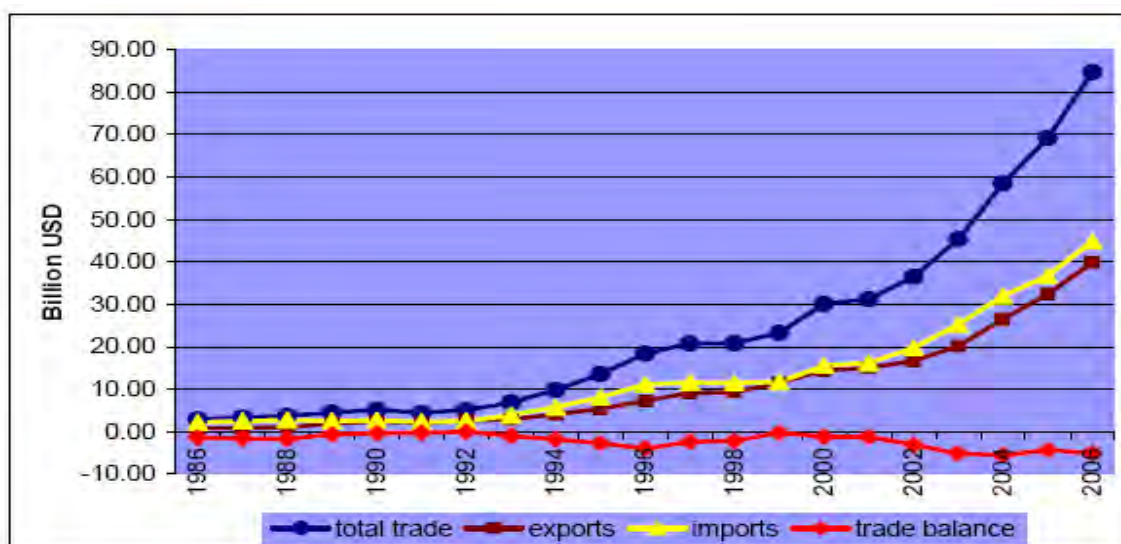
From 1986 to 2006, average growth rate of export was 22.5% per annum. Export value in 2006 was from \$0.79 billion in 1986 to \$39.83 billion in 2006. The share of exports in total trade increase steadily from 35.7% in the 1986-1990 up to 46% in the 2001-2005 period. The annual average growth rate of imports in 1986-2006 was 17.7%. Import value over 2006 import value reached \$44.89 billion, increasing by 28.8 times of that in 1986. The average growth rate of imports in 1991-1995 is the highest rate (24.3%), in comparison to other periods, although the import values only equals to 1/5 of the one in 2001-2005 period.

Table 10: Total international trade and annual average growth rate

	Total trade		Exports		Imports		Trade balance
	Value (Bill. \$US)	Growth rate (%)	Value (Bill. \$US)	Growth rate (%)	Value (Bill. \$US)	Growth rate (%)	Value (Bill. \$US)
1986-1990	19.72	15.1	7.03	30.7	12.69	8.2	-5.66
1991-1995	39.94	21.4	17.16	19.3	22.78	27.3	-5.62
1996-2000	113.44	17.9	51.83	22.1	61.61	15.0	-9.78
2001-2005	240.77	18.4	110.82	17.9	129.95	19.0	-19.13
2006	84.72	22.4	39.83	22.7	44.89	22.1	-5.06

Source: own calculations based on data obtained from Vietnam Statistical yearbook 1994 -2006

Figure 2: Vietnam's international trade performance (1986-2005)



Source: Statistical yearbook 1994 -2006

The combination of export and import growth at the different speeds had made the trade balance more complicated. From 1986 to 1992, the trade deficit gradually reduced and even got trade surplus about 40 million US Dollars in 1992. In 1993, the deficit began to rise and got \$3.89 billion in 1996 and the highest value in 2004 at \$5.48 billion. However, the trade deficit of \$4.31 billion in 2005 was much smaller than the value in 2003-2004. This was resulted by the increasing of export's growth rate so much larger than that of imports.

The trade deficit situation can be explained as follows. Firstly, Vietnam was continuously increasing its economic growth rates over the past year, so that it was also increasing the demand for materials of production. Vietnam enterprises have to import machinery, equipment, raw materials for the expansion of domestic investment and production. Moreover, the imported material's prices were strongly increased in some recent years to force Vietnam's import values increasing. Lastly, to develop the trade liberalization with the world countries, Vietnam was and will become a supporter for the world imports.

Direction of international trade

Together with the development in terms of scale, the number of countries having trade relationship with Vietnam also increased very quickly. Based on the Vietnam General Statistic Office, Vietnam established the international trade relationship with 43 countries in 1986. This number increased up to 100 countries in 1995, 192 countries in 2000 and over 200 countries by now. The international markets on trade are strongly movement as presented in Table 11. In 1986-1990, the Europe's market was the largest one with the shares about 65.3% of the total trade, 51.7% of the total exports, and 72.8% of the total imports, in which the Eastern Europe market counted for 57.1%. After the collapse of Soviet-bloc and Eastern Europe in early 1990s, Vietnam's trade market moves to Asian countries with the shares counted for more than 70% in the total. The international trade of Vietnam with America increased quickly from 0.6% in 1986-1990 to 11.1% of total value in 2001-2005, in which United States made a significant contribution (from 3.75% of the total value before 2001 to 9.29% in 2001-2005 and up to 10.4% in 2006).

Table 11: Vietnam's international trade by continent

	1986-1990		1991-1995		1996-2000		2001-2005	
	Value (Mill. USD)	Share (%)	Value (Mill. USD)	Share (%)	Value (Mill. USD)	Share (%)	Value (Mill. USD)	Share (%)
Total trade	19716.7	100.0	39940.2	100.0	113438.8	100.0	240765.9	100.0
Asia	4116.6	20.9	28597.8	71.6	80985	71.4	159808.9	66.4
Europe	12870.8	65.3	6600.1	16.5	20683.6	18.2	40274.9	16.7
America	120.8	0.6	758.9	1.9	4952.2	4.4	26844.1	11.1
Africa	11.4	0.1	120.7	0.3	551.1	0.5	2264	0.9
Oceania	65.9	0.3	425.2	1.1	4266.7	3.8	10763.3	4.5
unspecified	2531.2	12.8	3437.5	8.6	2000.2	1.8	810.7	0.3
Exports	7031.7	100.0	17156.2	100.0	51825.3	100.0	110816.7	100.0
Asia	2135	30.4	12545.2	73.1	32072.1	61.9	56382.2	50.9
Europe	3635.2	51.7	2684.2	15.6	12395.3	23.9	22918.2	20.7
America	73.5	1.0	451.2	2.6	3058.7	5.9	20966.6	18.9
Africa	6.1	0.1	102.4	0.6	412.3	0.8	1579.2	1.4
Oceania	20.7	0.3	188.3	1.1	2965.5	5.7	8400.7	7.6
unspecified	1161.2	16.5	1184.9	6.9	921.4	1.8	569.8	0.5
Imports	12685	100.0	22784	100.0	61613.5	100.0	129949.2	100.0
Asia	1981.6	15.6	16052.5	70.5	48912.9	79.4	103426.8	79.6
Europe	9235.6	72.8	3916	17.2	8288.3	13.5	17356.7	13.4
America	47.3	0.4	307.7	1.4	1893.4	3.1	5877.5	4.5
Africa	5.3	0.0	18.3	0.1	138.8	0.2	684.8	0.5
Oceania	45.2	0.4	236.9	1.0	1301.2	2.1	2362.5	1.8
unspecified	1370	10.8	2252.6	9.9	1078.9	1.8	240.9	0.2

Source: Vietnam 20 years of renovation and development, GSO 2006

Table 12 shows the top twenty trading partner countries of Vietnam, which accounted for 87.6% of the total trade over the period of 1986-2006. Japan was the country having highest total trade of Vietnam during 1986-2006, accounted for 13.4% of the total trade, followed by Singapore with 11%, China (9.4%), Taiwan (7.9%), United States (7%), Korea (6.9%), Australia, Thailand, Federal Russian and Hong Kong. The top twenty trading partner countries of Vietnam included 14 nations came from the developed countries, reporting for 77.8% of the shares in the twenty countries and accounting for 60.7% of the total international trade. Low costs of Vietnamese export products could be the reason for crowded industrial countries in the top list of trade in Vietnam. Most exported products are crude oils, handicrafts, clothing accessories, footwear, some agricultural products as nuts, pepper, coffee, and rice and fishery products.

Table 12: Vietnam's trade by top twenty trading partners, 1986-2006

	Country	Shares in total trade	Country	Shares in total exports	Country	Shares in total imports
1	Japan	13.44	Japan	15.84	Singapore	14.25
2	Singapore	10.96	United States	12.54	Japan	11.45
3	China	9.40	China	8.07	Taiwan	10.86
4	Taiwan	7.85	Singapore	7.02	China	10.51
5	United States	7.04	Australia	6.64	Korea, Rep of	10.48
6	Korea, Rep of	6.92	Taiwan	4.24	Thailand	5.24
7	Australia	3.87	Germany	3.21	Russian Federation	4.67
8	Thailand	3.85	Korea, Rep of	2.65	Hong Kong	3.96
9	Russian Federation	3.57	United Kingdom	2.58	Malaysia	2.84
10	Hong Kong	3.23	Belgium	2.54	United States	2.46
11	Malaysia	2.61	France	2.51	France	2.17
12	Germany	2.47	Hong Kong	2.36	Indonesia	1.97
13	France	2.33	Malaysia	2.34	Germany	1.85
14	Indonesia	1.92	Russian Federation	2.25	Australia	1.56
15	Belgium	1.65	Netherlands	2.22	Switzerland	1.54
16	United Kingdom	1.54	Thailand	2.18	India	1.41
17	Netherlands	1.37	Philippines	2.16	Belgium	0.92
18	Philippines	1.25	Indonesia	1.86	Italy	0.92
19	Switzerland	1.23	Cambodia	1.38	Netherlands	0.67
20	Italy	1.13	Italy	1.38	United Kingdom	0.66
		87.61		85.98		90.37

Source: Vietnam 20 years of renovation and development, GSO 2006

Exports

With the strategy of increasing export growth to boost the economic development, exports have been playing a more and more important role in Vietnam's economy. While the annual export value in 1986-1990 was \$1.4 billion, that value in 2001-2005 increased up to \$22.2 billion, about 16 times of that in 1986-1990. The shares of export in GDP and annual export per capital have been significantly increasing. Export counted for 53.8% of GDP in 2001-2005 and increased up to 65.3% in 2006. The increasing exports were based on the diversification and development of export products and markets and the changing of export's structure to fit with market demands.

Table 13: Annual average Export value and ratio per GDP

	Annual average export value (Mill. USD)	Exports/GDP (%)	Exports per capital (USD)
1986-1990	1406	20.5	18.1
1991-1995	3432	25.2	43.6
1996-2000	10366	37.5	129.9
2001-2005	22164	53.8	274
2006	39830	65.3	

Source: own calculations based on data obtained from GSO (2006)

The changes in economic management policy launched by the Government have the initiative in management towards enterprises. The direct participation of producers in product distribution in the domestic and oversea markets has led to the close relation between production and consumption. The quality of products has been dramatically improved which increase competitiveness of Vietnamese goods in the world markets. Table 14 presented that the structure of exports has been changed in the direction of clearly increasing the volume of manufactured products and decreasing the volume of primary products, even the volume of primary products for exports was still quite high. In 1991-1995, Vietnamese products were not competitiveness in quantity and quality with the world market, so we just concentrated on supplying raw materials and primary products into the world market with the share of primary products accounted for 74.6% in total of exports. However, this has been changed significantly after that period. The

shares in total value declined to 54.8% in 1996-2000 and to 49.1% in 2001-2005. The strongly reduced factors in primary products are food, foodstuff and live animals (decreasing from 37.5% in 1986-1990 to 21.9% in 2001-2005) and crude materials (except fuels) with the decreasing of 12% other the time. However, instead of the fall their shares in the structure of exports as other primary products, the mineral fuels are increasing their shares dramatically. The real reason is that Vietnam is in the low processing level of fuel products, and then the raw products are still exporting to other world countries.

Table 14: Export structure (%)

	1986- 1990	1991- 1995	1996- 2000	2001- 2005	2006
EXPORT STRUCTURE	100	100	100	100	100
By processing level of commodities (SITC)					
Primary or semi-processed products	70.1	74.6	54.8	49.1	-
Food, foodstuff and live animals	37.5	37.8	29.6	21.9	
Beverages and tobacco	1.5	0.1	0.2	0.5	
Crude materials, inedible, except fuels	15.7	9.2	3.5	3.3	
Mineral fuels, lubricants and related materials	14.8	27.3	21.2	23.3	
Animal and vegetable oils, fats and wax	0.6	0.2	0.3	0.1	
Manufactured or refined products	28.9	25.3	45.2	50.9	-
Chemical and related products	0.9	0.4	1.1	1.6	
Manufactured goods classified by materials	5.4	5.3	6.1	6.8	
Machinery, transport and equipments	0.1	1.3	8.2	9.2	
Miscellaneous manufactured articles	22.5	18.3	29.8	33.3	
Others	1.0	0.1	0.0	0.0	
By commodity group in State Plan					
Minerals and Heavy industrial products	16.0	30.3	31.4	34.2	35.2
Light industrial and handicraft goods	29.8	21.4	34.8	40.2	40.7
Agricultural products	35.7	31.5	22.8	14.1	14.5
Forest products	6.3	4.0	1.8	1.0	1.2
Aquatic products	12.2	12.8	9.2	10.5	8.4
By ownership					
Domestic sector	-	93.8	61.3	47.8	42.2
Foreign invested sector	-	6.2	38.7	52.2	57.8

Source: Source: own calculations based on data obtained from GSO (2006) and Report of trade activities 2006 of Ministry of trade

Based on the export structure by commodity group and by ownership, the results reflect the orientation of the industrialization and moderation of the country. In the first period, 1986-1990, agricultural products accounted for the highest value with 35.7% of the total export. This share was reduced continuously two third in 2001-2005, at 14.1%. On the other hand, the share of exports in minerals and heavy industrial products rose to 35.2% in 2006, more than double in comparison to that in 1986-1990. Light industrial and handicraft goods also increased its share up to 40.7% in 2006. The group of products having the highest annual growth rate in 1986-2005 was minerals and heavy industrial products with the growth rate of 29.4%, followed by light industrial and handicraft goods (22.2%), fishery products (19.1%), agricultural products (15.1%) and forestry products (11.9%). The trend of increasing the industrial shares and reducing the others is sound appropriate to the Vietnamese situation that the increasing of the manufacturing industry could support for agricultural, forestry and fishery factors, creating output for products, creating jobs for abundant labor force in Vietnamese society and increasing incomes for employees.

Similar to the experiences of China and other East Asian economies, the rapid exports growth of Vietnam has also largely relied on foreign invested firms. Foreign companies invested in Vietnam have been increasing and showing their important role in export. In the period of 1996-2000, the exports of foreign invested firms were reached \$20.1 billion, about 38.7% of Vietnam's total export. In 2001-2005, the export value by foreign firms was increased up to \$57.9 billion, accounted for 52.2% of total export structure. The top exporters of Vietnam during 1986-2006 were mostly developed countries such as Japan, United States, Singapore, Australia, Korea, United Kingdom, Germany, Belgium, France, Hong Kong and Italia. As Table 12, Japan is top of the exporter list with the export share in the total Vietnamese export was 15.8%, followed by United States (12.5%), China (8%), Singapore (7%) and Australia (6.6%).

Table 15 presents that the traditional products of Vietnamese exports such as textile and clothing, footwear, marine products, rubber, coffee, rice, cashew nuts, tea and pepper are still keeping the important role in exports as they are still remaining high

growth rates. In 2001-2005 period, the shares in Vietnam's total exports of textile and clothing, marine products, footwear, rice and coffee were 15.8%, 10.1%, 10.3%, 4% and 2.3%, respectively. Vietnam is one of the biggest countries in exporting rice, coffee, pepper and cashew nut. In 2005, Vietnam is the biggest exporter of pepper, the second largest exporter of rice and coffee, and the third largest one of the cashew nut in the world.

Table 15: Some major exports of Vietnam in 1986-2005

	Annual average	Share in total exports			
	value (Mil. USD)	(%)			
	1986-2005	1986-1990	1991-1995	1996-2000	2001-2005
Crude oil	1879.0	9.50	24.08	18.56	20.90
Textile and clothing	1393.6	9.60	11.14	14.94	15.83
Marine products	951.7	12.24	12.78	9.24	10.10
Footwear	870.8	0.74	2.98	10.42	10.34
Rice	574.8	9.40	11.48	8.56	3.99
Electronic parts, computer and their parts	349.2	0	0	4.46	4.22
Coffee	337.1	4.88	7.04	5.01	2.34
Rubber	191.1	2.94	3.00	1.71	2.00
Cashew nuts, shelled	124.5	0.57	1.57	1.16	1.42
Coal	121.7	1.66	1.86	1.00	1.34
Vegetables and fruit	105.2	3.87	0.97	1.03	1.02
Pepper	62.2	0.85	0.66	0.89	0.55
Ground nuts, shell	43.1	2.05	1.64	0.46	0.18
Tea	43.0	1.42	0.62	0.47	0.37
Tin	12.9	0.58	0.54	0.14	0.05

Source: own calculations based on data obtained from GSO (2006)

Moreover, some new export products were also accounted for large shares in the total export value. Crude oil (before 1991) and electronic, computer and their parts (before 2001) were not yet export products in Vietnam. However, they now are in the top list of the export products with the high export growth rates. According to GSO (2005), crude oil overcame 2 billion USD in 1999 and reached 7.4 billion USD in 2005, increased 30% compare to its turnover in 2004 due to the strongly increasing price of world's crude oil, even though the exported output of crude oil in 2005 decreased 7.9%

compared to 2004. While in the year of 1986, Vietnam did not have any products, which achieved the annual product value of 200 million USD, it is now having several commodities reached this level. Of which, four products in 2000 and seven products in 2005 achieved over 1 billion USD as crude oil, electronic parts, computer and components, textile and clothing, footwear, fishery products, rice, articles of wood.

Imports

Imports in Vietnam is the most important factors providing the machines, raw materials and technologies for domestic productions, exports and consumptions. The annual average growth rate of imports in the period of 1986-2005 is about 15.5%. Table 16 showed that the annual average value of imports increased quickly over time. The annual import value in 2006 was \$45 billion, more than 17 times of that in 1986-1990. The shares of imports in GDP have been significantly increasing with the 63.1% of GDP in 2001-2005 and 73.6% in 2006. Increasing imports was based on the demand of Vietnamese productions and consumptions.

Table 16: Annual average Import value and ratio per GDP

	Annual average import value (Mill. USD)	Imports/GDP (%)
1986-1990	2538	37
1991-1995	4556	33.5
1996-2000	12322	44.6
2001-2005	15990	63.1
2006	44890	73.6

Source: own calculations based on data obtained from GSO (2006)

Vietnam's abundance of cheap labor has its international competition in the low-cost and labors-intensive manufacturing. As a result, Table 17 shows that manufactured products constitute an increasingly larger share of Vietnam's trade, accounted for 76.4% of the total imports in 1986-2005. Furthermore, with the purpose of giving priority for

production of exports and meeting the demand of the domestic consumption, the imports structure changed in the direction of increasing capital goods, intermediate goods and decreasing consumption goods. Imports for consumption were controlled strictly from 12.7% in 1986-1990 to 8.9% in 1996-2000, 7.7% in 2001-2005 and about 6.7% in 2006. Fuel and raw materials accounted for more than 60% of the imported commodities each year to use for production and investment. Machinery, instrument and accessory sector reported at average share of 29.2% in the total imports.

Table 17: Import structure (%)

	1986- 1990	1991- 1995	1996- 2000	2001- 2005	2006
IMPORT STRUCTURE	100	100	100	100	100
By processing level of commodities (SITC)					
Primary or semi-processed products	33.1	25.0	19.6	22.9	-
Food, foodstuff and live animals	5.6	4.3	3.9	5.0	
Beverages and tobacco	0.4	1.2	0.7	0.6	
Crude materials, inedible, except fuels	3.7	3.3	3.6	4.3	
Mineral fuels, lubricants and related materials	23.4	15.6	10.8	12.5	
Animal and vegetable oils, fats and wax	0.0	0.6	0.6	0.6	
Manufactured or refined products	65.9	74.8	80.3	75.9	-
Chemical and related products	15.6	17.2	16.8	14.7	
Manufactured goods classified by materials	20.5	19.1	22.0	26.8	
Machinery, transport and equipments	27.2	28.9	30.0	28.1	
Miscellaneous manufactured articles	2.6	9.6	11.5	6.3	
Others	1.0	0.2	0.1	1.2	
By commodity group in State Plan					
Capital goods (Machinery, instrument, accessory)	33.4	24.4	29.8	29.2	24.0
Intermediate good (Fuels, raw material)	53.9	59.8	61.1	63.1	69.3
Food	1.4	0.1	0	0	0
Foodstuffs	2.2	3.4	2.4	2.7	2.7
Pharmaceutical and medicinal products	1.4	1.9	2.5	1.6	1.5
Others	7.7	10.4	4.2	3.4	2.5
By economic sector					
Domestic economic sector	-	94.3	74.9	65.7	63.3
Foreign invested sector	-	5.7	25.1	34.3	36.7

Source: GSO (2006) and Report of trade activities 2006 of Ministry of trade

Similar to the experiences of other developing countries, the rapid import growth of Vietnam has also largely based on foreign invested firms. Foreign companies invested in Vietnam have been increasing and showing their important role in Vietnam's imports. The imports of foreign invested firms were only reached \$1.3 billion in the period of 1991-1995, about 5.7% of Vietnam's total imports. In 2001-2005, it increased up to \$45.2 billion, accounting for 34.3% of the total imports.

The number of Vietnam's import markets was over 200 countries in 2006. Table 12 shows that the biggest Vietnam's importers during 1986-2006 came from Asia such as Singapore, China, Japan, Thailand, Taiwan, Korea, Malaysia and Hong Kong as the goods from Asia must be in line with consumption and transportation capacities of Vietnam. Moreover, the imported values from the Asian countries took a greater proportion and highly increased due to its advantage in prices and transport fees. Singapore topped of the importer list with the import share in the total Vietnamese imports was 14.3%, followed by Japan (11.5%), Taiwan (10.9%), China (10.5%) and Korea (10.48%). Besides, two third countries in the top twenty importers of Vietnam came from developed countries such as Japan, Singapore, Australia, Korea, United Kingdom, United States, Germany, Belgium, France, Hong Kong and Italia. This is suitable with the purpose of renew backward equipment of Vietnamese government, which restricts in importing old equipment as well as encourages in accessing to the countries achieving high level of technologies.

The most essential goods for agricultural and industrial production grown rapidly in recent years were petroleum oils, steel and iron, chemical fertilizes insecticides and materials, auxiliary materials for garment manufacturing. According to Table 18, in 2001-2005, the import shares in Vietnam's total imports of petroleum oils, steel, chemical fertilizes, auxiliary materials for sewing and textile fabrics were 11.5%, 7.3%, 2.3%, 6.1% and 6.6%, respectively. Moreover, to satisfy the domestic demand of consumption, the import value of motorcycles and other motor vehicles were also increased quickly. In 1986-1990, the import values of motorcycles and motor vehicles in Vietnam were only \$39.7 and \$360.1 million, respectively. In 2001-2005, the import

value of motorcycles increased up to \$2379.7 million, about 60 times of that in 1986-1990 and the value of motor vehicles increased nearly 11 times of that value in 1986-1990. The increasing demands of consumption products in some recent years implied that the living standard of Vietnamese people might be improved over the time.

Table 18: Some major imports of Vietnam in 1986-2005

	Annual	Share in total imports			
	average value (Mill. USD)	(%)			
	1986-2005	1986-1990	1991-1995	1996-2000	2001-2005
Petroleum oil, refined	1345.6	20.10	14.23	10.10	11.46
Iron and steel	701.2	4.45	4.11	4.91	7.31
Auxiliary materials for sewing	590.4	0.87	2.75	5.14	6.08
Textile fabrics	589.8	2.23	1.22	4.38	6.57
Chemical Fertilizes	389.2	6.15	6.59	4.07	2.30
Plastic in primary form	361.5	1.04	2.57	3.04	3.57
Motorcycles	284.9	0.31	4.78	3.56	1.83
Motor vehicles	277.2	2.84	1.76	1.51	2.97
Auxiliary materials for footwear	217.7	0.00	1.15	3.46	1.51
Medicament	198.0	1.23	1.61	2.35	1.53
Silk, tow, fibers	154.0	0.93	2.30	1.98	0.93
Cotton	85.9	3.31	0.92	0.65	0.53
Wheat	49.3	0.17	0.21	0.35	0.54
Wheat flour	37.6	1.35	1.26	0.39	0.04
Insecticides and materials	19.3	0.19	0.13	0.18	0.17

Source: own calculations based on data obtained from GSO (2006)

In short, from the renovation in 1986, Vietnam significantly increased the volume of its exports and imports, improving import and export qualities and contracts with the trading partners. The strongly increasing exports in Vietnam mean that it is increasing its market share, a good sign of increasing competitiveness. The increased imports imply the higher real incomes of domestic consumers and the higher capital and intermediate goods that support future and current production. In the coming time, although export value increases dramatically and the volume of goods in processing form is still high, the import value of raw materials will be high. In addition, in order to become an advanced

industrial economy in 2020 as the target of the government, the needs of importing modern technologies, equipments for construction and materials for new products will increase. Hence, the restraint and lowering the trade deficit rate in next few years are very difficult tasks.

2.4.3. Foreign direct investment

Development of FDI

Since *Doi Moi* reforms were implemented in 1986, FDI has been seen as a crucial factor in the growth of Vietnamese economy. From the first law on Foreign Investment in the late 1987 that granted legal status for FDI inflows, Vietnam has been greatly attracted attention from foreign investors. FDI inflow into Vietnam increased rapidly during the 1990s and in the first half of the 2000s. From 1988 up to December 2006, there were 8266 FDI projects receiving investment licenses with total registered capital amounting to \$78248.2 million. In 2006 alone, there were 987 projects with registered capital of US\$ 12003.8 million. Even though the number of contracts in the five year 2001-2005 was more than double of that in the five year 1996-2000, the registered capital in 2001-2005 period was smaller than that in 1996-2000 period. Except 2006, the registered capital in 1996 was the highest amount (US\$10164.1 million) and accounted for 1/6 of total capital registered.

Table 19 shows the overall trend of FDI inflows in Vietnam. The opening of the Vietnamese economy to FDI in 1987 and subsequent measurement to liberalize of the FDI regime together with the fast growth in the 1990s led to a rapid increase in the FDI inflows in first half of the 1990s, peaked in 1996 at 10164.1 million US dollars and dropped sharply after that. Although showing a gradual increase again at the beginning of 2000-2005, the registered capital in 2005 was only \$6839.8 million, equal to 67.3% of that in 1996. The 1997-1998 East Asian crises could be one of the interpretations for the downturn of FDI inflows as two third of the FDI volume in the early 1990s had come from these countries. Moreover, the lack of transparency in property and land rights, dispute resolution mechanisms, preferential treatment of local firms and suppliers,

corruption and infrastructure constraints in Vietnam could be the other reasons of the decline in FDI flow (Schaumburg, 2003).

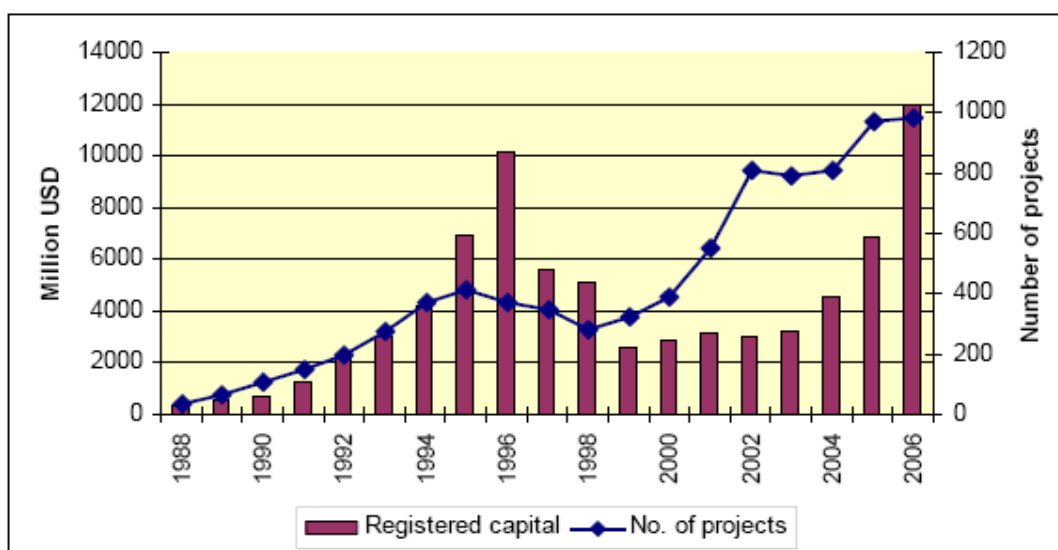
To attract FDI inflows into Vietnam, the crucial legal changes were made in Decree 852 of January 1996 and the amended Foreign Investment Law 2000. The Foreign Investment Law allowed provinces to sign directly small FDI projects (below \$10 million). Not coincidentally, the average size of individual FDI projects has dropped considerably since 1996 although the absolute number of projects increased.

Table 19: Development of FDI 1988-2006

Year	Number of projects	Registered capital (million USD)	Implemented capital (million USD)
Total	8266	78248.2	37271.7
1988 - 1990	211	1602.2	
1991 - 1995	1409	17663	6517.8
1996 - 2000	1724	26259	12944.8
2001 - 2005	3935	20720.2	13852.8
2006	987	12003.8	4674.8

Source: own calculations based on data obtained from Vietnam Statistical yearbook 2006

Figure 3: Vietnam's FDI inflows, 1988-2006



Source: own calculations based on data obtained from Vietnam Statistical yearbook 2006

Sectoral composition

During the years, Vietnam's economy attracts FDI in all sectors. The share of the industry sector has been increasing since FDI beginning to invest in Vietnam. It increased from 39.9% in 1988-90 to 52.3% in the 1990s and up to 74.2% in the first half of the 21 century (Table 20). Followed the industry sector, in 2001-2005 period, the transport-storage-communication sector accounted for 5.7% of the total FDI invested, the hotel-restaurants-tourism sector reported at 4.5% and the finance and banking sector accounted for 3.3% of the total FDI capital.

Table 20: FDI registered capital by economic sectors, 1988-2005 (%)

Sectors	1988-1990	1991-1995	1996-2000	2001-2005	2006
Agriculture and forestry	20.8	2.9	2.4	1.9	1.2
Fishery	1.4	1.0	0.3	0.7	0.2
Industry	39.9	49.7	54.8	74.2	70.1
Construction	0.0	7.7	9.1	2.6	5.3
Hotel, restaurants and Tourism	16.6	19.3	7.9	4.5	4.1
Transport, storage and communications	15.3	2.5	8.7	5.7	0.4
Finance and Banking	0.0	1.4	0.7	3.3	0.3
Culture, Health and Education	0.0	0.4	1.9	2.9	0.3
Other services	5.9	15.2	14.1	4.2	18.1
Total	100.0	100.0	100.0	100.0	100.0

Source: own calculations based on data obtained from IMF paper 135(1996), GSO 1995, 2000, 2003 and 2006

Table 21 shows the changing trends in distribution of the FDI inflow into the industrial sector in 1995-2006. Manufacturing accounted for 70.1% of the total FDI invested in the industry sector, followed by the mining and quarrying with 29.4%, and then by the electricity, gas and water supply sector. However, clearly the crude petroleum and natural gas industry have attracted the largest share of FDI invested in the industry activities during the 1995-2006 period, even though the crude petroleum and natural gas

industry were strongly decreasing its share in the total from 41.7% in 1995 to 31.9% in 2000 and 14% in 2006 because of reduction of the oil and gas exploitable density. The second position was taken by the manufacturing of food and beverages products, which accounted for 19.9% in 1995 and about 14% in 2000-2006 period. There was increased from 4.9% to 6.9% in the manufacturing of tanning and leather dressing and leather products as well as enlarged in the assembling and repairing motor vehicle industry from 4.0% to 5.1% in 1995 and 2004. Some stronger increase occurred in the communication equipment, repairing of other transport equipment and chemical product industries.

Table 21: FDI sector in industry (%)

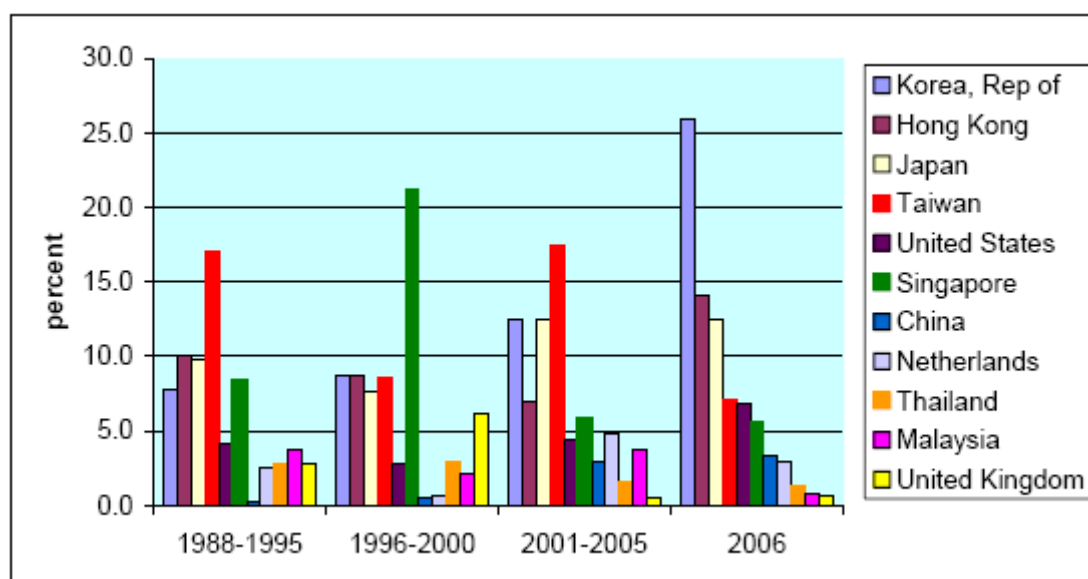
	1995-					
	2006	1995	2000	2002	2004	2006
Total Industry activities	100	100	100	100	100	100
Mining and quarrying	29.4	41.8	31.9	25.9	22.3	14.1
Extraction of crude petroleum and natural gas	29.3	41.7	31.9	25.7	22.1	14
Others	0.1	0.1	0	0.2	0.2	0.1
Manufacturing	70.1	58.1	66.8	73.1	77.2	85.4
Food products and beverages	15.7	19.9	13.6	14.1	14.2	14.7
Tanning and leather products	6.3	4.9	5.6	5.5	6.9	7.3
Radio, communication equipment and apparatus	5.1	3.7	5	5.1	4.9	4.6
Repairing of other transport equipment	5.1	3.3	6.6	6.2	6.4	6.5
Non-metallic mineral products	5	1.7	5.6	6.7	6	5.5
Chemical and chemical products	4.9	2.9	4.6	5.3	5.6	6.7
Assembling and repairing motor vehicles	4.1	4	3.6	5.1	5.5	5.4
Textiles	3.7	4.1	3.7	3.5	3.6	4
Basic metal	3.6	3.9	3.8	4.2	2.9	3.1
Wearing apparel	2.6	2.1	2.1	2.6	3.6	3.8
Fabricated metal products, except machinery	2.6	1	2.2	2.3	2.9	4.6
Rubber and plastics products	2.3	1.2	2.1	2.6	3.1	3.6
Electrical machinery and apparatus	2.3	0.6	1.8	3.1	3.1	4.3
Furniture	2.1	0.6	1.5	2.2	3	4.8
Others	3.7	4.2	5	4.6	5.5	6.5
Electricity, gas and water supply	0.5	0.1	1.3	1	0.5	0.5

Source: own calculations based on data obtained from GSO 1995-2006

Source-country composition

Up to the December 2006, there are 76 different countries and territories invested in Vietnam. Table 22 shows that Taiwan is the biggest foreign investor in terms of contractual FDI value for the period 1988-1995 and with US\$ 3134.1 million in early stage, accounted for 17% of the total FDI invested in Vietnam, followed by Hong Kong (10.1%), Japan (9.8%), Singapore (8.5%) and Korea (7.8%). However, in the period of 1996-2000, the share of investment in Vietnam from the source countries changed quickly. Singapore topped of the list by increasing its share from 8.5% in 1988-1995 up to 21.2% in 1996-2000. The unusual increasing of the investment of Singapore can be explained by the large investment in industrial zone in Binh Duong, a new province in central Vietnam in 1996. Based on the MPI in Vietnam, the Singapore's investment in Vietnam in 1996 was the biggest one, counted about one third of the total FDI commitment in 1996. In 2006 alone, Korea suddenly topped the list with US\$ 3106.5 million of registered capital, contributed 25.9 % to the total registered capital. The value of registered capital of Korea in 2006 was even bigger than the amount of the five-year registered capital of Korea in 2001-2005.

Figure 4: Distribution of FDI by source countries, (% of registered capital)



Source: own calculations based on data obtained from Vietnam GSO 1995-2005 and MPI 2006

Table 22: Top 15 countries classified by FDI commitment, 1988-2006**(Registered capital at current prices)**

Source country	1988-1995		1996-2000		2001-2005		2006	
	Mill. USD	%	Mill. USD	%	Mill. USD	%	Mill. USD	%
Total	18438	100	20437.9	100	17014	100	12003.8	100
Korea, Rep of	1435.1	7.8	1790.3	8.8	2116.1	12.4	3106.5	25.9
Hong Kong	1858.4	10.1	1776.1	8.7	1188.8	7.0	1693.0	14.1
Japan	1808.9	9.8	1550.3	7.6	2115.9	12.4	1490.4	12.4
Taiwan	3134.1	17.0	1744.6	8.5	2966.6	17.4	845.8	7.0
United States	756.1	4.1	581.2	2.8	752.2	4.4	816.5	6.8
Singapore	1558.7	8.5	4324.7	21.2	1001.9	5.9	675.3	5.6
China	53.7	0.3	97.4	0.5	500.9	2.9	401.3	3.3
Netherlands	462.6	2.5	123.5	0.6	814.1	4.8	345.6	2.9
Thailand	505.8	2.7	586.3	2.9	270.7	1.6	150.2	1.3
Malaysia	685.3	3.7	446.1	2.2	642.9	3.8	91.6	0.8
United Kingdom	518.4	2.8	1255.1	6.1	87.6	0.5	80.5	0.7
France	877.6	4.8	1197.6	5.9	468.8	2.8	68.1	0.6
Switzerland	512.9	2.8	111.6	0.5	42.6	0.3	51.0	0.4
Australia	1026.2	5.6	144.3	0.7	297.1	1.7	25.4	0.2
Russian Fed.	186.2	1.0	1391.2	6.8	79.8	0.5	14.5	0.1

Source: own calculations based on data obtained from Vietnam GSO 1995-2005 and MPI 2006

As seen, the most important source of the capital was come from Asia. The main home economies were Taiwan, Korea, Singapore, Hong Kong and Japan. Taken together, these countries accounted for almost two thirds of the total FDI inflows in Vietnam. Such predominance of the regional investors might be linked to their better abilities to operate in an insufficiently developed legal framework, relying on trust and reputation, compared to Western investors. It also explained why the FDI inflows were so sharply following the East Asian financial crisis.

Outside of Asia, France, the Netherlands, the United Kingdom and the United States were among the most important investors. After signing the US – Vietnam Bilateral Trade Agreement in July 2000, investment from the United States has been increasing. The United States was the eleventh biggest countries invested in Vietnam with \$1455 million, accounted on 2.85% of the total registered capital in period 1988-

2005. In 2006, it was the fifth biggest investors with the invested capital accounted for 6.8% of the total.

Distribution of FDI into Vietnam's regions and provinces

According to the Ministry of Planning and Investment, all eight regions of Vietnam have attracted FDI inflow, but foreign investors predominately concentrate their investments in key economic areas where they can take advantage of more developed infrastructure, high purchasing power and more skilled labor force. Table 23 shows that during 1996-2006, the South East region accounted for more than a half of the total FDI invested in Vietnam, about 53.7% of the total. The Red River Delta also got attracted from foreign investors with the amount of FDI inflows in the region was 27% of the total committed FDI. The third region that accounted for 9.2% of the total FDI registered capital was the South Central Coast. FDI only has a small effect in the mountain provinces in the North West, North Central Coast, and Central Highlands, which are poorest regions of Vietnam. The three regions received only 10.5% of total committed FDI inflows at the same time.

There are reasons that caused this spatial concentration of investment in all the regions. First, the Red River Delta region lies in the central connection of the North East, North West and the northern mountains of the Central region. Based on the physical geography, it is a gateway to the sea of all the Northern provinces and can develop many activities through the nation and internationals. Moreover, as included the capital city of Vietnam, Hanoi, the Red River Delta region contains developed infrastructure (such as volumes of roads, airports, freight, postal services and telecommunications), large numbers of industrial firms as well as the development of politics, trade, services and tourism. Second, the South East region locates in the lowland southern Vietnam, which is the north of the Mekong delta. This has very convenient position for development the socio-economics such as lying in the main road of the Asian and internationals; many gateways to come in and out and this is one of the regions got highest the economic potential. Same as the Red River Delta, the region contains Ho Chi Minh City, the centre

of economics, industry, international trade, services and science and technology of Vietnam. With all the advantages of the locations, the infrastructures and the domestic strategies, the two regions had been quickly increasing the numbers of invested projects from the foreigner investors.

Table 23: FDI inflows by Vietnam's region (%)

	1996-2000	2001-2005	2006	1996-2006
Whole country	100	100	100	100
Red River Delta	29.3	24.4	27.4	27.0
North East	4.6	4.6	2.7	4.0
North West	0.2	0.3	0.2	0.2
North Central Coast	1.5	2.8	0.5	1.6
South Central Coast	10.4	4.4	12.7	9.2
Central Highlands	4.2	0.7	0.4	1.8
South East	48.2	59.5	53.3	53.7
Mekong River Delta	1.6	3.3	2.8	2.6

Source: own calculations based on data obtained from Vietnam Statistical Yearbook, several issues

All 64 provinces and cities of Vietnam have attracted FDI inflows. Table 24 also indicated that Ho Chi Minh City was the top province attracting the FDI inflows over the period of 1996-2006, accounted for 20.3% of the total FDI registered capital in the whole country. The other provinces followed HoChi Minh City were Hanoi (15.9%), Dong Nai (12%), Ba Ria-Vung Tau (10.8%) and Binh Duong (9.3%) and so on. The distributions of FDI inflows into provinces are changing over the new locations and times. While FDI registered capitals distributed in Ho Chi Minh city, Hanoi, Hai Phong, Quang Ninh and Lam Dong provinces are reducing, there are increasing the shares in some provinces such as Dong Nai, Ba Ria Vung tau, Binh Duong, Ha Tay, Da Nang, Long An and Hai Duong and so on. The FDI inflows in Binh Duong and Ba Ria Vung Tau provinces increased their shares from 6.9% and 8.8% in 1996-2000 to 11.2% and 15.7% in 2006, respectively

due to those provinces increasing its competitiveness in attracting FDI. According to the Vietnam provincial competitiveness index (PCI), Binh Duong got the highest competitiveness on the business environment in 2006, followed by Da Nang, Vinh Long, Vinh Phuc, Binh Dinh, and Dong Nai and so on. The favor of the business environment could lead to an increasing of the new FDI invested. The losing of the shares of FDI inflows in Hanoi and Ho Chi Minh City could be explained by the flood of the FDI inflows and industrial enterprises in the regions. Up to December 2006, there were 20 industries and export-processing zones in Ho Chi Minh City and Hanoi in the total 145 IZs and EPZs locating in Vietnam. The crowded IZs and EPZs in a region could lead to high land price and labor shortage of that region, and then it will limit the number of FDI inflow in that region.

Table 24: FDI inflows in Vietnam by province (%)

Province	1996-2000	2001-2005	2006	1996-2006
Whole country	100	100	100	100
1. Ho Chi Minh City	23.6	15.5	16.9	20.3
2. Ha Noi	22.1	13.7	9.1	15.9
3. Dong Nai	6.9	17.9	8.4	12.0
4. Ba Ria-Vung Tau	8.8	10.7	15.7	10.8
5. Binh Duong	6.9	13.4	11.2	9.3
6. Hai Phong	2.8	4.4	1.4	2.9
7. Da Nang	1.3	2.1	3.5	2.4
8. Hai Duong	1.0	1.5	5.3	2.2
9. Ha Tay	1.4	0.1	6.7	2.1
10. Quang Ninh	3.9	1.8	0.3	2.1
11. Long An	0.8	2.4	2.3	1.6
12. Lam Dong	4.0	0.3	0.1	1.6
13. Vinh Phuc	0.9	2.6	1.2	1.5
14. Thanh Hoa	0.0	1.6	0.1	1.2
15. Hung Yen	0.8	0.8	1.7	1.1
16. Tay Ninh	0.3	1.2	0.4	0.8
17. Khanh Hoa	1.1	0.3	0.7	0.7
18. Bac Ninh	0.0	0.7	1.4	0.6
19. Binh Phuoc	1.3	0.2	0.4	0.6
20. Phu Tho	0.5	0.8	0.2	0.6
Total 20 provinces	88.4	92.0	87.0	90.3

Source: own calculations based on data obtained from Vietnam Statistical Yearbook, several issues

In short, even though unequally distributed of FDI inflows into different regions and provinces, and different sectors, the foreign direct investment inflows in Vietnam are showing the positive sign in Vietnamese economy during its transition. Korea is the largest foreign investors of Vietnam. Manufacturing is the main sectors attracting FDI invested. Even though Ho Chi Minh City and Hanoi were the two provinces got the highest share of the FDI inflows over 1996-2006 period, the two were reducing their shares due to crowded FDI firms investing. There is some new provinces surrounding Ho Chi Minh and Hanoi cities that attract the FDI inflows as they are improving their business environment. In order to attract more FDI inflow in Vietnam, the country needs to develop its infrastructure and technology legal consistencies, lower the costs of doing business as well as increase the business environment.

2.5. Shortcomings and weaknesses

Twenty years of implementing the economic transition, Vietnam has recorded major achievements as presented in the last part. At the same time, it showed numerous limitations and weaknesses.

a. The economy remained underdeveloped and unbalanced.

In the period of 1986-2006, the economy enjoyed the annual average growth rate of 6.84% which was quite an achievement. However, the starting point of the economy was low and its size was small so Vietnam was still in the list of the developing countries with low national income. According to the classifying of World Bank in 2006, the world countries and territories have been divided in four groups: (1) Low income, including all countries and territories had annual average GNI per capita up to \$905 dollars; (2) lower middle income (\$ 906 to \$3595); (3) upper middle income (\$3596 - \$11115) and (4) high income (\$11116 and more). Vietnam's GNI per capita in 2006 was \$707.5, increasing 76% compared to the value in 2000, however, was only 78.2% of the upper value in the low-income group. In 2005, the GDP per capita of Vietnam in terms of US dollars was

\$639 dollars, only about 23% of Thailand, 54% of Philippines, 49% of Indonesia and 37% of China.

One of the other problems of the economy is unbalanced in most the economic activities. Saving and consumption relationship is not improved. Saving in the total GDP was low and almost not increased over the years as in 2001, 2002, 2003 and 2004, it was accounted for 31.2%, 33.2%, 35.4% and 35.5% of the total GDP, respectively. Even under controlled, the trade deficit in 1986-2005 was high, at 21.6% of the total exports. State revenue was increasing over the years. In 2005, it was 2.3 times of that in 2000; however, there was 45% of the total state budget revenue depending on some unstable factors such as revenues from oil, gas and the import-export taxes.

b. Goods and services have low competitiveness.

The quality of goods and services were generally low, the cost of production was high. Therefore, the competitiveness of domestic goods and services were slow even in the domestic market, let alone international markets. According to a comprehensive survey of the industrial sector in 1998, there were only 26.9 % of enterprises that could take a strong hold in the domestic market, 58.8% of the enterprises could get only unsteady position, and 14.3% of enterprise could not complete right in the domestic market. In the Global competitiveness reports of the World Economic Forum (WEF) announced some recent years, Vietnamese economy was reduced its position from 60/101 in 2003 to 79/104 in 2004, and 81/117 in 2005. The main reason of the problem was the low level of applying technology in the economy.

c. Despite huge labor resources, labor's qualification failed to meet the requirements of the cause of renovation, industrialization and modernization.

Vietnam was ranked among the countries with the high education level, but the low starting point of the agriculture based economy and the highly centrally planned economy produced disastrous impacts. Labor productivity, economic efficiency and

competitiveness remained very low which resulted from the lack of good managers, talented business people and skilled workers.

The education structure was inappropriate, thus the emerged the problem of “surplus trainers, deficit workers”. The fact is that even though many students graduated from universities could not find jobs, the enterprises, especially the foreign invested ones are still facing the problem of shortage of the skilled and technical workers. In 2005, Vietnam had 62.4 million people aged 15 years old and older, but number of people who were well trained and qualified was small. Only 4.7% of the total labors was graduated from vocational training and 5.3% of that was graduated from colleges, universities and post graduate. This rate was low and even lower if the teachers and medical staffs were excluded from professional staffs. According to the census of Vietnam ministry of labor and social affairs in 2005, the unemployment rates of urban area were still at 5.31%. The number of no working hours in rural area was 19.4%.

2.6. Summary

As one country located in Southeast Asia, Vietnam is the populous and developing country that has been in a transition from a central planned to a market oriented economy since 1986. After more than twenty years of Doi Moi, Vietnam gained favorable impetus and in order to enter a new stage of development. The economy has recorded a relatively high growth rate, which has increased from year to year. The annual average GDP growth rate in 2001-2005 period was about 7.5%, satisfying the planned targets. The economic structure has been gradually shifted along the line of the industrialization and modernization. The proportion of industry and construction in GDP has considerably increased as well as the decrease in the share of the agriculture sector. The structural transformation is evident in each sector, with production closely tied to market for better efficiency.

From the renovation in 1986, Vietnam significantly increased the volume of its exports and imports, while improving their qualities, structure and contracts with the trading partners. The strongly increasing exports in Vietnam imply the increasing in

export's market share and a good sign of increasing competitiveness. The increased imports are evidences for both the higher real incomes of domestic consumers and the higher capital and intermediate goods that support future and current production.

Even though unequally distributed of the FDI inflows into different regions and provinces, and different sectors, the foreign direct investment inflows in Vietnam are showing the positive sign in Vietnamese economy. However, in order to attract more FDI inflow in Vietnam, the country needs to increase the levels of infrastructure and technology legal consistencies and lower the costs of doing business.

Beside the achievements, the country remained several weaknesses. Economic potentialities remained underdeveloped and unbalanced. Production efficiency and productivity were low. Goods and services had low competitiveness. Labor's qualification failed to meet the requirements of the cause of renovation, industrialization and modernization. Mechanism and policies on culture and society are slowly concretized. If the country can exploit its opportunities and advantages, internal strength and external support as well as overcome the difficulties and challenges, it could be becoming a strong economy in the world.

CHAPTER III

DETERMINANTS OF FOREIGN DIRECT INVESTMENT INFLOW IN VIETNAM

3.1. Introduction

Since the introduction of Doi Moi policy in 1986, large amounts of foreign direct investment have flowed into several regions and provinces of Vietnam. It has been expanding along with the country's rapid economic growth and increasing openness to the rest of the world. The FDI brings not only additional capital to the Vietnamese economy but also new modern technologies, managerial expertise and more industries, products and jobs. Therefore, the FDI might help the country sustain growth, promote better utilization of domestic resources and accelerate economic structural transformation in the direction of industrialization and modernization. Vietnam's economy now is among the fastest growing country in the ASEAN. Thus, it is useful to know important factors determining FDI in Vietnam. However, there are few studies on determinants of FDI in Vietnam due to the lack of data and information on Vietnam. The lack of the thorough studies on FDI in general and spatial determinants of FDI into Vietnam, in particular, has partially affected the formulation of appropriated policy for promoting FDI in Vietnam. Therefore, this chapter aims to explore some important factors determining flow of the FDI into Vietnam and its different regions, from which some policy implications can be drawn at the end.

3.2. Factors determining FDI in host countries: a review of literature

Foreign direct investment has been attracted attention from economists for decades. Numerous useful theories of FDI that try to explain why multinational

corporations indulge in FDI, why they choose one country in preference to another to locate their foreign business activity have been studied and started to emerge. There is not one but several existing theories with varying degrees of power to explain all aspects of FDI activities, to disclose the main motivations of FDI and have important implications on multinational enterprise's operation.

3.2.1. Theoretical reviews

This section will review the theoretical literature dealing with the determinants of FDI. Most of these studies concentrate to the factors that related to competition among the foreign firms themselves with local firms. FDI requires a direct involvement and a high degree of control by investing firms over their foreign assets and operations. Locational strategies based on an individual firm's profit and growth objectives are at the centre of investigations. However, the theoretical foundation of FDI is rather fragmented, comprising bits and pieces from different fields of economics to elucidate the locational pattern of firms (Sun, Tong and Yu, 2002).

Industrial organization theory

The first group studied on the determinants of FDI is based on industrial organization theory¹¹. In this theory, FDI was determined by the specific assets that compensate the initial disadvantage faced by foreign firms in relation to local firms.

The first seminal contribution to the FDI theory was from the doctoral dissertation of Hymer (1960, published in 1976), who expressed his dissatisfaction with the portfolio theory of capital transfers to explain the foreign operations of firms. He argued that the possession of monopolistic advantage was necessary condition for FDI. If a multinational enterprise¹²(MNE) enter a new market to compete with a local firm, it could have some sorts of compensatory advantages related to market imperfect competition, such as

¹¹ The theory is also known as the theory of monopolistic advantage or the theory of market imperfection.

¹² In this research, the terms Multinational enterprise (MNE), multinational corporation (MNC) and transnational corporation (TNC) are to be used as the unique meaning to show the foreign direct investment firm in the host country.

superior technology and product differentiation, access to patented or proprietary knowledge, skill advantages, prices (labor, capital and resources), fact internal/external economies of scale and restriction on imports. With these advantages, MNEs would prefer supplying their advances to the foreign market by way of direct investment instead of through direct export. Hymer concluded that the success of FDI firms operating across national boundaries depends on such specific advantages of the firms in order to overcome the natural advantages of domestic firms operating in their own home environments.

Kindleberger (1969) and Caves (1971) further developed the idea of Hymer in finding the specific advantages of MNEs located abroad with the intention of competition with domestic firms. Kindleberger (1969) modified Hymer's ideas by saying that the firm specific advantages must be capitalized in the good market (e.g. product differentiation, marketing skills, and administered price), the factor market (e.g. access to patented knowledge, discrimination in access to capital), and economies of scale and government intervention (restricting output or entry). Such kinds of advantages would enable the foreign firms to overcome additional costs associated with acquiring information and operating abroad. Caves (1971) suggests that foreign firms have to internalize their firm specific advantages through vertical integration. Internalizing their operation allows MNCs to maximize return on their firm specific capabilities without incurring additional costs associated with arms length transactions.

The theory provides an important explanation of how and why firms engage in foreign countries. Even though this theory does not have a spatial dimension and is most useful for FDI decision marking, it is helpful to understand the characteristics of FDI firms. Choosing any location to invest abroad, MNEs' decision will be based on its own ownership specific advantages and competitive strategies.

Transaction cost internalization theory

The second group studying on determinants of FDI is based on transaction cost theory. This theory explains FDI as a way that MNEs minimize their transaction costs

caused by internalizing their economic activities in market imperfections. Internalization means the process of establishing a market inside the firms and substituting the internal market for an external market. The transfer price inside the firms enables the internal market to operate as effectively as the external market.

Buckley and Casson (1976 and 1985) studied about FDI based on the ideas of transaction cost internalization, starting with the idea that the intermediate product markets are imperfect, having higher transaction costs when managed by different firms. When markets are integrated by MNEs, these costs were minimized, the ability to control and plan production was increased. Through FDI, structure market imperfection such as tariffs or subsidies, income taxes, import restrictions and foreign exchange controls, can be internalized by MNEs, so that firms not only avoid the bilateral market power but also utilize market power by discriminatory pricing in the intermediate product market.

Moreover, MNEs have proprietary assets with regard to marketing, designs, patents, trademarks, innovative capacity, etc., whose transfer may be costly for being intangible assets due to a good sense of opportunity. To avoid the high cost of transfer its intangible assets, MNCs invest in overseas market instead of selling or licensing their proprietary assets.

The theory concluded that MNCs is likely to occur whenever external markets are having higher benefits of transactions than that in internal markets. Nevertheless, the transaction cost theory also has a limitation. When an MNC decides to locate its facilities overseas, it has to make its decision based on motivations of the firms. According to Dunning (1993) and Eiteman, Stonehill and Moffett (1998), the motivations for FDI are based on some main types of strategies: market seekers, natural resource seekers, production efficiency seekers, capacity seekers and political-safety seekers. The transaction cost theory focused on the way of foreign involvement and neglected the motives of a firm in FDI. The theory seems to overlook an explanation of the preceding motives.

Location theory

Horst (1972) used location theory to explain United States FDI in Canada. According to Horst, FDI exists because of the international immobility of some productive factors such as labor and natural resources. This immobility leads the firms located in different locations based on the needed factors and the factor costs of production.

One form of location-related differences in the cost of factors of production is locational advantage of *low wages*. The level of wages in the host country relative to wages in the home country is an important determinant of FDI. Lucas (1993) explained that a rise in the wage rate of the host country means an increase in the costs of production, which should discourage production and consequently FDI. Yang et al (2000) explained this case based on changes in productivity. When markets are imperfect, it is possible that gains in productivity do not fully reflect on labor. Therefore, an increase in the wage rate may be accompanied by a fall in labor cost, that is, wages adjusted for changes in productivity. A fall in labor cost attracts FDI flows.

Multinationals invest in a host country not only look for location with low wages, but also require skilled labors or high quality of labor that indicating of high wages. The hypothesis that human capital in host countries is a determinant of the FDI inflow has been embodied in the theoretical literature. Lucas (1990) conjectured that lack of human capital discourages foreign investment in less developed countries. Zhang and Markusen (1999) presented a model where the availability of skilled labors in the host country is a direct requirement of multinationals and affects the volume of FDI inflows. According to Dunning (1988), multinationals adjust the factor-intensity of both product and process technologies to local conditions, such as more labor-intensive production in markets where labor is relatively less expensive, and scaled down product quality or product processes where markets are small and economies of scale impossible. It means that the skills and education level of labor can influence both the volume of FDI inflows and the activities that multinationals undertake in a country. Moreover, Dunning and Narula (1995) suggested that the relationship between the type of investment and the skill level

of the labor force might operate both across countries and within an individual country over time.

Another factor that could influence the foreign investor decisions is the market size of a host country. Agarwal (1980) distinguished the market size in two terms (output and market size), depending on the difference between the total market and the market for the investing firm's products. The country's GDP presented market size at the macro level. FDI related positively to the market size proxies by GDP. The sales or outputs of MNCs in the host country are presented for market size at the micro level. The market size is postulated a positive relationship with the FDI inflow in a particular host country and its output or sales in that country.

The relationship between direct investment and output can be derived from neoclassical models of domestic investment such as the theory of Jorgenson (1963). The hypothesis is that firms increase their investment in response to their sales. According to Jorgenson (1963), the preferred capital is determined by output and the price of capital relative to the price of output. A change in output or price of capital goods relative to the price of output will cause changes in the level of desired capital stock and investment. The implication is that any expansionary fiscal and monetary policy will have an effect on investment and lead to increase in output. However, there is no obvious foundation for using the country's GDP. The relevance of GDP as a measure of potential market size does not have many theoretical foundations, but it has been used in empirical studies of FDI.

As soon as the size of the market of a particular country has grown to a level warranting the exploitation of economies of scale, the country becomes a potential target for FDI inflows. Balassa (1966) pointed that a sufficiently large market allows for the specialization of the factors of production, and consequently, the achievement of cost minimization.

Locational advantages not only take the form of low wages, quality of labor or market size of the host country; they are also applicable to *other factors of production*. For example, a factory could be located near a copper mine in the host country if copper

is an important input in the production process. This is a locational advantage because significant saving can be made on the cost of shipping copper from where it is produced to where it is used. Apart from these savings, the firm can avoid delays in the delivery of copper shipments arising from the time it takes to ship the metal and the red tape that may be involved in this operation.

Dunning Eclectic paradigm (OLI paradigm)

The eclectic theory was developed by Dunning (1977, 1993, 1995 and 2000)) by integrating the industrial organization theory, transaction cost internalization theory and the location theory without being too accurate about how they interrelate. It offers a general framework for determining the extent and pattern of the foreign value added activities of FDI firms. Not just simple compiling of different theories, the Eclectic paradigm used each alternative theory for explaining both the location and ownership characteristics of FDI firms.

The basis idea of the eclectic paradigm is that a FDI firm only occurs when there is an existence of three types of advantages related to the specific firm: ownership-specific advantages (O), location-specific advantages (L) and internalization advantages (I). The integration of three elements would explain the determination of a firm to serve foreign markets as each piece focuses on a different question of FDI theory.

Adopted from industrial organization theory of market imperfection, Dunning states that Ownership specific advantages (O) are firm-specific advantages that emanate directly from resources owned or controlled by a firm. An MNE must possess some ownership advantages to overcome the extra costs of operating in the host country¹³, to be able to earn higher profits or have lower costs than comparable domestic firms. These advantages consist largely of intangible assets such as superior technology, innovative capacity, management and organizational skills, patent rights, brand names, special

¹³ The additional costs that a operating foreign firm faced compared to a local competitors are:

- (1) Additional costs due to cultural, legal, institutional and language differences
- (2) Additional costs of a lack of knowledge about local market condition, and
- (3) Additional costs due to the increased expense of communicating and operating at a distance

qualities of products and other advantages that relate to a multinational firm's ownership of specific assets.

Location specific advantages (L) refer to a location with specific advantages of resources, networks, institutional structures and others that FDI firms wanted to invest. The firm invested in a foreign country will try to earn full rents on its firm specific advantages. Therefore, it is a key in determining which will become host countries for the MNEs. Firms choose sites with location advantages that best match the deployment of their O assets and make profit on it. The location advantages represent economic factors (for example, size of local market, labor, natural resources, transport cost and so on); social factors (such as physical distance between home and host country, language and cultural differences) and political factors (such as political stability, government policies towards MNEs, trade barriers, taxes, FDI regulations and investment incentives).

Even though firms hold O and L advantages, international production still will not occur if there were not for the advantages of internalizing the utilization of O advantages. Internalization advantages (I) accrue to a firm when it eliminates the transaction costs associated with market interaction and internalizes these activities by bringing them inside the hierarchy of the firm (Buckley and Casson, 1976). A multinational enters in internalization production only when it is beneficial to exploit the O advantages itself rather than leave it to the markets.

Briefly, the eclectic theory of Dunning combines the essential features of existing FDI theories, explaining the most existences of international production decisions of MNEs. Based on the OLI paradigm, we can conclude the successful MNE simultaneously combines these ownership, location and internalization advantages to design its network of activities and affiliates in ways that maximize its market shares and growth. Moreover, firms can extend their international production if they have suitable and consistent long-term management strategy. However, the eclectic theory is criticized for not sufficiently theorizing the relations between the three advantages and not making a clear distinction between the internalization and ownership advantages (Itaki, 1991).

International Product life cycle theory (Vernon, 1966)

The theory is an integrated model of FDI and international trade focusing on the products rather than cost differences in factor inputs. To promote for the location advantages of firms in the market, Vernon (1966) stated that when a product is created through innovation, its life cycle would go through three stages: new product, maturity product and standardization product.

In the first stage, the new technological product is first produced, non-standardized and can be modified due to preferences of customers, so that innovation requires highly skilled labor and large quantities of capital for research and development. For the innovation-oriented industries, the strength of MNEs came from the development and introduction of new products and the differentiation of exiting ones as results of high expenditure on R&D. The location of R&D facilities and production would remain at the home market.

During the second stage, the product matures and begins to become standardized. The costs of production are concerning between the location of firms and behaviors of some competitors. The firm moves to new markets by expanding abroad where the consumers have the same preferences and incomes as at home. Firm can reduce costs of production by replacing high-cost skilled labor by low-cost unskilled labor due to the sustainable development of the products.

The final stage marked by completely standardization of the products. Firms can reduce costs of production by moving to low cost areas, such as developing countries where have rich natural resources for the products and low labor cost.

The MNEs in Vernon's model can no longer hold on the advantages of either innovation or scale economies. Instead, they depend on competitive costs and prices to stay in power. FDI takes place, as the costs of production become an important consideration, which is the case when the products reach maturity and standardization. MNEs tend to move their production to low cost areas such as from more developed countries to relatively less developed countries, or from developed countries to

developing countries. However, it cannot explain intra-industry trade among advanced industrial countries in an increasing complex international economic environment.

Kojima Macroeconomic approach

Rather than trying to explain “why”, “where’ and “how” multinationals invest abroad like other FDI theories, the Kojima macroeconomic approach (1973, 1978, 1982 and 1985) is more interested in explaining which activities of the firms are best undertaken in particular countries.

Kojima argues that FDI firms are welfare-improving in both supplier and recipient countries if the FDI firms are trade-oriented and allocated along the line of comparative advantages. The basis idea is that FDI should originate in the investing nation's comparatively disadvantaged industry, which is potentially a comparatively advantaged industry in the host country. For instance, countries that have rich resources and less technology and management skills should accept FDI from countries that have higher technology and management skills. The host counties can improve technology and management skills and make the products with lower costs. Home countries can also import cheaper resources to make higher profit. In the Kojima models, the distribution of value added activities between countries is the main explanation for comparatively advantage patterns of costs and benefits. The theory identified FDI is complemented to international trade.

Exchange rate model

Froot and Stein (1991) presented an imperfect capital market story to respond to why a currency appreciation may actually increase foreign investment. Imperfect capital markets mean that the internal cost of capital is lower than borrowing from external sources. Thus, an appreciation of the currency leads to increase the firm’s wealth and provides the firm with greater low-cost funds to invest relative to the counterpart firms in the foreign country that experience the devaluation of their currency. Froot and Stein (1991) provided empirical evidence of the increased inward FDI with currency

depreciation through simple regressions using a small number of annual US aggregate FDI observations. A depreciation of the dollar increases the relative wealth position of foreigners and hence lowers their relative cost of capital. The depreciation will result in a cheaper in the prices of the US assets, making the US assets more attractive for foreigners, while foreign assets become more expensive for residents in the United States. Thus, increasing the FDI inflows in the United States could be a way that the foreign countries would do to raise its assets.

3.2.2. Empirical evidences on international studies

Many studies have been working on determinants of FDI inflows in a host country. Determinant factors of FDI inflows in empirical works have been explored in two main groups. The economic factors, such as host market size, growth, labor, technology, government policies, and infrastructure, are the main sources of most empirical studies in the relationship with FDI. In contrast, such non-economic factors as political stability, international relationship, corruption, transparency and culture distance only account for a small number.

Market size

Market size, one of the traditional determinant factors of FDI, is expected to be a positive significant relationship with FDI flows. All empirical studies above show that host market size have positive impact on FDI and vice versa.

Presenting market size as a GDP factor, Taylor (2000), Fung et al (2000), Farrell et al (2000), Bevan and Estrin (2000), and Chakrabarti (2001) found the size of host country markets to be the most popular explanation of a country's propensity to attract FDI. They showed that the correlation between FDI and market size to be robust to changes in the conditioning information set. Campos and Kinoshita (2003) used panel data to analyze 25 transition economies in 1990-1998 and concluded that the FDI is influenced by economy clusters, market size, low cost of labor and abundant natural

resources. Besides all these factors, the following variables presented significant results: sound institutions, trade openness, and lower restrictions to FDI inflows.

Proxy by the level of GNP, the size of the market appears to be an important determinant of FDI flows. Bandera and White (1968) found market size to be a significant determinant of the US FDI. Schmitz and Bieri (1972) showed the one-period-lagged GNP of the EEC to be a significant variable in the FDI demand function. Lunn (1980) also found the one-period-lagged GNP of the EEC to be a positive and significant explanatory variable for the US direct investment in Europe, although the growth rate lagged in the second period was significant and negative. Using panel data set of outward FDI from the five largest countries such as Japan, UK, USA, France and Germany in the 1987- 1990 period, Wei (1996) ran regressions for the flow and the stock of FDI in China. He showed a positive and significant effect of the Chinese GNP on the flow of FDI: a 1 percent increase in the size of China is associated with a 0.53 percentage increase in the inward FDI.

Loree and Guisinger (1995) used data from the benchmark surveys of the US Department of Commerce in 1977-1982 and found that per capita GDP of host countries has positive effect on FDI from the United States in 1977, but not in 1982. The result is explained by a shift from local market-seeking FDI towards more world market oriented FDI. It suggested that the motives for FDI might have changed well before globalization became a hotly debated issue. Other papers of Chakrabarti (2001), Habib and Zurawicki (2002), Smarzynska and Wei (2002) and Nunnenkamp and Spatz (2003) were presented the important of per capita GDP as a vital determinant of FDI inflow.

Human capital

During the period from the 1980s, many empirical studies about the relationship of FDI and human capital concluded that human capital is necessary became an important input of inward FDI. During this time, most MNEs operating in developing countries tend to be efficiency-seeking investors and subcontracting (Dunning, 2002; Nunnenkamp and Spatz, 2003) and high skilled labor force is expected to be essential.

Bende-Nabende, Ford, Sen and Slater (2000) looked for the location determinants of FDI and the linkage between FDI flows and macroeconomic variables in the Pacific Asia countries. By testing the data from 1986 to 1996, they concluded that the human capital stock was one of the principal determinants of FDI in those countries. FDI had positive effects on human capital, exchange rates and interest rates in all the countries except Malaysia, Singapore and Thailand.

Using the data set of the 1990s and 1990s, Noorbakhsh et al (2001) found that both the stock and flow measures of the human capital showed statistically significant and positive effects on FDI inflows. The effects became more significant over time. By using average years of education of total population aged 15 and above to proxy for human capital, Nunnenkamp and Spatz (2003) concluded that education was an increasingly important determinant from the mid-1980s to the late 1990s.

However, Buckley et al (2002) ran panel data regressions for several regions in China in the 1989-1998 period and concluded that the efficiency of FDI inflows was not depended on the level of human capital in more developed provinces, while it was more significant in the less developed provinces.

Wages

To determine the effects of FDI on wages, we can consider the effects of some factors determining wages such as skills of labor, size of the firms, and location of firm's operation. Multinational firms tend to have better access to best-practice technology, requiring more skills to operate complex production processes, so that they tend to locate in areas where there are sufficient high-skilled labor, capital city and rich natural resources. A higher skilled labor could get a higher average wage bill.

Using data from Mexico, Venezuela, and United States, Aitken, Harrison, and Lipsey (1996) presented that higher levels of FDI are associated with higher wages in all three countries. Moreover, they concluded that multinationals pay higher wages than host firms in two the developing countries - Mexico and Venezuela, but not more than that in the developed country as United States.

Strobl and Thornton (2001) found that, in the foreign owner firms of five African countries, high skilled labor could get more wages than less skilled labor. Te Velde and Morrissey (2001) have the same ideas with Strobl and Thornton (2001) when testing the data on individual wages in manufacturing industry for five African countries in the early 1990s. They also found out that more skilled workers get more benefit than less skilled one, holding the size distribution of foreign firms. Moreover, they concluded that foreign ownership is associated with a 20-40 per cent increase in individual wages on average. This is halved to 8-23 per cent if taking into account the fact that foreign-owned firms are larger and locate in high-wage sectors and regions

Te Velde and Morrissey (2002) tested the effects of FDI on wages and wage inequality in five East Asian countries. Wage inequality has been low and decreasing in some but not all East Asian countries. Even though not find strong evidence that FDI reduced wage inequality in five East Asian countries over the period 1985-1998, they found that FDI has raised wage inequality in Thailand by controlling for domestic influences. The authors also concluded that FDI raises the wages for both skilled and low-skilled workers. In the paper, they recommended that Thailand have to increase the education system, as it was not sufficiently prepared to absorb the effects of FDI

Using 5122 Thai manufacturing plants in 1996 and 2407 plants in 1998, Matsuoka (2001) presented that the foreign-ownership wage premium for Thai manufacturing firms was higher for non-production workers than for production workers. Foreign owned firms paid 20 per cent more for non-production workers in 1996 and 8 per cent for production workers, while paid 28 and 12 percent for 1998, respectively. Matsuoka argued that wage differentials between foreign and local firms should be explained by labor market imperfections, with foreign multinationals dominating segmented labor market for particular skills. This implies that a higher wage premium for skilled workers in MNEs cannot be explained by the skill-specific technical change often associated with foreign ownership but by more effective bargaining by skilled workers (Te Velde and Morrissey, 2002).

In contrast with the conclusions of the positive relationship between FDI and wages in developing countries, several studies in developed countries found the negative affects. Urata and Kawai (1999) said that skilled labors of developed countries only had a positive impact on Japanese FDI and that of developing countries had negative effect on Japanese FDI. Blonigen and Slaughter (2001) found that multinational activity was not significantly correlated with skill upgrading within US manufacturing sectors over 1977-1994.

Openness to the world trade

In testing the openness to trade, proxy by exports plus imports to GDP, Kyrkilis et al (2003), Chakrabarti (2001) and Asiedu (2002) concluded that a higher degree of openness expected to be associated with a higher level of inward FDI activity.

Taylor (2000) referred to survey results from the World Competitiveness Report on the degree to which government policy discourages imports. Undertaken by MNEs from the United States, the correlation between openness to trade and FDI was positive in the manufacturing sector, whereas this was insignificant in the services sector. By contrast, alternative measures tried as proxies of openness (tariff rates, coverage of non-tariff barriers) turned out to be insignificant when correlated with FDI.

Besides the positive impact of FDI on trade openness, FDI also presented a negative impact on trade openness in the studies of Billington (1999) and Smarzynska and Wei (2002).

Exchange rate

The exchange rate of the country appears to play a key role in financial and economic stability. An investor will not like to invest in a country with an unstable exchange rate. The effect of exchange rates on FDI has been examined both with respect to changes in the bilateral level of the exchange rate between countries and in the volatility of exchange rates (Blonigen, 2005). Froot and Stein (1991) showed the expected changes in the level of the exchange rate would modify the firm's decisions to

invest in a foreign country. He presented that, in imperfect capital markets¹⁴, a depreciation of home currency led to increase foreign firm wealth. By using annual US aggregate FDI observations, he evidenced that currency depreciation increased inward FDI.

Goldberg and Klein (1997) investigated the relationship of FDI and the real exchange rate in ASEAN4 (Malaysia, Philippines, Indonesia and Thailand) and some Latin American countries (Chile, Brazil and Argentina) from the year of 1978 to year 1994. The ASEAN4 and Latin American countries were strong net recipients of private direct investment and long-term capital, while United States and Japan were two countries exporting FDI on them. By running the cross section time series and panel data, the study showed that real exchange rate was positive significant on FDI in ASEAN 4, and was statistically negative on FDI in Latin American countries.

Blonigen (1997) said that changes in the exchange rate level might affect inward FDI for a host country. An exchange rate appreciation of the foreign currency will lower the price of the asset in that foreign currency but will not necessarily lower the nominal returns. Using industry level data on Japanese mergers and acquisition FDI into the US, he concluded that when the real dollar depreciated relative to yen, the inward US acquisition FDI by Japanese firms is increased.

Conversely, Campa (1993) concluded that greater exchange rate uncertainty increases the option for firms to wait until investing in a market, depressing current FDI into the US in the wholesale industry. Goldberg and Kolstad (1995) showed that exchange rate uncertainty increased FDI by risk adverse MNEs if such uncertainty was correlated with export demand shocks in the markets they intend to serve.

Tax policies

Government policies of both home and host countries are important to the inward FDI of a country. If a country has the suitable policies, it could help the country

¹⁴ Imperfect capital markets mean that the internal cost of capital is lower than borrowing from the external sources (Blonigen, 2005).

increasing its economic development. High tax rates are naturally discouraging foreign investment, though there is some controversy over this point.

Grubert and Mutti (1991) and Hines and Rice (1994) estimated the effect of national tax rates on the cross-sectional distribution of aggregate U.S.-owned property, plant and equipment (PPE) in 1982. PPE probably more closely corresponds to capital that enters production functions and for which derived demand is a function of tax rates. Grubert and Mutti (1991) analyzed the distribution of PPE in manufacturing affiliates in 33 countries, reporting a -0.11 elasticity of PPE with respect to local tax rates. Hines and Rice (1994) considered the distribution of PPE in all affiliates in 73 countries and reported that 1% lower tax rates were associated with 3% greater PPE. The much higher elasticity reported by Hines and Rice reflects differences in industrial coverages as well as their inclusion of data from U.S. operations in many more countries - particularly tax havens - than those analyzed by Grubert and Mutti (Hines, 1996).

Cummins and Hubbard (1995) estimated investment equations for foreign subsidiaries of U.S. firms by two scenarios that (1) firms ignore taxes and (2) firms incorporate taxation in their decision making so that reduce investment in response to higher tax rates. The results showed that the data fit the second specification better than the first, suggesting that taxes influence direct investment by affiliates.

Hines (1996) built the model to test the tax sensitivity of FDI into a state of non-credit-system foreign investors relative to that of credit-system foreign investors. He concluded that higher tax rates of 1% are associated with a 9% larger FDI decrease by the non - credit - system investors relative to the credit - system investors.

In contrast, Ondrich and Wasylenko (1993) examined new plant location in US over a longer period of time (1978-1987). Their findings showed that the effects of state corporate tax rates were difficult to identify, since states did not choose their fiscal policies randomly.

In summary, the empirical studies of FDI and tax relationship still have not reached the conclusion yet. The different kind of taxes can show many different effects on FDI. Some studies show the positive effect of FDI on taxes, some has negative impact. Others

give insignificant effect. However, the question that how much taxes affect FDI is still need to be answer. Moreover, the effect of bilateral international tax treaties on FDI activity has been an unexplored issue needed for a research (Blonigen, 2005).

Political stability

A political event of one country is one of main factors that effect to the invested decision of foreign investors. The political stability of received countries may increase the level of FDI. Political instability (or political risk), however, can reduce FDI flows in those countries. Lucas (1990) showed that many multinational companies were invested in high-cost developed countries by considering the politically stability of invested countries. Investments in many “low-cost” countries, by contrast, were exposed to large political risks. However, while a stable political environment was desirable, it was not a sufficient condition for attracting foreign investment.

Schneider and Frey (1985) found a negative relationship between the number of political strikes and riots in host countries and the inflow of foreign direct investment. It means that if host counties have the political stable, the countries can increase FDI inflows. Recently, some other studies from Loree and Guisinger (1996), Bevan and Estrin (2000) and Habib and Zurawicki (2002) concluded that the country’s political stability has positively relationship with the volume of FDI inflows.

However, still having several studies show mixed results about FDI and political stability relationship. Asiedu (2001) and Morrisset (2000) also concluded that the political stability has no impact on FDI in Africa.

The empirical evidence on the impact of political event is not clear, as it is difficult to obtain reliable quantitative estimates of this qualitative phenomenon for an extended period of time, particularly aspects of political risk, which are viewed as a direct constraint by foreign investors. Political instability is a complex phenomenon.

Other qualities of institutions

Globerman and Shapiro (2002) estimated the impact of the first principal component of the six governance indicators constructed by Kaufman et al. (1999) on both inflows and outflows of FDI. They found that good governance affected positively both on FDI inflows and outflows, although the latter effect was only significant for relatively big and developed countries. However, the institutional quality of the source and the host countries could not be included at the same time since the estimations did not rely on bilateral flows.

By using bilateral data to examine the effect of institutional distance between the host and the source country on FDI, Levchenko (2004) suggested that institutional differences might be a source of comparative advantages and could be a source of more trade flows. If the multinational firm took advantages of comparativeness, it could increase FDI inflows.

Nevertheless, Aizenman and Spiegel (2002) argued that the share of FDI in total investment should be lower in countries with weak enforcement of property rights by using a principal-agent framework where ex-post monitoring of contracts is more costly for foreign investors than for domestic ones. By authors, if investors from weak institution countries face lower costs than those from strong institution countries, the institutional distance between the origin and the host country should have a negative impact on bilateral FDI. This result is inline with the traditional arguments of the literature on management, which stresses "psychic closeness" as a major impediment to the decision of companies to enter foreign markets (Habib and Zurawicki, 2002). Moreover, the authors also concluded that if institutions are dependent on economic and social history such as the colonization era, then one could observe more FDI among countries displaying relatively similar institutions.

In conclusion, FDI occurs in a host country when foreign firms offer some comparative advantages that is not available in the parent firm's country whether this be in resources, market access, acquisition of technology or the potential for economies of scale in production.

Some main determinants of FDI such as GDP, economic growth, and per capita GDP, human capital, labor costs, exports, taxes, political stability and openness are most supported in the empirical literature. A country with large market size and high income that has market-oriented policies and stable government is the most likely to attract foreign investment. It is not clear how many scientists, engineers and skilled labors are needed or if low relative wages are necessary to attract FDI. Transfer taxes negatively affect a firm's location decisions while taxes deployed to infrastructure and institutions have a positive effect. A trade deficit may indicate fiscal negligence or poor macroeconomic policies even though the net importing market may be ideally placed for foreign investment. Variables associated with return on investment such as host country incentives are positively correlated with FDI, while those associated with investment risk (currency crises, corruption and weak enforcement of property rights) are negatively correlated.

3.2.3. Empirical evidences on studies of Vietnam

There are only some papers that showing the determinants of FDI inflow in Vietnam over the years. Using numbers of new FDI projects registered in 2000 and numbers of cumulative FDI up to 2000 as the dependent variables, Meyer and Nguyen (2005) tested the determinants of FDI across the 61 provinces of Vietnam. They found that industrial real estate, population, transportation, education and GDP growth are highly significant with numbers of FDI project registered. They concluded that foreign investors preferred to locate where provincial institutions are supporting market transactions.

Pham Hoang Mai (2002) examined factors influencing the pattern of FDI allocation by using Vietnamese cross-sectional data from 1988 to 1998. He also found that infrastructure, the quality of the labor force and the size of the local market were the most important factors determining the regional allocation of FDI. However, he concluded that government tax incentives did not have a significant impact on attracting FDI to mountainous and remote provinces. As in Pham Hoang Mai's study, Nguyen

Ngoc Anh and Nguyen Thang (2007) used cumulative cross-sectional data from 1988-2006 to assess the determinants of FDI inflow. The regressions indicated the importance of market size, labor and infrastructure in attracting FDI. Government policy as measured by the Provincial Competitiveness Index (PCI), however, did not seem to be a significant factor at the provincial level.

In a discussion paper from Le Viet Anh (2004), the author used pooled regression models to explore the determinants of FDI inflow into Vietnam in 1991-2001. The study split the sample into two periods, 1991-1996 and 1997-2001, in order to determine the changes in FDI after the 1997 Asian financial crisis. He found that agglomeration factors, such as infrastructure, cumulative FDI and industrial output, as well as market size, attracted FDI in the 1997-2001 period. Other factors, including wage and labor quality, were negatively correlated with FDI inflow in all samples.

Malesky (2005) used a simultaneous equation model, measuring the mutually reinforcing impact of FDI and the autonomy of Vietnamese provinces between 1990 and 2000. Stocks of FDI per capita are tested against a measure of autonomy derived from an innovative content analysis of the Vietnamese state owned newspapers. Each instance of a province being cited for violating central economic policy regulations, by engaging in reformist experimentation, was coded as an instance of autonomy. This study found that improvement in the quality of a province's infrastructure led to an increase in the stock of FDI. However, increases in the size of agriculture and the strength of the SOE sector in a given province led to a significant decrease in stocks of FDI. Secondary education was once again negatively related, while location in Ha Noi or Ho Chi Minh City was strongly positively associated with FDI increases. Cases of autonomy in the previous year continued to have a negative impact on stocks of FDI per capita. Clearly, autonomy was not a major influence in attracting investors.

Nguyen Phi Lan (2006) examined the relationship between FDI and economic growth in Vietnam by using a simultaneous system of equations for a panel data set of 61 Vietnamese provinces during 1996-2003. Higher economic growth, exports, better

infrastructure and lower labor costs were viewed as important factors in luring FDI inflows into Vietnam.

In regard to studies of Vietnam, most show that the major factors attracting FDI inflow into the country are market size (including GDP, GDP per capita or GDP growth rate) and infrastructure. In addition, scattered through other researches, factors that found to increase FDI inflow included exports, low labor costs and good quality transportation. However, these latter studies examined the determinant factors of FDI inflows into Vietnam at the national level only.

3.3. Methodology

One of the main objectives of this research is to identify the most important factors determining FDI inflows into Vietnam. It seeks to build on the existing literature in two ways. First, the variety of explanatory variables used is wider than those previously employed in studies of Vietnam's FDI determinants. The second contribution to knowledge is to model FDI inflows into Vietnam at two different stages: at the country level and at the regional level. As a result, we are able to see how the foreign firm's decisions for locating its enterprises in different regions of the nation. Based on the results, the country could construct suitable policies for each region to attract more FDI inflow.

3.3.1. Hypotheses

Many factors could be attracting FDI inflows in a host country as presented in the empirical literature's part. However, factors determining FDI in a host country depends on the final goals of investment: capturing new markets or cheap production to export to other countries including the home country. Market-seeking investors will be attracted to a country with a large and fast growing local market. Efficiency-seeking investors will weigh more of geographical proximity to the home country to minimize transportation costs and optimize for locations with lower labor costs. Resource-seeking investors will

look for a country with abundant natural resources. Unfortunately, data of FDI inflows in a host country are normally aggregated at the country level and therefore do not allow subdividing FDI inflows according to the motives of investors. Moreover, factors that increase the productivity of capital are also relevant for all types.

Based on the theoretical and empirical findings in the previous section, together with Vietnam economy's situation; I identify some main potentially important determinants of FDI distribution across Vietnam and make the hypotheses for the different determinant factors of FDI inflows in Vietnam as follows:

Market size has positive impact on the FDI inflows as it directly affects the expected revenue of the investment. A larger host market provides more opportunities for sales and profits to foreign firms and therefore attracts FDI inflows. Moreover, a sufficiently large market allows for the specialization of the factors of production, and consequently, the achievement of cost minimization (Balassa, 1966). Following the literature, this study uses nominal GDP per capita (GDPPC) to proxy for market size. Holding other factors constant, GDP per capita is expected to be a positive significant relationship with FDI flows since the larger market, the more opportunities it offers foreign investors.

Together with market size, the prospect of growth, generally measured by growth rates, also has a positive influence on FDI inflows. Countries that have high and sustained growth rates receive more FDI flows than volatile economies. For this aspect, I believe that GDP growth rate (GDPG) could also be another positive factor determining FDI inflow in Vietnam.

To make a decision to invest in a location, one of the attracting factors of FDI investors is cost advantages of the host market. The location with lower costs of labor, transportation, raw materials, land rent can attract foreign investors. Labor costs are represented by wages. In the literature, low wages make lower costs of the production producing. FDI firms encourage investing in a host country that has low labor costs.

However, in empirical evidences, the significance of this relationship is mixed¹⁵. To present labor cost, I use monthly average income per employee as a proxy factor. I assume that high labor cost can have negative impact on FDI inflows.

Foreign investors could be so interested in the locations, which have low labor costs or high qualities of labor. Used by Braunerhjelm and Svenson (1996) and Sun, Tong and Yu (1999) and some other researchers, labor quality factor measures the relative endowment of skilled labors in a host country. Used by Braunerhjelm and Svenson (1996) and Sun, Tong and Yu (1999) and some other researchers, labor quality factor measures the relative endowment of skilled labors in a host country. Most of the empirical researches reveal the positively significant relationship between high skilled labors and FDI flows, particularly FDI investment on high technology industry. The foreign direct investment flows disproportionately in the different provinces and regions of Vietnam as we have been presented in the chapter II. The major FDI activities in Vietnam belonged to fields of food products and beverages, leather products and agricultural processing and then were mainly taking advantages of cheap but relatively educated workers (i.e. workers who just completed high secondary schools). However, there might include the high technological FDI inflows in the South East and Red River Delta regions of Vietnam. The high skilled labors are needed to scarify the work requirements. Moreover, labor force is one of the major concerns of investors. When a country has available labor force, the invest firms will get easy to rent employees and not need to pay too high wage for employees. The study uses the ratio of number students in upper secondary school, university, college and vocational school to population of the host location indicates high skilled labor (HS) and uses the ratio of the number of working people aged 15 years old and older per population to proxy for labor (L). I expected that both labor force and labor quality are positive relationship with the FDI inflow. However, this research would argue that human capital (HS) might have negative or positive correlation with FDI inflow into different Vietnam's regions.

¹⁵ Noorbakhs et al (2001), Strobl and Thornton (2001), Te Velde and Morrissey (2001, 2002) found low labor costs of the host countries can attract FDI. However, Urata and Hawaii (1999) and Blonigen and Slaughter (2001) gave opposite results

Infrastructure covers many dimensions, ranging from roads, ports, railways and telecommunication systems to institutional development (e.g. accounting, legal services, etc.). Good infrastructure allows faster transport and communication, increases productivity of investment, and therefore stimulates FDI inflows. This research uses the number of telephones per 10000 residents to measure infrastructure development and expect that the higher the level of infrastructure development, the higher FDI inflow in the host area.

Openness of one location is one of the traditional variables for explaining FDI movements. It is defined as the ratio of total trade (import plus export) to GDP. Multinational firms engaged in export-oriented investment may prefer to locate in a more open economy since trade protection in imperfection markets generally implies higher transaction costs associated with exporting. However, openness can also have a negative impact on FDI due to keen competition. In this research, the expected effect of the degree of openness on FDI is positive, as the openness is not only attracting the foreign capital to the host area.

Agglomeration factors refer to the concentration and co-location of economic activities that give rise to the economies of scale and positive externalities. Factors contributing to agglomeration affects include the host area's infrastructure, the degree of industrialization and the size of exiting FDI stock (Wheeler and Mody, 1992). Wheeler and Mody (1992) and Braunerhjelm and Svensson (1996) amongst others found that the level of agglomeration was positively related to the FDI in a particular country. The accumulative stock of FDI (CFDI) is used to proxy for the agglomeration factor that attracts FDI inflow in the specific areas of Vietnam. I expect that CFDI is positive impact on the new FDI inflow.

There are also some other factors that could be expected to attract FDI inflow into Vietnam. At the provincial level, the incentives of different cities and the incentives of different provinces located in some Vietnam's key economic zones are positive signs to attract FDI inflow in the areas due to providing some flexible policies for investment environment and increasing foreign businesses.

3.3.2. Regression models and estimation techniques

To analyze the determinants of FDI inflows in Vietnam and its regions by using data set of 61 Vietnam's provinces over the 12-year period (1995-2006), I use panel data method as it contains some advantages, in comparison to time-series and cross-section method. As pointed out by Hsiao (1985, 1986), Klevmarken (1989) and Solon (1989), using the panel data method is better to control for the magnitude of a key empirical econometric problem, namely, the heterogeneity of explanatory variables by allowing for individual-specific variables. Moreover, panel data “give more informative data, more variability, less collinearity among variables, more degree of freedom and more efficiency” (Baltagi, 2001, p.6) as it increases the sample size considerably.

The general relationship between FDI and its determinants can be written as the form $FDI = f(X)$, where FDI is the foreign direct investment inflows to the whole country and regions of Vietnam. X is a vector of variables that captures the overall attractiveness of host area¹⁶ to the FDI inflows. The specifically empirical form that used for the determinants of FDI inflows at the regional level as follows:

$$\ln FDI_{it} = \alpha_i + \beta_1 \ln GDPPC_{it} + \beta_2 \ln GDPG_{it} + \beta_3 \ln TEL_{it} + \beta_4 \ln OPEN_{it} + \beta_5 \ln HS_{it} + \beta_6 \ln L_{it} + \beta_7 \ln CFDI_{it} + \beta_8 \ln RWAGE_{it} + \beta_9 KEZ_{it} + COASTAL_{it} + \varepsilon_{it} \quad (1)$$

where subscript $i = 1, 2, \dots, 61$, refers to individual province of Vietnam, and t presents to years from 1995 to 2006. β_i is the individual effect which assumed to be constant over time t and specific to the individual cross-provincial unit i , while error ε_{it} is a stochastic disturbance. Natural logarithms (\ln) of variables are taken.

The dependent variable FDI is the total registered capital of FDI inflows located in province i in year t . There is a set of province level factors capturing various aspects of endowments relevant to the location choice of FDI in the region. GDPPC is the gross domestic product per capita of a province i at time t , which presents market size of

¹⁶ By using host area, we mean either a whole country (Vietnam) or its regions, depending on the level at which FDI is analyzed.

Vietnam. GDPG presents the growth rate of gross domestic product. Presented for infrastructure is TEL, which is the number of telephone per 10000 inhabitants. HS is the ratio of number students in upper secondary school, university, college and vocational school to population, proxy for human capital or labor quality. OPEN is represented the openness to trade of a province and measured by the ratio total trade to GDP. L indicates the labor force of the province. RWAGE presents the labor cost of the province, proxy by monthly real average income per employee. The cumulative stock of FDI since 1988 up to the given year in a province is used to capture the effect of FDI agglomeration determining the favors of foreign investors in provinces.

I also create a set of provincial dummy variables to describe how the effects of different types of policy designations and special geographical features attract FDI inflows into provinces. I assume that coastal provinces, municipalities and provinces located in some key economic zones could be one of the important factors that attract FDI inflows. Coastal province (COASTAL) takes the value of 1, while others take the value of zero (0). Municipalities and provinces located in some key economic zones could be one of the important factors that attract FDI inflows, as they normally are areas having better infrastructure, high level of economic growth as well as the high level of skilled labors. KEZ presents for Focal Economic Zones over Vietnam's provinces as a dummy variable. If a province located in a Focal Economic Zone, it could take the value equal to 1. Others take value equal to zero (0).

Multiple linear regression and stepwise regression are utilized to identify the most significant independent variables after the correlation analysis is done among independent variables across provinces. The panel data are also tested for a unit root before estimations by the method of Levin, Lin and Chu (2002). If the null hypothesis of a unit root cannot be rejected for a data series, the first difference form of its series will be used to estimate in the regressions. Even though the variables used in all estimations are the same, the relevant factors that attract FDI inflows in each region could be identified as each region has its own characteristics. The regional analyses could show a more comprehensive and detailed picture of why FDI inflows into the particular regions.

This information could guide not only foreign investors to selecting locations of investment but also local government to improving investment environments and attracting foreign investment more effectively.

3.3.3. The Data

The empirical analysis was presented by balance panel model. Because most of the breakdown data for provinces are generally not available before 1995, the sample covers all 61 provinces of Vietnam in the period of 1995-2006, in which 25 destination provinces are from the Northern region, 16 provinces are from the Central region and 20 provinces come from the South region. The more specific information of the panel data set used in the analysis is presented in the Table 25. The complete list of the provinces used in each region is presented in Appendix B.

Table 25: Panel data set used for regression analyses

Sample	Provinces	Period	Observations
Whole country	61	1995-2006	732
North region	25	1995-2006	300
- Red River Delta	11		132
- Northern Uplands	14		168
Central region	16	1995-2006	192
- North Central Coast and Highlands	10		120
- South Central Coast	6		72
South region	20	1995-2006	240
- South East	8		96
- Mekong River Delta	12		144

Most of the data on variables used in the research are taken and calculated from various issues of the *Statistical Yearbook of Vietnam* from 1995 to 2006. The data of

imports and exports of the individual province are taken from the Department of Trade of the Vietnam's General Statistical Office and the *Socio-economic statistical data of 64 provinces and cities*, GSO (2005). Since the data of FDI, imports and exports are in US dollars, they are converted into Vietnam Dong (Vietnamese currency) using yearly average VND/US dollar exchange rate obtained from the socio-economic data indicators in *Vietnam – 20 years of renovation and development*, General Statistics Office, Vietnam. The cumulative FDI (CFDI) starts from 1988 and is the sum of FDI in the previous years and increased capital of the year by provinces. Some other data that could not find in the *Statistical Yearbooks* of Vietnam are complemented from some sources as following:

1. Statistical data of Vietnam socio-economy 1975-2000, 2000
2. Vietnam statistical data in the 20th century, GSO, 2004
3. Vietnam-20 years of renovation and development 1986-2005, GSO, 2006
4. The Vietnamese international merchandise trade for 20 years renovation 1986-2005, GSO, 2006
5. Socio-economic statistical data of 61 provinces and cities, GSO, 1998 and 2001
6. Socio-economic statistical data of 64 provinces and cities, GSO, 2005

Running from the North to the South, Vietnam has been divided into 61 provinces in 1996 and 64 provinces since 2003. Regressions, firstly, are run cross all 61 provinces with the data from 1995 to 2006 and the total number of observations is 732. The three new established provinces of Dien Bien, Dac Nong and Hau Giang¹⁷ are not included separately in the sample due to short time of analysis. The data of those provinces converted in their old provinces for the sufficient sample. Secondly, multiple regressions will be estimated in the six regions of Vietnam (Red River Delta, North Uplands, North Central Coast and Highlands, South Central Coast, South East and Mekong River Delta). The North Uplands region is included the North West and North East regions as a set of one area of regression because they have the nearly same characteristics of

¹⁷ Some new provinces of Vietnam such as Dien Bien, Dac Nong and Hau Giang were divided from Lai Chau, Dak Lak and Can Tho in 2003, respectively.

socioeconomic conditions. The same reason is to set the North Central Coast and Central Highlands regions together.

Owning the large gap of the distributional properties between provinces sited in the different locations of Vietnam, all variables used in this study except dummies are transformed into the natural logarithm form. However, some variables such as FDI, imports and exports are recorded zero in some years and the log 0 is undefined, those observations will be excluded from the estimated model. Followed the technique applied in papers of Sun, Tong and Yu (1999) and Pham Hoang Mai (2002), a small value of 10^{-2} is used to replace the zero whenever it occurs in my data set.

Before running the regressions, correlation analyses are described among the variables used for the present study. A high degree of correlation between the various explanatory variables, in excess of 0.8, may lead to serious multicollinearity (Gujarati, 2003) and then effect badly to the results of the regressions. To have better results for all the regressions, the correlation analyses have been tested among the variables used for the present study. As evidences, most of the pair variables are excluded from the highly correlated relationship. However, the relationships between GDPPC, TEL, and RWAGE in the samples show the high correlated coefficients (about 0.81 and 0.86). This is not surprising as more developed regions have better infrastructure and higher real wage. However, the variables are still kept in the model because of its empirical significance in explaining both market and factor based. Followed Blanchard (1967)'s ideas that multicollinearity is essentially a data deficiency problem and sometimes we have no choice over the available data, I do nothing with this small problem in the samples. Further descriptive statistics and correlation analyses are reported in Appendix C.

3.4. Estimation results and Interpretations

The empirical analysis determinants of FDI inflows into Vietnam's regions are specific by using the panel data of 61 provinces over the 1995-2006 period. Natural logarithms of variables are taken. Because the provincial characteristics may increase the cross sectional heteroskedasticity, Generalized Least Square (GLS) is further used in

addition to OLS. Common panel least squares with white cross section standard errors and cross section weight as well as AR(1) are applied for all the estimations. The estimation results of FDI determinants in Vietnam are reported in Table 26-30. Table 26 shows the results of FDI determinants in the whole country (Vietnam) as well as the effects on different regions of Vietnam over the 1995- 2006 period. Tables 27 - 30 represent the results in the six regions of Vietnam. FDI inflow in each area is used as dependent variable.

3.4.1. At the country level

The estimated results of FDI determinants inflows into Vietnam as a whole sample using the data of its 61 provinces over 1995-2006 are shown in the Table 26. The results reported in column 3.1 indicate that a large share of the variation in FDI flow level can be positively explained by a small number of factors, namely, growth rates of GDP, GDP per capita, labor force, infrastructure and openness to trade. As a group, these factors account for about 64% of variability in the FDI inflow. The results show that FDI inflow strongly increases with the degree of GDP growth rate, GDP per capita, openness to trade, labor force and infrastructure of Vietnam. The positive relationships between the above variables with FDI inflow are consistent with most of the previous studies supporting that the high level of market size and its growth of the host country, good infrastructure and more openness to world trade promote and attract FDI inflows into a host country.

In all estimations, GDP growth rate and GDP per capita present positive impacts on the level of FDI inflow. The result is consistent with most other studies saying that market size is a positive determinant factor of FDI inflow. Even though Vietnam is a small and developing country in Asia, its GDP growth rate and GDP per capita were dramatically increasing rapidly since the transition in 1986. In 2005, the GDP growth rate was 8.4%. The GDP per capita in 2005 was USD 639.1, more than double of that in 1995 and more than 7 times in 1988 (GSO, 2005). The higher income per capita of Vietnam not only indicates good overall economic performance, but also implies higher productivity associated with good labor quality, advanced technology and better local

infrastructure as called better investment environment. This is why GDP per capita is one of the factors attracting FDI inflow into Vietnam.

Table 26: Regression results on determinants of inward FDI in Vietnam

Dependent variable: **LnFDI**

Variable	3.1	3.2	3.3	3.4	3.5
Intercept	-30.9547 (-3.2689)***	-32.0140 (-3.6171)***	-32.5687 (-6.2355)***	-31.8112 (-7.8145)***	-30.8450 (-9.2222)***
LnGDPPC	2.0318 (6.6920)***	2.1151 (5.7278)***	0.9147 (2.9794)***	0.5109 (1.7169)*	0.6000 (2.0707)**
LnGDPG	0.5549 (2.0072)**	0.5890 (1.9955)**	0.5739 (2.5534)**	0.6348 (4.2516)***	0.6011 (4.3079)***
LnL	2.2518 (1.0333)	3.2369 (1.5710)	5.8630 (5.5489)***	5.9880 (7.4005)***	5.9571 (8.0973)***
LnOPEN	0.9075 (4.4738)***	0.8273 (4.4180)***	0.6849 (7.2005)***	0.5016 (5.5858)***	0.4718 (5.2163)***
LnTEL	0.6294 (1.4912)	1.0587 (2.4347)**	0.1791 (0.7134)	0.0661 (0.2797)	0.2303 (0.9722)
LnHS	0.1505 (0.4004)	0.1391 (0.3491)	0.1407 (0.4323)	0.0166 (0.0662)	0.1492 (0.5679)
LnRWAGE		-1.3167 (-1.6422)	-1.1577 (-2.4005)**	-0.5426 (-1.2451)	-1.0404 (-2.5460)**
LnCFDI			0.8107 (18.4733)***	0.7913 (29.9086)***	0.7821 (30.7561)***
KEZ				1.8140 (7.7574)***	1.6033 (8.6996)***
COASTAL					-0.5779 (-1.8191)*
R-square	0.6325	0.6225	0.7670	0.8115	0.8188
Adj. R-square	0.6286	0.6179	0.7638	0.8087	0.8158
DW stat	2.2615	2.2387	2.0777	2.0341	2.0140
No. of Obs.	671	671	671	671	671

Note: (1) The coefficient of the variable is shown first, followed by the t statistic is in parentheses

(2) *, **, and *** indicate significance levels of 10, 5 and 1 percent, respectively

(3) Method of regression: Panel EGLS (Cross-section weights) with White cross-section standard errors & covariance and AR (1)

Furthermore, with population of over 80 million people, Vietnam has been and may become an appealing market for companies focusing on domestic selling. As presented in Chapter II, foreign investment sector has been officially available in

industrial structure since 1989. However, this sector has reached quite the high level of development in terms of production scale and speed. The FDI ratio of the local market-oriented industries like consumption industry, heavy industry, real estate, production of building materials is relatively high. In 1995-2007, foreign investment sector accounted for 99.9% in the oil and gas industry of Vietnam, 76.5% in the auto assembling manufacturing, 76% in the radio and communication products manufacturing, 44.4% in the electronic products manufacturing, 71.3% in the medical industry, 54.4% in the leather dressing and product manufacturing, 29% in the rubber and plastic manufacturing, 28.1% in the textile manufacturing, 24.9% in the foodstuff and beverage manufacturing and so on (GSO, 2007). The quick development of industrial share of the foreign investment sector is expected to meet the higher and higher consumption demand in domestic market and to boost export, as the objectives of Vietnam's modernization and industrialization.

Openness to trade (OPEN) is statistically significant and positive effects in all estimations. An increase of FDI is equivalent to increase of total trade in Vietnam. As presented in chapter II, the total international trade in 2006 exceeded 84.72 billion USD, increasing by 28.8 times compared to that in 1986. Vietnam's abundance of cheap labor has its internationally competition in many low-cost, labors-intensive manufactures. As a result, manufactured products constitute an increasingly larger share of Vietnam's trade. Fuel and raw materials accounted for more than 60% share of import commodities each year used for production and investment, followed by machinery, instrument and accessory sector with 29.2% of the total imports. Mineral fuels, food and foodstuff are accounted for nearly 50% share in the total exports. Similar to the experiences of other developing countries, the rapid import and export growths of Vietnam has also largely based on foreign invested firms. Foreign companies invested in Vietnam have been increasing and showing their important role in imports. In 2001-2005, the import and export values by foreign firms were accounted for 34.3% of the total imports and 52.2% of total exports. The increasing in the import and export shares of foreign firms in

Vietnamese economy imply the attractiveness of trade and FDI policies in encouraging FDI firms to invest in Vietnam.

Most of the empirical researches on FDI inflows reveal the significant relationship between highly educated labor forces and FDI flows, particularly the FDI investment in high technology industries. In case of Vietnam, the level of labor quality (HS), captured by a number of students in secondary school, universities, colleges and vocational schools per population of the host location, shows a positive and statistically insignificant related to the FDI inflow. Despite huge labor resources, labor's qualification failed to meet the requirements of the cause of renovation, industrialization and modernization. In 2005, Vietnam had 62.4 million people aged 15 years old and older, but number of people who were well trained and qualified was small. Only 4.7% of the total people aged from 15 years old and older was graduated from vocational training, and 5.3% of that was graduated from colleges, universities and postgraduate. Vietnam was ranked among the countries with the high education level, but low starting point of the agriculture based economy and the highly centrally planned economy produced disastrous impacts. Mr. John believes that Vietnamese workers are "well educated but not flexible thinkers" who are "very willing to follow orders and do mechanical work" but are not well-trained to do managerial work that often requires flexible, strategic and proactive thinking (John, 2007). The shortage of good managers, talented business people and skilled workers is resulted to the low labor productivity, economic efficiency and competitiveness. Moreover, one more reasons to explain for the result is that FDI activities in Vietnam mainly belong to fields of not highly technology industries such as food and agricultural processing, garment, and ceramic industries (Le Cuong, 2004) that unskilled and less skilled workers and abundant natural resources were more important. Thus, the demand for the higher-educated labor or high quality of labor appears to be less crucial during this period. This explanation is consistent with many previous findings in several developing countries by Root and Ahmed (1979), Schneider and Frey (1985), and

Narula (1996), which saying high skilled labor is not necessarily an important input for inward FDI¹⁸.

FDI investors are normally looking for a location that is available and convenient in infrastructure such as roads, power, ports, telecommunication and real estate. If the location is well developed, investors can reduce their expenditure and then increase their profit. Based on the results in column (3.5) of the Table 26, infrastructure factor (TEL) shows an insignificant sign in related to FDI inflows in Vietnam. It means that the infrastructure development of the country is still needed to improve in quantity and quality to promote FDI inflows into Vietnam. Even though has been high ongoing investment in transportation, power and real estate, Vietnam's infrastructure must undergo a significant improvement in order for the country to compete successfully with the other countries in the region, such as China and Thailand. According to UNDP (2006), road's density per km in Vietnam is 1% of the average level of the world. The average speed of communication in Vietnam is 30 times lower than the world. There are only 25% of Vietnam's roads having spread asphalts. The airports and seaports are relatively small with obsolete facilities and poor supporting services (Runckel, 2006). The low stability, fluctuating tension, sudden black outs in power supply create significant additional costs for users and prevent investors to move the high-tech investment into Vietnam (Doanh, 2002). Those things make lower the favorite of foreign investors in the investment environment of Vietnam.

The coefficient of real wage is of the expected sign and is statistically significant at the national level. It means that one of the reasons that foreign investors want to invest in Vietnam is low labor cost. According to Mr. Christopher Runckel, the President of Runckel and Association, Inc., Vietnam is the cheapest labor country in Asia, followed by Cambodia and Thailand. In 2002, the effective rate of wages of Vietnamese labor is

¹⁸ Among the 58 developing countries, Root and Ahmed (1979) shows that none of their proxies for human capital: literacy, school enrolment, and the availability of technical and professional workers, are statistically significant determinants of inward FDI. Schneider and Frey (1985) , using data for 54 developing countries, find the share of an age group with secondary education to be a less significant determinant as compared with other economic and political influences. Narula (1996) demonstrates that the number of tertiary education per population was not a statistically significant explanatory variable for FDI inflows among the 22 developing countries.

often close to \$140 per month per worker, about two-thirds of this level in Western China's coastal areas and about 10-15% cheaper than Thai wages¹⁹. Many foreign investors are currently lured by this low wage and the FDI inflows had been dramatically increasing in the last few years (see Table 19 and Figure 3). Even though in early 2006, Vietnamese government increased the minimum wage of Vietnamese employees in foreign invested enterprises and other foreign and international organizations by an average of nearly 40% (Vietnamese Government, Decree No 03/2006/NĐ-CP), the wage is still low compared to other Asian countries.

Table 26 presented that the level of the stock of exiting FDI (CFDI) is positively significant related with the new FDI inflow. This supports hypothesis that the more accumulated FDI attracts the more FDI will come. It means that beside some special incentives for FDI, foreign investors in general are satisfied with the results of their investment in Vietnam. As presented in chapter II, Vietnam is changing its economic regime from central planned to a market oriented economy since 1986. The opening of Vietnamese economy, the subsequent measures to liberalize of the trade regime, together with the fast growth of economic development and accumulated FDI stock led to rapid increase in FDI inflows into Vietnam. The registered capital in 1996 was US\$10164.1 million and accounted for 1/6 of total capital registered of FDI in Vietnam. In 2006 alone, there were 987 projects with registered capital of US\$ 12003.8 million, accounted for 15.3% of the total. The amount of FDI inflows is forecasted to rise in the future under the effect of the joining to WTO of Vietnam on 11 January 2007.

Key Economic Zones of Vietnam (KEZ) are the other attracting factors of FDI inflows in Vietnam. There are three Key Economic Zones of Vietnam including twenty provinces located in all the North, Central and South of Vietnam. All the zones use up their advantages to develop and build up their own strengths under the market economy mechanism to satisfy international and domestic demands. The State continues promoting the focal economic zones to play their role in fast growth, simultaneously offering better

¹⁹ Read more detail in the article named "Thailand and Vietnam: Picking the Right Industrial Park" in <http://www.business-in-asia.com>.

conditions and investment in poverty-driven zones. There are incentives set by the Central government, but provinces and zone authorities often offer their own incentives. The infrastructure in Vietnam is generally poor, so the government has provided incentives for infrastructure developers to build facilities in the focal economic zones. Moreover, if there are Industrial Parks (IPs), Export Processing Zones (EPZs), High Tech Zones or Open Economic zones in the provinces, those special economic zones could also receive income tax incentives, in which the tax rates depend on the type of enterprises invested in the location.

As stretching from the North to the South, there are 28 coastal provinces in Vietnam, in which twelve of them are in the Central region, the eleven provinces located in the Southern region and the other five came from the North. With a long coastline beside the East Sea, most coastal provinces are badly affected by floods and storms in the wet season and by droughts in the dry season, causing difficulties for them to development as agricultural and fishery productions are major sources of income for most people in coastal zones. The real situation is consistent with the result in the estimation (3.5) saying that in general the coastal provinces of Vietnam are not area attracting the FDI inflows.

3.4.2. At the regional levels

As presented in chapter II, FDI inflows are concentrated in the South East region (53.7% in 1996-2006), followed by the Red River Delta (27%) and the South Central Coast region (9.2%) and so on. Before running the models to determine the major factors of FDI inflows in the different regions of Vietnam, I would like to find out if the development of FDI inflow differs among the sixth geographical regions of Vietnam. The used model is equation (1) adding some regional dummies variables R_j , in which R_j takes the value of 1 if the observation belongs to a particular region and 0 if it does not belong to that catalog. It is expected that a region that is high income, high economic growth, well infrastructure, more openness, high skilled labors and low labor wage is attractive more FDI inflow in comparison to the other regions.

The result shown in Table 27 suggests that there are different impacts of the Red River Delta region, the North Uplands, the South Central Coast and the South East regions of Vietnam on FDI inflows in different regions as they are shown the statistically positive and significant coefficients.

Table 27: General analysis of inward FDI inflows in Vietnam's regions

Dependent variable: **LnFDI**

Variable	3.6	3.7
LnGDPPC		0.7620 (2.8568)***
lnGDPG		0.4959 (2.0685)**
LnL		1.4871 (5.3595)***
LnOPEN		0.6835 (6.6430)***
LnTEL		0.2770 (1.1770)
LnHS		-0.4443 (-1.0910)
LnRWAGE		-0.7402 (-1.6991)*
LnCFDI		0.7752 (18.7832)***
Red River Delta region (R1)	3.4414 (3.2092)***	2.2808 (4.6626)***
North Uplands region (R2)	0.6880 (0.6377)	2.1609 (4.7045)***
North Central Coast and Highlands (R3)	-0.5985 (-0.4491)	0.2856 (0.4659)
South Central Coast region (R4)	4.1696 (6.1597)***	2.1015 (5.7825)***
South East region (R5)	5.1456 (4.8890)***	1.6330 (2.8505)***
Intercept	1.6549 (1.5300)	-17.0301 (-7.6019)***
R-square	0.5632	0.8062
Adj. R-square	0.5593	0.8020
DW stat	2.3357	2.0447
No. of observations	671	671

Note: (1) The coefficient of the variable is shown first, followed by the t statistic is in parentheses
(2) *, **, and *** indicate significance levels of 10, 5 and 1 percent, respectively

The result in column (3.7) indicated that the most regions catching the attention of the FDI flows in Vietnam is the South East region, followed by the South Central Coast region and the Red River Delta region. The other three regions (the Mekong River Delta region, the North Uplands region and the North Central Coast and Highlands region) seem equally to attract the FDI inflows. Besides, the results are consistent with the findings in Table 26. The FDI inflows strongly increase with the high degree of GDP growth rate, GDP per capita and FDI stock, more openness to trade and labor force as well as low labor cost of Vietnam. It supports that the high level of market size and its growth of the host country, rich labor and low labor cost plus more openness to world trade promote are attracting FDI inflows into a host country.

From both the descriptive analysis (in Chapter II) and the empirical analysis (in Table 27), it has shown the difference in the flows of FDI in different regions of Vietnam. Therefore, the next step the research going to do is to find what are the major factors attracting the FDI inflow in each region of Vietnam? We will take into account most variables that may determine FDI inflows in the regions to interpret the differences of inward FDI attraction by allocations.

3.4.2.1. The Northern Region

The estimation results of the model for the Northern region of Vietnam are shown in the Table 28. In general, the level of FDI inflow in the whole Northern region of Vietnam depends on its economic growth rate, the level of labor force, openness to the world trade, the region's infrastructure and the level of exiting FDI invested in the region as well as on the Northern key economic zone.

From the estimated results, the coefficients of GDP per capita in all regressions of the Northern region are statistically insignificant in relation with the FDI inflow. The Red River Delta is the second largest income region in the total six analyzed regions of Vietnam, only followed the South East region. Calculated from the data of Vietnamese GSO, in 2006, the average GDP per capita in the Red River Delta was 10.83 million VND (about 679 USD) and that in the North Uplands region was about 401.12 USD. The

average GDP per capita values in the Red River Delta and North Uplands regions were much lower than the average value of Vietnam (about 723USD) and quite very small compared to the average value in the other Asian countries (see in Table 7). The low per capital income areas are not favorite places to invest of the market-seeking FDI that serves for the locals.

The coefficients of GDP growth rates are positive and statistically significant relationship with FDI inflows in the entire Northern region and the Red River Delta sub-region, confirming the hypothesis that FDI inflow is positively related to the host region's potential market. Why the economic growth is one of the attractive factors of the FDI inflow in the Red River Delta and is not in the North Uplands? The interpretation is the regions' different characteristics. As said, the GDP per capita in the Red River Delta region in 2006 was a bit smaller than the value of the whole country. However, the Red River Delta region has the locational advantage and great potentiality for socioeconomic development. Together with the Mekong River Delta region, the Red River Delta region is one of the two biggest markets producing agricultural production in Vietnam such as rice, peanut, bean and maize. Moreover, the industrial sector in the region is quite developed compared to other regions, as it includes Hanoi- an exchange centre of politics, trade, services and tourism of the Northern part and the country. Moreover, seven of eight municipalities and provinces of the Northern key economic zone (Hanoi, Hai Phong, Hai Duong, Hung Yen, Ha Tay, Vinh Phuc and Bac Ninh) allocated in the region, increasing the development of the region. By GSO in 2006, the region was also the largest population region in Vietnam, which accounted for 21.6% of the total population in 2006 and the top region in the density of population (1225 people per km² in 2006). As the first most density population and the second largest income per capital of Vietnam as well as the several locational advantages compared to other areas, the potential development of the Red River Delta is attracting the FDI inflow because foreign investors expected to produce and sell their products in the local market.

Table 28: Regression results of FDI determinants in the Northern Region of VietnamDependent variable: **LnFDI**

	Red River Delta	North Uplands	Whole Northern region
Variable	3.8	3.9	3.10
Intercept	-39.1114 (-1.6449)	-7.8553 (-0.3730)	-39.0182 (-2.0714)**
LnGDPPC	-0.9774 (-0.8569)	-0.8690 (-0.8058)	-0.9398 (-0.6480)
LnGDPG	0.6253 (2.3626)**	0.5951 (1.0399)	0.8573 (1.8500)*
LnL	9.1993 (1.6968)*	3.7306 (0.8152)	10.2612 (2.2931)**
LnOPEN	1.1397 (3.2705)***	0.6441 (5.9117)***	0.5052 (2.7431)***
LnTEL	0.0350 (0.0806)	2.6818 (3.4639)***	1.2914 (1.5923)
LnHS	-0.6482 (-1.1433)	0.2970 (0.5924)	-0.3942 (-0.5075)
LnRWAGE	0.4715 (0.3777)	-4.5623 (-3.9989)***	-1.5192 (-1.3182)
LnCFDI	0.8470 (19.9729)***	0.7094 (6.5288)***	0.6945 (9.9596)***
KEZ	3.0239 (3.3173)***	-1.4124 (-1.3963)	2.1850 (3.2564)***
R-square	0.8947	0.7282	0.6082
Adj R-square	0.8851	0.7092	0.5934
DW stat	1.9813	1.9464	2.0195
No. of Obs.	121	154	275

Note: (1) The coefficient of the variable is shown first, followed by the t statistic is in parentheses

(2) *, **, and *** indicate significance levels of 10, 5 and 1 percent, respectively

(3) Method of regression: Panel EGLS (Cross-section weights) with White cross-section standard errors & covariance and AR (1)

The insignificant impacts of GDP per capita and GDP growth on the FDI inflow in the North Uplands region are fitted with the real situation of the region. With the three-fourth of the area is hills and mountains and land is dismembered, it is difficult for the region to develop the large-scale production. Moreover, except some provinces surrounding the Northern key economic zones as Thai Nguyen, Quang Ninh, Bac Giang

and Tuyen Quang, the other provinces in the region are low population density and large ethnic minority population. By Vietnam Living Standards Surveys in 1998, 47% of heads of households in the rural areas of this region belong to ethnic minorities. They are lack of education and knowledge in economics, health and managements. The low average GDP per capita in the North Uplands region (401.12 USD in 2006) is another disadvantage. As characterized by the mountainous geography, incidence of poverty and low population density region, the North Uplands region is definitely not attracting the FDI inflow.

As expected, openness to trade (OPEN) is statistically significant at 1% and positive effects in all sub-regions and the whole region of the Northern Vietnam. The impact of openness to trade on FDI inflow in the Red River Delta is larger than that in the North Upland region because the geographical characteristics in the two sub-regions are different. The Red River Delta is located in lowland area, which is suitable for comprehensively developing in all agriculture, industrial and service productions. Even though the Red River Delta region is the second crowded population region and 80% of the area is rural areas, the agriculture is contributing to a very limited amount of the region's GDP (about 16.4%, in 2006). As including both the country capital city (Hanoi) and the seven of eight engine provinces of the Northern focal economic zone of Vietnam, the region is more concentrated in industrial and service sectors. The structure of industry and service on GDP are now about 41.1% and 42.3%, respectively. The rate of exports and imports in the industrial sector is also increasing. Fuel and raw materials are the main import commodities. The industrial export products of the region are textile and clothing, footwear, marine product processing and electronic parts. Beside the Mekong River Delta, the region is ranked as the second region exporting in foodstuffs and other agricultural products such as rice, corn, vegetables, bean, peanuts and fruits.

On the other hands, the North Uplands is characterized by features of both mountainous and midland areas with humid temperate, monsoon with cold winter. The multiform territory and differentia climates of this region created the plentifully industrial

plants with high economic values such as tea²⁰, anise, cinnamon, wax tree, plum, apricot tree and persimmon. Moreover, the North Upland is also rich in mineral²¹. Beside the supply for domestic demand, the mineral products and agricultural products are for exports. Quang Ninh is one of the biggest provinces in the North Uplands export different types of coals to Asian, Europe and the US. The rate of export in Vietnamese total export in 2006 was only accounted for 3.3% in the North Uplands and so much smaller than rate in the Red River Delta (13.5%).

One more factor that attracts the FDI inflow in the entire Northern region and its sub-regions is the accumulative FDI stock. Proxies for agglomeration effects, the exiting FDI stock in the northern region is positively significant related with the new FDI inflow. This supports hypothesis that the more accumulated FDI attracts the more FDI will come. It means that beside some special incentives for FDI, the foreign investors in general are satisfied with the results of their investment in the regions and keep coming to the regions where they invested before. This finding corresponds to the fact that the Red River Delta and Southeast regions draw most of FDI flows over time. Its implication is very important. Regional authorities should improve their policies to attract FDI otherwise, the FDI will continue falling into limited regions.

One of very interesting finding is that while the level of regional infrastructure has a significant positive influence on the FDI inflow in the less developed areas as the North Uplands region, it is insignificant positive relationship in the Red River Delta, which is more developed region compared to the North Uplands. The results could well explain for the different region's situations. The Red River Delta is the first crowded population region of Vietnam and is the second largest region in attracting FDI inflows over 1988-2006. The region attracted nearly 23% of the total projects and 27% of the committed capital during 1988-2006. The numbers of firms and economic zones located in the region are quickly increasing. Up to December 2006, there are 29 industrial and

²⁰ Green Tea in Thai Nguyen and Snow Tea in Tuyen Quang, Phu Tho, Yen Bai, Ha Giang and Son La provinces the two famous kinds of tea in the region and in Vietnam to supply for domestic demand and export.

²¹ Coalmines are mainly found in Quang Ninh and Thai Nguyen provinces; iron mines in Yen Bai province, tin and boxit in Cao Bang, lead-zinc in Bac Kan province, gold-copper in Lao Cai...

export-processing zones are locating in the 16644-square-meters-in-area region, accounted for 20% of total numbers of IZs and EPZs in Vietnam. The crowded FDI projects as well as the larger numbers of IZs and EPZs in a small region as the Red River Delta could let the FDI firms to reconsider their investing decisions in the location. Foreign investors might not invest in a region flooded with the FDI inflows and industrial enterprises as the region crowded with the invested FDI firms, the firms will face the difficulties of access to available land and low labor cost as competition between the firms. In contrast, the North Uplands' infrastructure is positive correlation with the FDI inflow as the region is in large area and only few IZs and EPZs allocated. Some new provinces surrounding the Red River Delta region such as Hoa Binh Thai Nguyen, Phu Tho, Quang Ninh, Bac Giang and Tuyen Quang could be the choice to invest due to those provinces increasing its competitiveness in attracting FDI. According to Vietnam provincial competitiveness index (PCI) 2006, some provinces in the Northern region having the high and medium high level of PCI were Lao Cai, Vinh Phuc, Yen Bai, Bac Giang, Hung Yen, Ninh Binh, Bac Ninh, Phu Tho and Quang Ninh. The favor of business environment could lead to an increasing of new FDI invested. According to the report, Ha Noi was the province having competitiveness on business environment at the average level.

Same as the national level, labor quality is not an attracting factor of the FDI inflow in the whole northern region of Vietnam as it shows negative and statistically insignificant related with FDI inflow. The negative and significant of HS variable in the Red River Delta sub-region could be explained by the different development between number of skilled labor and population in the region. The increasing of the skilled labor in the region is less than the expansion of population, letting lower rate of skilled labor force compared to its population. Another reason to explain the result is that the Northern region investment projects concentrate more in the labor-intensive industries such as electrical appliances, food processing, footwear, textiles and so on where the relatively lower level of skilled workers is required. Moreover, it also endorses the fact that most of the FDI enterprises located in the region have to retrain their employees after recruitment

to be suitable with the requirement jobs, and then skilled labor is not necessarily an important input for the inward FDI in the North region.

In addition, the coefficient of RWAGE is negative and statistically significant in the North Uplands region only, showing that the lower labor cost of the North Uplands region could be an important determinant factor of the FDI inflow as it helps the firms decrease the costs of production and then increase the firm benefit. In contrast, RWAGE is not determining factor of the FDI inflow in the Red River Delta region as the RWAGE coefficient in the regions shown the insignificant effect. As said, the investment projects in the Northern region concentrate more in the labor-intensive industries such as electrical appliances, food processing, footwear and textiles where the relatively lower level of skilled workers is required. Moreover, three fourths of the Northern Upland sub-region of the North is hills and mountains and land is dismembered, so it is difficult for the region to develop the large-scale production. With the regional characteristics of the low level of urbanization and the high appearance of agriculture as well as available in labor force, the firms located in the North Uplands might pay the low wage for labor, which could be an advantage in attracting manufacturing enterprises to invest.

Moreover, according to the degree No. 03-2006/ND-CP of Vietnamese Government, signed on 6 January 2006, the minimum wage rates paid to Vietnamese labors working in foreign enterprises and international organizations were:

- + not less than 870 thousand VND/month (about 55USD/month) for manual workers in inner city districts of Hanoi and Ho Chi Minh City.

- + not less than 790 thousand VND/month (or 50USD/month) for manual workers in outer city districts of Hanoi and Ho Chi Minh City, in inner city districts of Hai Phong; the city of Ha Long in the province of Quang Ninh; the city of Bien Hoa in the province of Dong Nai; the city of Vung Tau in the province of Ba Ria Vung Tau; the township of Thu Dau Mot and the districts of Thuan An, Di An, Ben Cat and Tan Uyen in the province of Binh Duong.

- + not less than 710 thousand VND/month (about 45USD/month) for manual workers in the remaining areas and provinces .

Based on the law, FDI enterprises in Hanoi and Hai Phong has to pay the highest minimum wage rate to Vietnamese labors in comparison to minimum wage paid for labors in the other provinces of the Red River and the North Uplands regions. The higher wage that FDI enterprises have to pay to its labors, the lower the favorite factor is. This is explained why the RWAGE is determining factor of the FDI inflow in the North Uplands, but the Red River Delta region.

The provinces located in the Northern Key Economic Zone (KEZ) are attracting the FDI inflows in the Red River Delta region of Vietnam, not in the North Uplands region. There are eight provinces placing in the northern Key Economic Zone such as Hanoi, Quang Ninh, Vinh Phuc, Bac Ninh, Ha Tay, Hai Duong, Hai Phong, and Hung Yen, in which except Quang Ninh, the seven provinces are allocated in the Red River Delta. Those provinces are in the group of the high and medium high level of provincial competitiveness index, improving its favor of business environment, and then leads to an increasing of new FDI invested (PCI, 2006). Moreover, the degree of economic growth, volumes of trade, industrial sector, freight, postal services and telecommunications are also the power of the region. The seven provinces accounted for 81.9% of the Red River Delta region's total GDP, 88.3% of the industrial output, 95.6% of the total exports and 98.1% of the total imports of the Red River Delta region. Moreover, the provinces are also reported for 69.3% of the region's population, which could provide the local labor and human capital for both the domestic and foreign enterprises in the regions. All advantages and strengths of the region in location, human capital, trade, industrial products as well as fasting economic growths are great conditions to attract the FDI inflow. Therefore, 98.6% of the total registered capital of FDI inflow in the Northern region are invested in the seven provinces over 1988-2006 (GSO, 2006).

3.4.2.2. The Central Region

The estimation results of the model for the Central region of Vietnam are shown in the Table 29. From the estimated results, the levels of accumulated FDI and low labor wage are the main factors attracting the level of FDI inflow in the whole Central region

of Vietnam and the two sub-regions. The other attractive factors of FDI inflows in the specific regions of the Central are different based on their geography and economic development.

Table 29: Regression results of FDI determinants in the Central Region of Vietnam

Dependent variable: **LnFDI**

	North Central Coast and Highlands 3.11	South Central Coast 3.12	Whole Central region 3.13
Intercept	19.7790 (0.6141)	-31.1102 (-2.1155)**	-22.8727 (-1.4072)
LnGDPPC	-0.1953 (-0.1082)	3.3724 (2.6497)***	2.3653 (1.6757)*
LnGDPG	-1.1148 (-1.5511)	2.3287 (5.7507)***	-0.1958 (-0.3269)
LnL	-3.8868 (-0.5476)	2.3154 (0.7092)	1.2949 (0.3956)
LnOPEN	-0.9446 (-0.9739)	-0.6719 (-1.6192)	-0.5099 (-0.8151)
LnTEL	3.3427 (2.2069)**	0.5419 (0.6143)	1.0249 (1.2047)
LnHS	2.1681 (1.6326)	-1.4232 (-0.6989)	-0.7910 (-0.6911)
LnRWAGE	-5.5029 (-2.9057)***	-2.4681 (-3.9377)***	-1.9819 (-2.6494)***
LnCFDI	0.7673 (6.4446)***	0.6966 (12.6021)***	0.8691 (10.4600)***
KEZ		0.1344 (0.1568)	1.3351 (1.4530)
R-square	0.4839	0.6558	0.5771
Adj R-square	0.4375	0.6058	0.5515
DW stat	2.0129	1.8390	2.0057
No. of Obs.	110	72	176

Note: (1) The coefficient of the variable is shown first, followed by the t statistic is in parentheses

(2) *, **, and *** indicate significance levels of 10, 5 and 1 percent, respectively

(3) Method of regression: Panel EGLS (Cross-section weights) with White cross section standard errors & covariance and AR (1)

Wage is an important determinant factor of FDI inflow in the sub-regions and the whole Central region of Vietnam as it showed a negative and statistically significant relationship with the FDI inflow. According to the degree No. 03-2006/ND-CP of Vietnamese Government, the minimum wage rates applied for Vietnamese labors working in the Central region was only 45 USD/month, the lowest rate paid to Vietnamese labor working in the foreign enterprises and international organizations. The decrease in the wage rate may be accompanied by a fall in labor cost, and then attracts the FDI flows. Moreover, the total population of the Central region in 2006 is about 22.7 million persons, counted only for 27% of the total population in Vietnam, in which 50% of the region's population is under labor force (aged from 15 years old and over). The abundant labor force could attract FDI investors to invest because they expected that they could pay the lower wage for labor in comparison with other regions such as Red River Delta and South East of Vietnam. The negative and significant signs of WAGE and HS variables in relationship with FDI inflow in the Central region proved that one of the determining factors of FDI inflow in this region is low wage.

One common determinant variable of the FDI inflows in the whole Central region and its sub-regions is the amount of the invested FDI stock (CFDI). The amount of the FDI inflow into this region is increasing quickly over the years. In 2000, the Central region attracted only 58.7 million USD, accounted for 7.1% of the total FDI inflow in Vietnam. In 2006, FDI registered in the region was 1575.2 million USD, accounted for 13.1% of the total FDI registered capital in Vietnam. Up to 2006, the total FDI registered capital was 7789.8 million USD, accounted for 10.4% of the total registered capital of Vietnam. The real situation is associated with the finding in the estimation results saying the accumulated FDI in the Central region is one of the important determinants of the FDI inflow in the region. This shows that the foreign investors are satisfied with the results of their investment in the Central region and keep coming to the regions where they invested before. According to PCI 2006, most of the provinces allocated in the region had the high and mid-high ranking in competitiveness such as Da Nang, Binh Dinh, Quang Nam, Phu Yen and Khanh Hoa, in which Da Nang and Binh Dinh were the

second and third strong performers in making better their provinces' business environment. Da Nang - one of the five independent municipalities of Vietnam - had been excellently performing in attracting the FDI inflow such as making short time of business entry costs, labor training and quality of private sector development services, well helping firms in access to information, making short time and cost of regulatory compliance, lowering informal charges or competition environment. Da Nang recorded quite a low score on the land access, but this was more than compensated by the strong performance in the other sub-indices.

Beside some common determinant factors of both sub-regions and the whole region of the Central, there are some distinctive factors of the FDI inflow in the specific regions of the Central region. As the estimated results in Table 29, the coefficients of economic growth (GDPG) and income per capita (GDPPC) in the North Central Coast and Highlands region are insignificant relationship with the FDI inflow. However, there are positive and significant relationships between GDPPC and GDPG and the FDI inflow in the South Central Coast region. It means that GDPPC and GDPG are the attracting factors of the FDI inflow in the South Central Coast region, but the North Central Coast and Highlands region. The results are fitting with the real situations of each region. The North Central Coast and Highlands region is considered as one of the slow development regions of Vietnam. Three fourths of the region is hills and mountains and land in the region is dismembered, so it is difficult for the region to develop the large-scale production. Most of the provinces are populated. There are a large number of people in working age to satisfy labor requirements of the local and international firms, but the unemployment rate always remains somewhere between 8 and 10 percent. The growth rate in the North Central Coast remained as low as around 5 percent, the growth rate in the Central Highlands is considered high (11%). The average income per head per annum was roughly \$US387 in the North Central Coast and was \$US414 in the Central Highlands. The total trade value was accounted for only 1.6% the total trade of the country in 2006. The FDI stock in the region was only counted for 3.4% of the total FDI invested in the whole country in 2006 (GSO, 2006). The real situation of economic

development and population of the region could explain why the economic growth (GDPG) and income per capita (GDPPC) are not factors attracting the FDI inflow.

In contrast, the South Central Coast has well-located geography as it lies in the main highways, railways, airways and sea routes of the nation, from the North to the South. Moreover, it borders Lao, the key economic zones of triangle South East and the gateway of the Central Highlands region and the trans-Asia road to the sea. As containing five coastal provinces and the independent municipality of Da Nang in the southern half of Vietnam's central part, the biggest resources of this region are the sea resources. Seafood and aquaculture are the two strong economic sectors. Income of the sea resources accounted for more than 20% of the nation's output in 1995. Aquaculture, especially shrimp, lobster, grouper, pearl, etc. , had the productive areas about 10 000 ha (MPI, 2000). The average GDP per capita at current price of the South Central Coast region was VND 9.4 millions in 2006, only followed the GDP per capital of the Red River Delta, and the South East regions. The growth rate of GDP in 2006 was 8.25% and kept at average rate of 7.7% over the period of 1995-2006. In 2006, the average per capita income per annum was approximately \$US 587.6 in the South Central Coast, about 1.5 times higher than that in the North Central Coast and Highlands region. Began having only one industrial economic zone since 1995, the region had 12 industrial economic zones in 2006, accounted for 8.3% of the numbers industrial zones in Vietnam. Most of the industrial zones in the region are in processing of agriculture-forestry-fishery products, mineral, beverage, mineral, frozen seafood, foodstuff, sugar, vegetable oil, cashew nuts, wood, paper, etc; as well as in construction material production, textile, garment, mechanics, and electronics. The total trade value and the FDI stock value were accounted for 3% and 7% the total trade and the total FDI invested of the country in 2006, respectively (GSO, 2006). The values are double of the total trade and FDI stock values in the North Central Coast and Highland region. The major exported products are shrimp, lobster, squids and groupers. The key imported products of the region are chemical, steel and iron, petroleum oil, motorcycle and electronic products. It seems that the industrial productions in the region are mostly serving for consumption for Vietnam in order to

exports. Then, the determinants of FDI inflow in the region are GDP growth rate and GDP per capita.

The same as in the North region, the level of infrastructure presents a positive and significant relation with FDI inflow in the less developed area as the North Central Coast and Highland region, while it is insignificant and negative relationship in the South Central Coast, which is the heart of the Central region in economic development. The explanations for this result are based on the potential development of the infrastructure. Lying in main roads from the North to the South of Vietnam, the North Central Coast region has many airports of Vinh (in Nghe An province), Dong Hoi (Quang Binh), Phu Bai (Thua Thien Hue), Pleiku (Gia Lai) and Buon Me Thuoc (Daklak). The seaport system is also being grown so fast with the construction of Chan May and Thuan An (Thua Thien Hue), Nghi Son (Thanh Hoa), Cua Lo and Cua Hoi (Nghe An), Nhat Le (Quang Binh) and Cua Viet (Quang Tri). Moreover, the region also includes wharfs, 670km of coastline and 23 estuaries, ect, creating favor conditions for economic development in the region, specially in tourism and sea economy. In addition, the North Central Coast and Highlands region is also located in the rich natural resource region of Vietnam. The North Central Coast is the region with the high volumes of ore, tin, limestone, granite and iron. The iron ore reserve, tin reserve and limestone reserve in 2004 accounted for 60%, 80% and 40% of each kind in Vietnam, respectively (MPI, 2005). The Central Highlands has been rich of natural resources in land, forest and mineral. The basalt soil accounted for 66.7% of this kind of soil in Vietnam, good conditions for producing some kind of some high economic value crops such as rubber, coffee, black pepper, cashew and fruit trees. The forest area accounted for 31.9% of the area and 36.3% of forestry reserves in Vietnam (MPI, 2000). The natural minerals such as gold, peat, brown coal, sand, gravel and marble are rich in the Central Highland sub-region. The rich natural resources and good location of the North Central Coast and Central Highland region make high potential for increasing the economic development. However, the region still waiting for further investment and policy support from the Government. Up to 2006, there are only four industrial zones and EPZs operating in the

region. The positive effect of infrastructure on FDI inflow in the region could be explained by the potential development of the infrastructure, attractiveness of the availability of unused land, natural resources and the exiting roads, ports, railways and telecommunication systems.

3.4.2.3. The Southern Region

Table 30 reports the estimation results of the Southern region. The coefficients of GDPPC, GDPG, OPEN, L, CFDI and POL in the whole Southern region show the positive and statistically significant at 1% and 10% level. The results show that the level of income per capita, growth rate potential, labor force, openness to trade, accumulated FDI and the exiting policies and the development of some provinces in the South Economic Zone are the main determining factors of the FDI inflow in the Southern region. This supports the hypothesis that the market size and its prospective growth, liberal trade regime and the agglomeration of a province have a positive impact on attracting FDI. The explanations for the attractive factors of the FDI inflow the South are based on the geography and economic development of its sub-regions: the South East and Mekong River Delta regions.

There are two common determinant variables of the FDI inflows in the Southern region and its sub-regions that are the exiting FDI stock and openness to trade. The first common determinant variable is the amount of the invested FDI stock. Same as in the other regions of Vietnam, the accumulated FDI (CFDI) is positive and statistically significant in the relationship with the new FDI inflows in the South East, Mekong River Delta and the whole Southern region of Vietnam. The amount of the FDI inflow to the Southern region is increasing quickly over the years. In 2000, the Southern region attracted 707.1 million USD flowed, accounted for 85.4% of the total FDI inflow in Vietnam. In 2006, FDI registered in the region was 6733.8 million USD, about 9.5 times higher than the value of FDI invested in 2000. Up to 2006, the total FDI registered capital was 44652.4 million USD, accounted for 59.3% of the total registered capital of Vietnam. The FDI inflow in the Southern region concentrated mostly in the South East sub-region

as it is the leading developed region in economics, industry, international trade, services and science and technology of Vietnam. The FDI registered in the South East sub-region over the period of 1988-2006 was 42337.1 million USD, accounting for 94.8% of total FDI inflow in the Southern region and about 56.3 % of the total FDI registered capital in Vietnam. The continuous increasing of the FDI inflows in both the South East and Mekong River Delta sub-regions and in the entire Southern region shows that the foreign investors are satisfied with the results of their investment in the region as well as the investment environment of provinces in the region. According to Vietnam PCI in 2006, in the twenty leading provinces in the provincial competitiveness index 2006, half of them are from the South East sub-region. Binh Duong province topped of the PCI ranking list with the score of 77.61/100 points, followed by Vinh Long, Dong Nai, Ho Chi Minh City, An Giang, Can Tho, Dong Thap, Tra Vinh, Baria Vung Tau and Soc Trang. It is associated with the finding in the estimation results saying the accumulated FDI in the South East is one of the important determinants of the FDI inflow.

Openness to trade (OPEN) is another factor that is statistically significant and positive effects in all sub-regions and the whole Southern region of Vietnam. As presented in chapter II, the total trade value of the Southern region in the year of 2006 exceeded 57.3 billion USD. It increased by 6.4 times compared to the total trade value of the Southern region in 1995 and accounted for 67.6% of the total trade in Vietnam in 2006. As one of the biggest centers of economics, politics and cultural of Vietnam, the South East region has the eventful and diversified trade activities. In terms of the regional sharing, 92.3% of the total trade in the Southern region came from the South East sub-region. The share of the South East's exports accounted for 89.3% of the total exports in the Southern region and about 69.1% of the total exports of Vietnam (GSO, 2006). Similarly, the share of the South East's imports accounted for 95.8% of total imports in the Southern region and about 56.5% of the total imports of Vietnam. Ho Chi Minh City is the first importer and exporter among Vietnam's provinces during 1995-2006. The amount of imports and exports accounted for about 34.5% and 41.2% of the country's total imports and exports, respectively. The major imported commodities of Ho Chi Minh City are motorbike,

machinery, apparatus and parts for textile, garment, leather, footwear, medicament and electronic parts that serve for the industrial companies and high demand of the population. The key exported products of Ho Chi Minh City are footwear, textile and sewing products, rice, frozen aquatic products, gemstone, computers and their part and electrical wire and cable.

Table 30: Regression results of FDI determinants in the Southern Region of Vietnam

Dependent variable: **LnFDI**

Variable	South East	Mekong River Delta	Whole Southern region
	3.14	3.15	3.16
Intercept	-30.5947 (-2.9039)***	-42.6932 (-1.3558)	-27.1131 (-3.814)***
LnGDPPC	1.6953 (3.5415)***	1.9083 (0.8773)	0.9653 (4.7775)***
LnGDPG	0.1760 (0.7412)	1.4194 (1.6914)*	0.9837 (2.9643)***
LnL	4.5467 (1.7490)*	6.8719 (0.7418)	4.2316 (1.9109)*
LnOPEN	0.9388 (5.7577)***	1.3394 (1.9542)*	0.6622 (5.2589)***
LnTEL	-0.8358 (-3.0238)***	1.3785 (1.6192)	-0.0228 (-0.0603)
LnHS	1.0820 (1.7065)*	0.5567 (0.4014)	0.5853 (0.9247)
LnRWAGE	0.4803 (1.8613)*	-4.5282 (-2.790)***	-1.0758 (-1.2079)
LnCFDI	0.2061 (5.0766)***	0.6636 (8.2269)***	0.5688 (9.3555)***
KEZ	-0.2212 (-0.1391)	3.2421 (3.0659)***	2.9309 (5.0227)***
R-square	0.8009	0.6659	0.7817
Adj R-square	0.7751	0.6383	0.7712
DW stat	2.5653	2.0234	2.1421
No. of Obs.	88	132	220

Note: (1) The coefficient of the variable is shown first, followed by the t statistic is in parentheses

(2) *, **, and *** indicate significance levels of 10, 5 and 1 percent, respectively

(3) Method of regression: Panel EGLS (Cross-section weights) with White cross section standard errors & covariance and AR (1)

Beside the common determinant factors of the FDI inflows in the South region, some distinctly attractive factors of the FDI inflow in the specific regions of the South are found. Table 30 presents that the level of income is only positive and significant related to the FDI inflows in the South East sub-region, but in the Mekong River Delta. The result suggests that the high income of the South East region attracts more investment from foreign investors compared to others. The South East sub-region locates in the lowland southern Vietnam, which is the north of Mekong Delta. The region has very convenient location to develop its socioeconomic as it linked with Cambodia, Thailand, Malaysia in the West (Western gate) by Tran Asia highway; with other countries in the East (Eastern gate) by seaports in Ho chi Minh City, Baria Vung Tau and Thi Vai (Thị Vải). The eastern and western gates are connected to the east -west economic corridor with the intensive economic activities and attracting national and international investment. The South East sub-region gets the highest amount of GDP at all times. The share of GDP in the South East region was 366690.2 billion VND in 2006, accounted for 37.6% of the total GDP of Vietnam. The GDP per capita in 2006 of the South East region was 26.6 million VND (about 1666.1 USD), about 2.3 times higher than the average value of Vietnam (723USD), 2.5 times higher than that of the second highest region (Red River Delta) and 4.3 times higher than the GDP per capita value of the lowest region (North West). With the highest per capital income in Vietnam, the South East region could be the best destination of market-seeking FDI if it flows into Vietnam. However, income per capita is not the determining factor of the FDI inflow in the Mekong River Delta due to its low per capita income.

Labor force and Human capital are found as the other determining factors of the FDI inflow in the South East region as they show positive and significant relationships with the FDI inflow. Same as the Red River Delta region, the South East region is one of the biggest centers of economics, services, sciences and technologies of Vietnam, having the eventful and diversified trade activities and the invested FDI. In 2006, the population and labor force were accounted for 16.4% and 14.9% of the total population and labor force of Vietnam, respectively (GSO, 2006), only behind the Red and Mekong River

Delta regions. The number of student in upper secondary school, universities, college and professional school in the South East region in 2006 accounted for 17% of the total students of Vietnam and about 5.9% of the total population of Vietnam. The large population and labor force could provide more opportunities for sales, labors, profits for foreign firms, and therefore, attract the FDI inflows. The higher level of human capital in a region could help the FDI firms easy to find skilled labors to work in high technology industries. Most of the empirical researches on FDI inflows reveal the significant relationship between highly educated labor force and FDI flows, particularly the FDI investment on high technology industries. In case of the South East region where most of the high technology industrial firms allocated, the level of human capital (HS) shows a statistically significant and positive related to the FDI inflow.

The level of infrastructure is negative and significant relationship in the South East region, suggesting that it is not the factor attracting the FDI inflow in the region. The results could well explain by the region's situations. As the most developed region in economics, infrastructure and technology of Vietnam, the South East region is the first largest region in attracting FDI inflows over 1988-2006. In 2006, more than 53% of the FDI inflow in Vietnam is registered in the region. Up to December 2006, there are 64 industrial and export-processing zones in the 145 IZs and EPZs are locating in the region. Moreover, the development of the infrastructure in the regions is much smaller than the increase of its population. The crowded IZs and EPZs located in the region and the shortage of infrastructure lead to high cost of doing business and shortage of labor force. According to JETRO of Japan (2003), presented in Table 31, compared to other Asian countries, Ho Chi Minh City still has high costs of doing business such as cost on an international phone call, house rent, and electricity costs for business and container transportation.

Table 31: Comparison of business cost among countries Dec. 2000 (in USD)

	Hanoi	Ho Chi Minh	Shanghai	Singapore	Bangkok	Kuala Lumpur	Jakarta
Expense for house rent for foreign representative	1850	1800	1500	2285	1420	920	2000
International phone call cost (a 3 minute call to Japan)	8.52	8.52	4.3	2.23	3.11	2.61	2.59
Electricity cost for business/KWh	0.07	0.07	0.035	0.05	0.03	0.06	0.018
Container transportation (40/ft/container, from factory to Yukohama port)	1825	1375	880	670	1466	895	1252

Source: JETRO (2003)

From the estimated results, the coefficients of RWAGE are shown the positive impact on the FDI inflows in the South East region and the negative and significant in the Mekong River Delta. The results suggest that high wage is determinant factor of FDI inflow in the South East region and low wage is the factor attracting the FDI inflow in the Mekong River Delta region.

According to the decree No. 03-2006/ND-CP of Vietnamese Government, the minimum wage rates applied for Vietnamese labors working in the Mekong River Delta region was only 45 USD/month, the lowest rate paid to Vietnamese labor working in the foreign enterprises and international organizations. The decrease in the wage rate may be accompanied by a fall in labor cost, and then attracts FDI flows in the region. Moreover, the Mekong River Delta is one of the populated regions of Vietnam. The total population of the region in 2006 is about 17.4 million persons, accounting only for 20.7% in the total population of Vietnam, in which 54% of the region's population is under labor force (aged from 15 years old and over). The abundant labor force could attract FDI investors to invest because they expected that they could pay a lower wage for labor in comparison with other regions such as Red River Delta and South East of Vietnam. The negative and

significant signs of WAGE and HS variables in the relation with FDI inflow in the Central region proved that FDI inflow in that region is because of the low labor wage.

Based on the degree No. 03-2006/ND-CP of Vietnamese Government, the minimum wage rate was 55USD/month applied for all Vietnamese labors working in the inner city districts of Ho Chi Minh City and was 50USD/month for labor working in outer city districts Ho Chi Minh City, the city of Bien Hoa in the province of Dong Nai; the city of Vung Tau in the province of Ba Ria Vung Tau; the township of Thu Dau Mot and the districts of Thuan An, Di An, Ben Cat and Tan Uyen in the province of Binh Duong. Moreover, the labor force in the South Region was only 47% of its total population. The skilled labor was 16.9% of the region's population. The limited number of labors and skilled labors to work in the industries of the region makes the labor wage also higher. The skilled workers are needed for the high technology industries in the region too. The minimum wage rates paying to labor in the South East region is higher than other regions. However, as needed, the FDI firms still count the high wage as a determinant factor of the FDI inflow in the period of 1995-2006.

Known as the biggest place producing rice, seafood and other tropical fruits, the Mekong River Delta region is not the region attracting FDI inflow. The value of registered FDI accumulated since 1988 up to 2006 of the region was 2315.3 million USD, only accounted for 3% of the total accumulated FDI. Beside the low wage rate, another attractive factor of the FDI inflow in the Mekong River Delta region is the key economic zone in the region. KEZ is a dummy variable presented the five independent municipalities of Vietnam and the provinces located in a Key Economic Zone. Table 30 shows that KEZ is positive and significant effect on the level of FDI inflow in the Mekong River Delta region. In the sample of the Mekong River Delta region, there are only two provinces named Long An and Can Tho presenting for KEZ. It means Long An province and Can Tho municipality are provinces attracting the FDI inflow in the Mekong River Delta. Even though located in the Mekong River Delta region, Long An is one of the provinces belonging to the Southern Key Economic Zone, connecting the eastern and western regions of the South and an expanded industrial and urban area for

Ho Chi Minh City. If choosing Ho Chi Minh City as a transaction place, building of manufacturing facilities in Long An province is a right choice of any investor because the center of the province's downtown is only around 40 kilometers away from Ho Chi Minh City's center, convenient for traveling and transporting between the two regions. The infrastructure and incentive policies have been ready for the FDI inflow in the region²². Moreover, Long An province has experienced a good economic growth, at 9.4% a year in the period 2001-2005, and at 11.2% in 2006. The industry-construction sector confirms a decisive role in the province's economic growth with a rate of 17% annually (25.5% in 2006). The trade-service sector reaches an average growth rate of 8.5% a year (11% in 2006).

Can Tho is the only independent municipality located in the central location in the vast and prosperous Southern Delta area. According to the PCI report in 2006, Can Tho is one of the top ten provinces that have the good business environment. The report believed that Can Tho could make a short time of business entry and has the high level of labor training and high quality of private sector development service as well as help firms in access to information, making short time and cost of regulatory compliance, lowering informal charges or competition environment.

3.5. Summary

Running from the North to the South, the geographical regions of Vietnam differ a lot in terms of natural resources, topography as well as socio-economic conditions. The regions use up their advantages to develop and build up their own strength under the market economy mechanism to satisfy international and domestic demands, making it easy to improve living standard of the whole people and quickly achieve social parity nationwide. This chapter aims to examine the determinants of foreign direct investment inflows into Vietnam and its regions by using panel data of 61 provinces over the time.

²² See specific information in the Speech delivered by the People's Committee of Long An province at the Investment Mart 2007, Oct. 30-31, 2007

At the country level, the research reveals that the increasing income per capita and high GDP growth rate over the years of Vietnam are attractive factors of the FDI inflows in Vietnam. The abundant labor resource and the low labor cost are the other determinant factors of the FDI inflows. As a very open economy in the region, Vietnam was attracted a lot of FDI inflow into the country, exports to and imports from world countries, the level of openness to trade and FDI stock are important factors attracting FDI inflows into Vietnam. Moreover, the location advantages, socioeconomic development and province policies of the provinces in the key economic zones of Vietnam determine the inward FDI flows. Those findings are consistent with the widely accepted belief that growing market size and market potential create an incentive for foreign investors to gain market access. Multinational firms also prefer to locate in a more open and attractive policy economy. However, the shortages of skilled labors and infrastructure development in Vietnam make them not yet attracting factors of the FDI inflows in Vietnam.

At the regional levels, despite uneven distribution of the FDI inflows in regions of Vietnam, the common determinant factor of the FDI inflows in all sixth participated regions is the stock of FDI. The continuous increasing of the FDI inflow in all sixth regions shows that the foreign investors are satisfied with the results of their investment as well as the investment environment of provinces in the region.

The FDI performance may be driven by particular determinant factors reflecting characteristics and economic developments of each region. The study shows that large potential market size and growth are considered as the important factors influencing the FDI enterprises to invest in the Red River Delta, South East and South Central Coast regions of Vietnam, but not other regions. Host areas with larger market size, faster economic growth and higher degree of economic development will attract FDI enterprises to seek for new markets or provide larger economies of scale and spillover effects (OECD, 2000). The South East, Red River Delta and South Central Coast regions are three centers of economics, politics and culture of the Southern, Northern and Central regions of Vietnam, which present the first, second and third largest values of GDP, income, total trade and invested FDI. The level of openness to trade is another important

factor of the FDI inflows in both sub-regions of the Northern and Southern regions of Vietnam as it can be seen in the rapid growth of their exports and imports. As the most populated regions in Vietnam, the South East and the Red River Delta regions are attracting the FDI inflow by the abundant supply of labor. While the quality of labor has not been found to be a significant determinant of the FDI inflow in most regions of Vietnam, except the South East region, the low labor cost is one of the determinants of the FDI inflow in most regions of Vietnam such as the North Uplands, South Central Coast and Mekong River Delta, where production is labor intensive good. As paying the minimum wage rate to Vietnamese labor at the high and highest rate as well as owing the most high-tech industries and high skilled labors, the South East region is attracted the FDI inflow in the region by high wage, even the variable shown a weak significant signal. The provinces and cities in the Key Economic Zones located in the Red River Delta and Mekong River Delta are the attracting factors of FDI inflows in those regions as they are units making well its business environment to attract the FDI inflow.

CHAPTER IV

EFFECTS OF FOREIGN DIRECT INVESTMENT ON ECONOMIC GROWTH IN VIETNAM

4.1. Introduction

Foreign direct investment has become increasingly important role in the developing world because it was recognized as a growth-enhancing factor in developing countries. Literature of economic growth showed that there are numbers of channel through which FDI permanently affects the economic growth. FDI can affect output and income by increasing the stock of capital (1), by increasing the labor force through job creation (2), by enhancing the human capital where the technology and knowledge are transfer through in terms of labor training, skill acquisition, new management practices and organizational arrangements. In empirical studies, the effect of FDI on economic growth has been far from conclusive. Large numbers of applied papers have looked at the FDI-growth nexus as in Markiw-Romer-Weil (1992), Borensztein et al. (1998), De Mello(1997), Flexner (2000), Baharumshah and Thanoon (2006), Zhang (2001, 2006), Khawar (2005) and Li and Liu (2005). However, a number of studies do not lend support for the view that FDI promotes economic growth²³.

As presented in chapter II, economic growth and foreign direct investment in Vietnam have been increasing dramatically over time. For two decades since 1986, the Vietnamese economy has grown at a rate of 7% annually. This result was achieved along with Vietnam's market oriented transition and integration into the global economy through large foreign capital inflows. There are only some papers tried to analyze the

²³ See Carkovic and Levine (2002), Athukorala (2003), Durham (2004) and the references therein

effects of FDI on economic growth in Vietnam. The specific information of those papers will be discussed later, although, in general, all the papers had shown a positive effect of the FDI on economic growth. There is, however, still a lack of systematic study on the impact of FDI on Vietnam's economic performance at the sub-national level, especially the relationship between FDI and economic growth at the regional level, the determinants of economic growth distributions in various sub-regions.

This chapter extends the previous empirical studies on the effect of FDI inflows on economic growth in Vietnam by developing a new framework and provides some evidences at both the national level and the regional level over the period of 1995-2006. The chapter, first, reviews theoretical and empirical studies on the effect of FDI on economic growth. Then it works on the growth model in which direct effects and spillovers of FDI are specified. The provincial data over 1995-2006 are used to test the effect of FDI on economic growth in Vietnam at the national level and the country's regional level, respectively. The empirical results, interpretations and summaries are presented in the final part.

4.2. Effects of FDI on economic growth: a review of the literature

4.2.1. Theoretical literature

Growth theories provide the theoretical framework for analysis of foreign direct investment and economic growth. This section briefly presents the theoretical background of models that are frequently used to analyze the relationship between FDI, viewed as a technology factor, and economic growth.

Solow -type model (neoclassical growth model)

Solow (1956) growth model²⁴ is a starting point to most analyses of growth. The basic assumptions of the Solow model are single good produced which may serve as a

²⁴ The Solow model, which is sometimes known as the Solow – Swan model, was developed by Robert Solow (Solow, 1956) and T. W. Swan (Swan, 1956).

capital or as consumption good and exogenous technological change. The neoclassical production function²⁵ is a function of labor (L), capital (K) and technology (A) at time t with the key specification that capital and labor assume constant return to scale and diminishing returns to each input.

The Solow model identified two possible sources of variation in output per worker: differences in capital per worker (K/L) and differences in the index of technology. Based on the study, beside capital, only growth in knowledge of technology can lead to permanent growth in output per worker. As the result, only differences in the effectiveness of labor have any reasonable hope of accounting for vast differences in wealth across time and space. Specifically, the central conclusion of the Solow model is that if the returns of capital in the market reflect its contributions to output and if its share in total income is modest, then the accumulation of physical capital cannot account for a large significant part of either long run growth or cross-country income differences.

In Solow's model, with assumption of diminishing returns to physical capital and technological change being exogenous, FDI has no permanent impact on the growth rate. It may stimulate economic growth only in the short run while the economy is shifting from one short run equilibrium to another. Increasing in FDI, the economy would experience short run increase in the capital to the labor ratio and output per labor. FDI is restricted to short-term effects and can only affect the level of income under its contribution to capital accumulation in the host country because long run growth can only arise by endogenously technological progress.

Findlay (1978) improved upon the original Solow model by assuming the growth rate of technology transfer as an increasing function of FDI. He built a model in which technology transfers and spillovers are treated as one identity- technological spillover. In his model, he assumed foreign and domestic capitals are two distinct inputs and proved that an increase in foreign capital raises domestic capital. He also included labor

²⁵ Labor augmenting technological progress production function . Based on Barro and Sala-i-Martin (1995), If production function enters in the form $Y = F(K, AL)$, technological progress is labor augmenting Harrod neutral. If it enters in the form $Y = F(AK, L)$, technological progress is capital augmenting. Furthermore, if it enters in the form $Y = A F(K,L)$, technological progress is Hicks neutral.

augmenting technological progress at an exogenously fixed rate as in Solow (1956).

He developed a dynamic model of technology transfer through foreign capital from developed countries to developing countries. Findlay showed that the rate of technical progress in a developing country is a decreasing function of both the relative technology gap and the share of FDI in total capital stock rather than an increasing function as has been assumed. However, this model also has some limitations. Firstly, under the assumption that profit in the foreign sector is homogenous of degree zero in technology, the cost simplification is not very realistic. Secondly, the model did not explain the firms and consumers' maximization problems. Therefore, it cannot give an accurate prediction concerning decisions of economic agents and welfare effects.

Endogenous growth models (new growth theory)

To solve the problems described in the Solow-type models, the new growth theory investigates the fundamental questions of growth theory more deeply. The models analyze the dynamics of the economy when technological change is endogenous and consider various views concerning how knowledge (or technology) is produced and what determines the allocation of resources to knowledge production. By De Mello (1997), endogenous growth models assumed FDI's main impact is indirectly by increasing production through productivity spillovers and externalities.

In endogenous growth models, the diminishing return on investment can be avoided if there are positive externalities associated with investment. Technological spillovers occur when technological knowledge obtained through investment in one company encourages technological development in other companies. Therefore, the total return on investment will be higher and marginal productivity of capital will not necessarily decrease with an increase of the capital to output ratio. If investment brings enough new technologies and knowledge, it can lead to long run economic growth.

Romer's (1986) learning by doing model used Arrow's (1962) setup to eliminate the tendency for diminishing returns to capital with the assumption that knowledge is a byproduct of investment. Knowledge is no longer assumed to grow at an exogenous rate

and is assumed to display increasing return to production. Romer presented that the technology of firms in terms of a twice continuously differentiable production function depends on firm specific inputs K_i , and L_i and on the aggregate level of knowledge in the economy, which is a public good via spillovers. The model assumed that learning by doing works through each firm's investment. Specifically, an increase in an individual firm's capital stock leads to a parallel increase in its stock of knowledge and the stock of knowledge economy wide (Barro and Sala-i-Martin 1995). As a firm adds to its physical capital, as with increases in FDI, it is simultaneously learning to produce more efficiently. It means that FDI could lead to growth.

Introduction of additional FDI would lead to a parallel increase the stock of knowledge economy wide via spillovers and increase productivity of all firms in the economy. Although this model improves on the standard neoclassical model by taking into account the effects of spillovers, the assumption that knowledge is a public good is unrealistic. Firms are rarely willing to share technologies that provide them with an advantage over competitors. Markets do not provide a mechanism by which this may occur without firm cooperation. Thus, in practice, it is commonly seen that spillover is less than complete. Endogenous growth models presented in the following section no longer treat knowledge as a public good.

Romer (1990) and Grossman and Helpman (1991) developed the Romer's (1986) model with assumption that endogenous technological change is the main engine of economic growth. Knowledge is regarded as a factor of production, with conscious decisions made regarding its usage. This is in contrast to Romer (1986), which considered knowledge as a parallel byproduct of investment and in contrast to Solow (1956), which assumed that technological change is endogenously. Romer's (1990) and Grossman-Helpman's (1991) models have three sectors. The research and development (R & D) sector utilizes human capital and existing knowledge, which is assumed to exhibit increasing return, to create new knowledge, leading to the new products. The intermediate good sector uses the designs form the R & D sector to produce goods that

are for use in final goods production. The final goods sector uses labor, human and intermediate goods to produce final output.

Romer (1990) constructed the general production function with four basic inputs such as capital K , labor L , human capital H and an index of the level of the technology A as $Y = F(K, AL, H)$, where Capital K is measured in units of consumption goods. Labor services L are skills that are available from a healthy physical body. A presented an index of the level of the technology. Specially, the model separates the rival component of knowledge H from the nonrival, technological component A because “it has an existence that is separate form that of any individual, A can grow without bound” and “each new unit of knowledge corresponds to a design for a new good, so there is no conceptual problem measuring A . It is a count of the number of designs” (Romer, 1990).

Human capital H is a distinct measure of the cumulative effect of time spent in schooling and training. In a finite lifetime, an individual’s human capital cannot grow without bound. However, the skills that an individual acquires may be applied to an ever improving set of production technologies, in which case the value of human capital will continually rise through time (Grossman and Helpman, 1991).

In Romer’s (1990) model, FDI promoted economic growth through increases in human capital, the factor used most intensively in the R & D sector. FDI introduces new ideas and instructions to the economy directly by contributing the stock of capital and indirectly through spillovers and externalities. In this framework, a new design will not only lead to new products but also will increase the stock of knowledge, increasing productivity in the R & D sector. Romer concluded that an economy with large stock of human capital, rather than a large population, would experience faster economic growth.

Grossman and Helpman (1991) has similarly a model of endogenous technological change as Romer (1990) with industrial innovation as the engine of the long run growth. Innovation firms produce unique goods earn monopoly rents as reward for their R & D investments. If the innovative products are intermediate goods, they contribute to total factor productivity of the final goods sector and increase growth. Innovation in a country contributes to endogenous comparative advantage in a high

technology sector, encourages increasing productivity and promoting growth. Like Romer (1990), Grossman –Helpman (1991) concluded that economic growth is driven by endogenous technological change. Opening an economy increased competition and innovation, which increased productivity and growth through spillovers and externalities. In addition, they suggested that the long-term growth rate depends on government actions such as taxation, maintenance of law and order, provision of infrastructure services, regulations of international trade, financial market and other aspects of the economy (Barro and Sala-i-Martin, 1995).

Extensions of Solow model in New growth theory

Mankiw- Romer-Weil (1992) model, called MRW, presented an augmented Solow model as an alternative to the aforementioned endogenous growth model. They argued that the standard Solow model is biased by omitting a measure of human capital but do not with abandon the diminishing returns to capital assumption as done in endogenous growth models. They revised the Solow model with adding human capital as a factor of production function in symmetrical fashion with physical capital and raw labor as $Y = F(K, AL, H)$, where H is the stock of human capital and other variables are defined in Solow's model.

MRW (1992) suggested that international differences in income per capita are best explained using an augmented Solow model. They supported that in the long run steady state, the level of real output per worker by country should be positively correlated with the saving rate and negatively correlated with the rate of population growth (Bernanke and Guikaynak 2001). In the model, high population growth lowers income per capita because the amounts of both physical capital and human capital must be more thinly distributed over the population. FDI is presented a positive relationship with capital and technologies. Increasing FDI would raise access to capital and technologies, increasing the growth rate and imply convergence to a higher steady state. It also does not account for the effects of spillovers and externalities on the host country.

Romer (2001) extended the Solow model by modeling the growth of technology A by assuming that both the research and development (R&D) and goods production function was generalized by Cobb-Douglas functions and the sum of exponents on inputs is not necessarily restricted to 1. The model constructed the production function with some basic variables such as output Y , capital K , labor L , and an index of the level of the technology A and set it in continuous time. There are two sectors: a goods-producing sector where input is produced and an R&D sector where additions to the stock of knowledge are made. Endogenous technological change is the main engine of economic growth.

In this model, FDI - viewed as knowledge - is regarded as a factor of production, with conscious decisions made regarding its usage. By analyzing the dynamics of the economy when FDI accumulation is endogenous and consider various views concerning how knowledge is produced, Romer concluded that FDI accumulation is probably central to worldwide growth. In this framework, a new design will not only lead to new products but also will increase the stock of FDI, increasing productivity in the R & D sector. By Romer's idea, an economy with large stock of FDI, rather than a large population, will experience faster economic growth.

4.2.2. Empirical evidences on international studies

Many empirical studies have been completed estimating the effect of FDI on economic growth by applying the theories presented in the previous section.

Borensztein, De Gregorio and Lee (1998) analyzed the effect of FDI on economic growth and paths by which FDI has its greatest positive impact on growth. Applied from models of Romer (1990), Grossman and Helpman (1991) and Barro and Sala-i-Martin (1995), the model assumed that the main determinant of the long-term economic growth is the rate of technological progress, which defined as the increased new variety of capital goods. Using a cross sectional data on FDI flows from OECD member countries to 69 developing countries over the period of 1970-1989, they concluded that FDI was one of the vital vehicles of transferring advance technology from leaders to developing countries.

Moreover, there was a strong complementary effect between FDI and human capital in the host country by stimulating technological progress through the provision of knowledge to produce new varieties. Overall, the study found that FDI increased economic growth though the level of human capital in the host country. This level of human capital was reflective by the absorptive capacity of the host country to new technology.

Balasubramanian et al. (1996) explored FDI and growth linkages in export promoting and import substituting countries. Export promoting strategies were defined to be neutral or biased free trade, while import-promoting strategies were biased in favor of import substitution activities. In a cross-country procedure to analyze 46 developing countries in 1970-1985, they suggested that FDI enhanced growth in those cases in which the host country had adopted trade liberalization policies. In the case of the export promoting country of China, FDI was found to be significant at 5% in all growth equations. It means that FDI acted as the driving force in the growth process.

Zhang (2001) also analyzed the effects of FDI on growth in China and had similar result as Balasubramanian et al. (1996). His paper focused on the analysis of FDI roles in China's income growth and in China's transition from a centrally planned economy to a market orientation. Using data collected in 28 provinces of China over 1984-1998, Zhang concluded that FDI had positive effect on Chinese economy. His results supported the hypothesis that introduction of more productive foreign capital in the form of FDI enhances the nation's economic growth. FDI contributed to China's economic growth through direct effects, such as increase in the productivity and promoting exports, as well as positive externality effect in terms of facilitating transition and diffusing technology.

Using the panel data analysis for both technological leaders and followers, De Mello (1996) found a positive impact of FDI on output growth in both country groups with and without the dominant complement's effect between FDI and domestic investment. However, in the panel of technological leaders or followers alone, FDI appeared to have positive effect on technological change for the leader group and have negative effect for the follower group.

Using time series method in quarter of the 1990-1998 period in Bolivia, Flexner (2000) estimated the effect of FDI on economic growth by using simple OLS regressions. The paper found that the key factors influencing economic growth in Bolivia were the ratio of FDI to GDP, the terms-of-trade, the ratio of private sector credit to GDP, and the ratio of government consumption to GDP. Zhang (2001) considered the link between FDI and economic growth in 11 developing countries in East Asia and Latin America by Ganger causality approach. The results showed that FDI seems to promote economic growth in East Asia more than in Latin America. The attractive factors of FDI inflow in the East Asia countries were trade liberalization, education and human capital, export and macroeconomic stability.

Alfaro, Chanda, Kalemli-Ozcan, and Sayek (2004) examined the various links among FDI, financial markets, and economic growth. Using cross-sectional data of 71 countries over 1975 -1995, the paper showed that FDI alone played an ambiguous role in contributing to economic growth. However, countries with well-developed financial markets gained significantly from FDI.

Baharumshah and Thanoon (2005) confirmed the positive effect of FDI on economic growth in East Asian countries, including China, in short run and long run. They showed that the positive influence of FDI on growth was higher than domestic savings if FDI inflows are more productive than domestic investment. Moreover, the paper also concluded that the spillover effect of knowledge embodied FDI might increase domestic productivity, and hence promote growth.

Khawar (2005) conducted an empirical cross-country growth analysis to investigate the impact of foreign direct investment in 59 countries over 1970-1992. He found that FDI had a significant and positive relationship with real income per capita irrespective of any human capital requirements. The coefficient on the foreign investment variable was larger than that of the domestic investment variable, suggesting a potentially large role for FDI.

Li and Liu (2005) investigated whether FD affects economic growth based on panel data of 84 countries over the period of 1970-1999. Using single equation and

simultaneous equation system techniques, the paper concluded a significant endogenous relationship between FDI and economic growth was identified from the mid 1980s onwards. FDI not only directly promoted economic growth by itself but also indirectly affect growth by the interaction of FDI with human capital.

While many studies found positive result of the relationship between FDI and economic growth, some others found opposite. Carkovic and Levine (2002) used the new statistical technique, Generalized Method of Moments (GMM), and two new databases of World Bank and IMF of 72 countries over period 1960-1995 to analyze the relationship between economic growth and FDI. After resolving biases plaguing past work, they found that the exogenous component of FDI did not exert a robust, influence on economic growth. Moreover, they showed that an impact of FDI on growth did not depend on the stock of human capital. There was also no reliable link between FDI and growth when allowing the interaction between FDI and the level of income per capita.

In a case study in Sri Lanka, Athukorala (2003) also found no robust link between FDI and growth. Moreover, the paper showed the direction of causation not from FDI to GDP growth but from GDP growth to FDI. Using data on 80 countries in the period 1979-1998, Durham (2004) also failed to identify a positive relationship between FDI and economic growth. Bende-Nabende et al (2003) found that the direct long-term impact of FDI on output was significant and positive for the less advantaged economies as Philippines and Thailand, but negative in the more advantaged economies as Japan and Taiwan.

In short, most of the empirical studies on FDI and growth show the positive effect of FDI on economic growth. However, some studies still give the negative and insignificant relationship. The impact of FDI on economic growth is far from conclusion. The role of FDI seems to be a country based, and can be positive, negative or insignificant depending on the economic institutional and technological conditions in the recipient countries.

4.2.3. Empirical evidences on studies of Vietnam

There are only some papers studying the effects of FDI on economic growth in Vietnam over the years. All papers showed the positive effect of the FDI on economic growth. Moreover, scattered in different papers, some other factors that could help increasing economic growth in Vietnam were exports, human capital and growth of labor.

Hemmer and Nguyen (2002) used the indirect impact of FDI on economic growth to analyze the impact of FDI on poverty reduction in Vietnam. The estimated coefficients of FDI were significantly positive based on panel data covering 61 provinces of Vietnam in 1990-2000 period. Furthermore, FDI interacted positively with local human capital in affecting economic growth. Economic growth was then estimated to exert significantly positive impacts on the magnitude of poverty reduction.

Presented the same purpose as the paper of Hemmer and Nguyen (2002), Tran Trong Hung (2005) used the ordinary least squares method to examine the effect of FDI on economic growth as well as the effect of FDI and economic growth on poverty incidence over 1993-2000. Twelve provinces and cities were collected for the tests. The paper showed FDI had both direct and indirect impacts on poverty reduction. FDI had indirect impacts on poverty reduction through economic growth, which resulted in the improvement of living standards, technological progress, and productivity growth. FDI also had direct impacts on poverty reduction, which were mostly derived from the increase in employment, and the improvements in workforce and safety nets. However, the choice of 12 cities and provinces was not random, might lead to multicollinearity and biases in the estimations.

Nguyen Phi Lan (2006) tested the relationship between economic growth and FDI by generalized method of moments (GMM) in a simultaneous equation model. Based on a panel dataset for 61 provinces of Vietnam over the period 1996-2003, the paper reflected that FDI had a positive and statistically significant impact on economic growth. Moreover, exports, growth of labor, learning by doing and human capital were also helped increasing economic growth in Vietnam.

Vu, Noy and Gangnes (2006) estimated the impact of FDI on growth using the sectoral data of China and Vietnam. The results proved that FDI had statistically significant and positive effects on economic growth operating directly and through labor productivity in both countries. However, the effects were not equally distributed across sectors. In both countries, manufacturing seemed to be the only sector significantly benefited from FDI inflows, with an additional positive impact of FDI on the oil and gas sector in Vietnam. Other sectors appeared to gain very little growth benefits from sector-specific FDI.

4.3. Methodology

The objective of this chapter is to examine the effect of FDI inflow in Vietnam on its economic growth. In this section, the empirical model is specified and the estimation technique chosen. Then, the hypotheses of the possible factors effecting economic growth in entire Vietnam as well as its regions are listed. The models are estimated at the two different stages: at the country level and at the regional level. Annual data running from 1995 to 2006 are used for the analysis.

4.3.1. Regression model

The purpose of this research is to examine the effect of foreign direct investment on economic growth in Vietnam from 1995 to 2006 and to investigate the channel through which FDI may be beneficial for the growth. Based on the theoretical models of the neoclassical and endogenous growth models and based on some theoretical and empirical analysis models of Romer (1990), Markiw-Romer-Weil (1992), Barro and Sala-i-Martin (1995) and Borensztein et al. (1998), I estimate the model to examine the effect of FDI on economic growth in Vietnam. The econometric model is derived from a production function in which FDI is introduced as an additional input, beside labor (L), human capital (H) and domestic capital (I). The augmented production function will have following form:

$$Y = A L^{\beta_1} FDI^{\beta_2} I^{\beta_3} H^{\beta_4}$$

where Y represents output or gross domestic production (GDP). A is an overall efficiency factor, capturing the control and policy variables that are not accounting for increasing in factor inputs I , FDI , L and H . It also frequently included as determinants of growth in cross-host-area studies (see in Barro and Sala-i-Martin, 1995, chapter 12).

Assuming the production function to be linear in logarithms, I take the natural logarithm, and then time derivatives this production function and could have the following results:

$$GY = \beta_1 GL + \beta_2 GFDI + \beta_3 GI + \beta_4 GH$$

where GY , $GFDI$, GL , GI , GH and GX are growth rates of GDP, FDI, labor, domestic investment and human capital. β_1 , β_2 , β_3 and β_4 represent the output elasticities with respect to labor, FDI, domestic investment and human capital.

I follow the common practice to substitute the ratio of investment to GDP for the growth rate of the capital stock. Econometrically, this changes the estimated value of the regression coefficient, but it does not imply any loss of information or distortion of the significance of the relationship. There are seldom data on actual capital stocks, and most time-series of capital stocks are estimates derived by the perpetual inventory method. This method uses annual investment data and adjusts the accumulated investment by an assumed rate of depreciation. Therefore, the variation in the capital stock is driven entirely by annual investment from the national accounts, precisely the same investment in the numerator of I/Y . The investment ratio can conveniently be split into the ratio of total investment minus FDI to GDP, which we denote simply as I/Y , and FDI/Y .

We also introduce international trade as an additional factor input into the production function, following the large number of empirical studies which investigate the export-led growth hypothesis (as Feder, 1983; Balassa, 1985; Salvatore and Hatcher, 1991; Greenaway and Sapsford, 1994 and Balasubrananyam et. al., 1996). By Salvatore and Hatcher (1991), there are three reasons that we can include trade into the production function. Firstly, the neutrality of incentives associated with trade orientation is likely to lead to higher factor productivity because of the exploitation of economies of scale, better utilization of capacity and lower capital output ratio. Secondly, exports (imports) are

likely to alleviate serious foreign exchange constraints and can provide greater access to international markets. Lastly, exports (imports) like FDI are likely to result in a higher rate of technological innovation and dynamic learning from abroad.

This study wants to explore the channels through which FDI affecting economic growth in Vietnam. FDI could contribute to economic growth directly through additional capital input as well as indirectly through improving human capital, domestic investment and trade. The following model is used to evaluate empirically the effects of FDI on economic growth in Vietnam:

$$\begin{aligned} \ln\text{GDPG}_{it} = & \beta_0 + \beta_1 \ln\text{FDIG}_{it} + \beta_2 \ln\text{DI}_{it} + \beta_3 \ln\text{HS}_{it} + \beta_4 \ln\text{TRADE}_{it} + \beta_5 \ln\text{L}_{it} + \beta_6 \\ & \ln\text{FDIG}_{it} * \ln\text{TRADE}_{it} + \beta_7 \ln\text{FDIG}_{it} * \ln\text{DI}_{it} + \beta_8 \ln\text{FDIG}_{it} * \ln\text{HS}_{it} + \varepsilon_{it} \end{aligned} \quad (2)$$

where $i = 1, 2, \dots, 61$, refers to individual province, and t refers to years from 1995 to 2006. β_i is the individual effect which assumed to be constant over time t and specific to the individual cross-provincial unit i , while error ε_{it} is a stochastic disturbance.

The dependent variable GDPG is the GDP growth rate of province i in year t . The independent variables are constructed by a set of province level factors that are relevant to the determinants of economic growth. L presents the ratio of labor force per population in the province i . HS is the number of students in upper secondary school, universities, college and vocational school per population of the province i at time t , proxy human capital in the host country. $TRADE$ is the share of total trade in GDP. DI is the share of state investment to GDP, presenting for domestic investment and $FDIG$ is the ratio of FDI inflow to GDP of the province. The interactions of FDI with human capital, trade and domestic investment are included in the model to clarify whether the growth effects of FDI depend on Vietnam's level of education attainment, domestic finance and trade openness.

4.3.2. Hypotheses

The effect of FDI on economic growth is one of the most controversial topics in economic development. The empirical growth literature has identified a number of variables that are typically correlated with economic growth. The effects of variables using in the model are predicted as the following:

Through capital accumulation, domestic investment and FDI bring financial resources to host countries. Moreover, FDI is considered an important source of technological change and human capital augmentation (De Mello, 1997 and Zhang, 2001). Multinationals can transfer advanced technologies and managerial skills to their foreign affiliates by bringing skilled labors, experts and setting up training facilities for the host country's labors and managers. Technological spillovers and skill acquisition and diffusion can enhance the environmental management in local firms, making better economic growth in the host economy. For that reasons, I expect that FDI and DI are positive effect on economic growth in case of Vietnam.

Labor force is an important element of economic growth. As an input of production, increasing labor force, in terms of both skilled and unskilled labor, could gain in total factor productivity and economic growth. Moreover, the quality development of labor force generates new products or ideas that underlie technological progress (Romer, 1990). The countries with a large and well developed labor force experience a more rapid rate of introduction of new goods and thereby tend to grow faster. This appeals to the idea that more educated and skilled people are more inventive and innovative. Higher levels of human capital may also encourage capital accumulation, or may raise the rate of technological catchup for follower countries (Nelson and Phelps, 1966). To study in Vietnam, I hypothesize both the skilled and unskilled labors have positive relationship with economic growth.

How international trade affects economic growth? The literatures show that trade leads to higher specialization and, thus to gains in total factor productivity and economic growth by allowing countries to exploit their areas of comparative advantage. Moreover, it expands potential markets, which allows domestic firms to take advantage of

economies of scale, exposure to competition and the diffusions both technological innovations and improved managerial practices through stronger interactions with foreign firms and markets. These could result in both in higher overall efficiency and possibly a higher level of investment. Based on the discussions, the model expects that the share of total trade in GDP is positive in promoting economic growth.

The model also includes some interaction terms of FDI with trade and domestic investment as well as human capital. We expect positive interactions between FDI and human capital in promoting economic growth because the application of advanced technologies of FDI requires a sufficient level of human capital in the host areas. It means that the higher level of human capital in a host area, the higher effect of FDI on the host areas' economic growth. I also believe the positive interactions of FDI-trade and FDI-domestic investment as expectations of the complementary relationships between FDI and trade as well as FDI and domestic investment in advancing economic growth.

4.3.3. Data

Panel data models present the empirical analyses in this chapter. The same as in chapter III, the panel data model of the 61 Vietnamese provinces in the period of 1995-2006 is used to estimate the effect of FDI on Vietnam's economic growth in the whole country as well as its regions. The complete list of the provinces used in each region is presented in Appendix B. Most of the data on variables are taken and calculated from various issues of the *Statistical Yearbook of Vietnam*. The data of imports and exports of individual province are taken from the Department of Trade of the Vietnam's General Statistical Office and the *Socio-economic statistical data of 64 provinces and cities*, GSO (2005). Since the data of FDI, imports and exports are in US dollars, they are converted into Vietnam Dong (VND) using the yearly average VND/USD exchange rate obtained from the socio-economic data indicators in *Vietnam – 20 years of renovation and development*, General Statistics Office, Vietnam. All variables used in the sample are transformed into the natural logarithm form. However, some variables such as FDI, imports and exports are recorded zero in some years and the log 0 is undefined. Thus, a

small value of 10^{-2} is used to replace the zero whenever it occurs in our data set as the technique applied in papers of Sun, Tong and Yu (1999) and Pham Hoang Mai (2002).

Descriptive statistics and correlation analyses for all variables are presented in Appendix D. The Levin, Lin and Chu test is used to test unit roots for all the panel variables used in the equation. The result shows that there is no unit root on the level series of used variables ($I(0)$), meaning that the variables are stationary time series in nature. Therefore, all variables using in the model are in natural logarithm form and on the level series. Before interpreting the results of the regression analysis, correlation coefficients between explanatory variables are calculated to determine the degree of multicollinearity. Highly correlated variables are excluded, meaning that no serious multicollinearity appears on the results of regressions.

4.4. Estimation results and Interpretation

The empirical analysis effects of FDI inflows on economic growth into Vietnam's regions are specific by using the panel data of 61 provinces over the 1995-2006 period. Because the provincial characteristics may increase the cross sectional heteroskedasticity, Generalized Least Square is further applied for all the estimations. The estimated results of the effects of FDI on economic growth in Vietnam are reported in Table 32-37. Table 32 shows the results of effects of FDI on economic growth in the whole country (Vietnam). Tables 34-37 represent the results of the six regions of Vietnam. GDP growth rate in the area is used as the dependent variable.

4.4.1. At the country level

Table 32 presents the estimated results of the effects of FDI on economic growth in Vietnam. The results from column 4.1 present effects of original factors on economic growth. The results show that all FDI, domestic investment, labor force and trade openness are positive and significant relationships with the country's economic growth. As the results, if the FDI, domestic investment, labor and trade openness in turn goes up

by 1 percent, on average, the economic growth rate increases by about 0.012%, 0.12%, 0.18% and 0.03%, respectively. In fact, despite the impact of the Asian financial crisis in the second half of the 1990s, Vietnam was among the countries having the highest average GDP growth rates in the region (Table 7). The main reasons of the achievement were the high development of industries, employment, domestic and foreign investment and external trade. The share of the industry sector in total GDP of Vietnam over the 2001-2006 period counted for average 40%, increasing nearly 15% its share compared to the period before the Doi Moi in 1986. Moreover, the State sector of Vietnamese government was keeping the central leading role (accounting for 38-40% of GDP), while the share of the foreign investment sector quickly increased, from 1.14% in 1986-1990 period to 17% in 2006 (Table 9). Despite both increasing in import and export values in Vietnam, the development of imports is higher than the development of exports, letting the trade deficit. The annual average value of imports in FDI sector in 1994-2005 increased to 32.8%, accounting for 27.7% of the total import value (GSO, 2006). The essential construction of the new FDI projects is the reason of increasing imports in the FDI sector at that time. The real situation above was explained why even though both depended on the foreign financial development and the lever of trade openness, the economic growth rate of Vietnam is much depended on its domestic development factors (as labor force and the domestic investment). However, while letting FDI interacts with other factors in contributing the economic growth rate, the effect of FDI on growth is increasing up to 0.031% (result in column 4.5), suggesting that there are transferring effects between FDI and other factors in enhancing the economic growth of Vietnam.

To investigate the channels through which FDI may be beneficial for growth, I include the interactions between FDI and human capital, trade and domestic investment. First, I evaluate whether the impact of FDI on growth depends importantly on the stock of human capital. As the results presented in regressions (4.4) and (4.5), the coefficient of FDI itself is statistically significant and positive, while the interaction term is negative and insignificant. The values of the coefficients indicate that the effect of FDI on economic growth does not depend on the level of human capital available in Vietnam.

Table 32: Empirical results on economic growth Effects of FDI in Vietnam

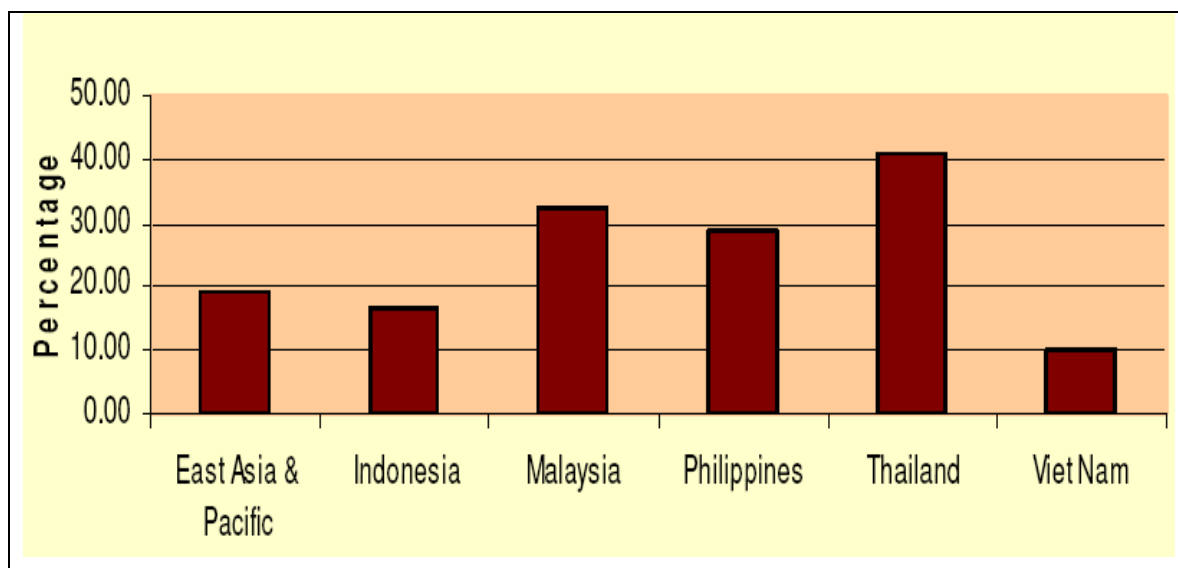
Variable	Dependent variable: LnGDPG					Dependent variable: LnDI ²⁶
	4.1	4.2	4.3	4.4	4.5	4.6
Intercept	0.9093 (2.8302)***	0.9167 (2.7867)***	0.9085 (2.8306)***	0.9191 (2.8868)***	0.9202 (2.8303)***	3.3190 (5.3570)***
LnFDIG	0.0124 (3.3218)***	0.0286 (2.7310)***	0.0115 (0.9413)	0.0140 (1.7070)*	0.0308 (1.7143)*	0.0107 (1.5854)
LnDI	0.1192 (3.1134)***	0.1166 (3.0538)***	0.1188 (2.8390)***	0.1191 (3.0829)***	0.1171 (2.8043)***	
LnHS	0.0146 (0.3824)	0.0160 (0.4161)	0.0141 (0.3544)	0.0158 (0.4000)	0.0171 (0.4180)	0.1013 (1.0202)
LnL	0.1761 (2.6711)***	0.1737 (2.6042)***	0.1765 (2.6725)***	0.1730 (2.6127)***	0.1719 (2.6008)***	-0.1881 (-1.1864)
LnTRADE	0.0264 (2.8732)***	0.0286 (3.0093)***	0.0265 (2.8837)***	0.0269 (3.1212)***	0.0292 (3.3259)***	0.0022 (0.0875)
LnFDIG*LnDI		-0.0073 (-1.7385)*			-0.0073 (-1.6781)*	
LnFDIG *LnTRADE			0.0003 (0.0855)		-0.0002 (-0.0528)	0.0001 (0.0863)
LnFDIG*LnHS				-0.0016 (-0.2087)	-0.0013 (-0.1717)	-0.0028 (-0.4085)
R-square	0.250067	0.2522	0.2505	0.2502	0.2531	0.8396
Adj. R-square	0.24329	0.2443	0.2426	0.2422	0.2430	0.8379
DW stat.	2.1105	2.1062	2.1111	2.1085	2.1045	2.1622
No. of Obs.	671	671	671	671	671	671

Note: (1) The coefficient of the variable is shown first, followed by the t statistic is in parentheses

(2) *, **, and *** indicate significance levels of 10, 5 and 1 percent, respectively

(3) Method of regression: Panel EGLS (Cross section weight) with White cross section standard errors & covariance and AR(1)

²⁶ This work narrowly focused on the investigation of FDI merits, therefore, other factors that effect Vietnam's domestic investment may exist but were excluded from this investigation.

Figure 5: Tertiary Enrollment rates in East Asia (2004)

Source: World Development Indicators, WB (online version as of 2 April 2007) and Marlon (2007, p.24)

Vietnam has experienced rapid growth in the numbers of universities, colleges, institutions, teachers, students and graduates in recent years. The total number of students in upper secondary schools, professional schools, universities and colleges increased by over 50% from 2.9 million students in 2000 to 4.4 million students in 2006 (GSO, 2006). This strong growth probably partly reflects an increasing premium for jobs requiring the university education. However, the tertiary enrolment rates remain well below regional averages as shown in Figure 5. The lack of an adequately qualified workforce is increasingly identified as a major block for potential investors. According to Borensztein et al. (1998), only countries with sufficiently high levels of human capital can exploit the technological spillovers associated with FDI. Therefore, the flow of advanced technology brought along by FDI seems not transferred to the low quality of Vietnamese human capital. The beneficial effect on growth of FDI simply comes from the higher capital accumulation.

Second, the model also evaluates whether the relationship between FDI and growth varies with the degree of trade openness. Balasubramanyam, Salisu, and Sapsford (1996, 1999) and Kawai (1994) found evidence that FDI is particularly good for

economic growth in countries with open trade regimes. From the results of regression (4.5), the coefficient of FDI itself is statistically significant and positive, although the interaction term is negative and insignificant, showing that the effect of FDI on economic growth does not depend on the level of openness to trade of Vietnam. As said, the total trade, exports and imports of Vietnam were increasing continuously in 1986-2006 (Figure 2). The shares of exports and imports in GDP have been significantly increasing and accounted for 65.3% and 73.6% in 2006, respectively (Table 13 and 16). The shares of manufactured goods in total exports continue to increase and keep the leading role. Garments, footwear and marine products (frozen fish, cuttle fish and shrimp) are still keeping the vital position on the overall export growth. The newly emerging export industries including oil and gas and electronics equipment²⁷ where the foreign investment sector has been accounting for the high ratio (99.9% in oil and gas industry and 44.4% in electronic equipment manufacturing) only accounted for a small share in the total industry output. The total output of oil and gas industry and electronic equipment manufacturing in the total industrial outputs accounted for 7.9% and 2.6% of the total output in the period of 1995-2007, respectively (GSO, 2007). Imports of capital equipment and production inputs accelerated greatly in 2006, contributing to a jump in the trade deficit. Imports of capital goods, raw materials and fuels accounted for 93.3% of imports in 2006. Only 6.7% of imports were consumer goods (Table 17). As we have seen, the major export products of Vietnam were from the low-tech industries where is less foreign enterprises invested. Imports of capital equipment and raw material should contribute to future increases in productivity and output. Based on the development sources of total exports, imports as presented above as well as the estimated results presented in regression (4.5), we can conclude that there is an independent relationship between FDI and trade in increasing the economic growth of Vietnam.

Third, the model also investigates the contribution of FDI to economic growth in relation with domestic investment factor. FDI could advance economic growth simply by

²⁷ Crude oil was not yet the export products of Vietnam before 1991. Electronic, computer and their parts was not yet the export products of Vietnam before 2001. However, they now are in the top lists of the export products with the high export growth rates.

augmenting capital accumulation in the host country or by more efficient than domestic investment. The regressions 4.2 and 4.5 present the coefficients of FDI and domestic investment itself are both highly positive and significant. As the results in regression 4.5, the effect of domestic investment on economic growth is four times higher than the effect of FDI on economic growth. The results are consistent with the real situation of Vietnamese economy. Table 9 shows that the GDP values of Vietnam mostly come from domestic sector, accounting for 91.6% total GDP in the 1986-2006. Even though decline numbers of state owned enterprise along with the growth of numbers of foreign owned and non-state enterprises, the state sector was keeping the central leading role in the development of Vietnam economy with one third controlling of the total GDP. Despite continuously increasing its share in the total GDP up to 17% in 2006, the foreign investment sector was only accounted for average of 8.4% total GDP of the country.

By contrast, the FDI-domestic investment interaction presents a negative and significant coefficient in Vietnam, presenting the evidence of the crowding out effects. The finding is in line with Fry (1992), Lipsey (2000), Agosin and Mayer (2000) for Latin American countries, and De Mello (1999) for a group of developed countries. In case of Vietnam, the empirical finding could be possibly explained as the result of the entry of FDIs in the industry sector where there are plenty of domestic firms that cannot follow thereafter the increased competition and further exploit possible opportunities. In the industry sector of Vietnam in 1995-2007, the output produced by FDI enterprises accounted for 35.6% of the total industrial output (Table 33). They concentrate in the high-tech manufacturing such as oil and gas industry, computer and office equipment, radio, television and communications equipment, medical and precision instruments, and assembly and repair of motor vehicles. However, the outputs of those high-tech manufacturing were only accounted for 12.9% of the total industrial output. The other manufacturing that FDI firms most invested is food products and beverages (24.9% of the total industrial output of food products and beverages), garments (33.4%), leather tanning and processing (54.4%), chemicals (36.1%) and so on. The development of FDI

enterprises in the manufacturing let to compete in the product markets between the domestic and foreign firms, making the lower economic growth of Vietnam.

Table 33: Industrial output value of industrial activities by ownership 1995-2007

Industry group	Output of industry group /Total industry output	Share of industrial output by ownership			
		Total	State	Non State	FDI
TOTAL	100.0	100	37.0	27.3	35.6
1. Mining	10.4	100	17.6	6.4	76.1
Coal	1.4	100	95.8	2.5	1.7
Oil and Gas	7.9	100	0.2	0.0	99.8
Metal ores	0.1	100	66.2	29.5	4.3
Stone and others	1.0	100	41.8	56.6	1.6
2. Manufacturing	83.5	100	35.1	31.9	33.0
Food products and beverages	21.9	100	35.2	39.9	24.9
Tobacco products	2.7	100	98.9	0.5	0.6
Textile products	4.9	100	43.0	28.9	28.1
Garments	3.5	100	24.9	41.7	33.4
Leather tanning and processing	4.5	100	16.9	28.7	54.4
Wood and wood products	1.9	100	14.4	71.8	13.8
Paper and paper products	1.9	100	38.2	45.2	16.5
Publishing, printing, copying of recorded materials	1.1	100	85.4	11.1	3.4
Coke and refined petroleum products	0.1	100	1.3	53.6	45.1
Chemicals	5.6	100	46.9	17.0	36.1
Rubber and plastics	3.8	100	23.6	47.4	29.1
Non-ferrous metals	9.2	100	52.0	25.1	22.9
Metal production	3.2	100	40.0	23.9	36.1
Metals products	3.7	100	15.4	54.1	30.5
Machinery and equipment	1.3	100	39.4	26.9	33.6
Computer and office equipment	0.7	100	0.0	1.5	98.5
Electric machinery and apparatus	2.6	100	38.3	17.3	44.4
Radio, TV and communications equipment	2.1	100	18.5	5.6	75.9
Medical and precision instruments	0.2	100	11.8	17.0	71.3
Assembly and repair of motor vehicles	2.0	100	10.9	12.7	76.5
Product and repair of other transport equipment	3.6	100	19.8	17.1	63.1
Furniture	2.9	100	6.6	54.5	38.9
Recycling	0.1	100	2.0	95.3	2.7
3. Electricity, Gas and Water supply	6.1	100	96.5	0.4	3.1
Production and distribution of electricity and gas	5.7	100	96.7	0.2	3.0
Supply, purification and distribution of water	0.5	100	93.8	2.6	3.6

Source: own calculation based on data obtained from GSO, 2007

4.4.2. At the regional levels

As mentioned earlier, for 20 years of its transition, the Vietnamese economy has growth at rate of nearly 7% annually, attracting for USD75244 million of the total FDI inflows and increasing the total trade up to US\$84.7 billion in 2006. However, the distribution of economic growths is quite different among the regions and provinces. In general, the GDP value of each region has been achieving a continuously steady growth since 1995. The South East region gets the highest amount of GDP at all times, following by the Red River Delta and Mekong River Delta. The results in Table 34 present that all regions of Vietnam are positive effect on economic growth. The South East shows a highest impact on economic growth, followed by the South Central Coast, Red River Delta, North Upland and others. The difference effects of singular regions could be explained by the special sources of economic growth in that region. I will take into account most variables that may affect the GDP growth rates to interpret the growth differences by allocations, in which it is more concentrated to the impact of FDI inflows on the growth.

4.4.2.1. The Northern Region

The main regression results of the growth models for the Northern region of Vietnam are reported in Table 35. Based on the estimated results in regression 4.11, the higher level of FDI and domestic investment are the factors that help increasing economic growth in the Northern region. Based on the specific development and policies of the sub-regions in the Northern region, the factors that help increasing economic growth in the sub-regions could be specific.

Table 34: General analysis of economic growth in Vietnam's regionsDependent variable: **lnGDPG**

Variable	4.7	4.8
LnFDIG		0.0331 (1.9868)**
LnDI		0.1195 (2.2060)**
LnHS		0.0261 (0.5217)
LnL		0.2332 (3.5768)***
LnTRADE		0.0155 (1.0201)
LnFDIG*LnDI		-0.0080 (-1.7431)*
LnFDIG*LnTRADE		-0.0032 (-0.9479)
LnFDIG*LnHS		0.0037 (0.5162)
Red River Delta region (R1)	1.9460 (33.7683)***	0.7048 (2.0977)**
North Uplands region (R2)	1.9972 (31.1387)***	0.6817 (1.7845)*
North Central Coast and Highlands (R3)	1.9098 (28.6204)***	0.7105 (2.1362)**
South Central Coast (R4)	2.0261 (31.7523)***	0.7205 (2.0055)**
South East region (R5)	2.0841 (35.6666)***	0.8218 (2.4628)**
MeKong River Delta (R6)	1.8906 (42.1915)***	0.6516 (2.0217)**
R-square	0.2086	0.2630
Adj. R-square	0.2015	0.2473
DW stat.	2.0787	2.1054
No. of Obs.	671	671

Note: (1) The coefficient of the variable is shown first, followed by the t statistic is in parentheses

(2) *, **, and *** indicate significance levels of 10, 5 and 1 percent, respectively

(3) Method of regression: Panel EGLS (Cross section weight) with White cross section standard errors & covariance and AR(1).

The Red River Delta, with a population of 18.2 million in 2006, is the most densely populated region. It includes the national capital Hanoi and the port city of Hai Phong (the second and third largest cities of Viet Nam). In the Red River Delta sub-region, the regression reveals the coefficients of FDI and domestic investment themselves are positive and statistically significant in the growth model. The results indicate that FDI and domestic investment are engine factors to help increasing economic growth in the region. As a center location of culture, economics, and politics of Vietnam, the Red River Delta region attracted lots of investment from the domestic and foreign investors. Data on the book of “Vietnamese industry 20 years of renovation and development” showed that in 2005, total capital for production and business used by industrial establishments in the Red River Delta region was VND 147538.6 billion, accounting for 19.4% of the total industry capital, in which Hanoi and Hai Phong accounted for 8.5% and 3.1%, respectively. Moreover, the sector also reached the highest growth rate in comparison with other sectors. In 2001-2005 period, the average growth rate of the industrial sector in the Red River Delta region was 14%, higher than the average rate of Vietnam, in which Hanoi reached the growth rate of 11.8% and Hai Phong was 14.3%. The high growth rates of the industrial sector in the regions and provinces show that they are favorite location for attracting foreign investors.

The same as the whole country’s results, the FDI-domestic investment interaction presents a negative and significant coefficient in both the Red River Delta and North Uplands regions, presenting the evidence of the crowding out effects. There are 29 industrial and export-processing zones are locating in the Red River delta region up to 2006, accounted for 20% of total numbers of IZs and EPZs in Vietnam. The amount of the IZs and EPZs located in the region have been helping increasing production volume in the region, promoting the economic growth. The share of industrial output value of the Red River Delta in the country’s total industrial output was trending upwards from 17.1% in 1995 up to 22.8% in 2005. The share of industrial output value of the North Uplands in the country’s total industrial output was decreasing from 6.9% in 1995 to 5.3% in 2005. In 2005, the foreign investor sector accounted for 36% the total industrial output of the

Red River Delta region and accounted for 12.6% the total industrial output of the North Uplands region. It means that most of the industrial output of the two regions came from the domestic sector. The empirical finding could be possibly explained as the result of the entry of FDIs in the industry sector where there are plenty of domestic firms that cannot follow thereafter the increased competition and further exploit possible opportunities.

Table 35: Empirical results on economic growth effect of FDI in the North region

Dependent Variable: LnGDPG

	Red River Delta	North Uplands	Whole Northern region
Variable	4.9	4.10	4.11
Intercept	-0.7263 (-0.3041)	-6.7375 (-2.1702)**	2.2292 (1.3928)
LnFDIG	0.1039 (2.8971)***	0.1139 (2.3211)**	0.0592 (1.8900)*
LnDI	0.2194 (3.2391)***	0.1687 (1.5367)	0.1326 (2.2456)**
LnHS	0.1130 (1.3158)	-0.1504 (-1.4071)	-0.0275 (-0.4023)
LnL	0.4885 (0.8225)	2.1197 (2.7435)***	-0.1499 (-0.3878)
LnTRADE	0.0398 (0.6662)	-0.0220 (-0.6798)	0.0264 (1.1698)
LnFDIG*LnDI	-0.0414 (-2.9429)***	-0.0248 (-3.2714)***	-0.0145 (-2.2171)**
LnFDIG*LnTRADE	0.0008 (0.0854)	0.0050 (1.6227)	-0.0050 (-1.7441)*
LnFDIG*LnHS	-0.0174 (-0.5976)	-0.0151 (-0.4403)	0.0037 (0.2575)
R-square	0.2766	0.2731	0.2078
Adj R-square	0.2036	0.2276	0.1809
DW stat.	2.2148	2.300	2.1892
No. of Obs.	110	154	275

Note: (1) The coefficient of the variable is shown first, followed by the t statistic is in parentheses

(2) *, **, and *** indicate significance levels of 10, 5 and 1 percent, respectively

(3) Method of regression: Panel EGLS (Cross section weight) with White cross section standard errors & covariance, AR(1).

The Northern Uplands is hilly to mountainous and poor infrastructure area, less urbanized and more dependence on the agricultural sector than other regions of Vietnam²⁸. In 2006, the population in the region is about 12.1 million people, in which the working aged people accounted for 55.6% of the population in the region. The labor force of this region is the main factor that helps increasing economic growth in the region. The real situation is consistent with the finding in regression 4.10, saying that labor force is statistically positive and significant in the growth model. As in column 4.10, 1 percent of increasing labor force in the North Uplands region could help increasing 2.12% of economic growth rate.

In 2006, even though the region has grown rapidly with 10% real GDP growth yearly, exceeding the growth rate for the whole country (8.2%), the share of GDP in the North Upland region accounted for 8% total GDP of Vietnam. By benefiting from Hanoi's growth, the areas of the North Uplands surrounding Hanoi particularly attract foreign investments to ensure good access. The registered capital of FDI in the region accounted for 2.6 % of the total FDI capital value in 2006. The growth rate of the FDI capital in the region is about 14% in 2006 and the share of FDI value in GDP still accounted for 8.9%. The estimated coefficient of inward FDI is positively and statistically significant in the economic growth model of the Northern Uplands region, suggesting that economic growth in the Northern Uplands region is encouraged by foreign capital flows.

The negative and insignificant of the FDI-Trade and FDI-Human capital interactions show that the flows of advanced technologies brought along by FDI cannot increase the growth rate of the North Upland region by interacting with the region's absorptive capacity and trade openness. Began having two industrial economic zones since 1997, the region had six industrial economic zones in 2006, accounted for 4.13% of the numbers industrial zones in Vietnam, concentrated in Quang Ninh, Thai Nguyen, Bac

²⁸ There are some exception provinces. Infrastructure is better, the population density is much higher, agriculture plays a smaller role in the higher-income interior provinces close to Hanoi such as Thai Nguyen, Bac Giang and Phu Tho, where it accounts for 30–40 percent of GDP. Quang Ninh is the most industrial and the highest-income province in the region. Agriculture in Quang Ninh province accounts for just 9 percent of GDP, while industry and construction (including mining) represents almost half of GDP.

Giang and Phu Tho provinces. With the advantage of rich natural resources such as high volume of coal, apatite, copper, limestone, zinc and lead²⁹, Thai Nguyen, Phu Tho and Quang Ninh provinces attracts FDI inflow in manufacturing industries in exploiting and processing minerals. However, the exports and imports value of the region were only accounted for 3% of the total imports and exports of Vietnam. The interaction of both low levels of FDI and trade in the region may not help increasing the economic growth of the North Upland region.

In the North Upland region, even though the people who graduated from the general education in 2006 were 15.3% of the total general students, the college and university students were only accounted for 6.3%, and the trained labors were 9% of the country's levels. Most of them are from provinces surrounding the Northern Key Economic Zone such as Thai Nguyen, Quang Ninh, Bac Giang and Tuyen Quang. Other provinces in the region are mostly in the mountainous area, where most minority people are living. They are lacking in the economic and managing knowledge and education. If a region has a low level of human capital, the higher technology that brought along by FDI inflow in the region cannot diffuse effectively, then would actually detract from economic growth.

4.4.2.2. The Central Region

The main regression results of the economic growth model in the Central region of Vietnam are reported in Table 36. The results show that labor force and trade openness are the factors positively effecting economic growth in the entire Central region of Vietnam. Even though the FDI inflow itself is insignificant effect on the economic growth, the interaction term of FDI and trade shows a positive and significant effect in advancing economic growth in the region. This implies that flow of advanced technologies brought along by FDI can increase the growth rate of the host region by interacting with that region's trade. However, the interaction between FDI and domestic

²⁹ According to Vietnamese Ministry of Planning and Investment, coal reserves, apatite reserves, and copper reserves of the Northern Uplands region accounted for 90%, 100% and 70% of each kind in Vietnam, respectively

investment decreases the economic growth. The explanations could base on different characteristics of its sub-regions.

With 80% of the area is mountains and 20% of the land is white sand dunes and warps, the North Central Coast and Highlands regions met difficulties in developing their economies. For the long run development, the regions concentrate to invest in education. In 2006, there are more than 3.56 million of people studying in the level of general education, accounted for 21.9% of the total Vietnamese pupils. The number of students studying in colleges, universities and professional secondary schools of the North Central Coast and Highlands accounted for 18.6% the total students studying in colleges, universities and professional secondary schools of Vietnam. This is quite high rates compared to other regions. The increasing number of human capital in the regions is a factor enhancing the economic growth of the North Central Coast and Highlands regions because human capital has emerged as a valuable tool to measure the effects of technology and to what degree technology is harnessed through invention and innovation. The results from the regression 4.12 show the insignificant coefficient of FDI and the strong complementary effect between FDI and human capital on the growth rate of income in the North Central Coast and Highlands regions. This result is consistent with the study of Berensztein et al. (1998) saying that the flow of superior technologies transferring from foreign direct investment firms can increase the growth rate of the host area only by interacting with that area's absorptive capability.

In the North Central Coast and Highlands regions, the total trade of the regions in 2006 was accounted for 1.6% the country's total trade. Export values of the agricultural products (shrimp, frozen fish, coffee, rubber, pepper and cashew nut) are the principal resources of foreign exchange. Imports are inputs for production. For example, the region imports fuel and raw material, machinery and equipment for industrial productions and imports fertilizer and pesticides for agricultural productions. The share of trade sector in GDP of the region accounted about 30% of the total GDP of the region, implying that trade was also an important factor that helps increasing economic growth of the region. The FDI inflows in the regions accounted only for 0.5 % of the total FDI inflows in 2006.

Even though only accounted very small percentages of FDI and trade in the total values compared to the other regions, the positive and significant FDI-trade interaction implies that FDI and trade complement each other in advancing economic growth rate in the region.

Table 36: Empirical results on economic growth effect of FDI in the Central region

Dependent Variable: **LnGDPG**

Variable	North Central Coast and Highlands 4.12	South Central Coast 4.13	Whole Central region 4.14
Intercept	0.3623 (0.3166)	-2.3239 (-0.9133)	-0.5163 (-0.7241)
LnFDIG	-0.1017 (-1.2400)	-0.0365 (-1.0616)	-0.0380 (-1.1431)
LnDI	0.0816 (0.7237)	0.0918 (1.3384)	0.0647 (1.1061)
LnHS	0.1167 (2.0216)**	-0.0684 (-0.7840)	0.0039 (0.0797)
LnL	0.1052 (0.3696)	1.0110 (1.7049)*	0.4964 (2.6291)***
LnTRADE	0.2636 (3.1557)***	0.0557 (1.3473)	0.1110 (5.4385)***
LnFDIG*LnDI	-0.0327 (-0.9841)	-0.0321 (-1.4331)	-0.0257 (-1.6859)*
LnFDIG*LnTRADE	0.0407 (2.6026)***	0.0340 (3.0617)***	0.0224 (2.7060)***
LnFDIG*LnHS	0.0292 (2.4364)**	0.0159 (1.0811)	0.0148 (1.5372)
R-square	0.3461	0.3228	0.2894
Adj R-square	0.2873	0.2140	0.2508
DW stat	2.1240	2.0597	2.1024
No. of Obs.	110	66	176

Note: (1) The coefficient of the variable is shown first, followed by the t statistic is in parentheses

(2) *, **, and *** indicate significance levels of 10, 5 and 1 percent, respectively.

(3) Method of regression: Panel EGLS (Cross section weight) with White cross section standard errors & covariance and AR (1).

The South Central Coast region has well-located geography as it lies in the main highways, railways, airways and sea routes of the nation, from the North to the South. Moreover, it borders Lao, the key economic zones of triangle South East and the gateway of the Central Highlands region and the trans-Asia road to the sea. As containing five coastal provinces and the independent municipality of Da Nang in the southern half of Vietnam's central part, the biggest resources of this region are the sea resources. Seafood and aquaculture are the two strong economic sectors. Income of the sea resources accounted for more than 20% of the nation's output in 1995. The high import and export values of the region, about 4.7-4.8% of the country's total import and export values, are mostly from shrimp, lobster, squids and gropers. The value of total trade in the region increased continuously over time. In 2006, the total trade was 2546.9 million USD, more than two times of the value in 2000 and 3.6 times of the value in 1995. Moreover, the region has some deep-sea ports for big load ships, and infrastructure and land for developing the industrial zones. There are 12 industrial zones and EPZs in the region in 2006, accounted for 8.3% of the number industrial and export processing zones of Vietnam. FDI in the region also raises its value quickly since 1995. In 1995, the registered capital of FDI in the South Central Coast was 323.1 million USD, accounted for 4.9% the total registered FDI in the region in 1995. In 2006, the region attracted 1513.6 million USD of the FDI inflows, nearly five times of the FDI inflow in 1995. The registered capital of FDI in 2005 accounted for 12.6% of the total FDI registered capital in Vietnam only followed the share of the South East and Red River Delta regions. Most of the industrial zones and FDI invested in the region are in tourism and services. The well development of FDI and trade in the South Central Coast are the main factors enhancing economic growth. The positive and statistically significant coefficients of FDI*Trade interaction suggests that the FDI and trade complement each other in advancing economic growth in the region. The result is consistent with the finding of Balasubramanyam, Salisu, and Sapsford (1996, 1999) and Kawai (1994) which concluded that FDI inflow is particularly good for economic growth in countries with open trade regimes.

4.4.2.3. The Southern Region

Table 37 reports the estimation results of growth model in the Southern region. For the whole Southern region, the positively significant coefficients of the domestic investment, human capital and labor force are factors increasing the economic growth of the region. Based on the geography and economic development of the South East and Mekong River Delta in the Southern region, the FDI effects on economic growth of each region are different.

The results in column 4.13 show the coefficients of FDI, domestic investment, labor force and trade openness in the South East region are separately positive and significant, suggesting that they are advancing economic growth in the region. The results are fitted with the characteristics and development of the region. As we have known, the South East region is a focal economic development region of Vietnam, leading in international trade value, investment, GDP and several other socioeconomic factors. It includes Ho Chi Minh City, Dong Nai, Baria Vungtau and Binh Duong, the most dynamic centers of commercial and industrial development in Viet Nam, and the most attractive place to foreign investors. The South East region has the eventful and diversified trade activities and FDI invested. In 2006, more than 53% of Vietnam's FDI inflow is registered in the region. The industrial output value reported for 48.2% total industrial output value of Vietnam, in which 52% of the share came from the FDI sector. The share of imports and exports accounted for average 56.5% and 69.1% of the total country's imports and exports, respectively. The region has abundant labor force and high level of literacy and experience labors that can quickly apply new technologies in production. The labor force is highly selected with skilled labors in locality and from surrounding areas. The development of investment, trade and human resource advantage are one of the reasons to attract national and international investors to the region and increase its economic growth.

Table 37: Results on economic growth effect of FDI in the Southern regionDependent Variable: **LnGDPG**

	South East	Mekong River Delta	Whole Southern region
Variable	4.13	4.14	4.15
Intercept	0.7828 (1.8423)*	2.3683 (1.6398)	0.9420 (2.0925)**
LnFDIG	0.0951 (2.2389)**	0.0055 (0.0837)	0.0097 (0.3123)
LnDI	0.1584 (3.8528)***	0.0599 (0.4874)	0.0700 (1.8044)*
LnHS	-0.1529 (-1.5485)	0.2112 (1.8396)*	0.1465 (1.7189)*
LnL	0.2107 (2.0702)**	-0.1741 (-0.4315)	0.1892 (1.7313)*
LnTRADE	0.0742 (2.1331)**	-0.0310 (-0.5270)	-0.0033 (-0.1109)
LnFDIG*LnDI	-0.0205 (-1.7062)*	0.0080 (0.3247)	-0.0072 (-0.7077)
LnFDIG*LnTRADE	-0.0302 (-3.2184)***	0.0091 (0.7267)	0.0085 (1.1422)
LnFDIG*LnHS	0.0820 (3.2194)***	-0.0547 (-3.4038)***	-0.0115 (-0.6788)
R-square	0.3819	0.2977	0.3450
Adj R-square	0.3106	0.2459	0.3169
DW stat	2.2309	1.7923	1.9271
No. of Obs.	88	132	220

Note: (1) The coefficient of the variable is shown first, followed by the t statistic is in parentheses

(2) *, **, and *** indicate significance levels of 10, 5 and 1 percent, respectively

(3) Method of regression: Panel EGLS (Cross section weight) with White cross section standard errors & covariance and AR (1)

As the third populated region of Vietnam, in 2006, the South East region consisted of more than 2.46 million of people studying in general education, accounting for 15.2% the total Vietnamese pupils studying. The number of students of the regions studying in colleges, universities and professional secondary schools accounted for 16.9% the total students studying in colleges, universities and professional secondary schools of Vietnam only followed the rate of the Red River Delta region. This is quite high rates compared to other regions. The increasing number of human capital in the

regions is a factor enhancing the economic growth of the South East region because human capital has emerged as a valuable tool to measure the effects of technology and to what degree technology is harnessed through invention and innovation. The results from the regression 4.13 show the strong complementary effect between FDI and human capital on the growth rate of income in the South East region, saying that the flow of superior technologies transferring from foreign direct investment firms can increase the growth rate of the host area only by interacting with that area's absorptive capability.

The interaction between FDI and trade show the negative and significant effect on economic growth in the South East region. The foreign trade value in the South East region accounted for the most share of total international trade of Vietnam. In 2006, the exports and imports accounted for 69.1% and 56.6% of Vietnam's total exports and imports, respectively, in which Ho Chi Minh City, Binh Duong and Dong Nai accounted for the most share of the South East. The total trade of Ho Chi Minh City accounted for 60.3% of the total trade of the South East region, followed by Dong Nai (18.2%) and Binh Duong (17.9%). Export values of manufacturing products are the principal resources of the region. Footwear, textile and sewing products are mainly exported from Ho Chi Minh city and its surrounding provinces such as Baria Vung Tau, Dong Nai, Binh Duong and Ninh Thuan. Frozen shrimps, fish and cuttle-fish, rubber, shelled cashew nut are major exported products of the remaining provinces. Ho Chi Minh City and Binh Duong are also the major exported spots of high technology industries such as computer and electronic parts. Baria Vung tau is strong in exporting crude oil and gas³⁰. The major imports products of the region are auxiliary materials for sewing, textile fabrics, footwear materials, electronic parts and machinery and apparatus to produce above products. It seems that the region only used labor and place as advantage conditions to produce products to export. If it is the case, the foreign firms will not contribute or contribute small effect to the economic growth of the region as they only used small resources of the host area to produce and export their products.

³⁰ The region has important natural resources of offshore oil and gases in Baria Vung Tau. The region's oil reserves accounted for 93.3% of the national ones; the gases accounted for 16.2% of the national ones. Oil and gas are important goods for export and play a crucial part in the country's development of oil refinery and energy industry in the future.

As we known, the Mekong River Delta is home to 17.3 million people, spreading in 13 provinces and cities with an intensity of 435 people per square kilometers, making it the most populated area of the basin (GSO, 2005). The population growth rate has been kept at a steady 1.8-2 percent during the 1990s until now. The Mekong River Delta is the biggest place producing rice, seafood and other tropical fruits of the country. Recent estimated data showed an approximate 85% of the Mekong River Delta population lives on agricultural activities. Despite producing and supplying 90% of national rice exports and nearly 60% of the country's total export turnover from fishery products, the value of exports in the region is not high. In 2006, the export value was only 8.3 % of the total country's export. Moreover, the region also is not favorite place of FDI inflow (ex. the value of registered FDI accumulated since 1988 up to 2006 of the region was 2315.3 million USD, only accounted for 3% of the total accumulated FDI). Infrastructure, especially roads, electricity and water supply, in the region is still a serious problem, even though most domestic investment concentrated in the physical infrastructure of the region. Based on the estimated result presented in column 4.14, the coefficients of FDI, domestic, trade and labor force in the Mekong River Delta of Vietnam are statistically significant. The only factor positive effect on growth rate of the region is human capital. However, the interaction between FDI and human capital in the Mekong River Region shows a negative effect on the economic growth. This means that the human capital in the Mekong River Delta is unabsorbed foreign knowledge brought by FDI firms and then not helps increasing the economic growth.

4.5. Summary

Foreign direct investment has become increasingly important role in the developing world because it was recognized as a growth-enhancing factor in developing countries. In the literature, there are varieties of channels through which FDI can permanently affect economic growth in a host country. First, FDI affects output and income by increasing the stock of capital. Next, FDI often leads to technology transfer and managerial knowledge to affiliates of multinational firms in the host countries. The

technology and knowledge are transferring through in terms of labor training, skill acquisition, new management practices and organizational arrangements. As a result, it increases a level of human capital and improves productive capacity in the host country. Furthermore, FDI helps increasing the labor force through job creation and brings sales and procurement networks to the host countries to expand their business opportunities.

This chapter aims to examine the effect of foreign direct investment inflow on economic growth in Vietnam and its regions by using panel data of 61 provinces over the period of 1995-2006. At the country level, the research shows that there are strong and positive effects of trade, domestic investment, labor force and FDI on Vietnamese economic growth. However, the beneficial effect on growth of FDI simply comes from the higher capital accumulation. FDI is not significant effect on economic growth through the interaction effects of FDI with human capital, domestic investment and trade. The flow of advanced technology brought along by FDI seems not transferred to the low quality of Vietnamese human capital, the level of openness and the competition of between FDI and domestic investment.

At the regional levels, the effects of FDI on economic growth in specific regions of Vietnam are differently based on the region characteristics. In the Northern region, the higher capital flow of foreign investment is a major factor effecting economic growth of all sub-regions in the Northern region. The Red River Delta region increases also its economic growth by the development of domestic investment and the North Uplands region raises its economic growth by the development of the labor force. However, both the interaction terms of FDI with domestic investment in the Red River Delta and the North Uplands regions are shown negative and significant effects. It means that even though FDI brings new technology and advanced managerial knowledge and skills to the host area, it could also drive the domestic firms out of the market if the domestic firms are unable to absorb the technology and knowledge introduced and not be capable of competing effectively.

In the Central region, the results show that labor force and trade are the factors positively effecting economic growth in all sub-regions and entire region of the Central.

The positive interactions between FDI and trade in all sub-regions and the whole region of the Central is consistent with the ideas is that FDI inflow is particularly good for economic growth in countries with open trade regimes. The flow of superior technologies transferring from foreign direct investment firms can also increase the growth rate of the North Central Coast and Highlands regions only by interacting with that area's absorptive capability.

In the Southern region, the positively significant coefficients of the domestic investment, human capital and labor force are factors increasing the economic growth of the region. As is the focally economic development region of Vietnam, leading in international trade value, investment, GDP and several other socioeconomic factors, the South East region shows the contribution of FDI to economic growth is enhanced by both increasing total capital accumulation and its interaction with the level of human capital in the host region. The region may crowd out domestic investment by competing in products with the local firms. The foreign firms in the South East region may not contribute or contribute small effect to the economic growth of the region as they only used small resources of labor and place of the host area to produce and export their products. In the Mekong River Delta region, the only factor positive effect on growth rate of the region is human capital. However, FDI cannot effect on economic growth of the region through human capital as the human capital is unabsorbed foreign knowledge brought by FDI firms and then not helps increasing the economic growth.

CHAPTER V

EFFECTS OF FOREIGN DIRECT INVESTMENT ON INTERNATIONAL TRADE IN VIETNAM

5.1. Introduction

Foreign direct investment and trade are at the cores of the globalization process and stand for the mobility of capital and goods across borders. They both build and increase the complexity of economic interdependence between distinct economies. In the year of 1986, Vietnam started the transition from a central planned economy to a market oriented economy. Liberalizing markets, allowing foreign goods and services to enter the market either through trade or direct investments, was one of the major aspects of the transition. There were large amounts of foreign direct investment and trade in Vietnam during the last 20 years. The total trade and the total registered capital of FDI inflow in 1986-2006 were 498.58 billion USD and 78.25 billion USD, respectively. The total international trade in the year of 2006 exceeded 84.72 billion USD, increasing by 28.8 times compared to that in 1986. In 2006 alone, there were 987 FDI projects receiving investment licenses with total registered capital amounting to 12 billion USD, accounting for one sixths of the total FDI registered capital.

There have been, however, some worrying concerns behind this trend. While both FDI and trade can be beneficial to economic growth and development, the relationship between the two can be either substitution or complementary in internationalization. What is the impact of FDI inflow on Vietnam's bilateral trade? The literature of international trade shows that FDI inflow can affect international trade of a host country as Vietnam in both positive and negative ways. First, raising the amount of the FDI inflow into Vietnam will eventually substitute the existing Vietnamese's import from the

home country as products produced in Vietnam can replace the host country's imports from home country. This is the effect of substitution between horizontal FDI and trade flows. Second, the international enterprises invested in Vietnam to supply the local market (Vietnam) as the first case; however, they still import parts, intermediate products and machinery from their home country to produce goods and serve it in the local market. This case horizontal FDI is complementary with trade flows due to the increasing of imports. Third, in contrast, increasing FDI inflow can complement Vietnamese's import as multinational firms in Vietnam, whose production are vertically integrated with the home country's parent company, need to import intermediate inputs from the home country. If there exists in technology spillover effects from multinational firms in Vietnam to the local Vietnamese firms, the Vietnamese firms will export the final product not only back to the home country but also to other countries that demand this good. Such cases, FDI and trade are complement.

The main purpose of this chapter is to figure out the effect of FDI inflow into Vietnam on its imports, exports, and total trade. Investigation of the linkage between FDI and trade would help us to reveal the major investing motivations of foreign investors in Vietnamese economy and allow Vietnamese policy makers to respond appropriately for stimulating further capital inflows. If a negative parameter on inward FDI is obtained in exports (imports) equation, FDI is considered displacing trade. If a positive import or export factor on inward FDI is occurred, FDI is complementary with trade. My work improves upon the former Vietnamese's studies in some aspects. First, it is broader in statistical terms than other studies by using panel data set covering 30 countries and 14 years (1993-2006). More specifically, this chapter has limited its scope of analysis within the international trade volume of goods only. Second, the paper takes into account the effects on different trading blocs: developing countries and developed countries. The developing countries used in the research are 12 countries from Asia and Russia. The developed countries used in this research are identified as members of OECD, including 13 European countries, 2 American countries (Canada and the United States), 2 Oceanian countries (New Zealand and Australia) and 2 Asian countries (Japan and Korea). The

different patterns of the two trading blocks could give very different relationship between FDI and trade, and then particular policies from the government are needed to develop the better relationship.

The chapter is organized as follows. After the introduction, the next section reviews theoretical and empirical studies on the effect of FDI on trade. Then, the gravity model is created to examine the effect of FDI inflow on trade. The national data of 30 countries over 1993-2006 are used. The empirical results, interpretations and summaries are presented in the final part.

5.2. Effects of FDI on international trade: a review of the literature

5.2.1. Theories

Traditionally, the theories of FDI and international trade have been developed separately. The FDI theories try to explain why firms invest in particular countries and use the notions of ownership, internalization and location advantages as determinants of investment choices. The Trade theories, developed much earlier, have put emphasis on why countries trade with each other and have stressed the principles of comparative advantage as the determinants of trade patterns. However, during the past 50 years, several attempts have been made by international trade theorists to integrate the theories of FDI and trade.

5.2.1.1. Neoclassical trade theories

In the neoclassical trade theories, some theoretical works have predicted either a substitute or complementary relationship between FDI and trade based on the imperfect competition, the economics of scale, the difference in production technologies, etc.

Mundell (1957) was the first paper to focus on the relationship between FDI and international trade. Mundell's model was based on Heckscher-Ohlin's assumptions that the two countries have identical technologies, homothetic tastes and differences in factor endowments and more important assumption that the two countries are engaged in free

trade in goods. It means that perfect factor mobility across sectors within an economy provides a tendency for commodity price equalization. When allowed capital mobility between countries (A and B), Mundell applied a specific import tariff in country A. This raises the capital in country A as it increases the price of capital-intensive goods and its return to capital. Now, the country A increases the production of capital-intensive goods which had been the imported good before tariff and then lowers imports. A also decreases the production of the labor-intensive goods which had been the export goods and then lowers export. The process shows that capital movements, driven by FDI, are perfect substitute for trade of commodities.

Caves (1971) considered FDI is associated with the firm specific capital, and then investment moves from an industry in parent country to the same industry in the host country. FDI will be made basically in sectors that are dominated by oligopolies. If there is product differentiation, horizontal investments may take place, i.e., in the same sector. If there is no product differentiation, vertical investments will be made in sectors that are behind in the productive chain of firms. The existence of FDI is further related to trade barriers, as a way of avoiding uncertainties in supplies, or as a way of imposing barriers to new firms on the external market.

As mentioned earlier, Vernon (1966) and Kojima (1973, 1985) have predicted either a substitute or complementary relationship between FDI and trade based on the imperfect competition, the economics of scale, the difference in production technologies. Vernon (1966) developed the product cycle, in which he considered that FDI affiliates' production and sales in foreign market replace trade in the same market. It also means the substitute relationship between FDI and trade. However, Kojima (1973, 1985) described FDI as complementary to trade. From a macroeconomic point of view, he stated that export-oriented FDI occurs when countries export comparatively advantaged goods and import comparatively disadvantaged goods, so that FDI will maximize their economic welfare and gain from trade in both home and host countries. This theory is essentially an extension of the neoclassical theory of factor endowments to explain trade in intermediate goods, notably technology and management skills.

5.2.1.2. New Trade Theories

Beginning new trade theories in the early 1980s, several attempts have been made by international trade theorists to integrate the theories of FDI and trade. The industrial-organization approach to trade began developing general equilibrium models integrating of the theory of multinational enterprise into the theory of international trade with increasing returns to scale and imperfect competition. Economists explain the complementary or substitutive relationship of FDI and trade into three branches: the vertical multinational firm model (also called by vertical FDI model³¹), the horizontal multinational firm model (also called by horizontal FDI model) and latterly, the theory was combined these two approaches into a richer framework that allows firms to choose among domestic, horizontal and vertical strategies. In this part, we concentrate more in explanations of the relationship between FDI and trade in new trade theories.

Helpman (1984) and Helpman and Krugman (1985) built models to integrate vertical FDI into international trade theory. The models constructed on the theory of capital flows where direct investment was essentially for the foreign production branch. The initial studies explained the expansion across borders in the terms of factor proportion differences where the firm's headquarters are geographically separated from the production. Multinationals expanded vertical abroad by taking advantages of factor prices differences in relative factor endowments between countries in order to reduce costs. Hence, the larger the difference in countries' relative factor endowments, the larger FDI created the volume of trade. As production is only parts of goods or services, the vertical FDI firms have to import other intermediate goods to produce final goods into the host country and export final products to the other countries including the home country. This process can help both the home and host countries increase its total trade. In short, vertical FDI and trade are enhancing complementary relationship.

The implications of vertical FDI have not gained many attentions so far. The literature mentions only the impact on international trade flows. Vertical FDI is seen to

³¹ Vertical FDI model is a model in which multinationals separate geographically their different stages of good and service's production. Horizontal FDI model is a model in which multinationals produce the same complete production of good or services in different countries.

be trade creating, since products at different stages are shipped between different locations. However, due to the assumption of no transaction cost and tariffs, the explanation about the complementary relationship between FDI and trade is only one-way investment flows between economies. The models require large differences in countries' relative factor endowments for FDI to take place and are particularly useful to explain FDI from developed countries into developing countries.

In another aspect, the substitutability between horizontal FDI and trade can be presented in the models of Horstmann and Markusen (1992), Brainard (1993), Markusen and Venables (1995, 1998) and Helpman, Melitz and Yeaple (2004) that constructed models integrating horizontal FDI into international trade. The choice of multinational firms depends on the interactions between three key elements: the firm level activities such as research and development; the plant-level scale economies, and the presence of positive trade costs (such as transport, geographical and cultural distance costs). These models introduce firms into a simple multi-country, multi-sector model, in which firms face a proximity-concentration trade off. The driving force here is the trade-off between the advantages of being near to the market to avoid transportation costs (proximity) and scale effects in case of production in one plant (concentration).

Horstmann and Markusen (1992) and Brainard (1993) assumed that there were two identical countries such as similar in size, factor endowments and technology, so that no trade results from comparative advantages. Although Horstmann and Markusen (1992) considered the case in which firms produce homogenous goods and Brainard (1993) was interested in the differentiated goods produced, the similar results are made. They concluded that at normal transaction cost rates, multinationals existed when the firm level fixed costs, tariffs and transport costs were high relative to plant specific fixed costs. If the transport costs reached zero, only national enterprises exporting to each other's markets would exist. If the transport costs reached very high levels, only MNEs would exist because of their advantages in lower fixed costs per market. The national enterprises could not join the market due to facing high-priced export costs. As the multinational firms also produced final goods in the host country, they could not

encourage exporting those goods from the home country. It means that there were exports' decreasing in the home country and imports' decreasing in the host country. Moreover, the horizontal FDI firms also reduced its export of goods to the home country due to the same productions. Those conclusions preferred the substitution relationship between FDI inflows and trade.

Markusen and Venables (1995, 1998) further elaborated the theory to introduce asymmetries between countries in terms of market size, factor endowments, and technologies. The models have the same ideas as in the above models. Helpman, Melitz and Yeaple (2004) introduced heterogeneous firms into a simple multi-country, multi-sector model, in which firms also faced a proximity-concentration trade off. The model showed that foreign market were served more by exports relative to FDI when dispersion in firm size was higher, trade frictions were lower or economies of scale were higher. It postulated a substitution relationship between horizontal FDI and trade.

Developed by Markusen et al (1996), with the extensions in Markusen (1997, 2000), Knowledge-Capital (K-C) models are theoretical models combining both horizontal and vertical FDI. Depending on country characteristics, both types of FDI can occur endogenously within the single model. It is called the "Knowledge-Capital" model because knowledge is geographically mobile intangible asset and serves as a joint input to multiple countries. Markusen et al (1996) built the K-C model with three firm types: horizontal FDI, vertical FDI and the firms from the home country that serve foreign markets by export. The model showed that vertical FDI was dominating when the countries have been similar in size but very different in terms of factor endowments. The horizontal FDI was serving when the countries have been similar in size and factor endowments but very high in transaction costs. The national enterprise was serving the markets by export when the countries are similar in factor endowments but very different in size and depending on the transaction costs. The results of KC model showed consistent with the previously described model of vertical and horizontal FDI.

From the literatures, the effect of FDI on international trade is ambiguous. The conclusions of the relationship are based on the features of the FDI flows. Horizontal FDI

occurs in the large and similar countries and it substitutes trade flows since the market is served through local production instead of exports. Vertical FDI enhances a complementary relationship with trade and takes place if importing costs of goods and services are high relative to costs of investing.

5.2.2. Empirical evidences on international studies

Many empirical studies concentrate on the relationship between FDI and international trade. Although many theoretical studies are concluded the substitutive relationship between the two factors, the empirical studies are mostly concluded the complementary relationship between FDI and trade. The studies could be classified by the firm, industry and country levels.

At the firm level studies

Lipsey and Weiss (1984) used the disaggregating data by industry firms, locations of investment and destinations of exports to test the relationship of FDI and trade in the US. Using cross sectional data of individual firms, they found a positive coefficient of US outbound FDI on exports to the host industries. In researching the foreign owned manufacturing affiliates in the US, Lipsey (1991) found the higher export shares of foreign affiliates than that of US firms in metals and chemicals. This shows FDI and exports are complemented.

Head and Ries (2001) used a group of panel data containing 932 Japanese firms during a 25-year period (1966-1990) to investigate the effects of FDI on exports. They used the number of investments in production and distribution, with one year lagged, as proxy for FDI. In the full sample of firm, they concluded that the firms that increased their investments abroad could also increase their exports.

Using data relative to 421 French firms for the year 1993 and using the number of workers of the affiliate as proxy of FDI, Mucchielli et al. (2000) supported the existence of the complement between global exports and FDI, as well as between the imports and FDI. However, the analyzing the volume of trade of the invested abroad French firms

only showed a strong complementary relationship between FDI and intra-firm trade, but a substitution between FDI and inter-firm trade.

At the industry level studies

Lipsey and Weiss (1981) examined the relationship using cross-section data by industry for 44 destination countries. In relation with size of destination countries and the production of FDI firms, the authors concluded that the activity of the foreign affiliates promoted the exports of the countries where the parent firm is located.

Pfaffermayr (1996) analyzed the relationship using data relative to seven Austrian industries during the period 1980-1994, and using the value of FDI stock as a measure of multinational activity. By estimating a simultaneous equations system, the results found a significantly and stably complementary relationship between FDI and exports. An increase in FDI influenced significantly the exports while the positive impact of an increase of exports in FDI is confirmed for lower significance levels.

Brainard (1997) tested the relationship between trade and FDI on the cross-section data of 1989 in 63 industries of 27 countries. The affiliates' employment level and their net assets were used as indicators of FDI. The results pointed to the existence of a positive relationship between FDI and trade.

In case study of Ukraine, Mankovska (2000), the primary-industry FDI from the EU was motivated by Ukraine's comparatively abundant and cheap natural resources, whereas the secondary-industry FDI was motivated by Ukraine's low labor wage and large and untapped revenue of the domestic market. The paper concluded that FDI from the EU in the primary-industry³² was mostly export oriented, so that it was complement on trade, while that in the secondary-industry tended to substitute on trade.

In case of Tunisia, Mekki (2003) used a panel data to analysis the relationship of FDI and Trade in six manufacturing industries in the period 1990-2003. The author estimated individual effects by industries and showed that FDI in Tunisian manufacturing

³² Mankovska (2000) divided industries in two levels: primary-industry and secondary-industry. Primary-industry regards industries in the field of agricultures and resource-based industries. Secondary-industry prefers industries in the filed of manufacturing.

industries was associated with exports and imports in textile and leather, mechanical and electrical, chemical and agro food industries. However, FDI replaced trade flows in building materials and miscellaneous manufacturing industries.

At the country level studies

Grubert and Mutti (1999) evaluated the relationship between FDI and international trade of 33 countries that were having the commercial relationships with the United States. The results supported the existence of complementarities in the bilateral perspective: the U.S. seemed to import more from the lower tax countries and exported more to those countries.

Using time-series analysis, Andersen & Hainaut (1998) found the contrasted evidence for the complementary effects between exports and outward FDI flows. There is the complementary relationship between FDI and trade in the United States, Japan and Germany but not in the United Kingdom.

Clausing (2000) examined the relationship of the American FDI in 29 host countries and American trade based on two groups of panel data in the period 1977-1994. The results indicated that FDI was positively influencing trade. A strongly complementary effect of FDI on intra-firm trade and a weakly complementary effect of FDI on inter-firm trade existed. The positive relationship between imports and FDI was also recognized in the paper.

Goldberg and Klein (1999) tested the relationship of inward FDI and the net exports of specific manufacturing sectors in eight Latin American countries³³. Using the time series data on eight Latin American countries in the 1972-1994 periods, they found the positive and statistically significant relationship between FDI and exports. FDI can also expand the composition activity in between manufacturing sectors of the countries.

Using the Granger causality tests in Spanish, Bajo-Rubio and Montero-Munoz (1999) investigated relationship of outward FDI and exports in the 1977-1992 periods. They showed the positive and significant impact of FDI on exports in long run, even

³³ Eight Latin American countries are Argentina, Brazil, Chile, Colombia, Ecuador, Mexico, Peru and Venezuela

though it did not have any relationship in the short run. However, the study was omitted some relevant variables when testing FDI-export relationship due to using bivariate setting.

Blonigen (2001) used the product-level trade and FDI data of Japanese firms in the United States to show the new FDI in the US increased Japanese exports of related intermediate inputs, whereas new FDI lead to decline in Japanese exports of the same finished products. Head and Ries (2001) and Swenson (2004) showed similar evidence when using data on Japanese firm-level data or US industry level data, respectively.

Based on the hypothesis that FDI was used as an explanatory variable of Fry (1993), Teo and Wang (2001) run the panel data regressions on the twelve provinces of China to test the relationship of FDI and economic growth, imports, exports and domestic investment. The results showed that FDI had a very small effect on economic growth in China and it was not an important driving factor of export expansion. Exports were the great factors contributed economic growth in China. They also concluded that FDI stimulated China's domestic investment and had positive impact on the imports.

In short, the relationship of FDI and international trade is still under arguments. The results seem to be sensitive to the choice of explanatory variables, country, and the period of different samples studying. However, based on the current studies, most empirical studies show the complementary relationship of FDI inflow and international trade in the host country.

5.2.3. Empirical evidences on the Vietnam's studies

Although the FDI inflow and trade in Vietnam have been increasing over the years, very little empirical analyses the FDI-trade relationship has been carried out for Vietnam compared to other developing countries. I found that there are only two papers testing the relationship between FDI and trade flows. Both are produced in 2006 and in applying the gravity model.

Based on panel data set for 19 of Vietnam's trade partners over the period 1995-2004, Nguyen Phi Lan (2006) tested the relationship between FDI and bilateral trade

flows between Vietnam and each of its trade partners. The empirical results provided clearly the complementary relationship between FDI and trade flows. Moreover, economic growth was also increased exports to and imports from the Vietnam's trading partners.

Nguyen Thanh Xuan (2006) used the database covered FDI flows into Vietnam from 23 countries from 1990 to 2004 to analyze the impact of FDI on exports of Vietnam. The empirical results showed that the rapid expansion of Vietnamese exports was attributed to FDI inflows substantially. Moreover, the devaluation of the VND, high GDP of Vietnam and its trading countries were also important factors that help increasing of Vietnam's exports. However, the paper found no evidence demonstrating that Vietnam's exports to other ASEAN countries are promoted as Vietnam is a member of ASEAN countries.

5.3. Methodology

This part seeks to examine the effects of FDI inflow on international trade in Vietnam. The question addressing in this chapter is whether the FDI and trade are complementary or substitutive. FDI is said to be complementary with trade in a host country when it leads to higher levels of both exports and imports in the host country. On the other hand, FDI is said to be substituting when the direct investment leads to decrease the trade between the home and the host country. Based on previous researches, a modified version of a traditional gravity model is expressed and adapted in this chapter. This chapter also discusses the characteristics of used data, descriptive and quantitative analyses of the variables used in the models.

5.3.1. Gravity model

The gravity model is family of spatial interaction models, which can be traced to the Newtonian model of gravitational interaction between planetary bodies. In general, spatial interaction models are used to measure movements across space that result from

human processes (Hayness and Fotheringham, 1984; Pooler, 1994). Gravity models are based on the rationale that the interaction between two bodies depends on their masses and the friction between them. The traditional gravity model has two basis elements and can be represented as follows:

$$A_{ij} = \beta_0 B_i^{\beta_1} B_j^{\beta_2} C_{ij}^{\beta_3}$$

where A_{ij} = spatial interaction between two bodies i and j . B_i and B_j are the masses of i and j . The mass impact (or scale impact) measures the propulsion of the origin and the attraction of the destination. Examples of variables used to estimate the scale impact are GDP, per capital income and population. C_{ij} is the friction between i and j . Friction impact measures the factors that either impede or enhance the interaction between the origin and destination. For instance, greater distance between two places is likely to reduce the interaction between them. β represents the extent to which B_i , B_j and C influence the interaction between the two masses.

The traditional form of a gravity model has been extended, adapted and applied in various applications such as transportation, marketing, retailing, urban analysis, economics, and others. Used primarily by Tinbergen (1962) and Polyhonnen (1963), the gravity model is one of the standard tools for empirical studies in international trade. Tinbergen (1962) used economic forces of the origin and destination countries to study the determinants of international trade flows between the two sets of countries. That is

$$T_{ij} = A \frac{Y_i Y_j}{D_{ij}}, \text{ where } T_{ij} \text{ is trade between country } i \text{ and } j. Y \text{ is GDP of the}$$

country and D is distance between them as a proxy for transaction cost. A is a constant of proportionality. The model predicted that bilateral trade between a pair of countries should increase as their economies of scale increase and decrease as the transaction costs increase, even though it is not explained which products would trade between the two. The similar results have been presented in some later studies of Anderson (1979), Bergstrand (1985) and Bergstrand (1989).

Since then, the model has been widely used in the empirical analyses of FDI and trade flows by both economists and geographers. The gravity model has been used to

estimate the effects of factors like GDP, population, exchange rates, membership in trade blocs and presence of common border between countries on both FDI and trade (Eaton and Tamura, 1996; Frankel et al., 1995; Johansson and Westin, 1993; and Hacker and Johansson, 2000). Frankel (1994), Frankel et al (1995), Frankel and Romer (1996) and Frankel (1997) formulated a more advance standardized form of gravity equations where were given on the role of geographical factors such as distance, border sharing and population, as determinants of bilateral trade flows, as well as dummy variables such as common language, and regional trade block. It has also been used to examine the spatial variation of both FDI and trade patterns (Erickson and Haywood, 1991; Hanink, 1998; and Poon, 1997). One of the reasons of the model has been so widely used is that it can be adapted to measure spatial interaction like trade flows arising from a variety of economic factors like GDP, per capital income as well as non economic factors like distance, language and other cultural affinities. This adaptability of the gravity model makes it a good candidate for examining the interaction between FDI and trade in this chapter.

5.3.2. Regression model and estimation technique

The main objective is to investigate the complementary or substitutive effects of FDI inflows on the bilateral trade flows of Vietnam. The empirical analysis applies a modified gravity model to panel observations of Vietnamese total trade, exports to and imports from its 30 trading partner countries over the period of 1993-2006. To measure the elasticity of changes in dependent variables with regard to changes in the independent variables, the logarithmic form of these variables is used. Traditionally, the GDP of a country is used in the gravity model to present the scale of economy. In this research, GDP per capita (GDPPC) and population (POP) are used instead. From the mathematic perspective, this change does not make any difference as $\log(\text{GDP}) = \log(\text{GDPPC} * \text{POP}) = \log(\text{GDPPC}) + \log(\text{POP})$. From statistic perspectives, the regression result might be slightly different. The intention is to explore the effect of GDPPC and POP, not the effect of GDP as a whole.

Let t denote years, v is Vietnam, and j is the trading partner country, the specific models are presented as following:

$$\text{LnTT}_{jvt} = \beta_0 + \beta_1 \ln\text{GDPPC}_{jt} + \beta_2 \ln\text{GDPPCV}_t + \beta_3 \ln\text{POP}_{jt} + \beta_4 \ln\text{POPV}_t + \beta_5 \ln\text{CFDI}_{jvt} + \beta_6 \ln\text{Dist}_{jv} + \beta_7 \ln\text{REX}_{jvt} + \beta_8 \text{ASEAN} + U_{jvt} \quad (3)$$

$$\text{LnEX}_{jvt} = \alpha_0 + \alpha_1 \ln\text{GDPPC}_{jt} + \alpha_2 \ln\text{GDPPCV}_t + \alpha_3 \ln\text{POP}_{jt} + \alpha_4 \ln\text{POPV}_t + \alpha_5 \ln\text{CFDI}_{jvt} + \alpha_6 \ln\text{Dist}_{jv} + \alpha_7 \ln\text{REX}_{jvt} + \alpha_8 \text{ASEAN} + V_{jt} \quad (4)$$

$$\text{LnIM}_{jvt} = \delta_0 + \delta_1 \ln\text{GDPPC}_{jt} + \delta_2 \ln\text{GDPPCV}_t + \delta_3 \ln\text{POP}_{jt} + \delta_4 \ln\text{POPV}_t + \delta_5 \ln\text{CFDI}_{jvt} + \delta_6 \ln\text{Dist}_{jv} + \delta_7 \ln\text{REX}_{jvt} + \delta_8 \text{ASEAN} + E_{jt} \quad (5)$$

where j is 1, 2, ..., 30 countries, t is 1993, 1994, ..., 2006 (14years). TT_{jvt} , EX_{jvt} , and IM_{jvt} denote bilateral total trade flows, exports and imports between Vietnam and country j at time t , expressed in millions of US dollars. GDPPCV and GDPPC_j present gross domestic production per capita of Vietnam and the country j , expressed in millions of US dollars. POPV and POP_j are population of Vietnam and the country j , expressed in thousand persons. CFDI_j is the accumulated foreign direct investment since 1988 up to the year t of country j into Vietnam, expressed in millions of US dollars. Dist_{jv} presents the geographical distance in kilometers between the capital of Vietnam (Hanoi) and the capital of country j . There are some countries located near the South of Vietnam such as Cambodia, Indonesia, Malaysia, Philippines, Singapore, Thailand, New Zealand and Australia. The distance from those countries to Vietnam is calculated from their capital and Ho Chi Minh City as Ho Chi Minh City is the biggest trade center of Vietnam. REX is the nominal exchange rate between the national currency of Vietnam (VND) and country j in year t . ASEAN is a dummy variable presenting memberships of the Association of Southeast Asian Nations (ASEAN). The dummy variable takes value of 1 if a country is the member of ASEAN, and 0 for non-members. U , V and E are the static errors in each equation.

Panel regressions spanning 30 trading partners of Vietnam over 14 years (1993 to 2006) are used for this analysis. Multiple linear regressions are utilized to identify the most significant independent variables after the correlation analysis is done among independent variables across provinces. The panel data are also tested for a unit root before estimations by the method of Levin, Lin and Chu (2002). If the null hypothesis of a unit root cannot be rejected for a data series, the first difference form of its series will be used to estimate in the regressions. This study uses the stock of FDI as an explanatory variable of trade flows which has several advantages in relation to the alternative inclusion of FDI. Firstly, the stock variable avoids problem of multicollinearity between trade and investment flows, given that such flows are simultaneously affected by the same economic variables. Secondly, because FDI flows do have an impact on trade with a time lag, the use of stocks is able to capture the lagged effects which are not possible with flows.

5.3.3. Expected signs of variables

There are three constructed models to examine the relationship of FDI inflow and bilateral total trade, exports and imports of Vietnam. Total trade, exports and imports are the dependent variables. The dependent variables are presented by the merchandise values of Vietnam's total international trade, exports and imports without caring inter-region/province trade among Vietnam's regions and provinces.

In literatures, trade between two countries should be positively related to their economies of scale. Population (POP) is considered as a determinant factor of consumer market and the level of resource endowment of a labor market. Larger economies, with a greater production capacity, are more to achieve scale of economies and increase their exports based on the comparative advantage. They also possess large domestic markets able to absorb more imports. Therefore, followed the gravity model, I expected that population has positive effect on bilateral trade volumes.

Per capita income (GDPPC) is included to capture the degree of similarity between countries in terms of economic development. It is expected to have positive

impact on bilateral trade since countries with higher levels of development are more dimensions to trade. Moreover; the richer countries appear to trade more because they liberalize more as they develop.

The distance variable is a trade resistance factor that represented trade barriers such as transport cost, time, culture, unfamiliarity and market accesses barriers, etc. The geographical distance is expected to reduce trade orientation because of the distance is associated with transportation cost. Increasing transportation costs makes international trade more costly, then reduces the favoring of trade and makes economic activity more inwardly oriented. The distance can be calculated in kilometers, between the economic capitals of Vietnam (Hanoi and Ho Chi Minh City) and its partners in the world.

The changes in the exchange rate between the two trading partners may affect the trade flows among partners because it can increase or decrease commodity prices in either national or foreign currency. REX is presented the nominal exchange rate between national currency of Vietnam (VND) and country j in year t . When the exchange rate depreciates, the Vietnamese currency is appreciating, reducing Vietnamese exports but increasing its imports as a foreign importer will import less. Hence, the coefficient of the exchange rate is expected to be negative when imports are dependent variables, while positive when exports are dependent variables.

There is a dummy variable included in the model as explanatory variable in order to determine how much regional trade agreements are influential to the bilateral trade flows of Vietnam. The dummy variable (ASEAN) takes value of 1 if a country is the member of ASEAN and 0 for non-members. The positive and significant sign of ASEAN implies that Vietnamese bilateral trade flows will expand through the membership of ASEAN, while a negative sign implies that Vietnamese bilateral trade flows will decrease because of the ASEAN membership. However, I expected that the dummy ASEAN is positive since trade should be larger among countries with trade agreements as advantage of low tariffs in the trading block.

The coefficient of foreign domestic investment (CFDI) will depend on the type of activities that the multinational enterprises are undertaking in Vietnam. If FDI was

mostly of the horizontal type, a decrease in import is expected as well as an occasional increase in exports as affiliates can also supply foreign markets. However, it is possible that horizontal investment resulted in larger imports of inputs to supply affiliate production for the local markets. If FDI was mostly of the vertical type, an increase in both imports and exports is expected. A host country may increase its imports of intermediate inputs to serve the newly created affiliate production and export the final good not only back to the home country but also to other countries that demand this good. Therefore, the complementary or substitutive relationship between FDI and trade may exit simultaneously. The combination of the two may lead to a positive or negative net impact of FDI on export and import volumes.

5.3.4. The Data

The data sample covers 30 major trading partners of Vietnam which accounted for average of 91.5% of Vietnamese's total trade volume, 90.2% of the total exports and more than 93% of the total imports over 1993-2006. The chosen countries include 12 Asian countries, 14 European countries, 2 countries from America (Canada and United States) and 2 last countries from Oceania (New Zealand and Australia). All the countries have been trading continuously both imports and exports to Vietnam over 1993-2006. The list of the countries is presented in the Appendix E.

Data used in this research is in 14 years, from 1993 to 2006. The data of Vietnamese total trade, imports, exports and FDI inflows are expressed in millions of US dollars and collected from *The Vietnamese international merchandise trade for 20 years renovation 1986-2005* and various issues of *Vietnam Statistical Yearbook* from 1993 to 2006. Moreover, data of population and GDP per capita of all Vietnamese's trading partners are obtained from the *World Development Indicators* (WDI) database of the World Bank and from the *International Financial Statistics* (IFS), CD-ROM database of International Monetary Fund (IMF). The exchange rates are the annual average for each given year, obtaining from IMF data source. The data on the geographical distance (in kilometers) between the economic centers of Vietnam (Hanoi and Ho Chi Minh City) and

other capital cities of Vietnam's trading partners are retrieved online from http://distancecalculator.globefeed.com/World_Distance_Calculator.asp. Except dummy variable ASEAN, all variables used in the sample are transformed into natural logarithm forms.

Descriptive statistics for all variables are presented in Appendix F. The results of common correlation of the pair variable analyses are excluded from the highly correlated relationship, meaning that no serious multicollinearity appears on the results of regressions.

5.4. Estimation results and Interpretation

This section reports the estimated results of the equations (3), (4) and (5) and discusses the findings. Table 38 shows the empirical results of the export effects of FDI. Table 39 discusses the impacts of the FDI inflow on Vietnamese's imports. Table 40 presents the regression results of the relationships between FDI inflow and total trade into Vietnam. Estimations use the method of panel least squares with while period standard errors. Autoregressive order one or two (AR(1) or AR(2)) is included with the purpose of correcting autocorrelations in the estimations.

5.4.1. Effect of FDI inflow on exports of Vietnam

Table 38 shows the estimation results of the effect of FDI inflow on exports of Vietnam by using data of 30 trading partners over 1993-2006 period. The overall performance of the whole model is presented in the columns 5.1a and 5.1b. Columns 5.2 and 5.3 examine the impacts of FDI inflows on Vietnam's exports separately in two different trading groups: developing countries and developed countries. The equations explained 93% of the variations of exports though nine variables included in the model.

The coefficients of CFDI of the entire sample and the case of developed countries are highly positive and significant at 1%, suggesting that FDI in Vietnam contributed significantly to the increase of the country's exports and that Vietnam exports relatively

more to the countries which invest more in Vietnam. Specifically, a 1% increase in FDI inflow will boost by 0.23% exports to the FDI source country of the developed countries and the whole sample in general. On the other hand, the estimated coefficient of independent variable CFDI in case of the selected developing countries is insignificant. The estimated results could be explained by the development of Vietnam's exports. Together with the rapid growth of Vietnam exports, foreign companies invested in Vietnam have been increasing and showing their important role in export. In 2001-2005, the exports of foreign firms reached \$57.9 billion, about 52.2% of Vietnam's total exports, while in 1991-1995, the exports by foreign invested firms had accounted for 6.2% (Table 14). Developed countries (Japan, United States, Singapore, Australia, Korea, United Kingdom, Germany, Belgium, France, Hong Kong, Italia and so on) contribute as the top exporters of the exports of Vietnam (Table 12). In 1986-2006, Japan tops of the exporters with the export share in Vietnamese total export of 15.8%, followed by United States (12.5%), Australia (6.6%), Germany (3.2%), Korea (2.7%) and United Kingdom (2.6%). MNEs of the developed countries, especially those from Japan, typically tend to utilize Vietnam as their export production bases. They usually relocate their production capacities into Vietnam for reducing production costs and taking advantage of natural resources. Advantages of labor-intensive products and natural resources are identified by Vietnam. Over the 1986-2005 period, crude oil, garments and textile, seafood, footwear and electronic goods were major export items of Vietnam as well as the foreign invested firms.

Beside the results of FDI-export relationship, the estimation results also show some interesting findings. The GDP per capita and population of the exported destination countries have positive and significant effects on Vietnamese exports. As a whole sample, the coefficients of the GDP per capita and population are 0.30 and 0.64, respectively, proving that a 1% growth in the population and GDP per capita of Vietnam's exporting partners will raise to 0.6% and 0.3 % of growth in Vietnam's exports. The interesting result is that the population of the developed countries may have bigger influence on Vietnam's exports than its GDP per capita do. It means that the imported commodities

are needed more than the increasing of income level in the developed countries if they increase their population.

Table 38: Empirical results of export effects of FDI inflow in Vietnam

Dependent variable: **LnEX**

Variable	Whole sample (30 countries)		Developing countries (11 countries)	Developed countries (19 countries)
	5.1a	5.1b	5.2	5.3
Intercept	59.2839 (1.3485)	69.1654 (1.3848)	80.6096 (0.1560)	25.2905 (0.4823)
LnGDPPC	0.3029 (3.5320)***	0.1771 (2.0209)**	-0.3887 (-1.0907)	0.6724 (4.8974)***
LnGDPPCV	1.1566 (4.3149)***	1.3061 (4.8047)***	1.3114 (2.2217)**	0.7791 (1.8182)*
LnPOP	0.6422 (5.5977)***	0.5996 (4.9781)***	1.4498 (1.7015)*	0.7677 (6.8734)***
LnPOPV	-6.2080 (-1.5294)	-6.9181 (-1.5153)	-7.7437 (-0.1778)	-3.2373 (-0.6464)
LnDIST	-0.1558 (-1.0951)	-0.2647 (-1.9988)**	-0.1076 (-3.5907)***	-0.4799 (-2.2961)**
LnCFDI	0.2319 (4.0690)***	0.2184 (3.7477)***	-0.0215 (-1.4975)	0.2429 (4.7938)***
LnREX	0.0064 (0.3867)	0.0141 (0.6418)	-0.0598 (-0.3361)	0.0452 (3.0878)***
ASEAN	1.0206 (3.1474)***			
R-square	0.9709	0.9717	0.9519	0.9787
Adj. R-square	0.9701	0.9710	0.9490	0.9778
DW star	1.7889	1.7724	2.0878	1.8095
No. of obs	360	360	143	228

Note: (1) The coefficient of the variable is shown first, followed by the t statistic is in parentheses

(2) *, **, and *** indicate significance levels of 10, 5 and 1 percent, respectively

(3) Method of regression: Panel EGLS (Cross-section weights) with White cross section standard errors & covariance and AR(1,2)

The gravity model assumes that bilateral trade is inversely proportional to the distance between trading partners. The coefficients of physical distance between Vietnam

and its trading partners are found highly negative and significant in the developed countries and the whole sample but insignificant in the case of developing countries. This means that increasing the distance would reduce trade orientation of Vietnam in the developed countries. The results seem fit with the real situation. The 19 developed countries used in the research are most from Europe (13 countries), America (2 countries), Oceania (2 countries) and only 2 countries from Asia (Korea and Japan). The long distances between Vietnam and those countries cause more transport time, higher transportation costs and communication expenses and will increase a product's price and reduce its competitiveness; thus having a negative impact on trade volume and make economic activity more inwardly oriented. Early studies have proven the role of distance in reducing bilateral trade flows (Anderson 1979, Bergstrand 1985 and Bergstrand 1989).

Considering the realization of non-discriminatory trade liberalization after a regional trade agreement is implemented, the model estimates the effects of a region trade agreement (RTA) on Vietnam's bilateral trade by introducing ASEAN as a dummy variable. When all the other variables remain unchanged, a positive coefficient implies that an RTA member tends to trade more with Vietnam, while a negative coefficient means a member tends to reduce trade with Vietnam. The result reported in the column 5.1 for the export estimation presents the positive coefficients of the ASEAN variable and is statistically significant effect at 1% level. The result is consistent with the fact that half of Asian countries in top twenty exporter countries of Vietnam came from ASEAN, leading to 14.6% of Vietnam's total exports. This explains that being a member of ASEAN, Vietnam stimulates and improves its exports due to low export tariff between ASEAN members.

The exchange rates used in this study present the number of units of Vietnamese Dong exchanges for a unit of foreign currency. The coefficient of the bilateral exchange rate is 0.05 and significant at 1% in the sample of developed countries, indicating that the depreciation of Vietnam Dong (VND) letting cheaper Vietnamese goods, then promoting exports.

5.4.3. Effect of FDI inflow on import of Vietnam

The estimated results of the effect of FDI inflow on Vietnam's imports are shown in the Table 39. The coefficients of CFDI are 0.21 and statistically significant at 1% in the sample of the developed countries as well as the 30 countries, suggesting that FDI in Vietnam helps increasing Vietnam's imports. Specifically, a 1% increase in FDI inflow will improve by 0.21% imports from the FDI source country of the developed countries and the whole sample. Nevertheless, the FDI inflow from the developing countries presents an insignificant effect on the country's imports. The explanations of the situation can explain based on the imported commodities of each area. Similar to the experiences of other developing countries, the rapid import growth of Vietnam has also largely based on foreign invested firms. Foreign companies invested in Vietnam have been increasing and showing their important role in imports. The imports of foreign invested firms only reached \$1.3 billion in the period of 1991-1995, about 5.7% of Vietnam's total imports. In 2001-2005, the import value by foreign firms increased up to \$45.2 billion, accounted for 34.3% of the total imports (Table 17). Except Japan and Korea, the top importers of Vietnam during 1986-2006 are developing Asian countries such as Singapore, China, Thailand, Taiwan, Malaysia, Hong Kong, Indonesia and India. The top nice importers of Vietnam that came from the developing Asian countries accounted for 55.7% of Vietnam's total imports, in which Singapore topped the importer list with the 14.3% import share in Vietnam's total imports, followed by Taiwan (10.9%), China (10.5%) and Thailand (5.2%). Most goods imported from those countries are petroleum oil, steel and iron, chemical fertilizes, insecticides and its materials and motorcycles to supply for the demand of domestic consumption. As the imported goods is to provide for Vietnamese consumption, the imports might not have relationship with the FDI source countries.

Table 39: Empirical results of import effects of FDI inflow in VietnamDependent variable: **LnIM**

Variable	Whole sample		Developing	Developed
	5.4a	5.4b	countries	countries
Intercept	-15.2470 (-0.3862)	-18.6699 (-0.4853)	318.0796 (0.8012)	16.0007 (0.4387)
LnGDPPC	0.5246 (2.7678)**	0.5433 (2.8989)***	-0.1374 (-1.0407)	0.4107 (3.8572)***
LnGDPPCV	0.4270 (1.4528)	0.4030 (1.4071)	2.2542 (5.5776)***	0.6376 (2.1993)**
LnPOP	0.5281 (5.3181)***	0.5341 (5.6959)***	1.9374 (1.1388)	0.4885 (5.6824)***
LnPOPV	1.4775 (0.4342)	1.7099 (0.5129)	-27.7832 (-0.8715)	-0.8446 (-0.2598)
LnDIST	-1.2007 (-7.2805)***	-1.1241 (-6.1854)***	0.0873 (1.2052)	-1.7751 (-9.6465)***
LnCFDI	0.2773 (8.3000)***	0.2809 (8.1902)***	0.0126 (0.8854)	0.2637 (5.8523)***
LnREX	-0.0076 (-0.2831)	-0.0110 (-0.4041)	-0.1204 (-1.7816)*	0.0445 (2.1808)**
ASEAN	-0.2632 (-0.7144)			
R-square	0.9819	0.9819	0.9753	0.9833
Adj. R-square	0.9814	0.9814	0.9738	0.9826
DW star	2.0182	2.0202	2.0500	1.9287
No. of Obs.	360	360	143	228

Note: (1) The coefficient of the variable is shown first, followed by the t statistic is in parentheses

(2) *, **, and *** indicate significance levels of 10, 5 and 1 percent, respectively

(3) Method of regression: Panel EGLS (Cross-section weights) with White cross section standard errors & covariance and AR(1,2)

As presented in Table 22, over 1988-2006, half of the top foreign investors into Vietnam came from the developed countries, in which Korea topped the list with 14.7% total registered capital. Japan was the second investor accounting 9.8% of total registered capital. The United States, France, the Netherlands, United Kingdom and Australia were among the most important investors. MNEs of developed countries, especially those from Japan, Korea and the United States, tend to utilize developing countries as their export

product based. The FDI firms locate in a developing country as Vietnam to take advantage of labor-intensive goods and natural resources as they most focused the FDI inflow on crude oil and gas, food products and beverages, garments, footwear, electronic and electric components. The imported products from developed countries (machinery and equipment, plastic, raw materials for footwear, textile fabrics and garments and electronic and electric components) are parts of creating products from their home FDI firms. Therefore, the FDI inflow leads increasing imports of Vietnam from their host developed economies.

The estimations also present some other results. Vietnam's GDP per capita has positive and significant effect on Vietnamese imports from both the developing and developed country samples. A 1% increase of Vietnam's GDP per capita will give rise to 2.25% of increase in imports from developing countries and will increase to 0.64% of the imports from developed countries. The effect of Vietnam's GDP per capita on its imports from the developing countries is much larger than that from developed countries as these imports are served for Vietnam's consumption. As the imported goods are mostly the materials for production, both GDP per capita of Vietnam and the home countries are needed. The population of Vietnam does not influence on Vietnamese imports, meaning that the increase population in Vietnam may not cause more requirements in importing goods in Vietnam.

The distance variables are found highly negative and significant in the whole sample as well as the developed country, indicating that long distances reduce import volume of Vietnam from other world countries. Large distance might discourage a firm from setting up a foreign plant due to high information costs. Moreover, trade costs increase with distance and a firm will have a greater incentive to supply a foreign market directly through an affiliate, instead of exporting to this country. The coefficient of exchange rate is negative and significant in the sample of developing countries, indicating that the appreciation of the Dong promoted imports from the developing countries. The impact of foreign trade agreement (FTA) of Vietnam with ASEAN seems not to help the country increasing its imports. This is because the benefit of reduced

import tariffs between Vietnam and ASEAN countries is not yet applied for the import goods over 1993-2005 as the tariff reduced only began effective recently (2005-2006). Moreover, the Asian finance crisis in 1997-1998 declined intra-region trade.

5.4.1. Effect of FDI inflow on total trade of Vietnam

The estimations of total trade effects of FDI inflow in Vietnam are presented in Table 40. Overall, the variables included in the model accounts for more than 98% of total variations of total trade, meaning that the gravity model has strong predictive power. The results in this part seem combination the estimated results of export and import models. The coefficients of CFDI variables in the total trade estimations of the entire sample as well as developed countries are highly positive and significant effect. The results show that 1% increase in FDI inflow from world countries into Vietnam will lead to increase 0.21% total trade of Vietnam to the FDI source country from the developed countries as well as whole 30 countries sample. From the insignificant coefficient of CFDI in the sample of the developing countries, it seems that the level of the FDI registered capital inflow in Vietnam has no effect on the total trade of Vietnam. The reason is that the FDI source countries export its goods to supply for demand of The Vietnamese market and imported goods from Vietnam to supply demand of the market for their home countries. This is the reason why FDI inflow might not have relationship with total trade of Vietnam.

The size of economies in terms of absolute and relative forms (GDPPC and POP) have positive effect on Vietnam's total trade in the 30-country-sample as well as in the 19 developed countries covered. The developed countries have high average per capita income, and then more dimensions to trade. In addition, the richer countries appear to trade more because they liberalize more as they develop. Same results found as in the case of the export estimations, the destination country's population has bigger impact on total trade than its GDP per capita in the case of the developed countries. Based on the result in column 5.9, increasing 1% of the population and GDP per capita of the developed countries that traded with Vietnam could raise a 0.45% and 0.58 % of

Vietnam's trade from the developed countries. The result suggests that the increase population in a destination country of the developed countries may cause more requirements in importing goods than the increase of income level in the same country. However, the 12-developing country sample presents that the level of population is a factor raising the total trade of Vietnam. This status arises because the developing countries have a huge population that is a big market for Vietnam's export products. The finding implies that the size of trading partners is affected to the trade decision of the host country trade. Vietnam tends to trade more with larger economies. The finding is consistent with the previous empirical evidences justifying the positive role of market size in affecting a country's trade flows in the gravity models (Anderson 1979; Bergstrand 1985; Bergstrand 1989).

As expect, the distance between Vietnam and its trading partners are found highly negative and significant in the whole sample as well as both developing and developed countries, indicating that long distances reduce total trade volume of Vietnam to other world countries. The shorter distance between Vietnam and its trading partners will make lower transportation cost, reducing the product's price and make the goods are more competitive to export. The estimated results report that 1% increase of the distance between Vietnam and its partners in the whole sample can decrease 0.26% of Vietnam's total trade.

Same as the export regressions, the exchange rates appreciate in the samples of developed countries, suggesting that the decrease in the value of VND, and then lead to increase exports and decreases Vietnam's imports. This case the values of exports are bigger than the value of imports, then still lead to increase in total trade. In addition, the FAT with other ASEAN countries failed to benefit the country as coefficient of the dummy variable ASEAN is insignificant, as the FAT does not affect on the country's imports.

Table 40: Empirical results of total trade effects of FDI inflow in VietnamDependent variable: **LnTT**

Variable	Whole sample	Developing countries	Developed countries	
	5.7a	5.7b	5.8	
			5.9	
Intercept	42.8202 (0.9982)	48.2437 (1.1118)	271.1596 (0.9135)	83.7183 (1.1899)
LnGDPPC	0.3293 ((2.6857)***	0.2992 (2.2796)**	-0.2099 (-0.8576)	0.4503 (6.7742)***
LnGDPPCV	0.8611 (6.2327)***	0.8973 (6.6671)***	1.9860 (5.0661)***	0.8316 (3.0399)***
LnPOP	0.5138 (4.6237)***	0.4926 (4.5616)***	2.0622 (1.7269)*	0.5767 (4.9026)***
LnPOPV	-4.1209 (-1.0835)	-4.4716 (-1.1719)	-23.5417 (-0.9948)	-7.6272 (-1.1947)
LnDIST	-0.4633 (-2.4715)**	-0.5871 (-3.4682)***	-0.0191 (-0.7168)	-0.8167 (-3.3902)***
LnCFDI	0.2136 (4.2133)***	0.2077 (4.0646)***	-0.0084 (-0.4773)	0.2148 (3.8451)***
LnREX	0.0017 (0.0766)	0.0057 (0.2236)	-0.1622 (-1.5156)	0.0444 (5.0615)***
ASEAN	0.4935 (1.4077)			
R-square	0.9844	0.9843	0.9801	0.9856
Adj. R-square	0.9840	0.9839	0.9790	0.9850
DW star	1.8950	1.8974	2.1040	1.7798
No. of obs	360	360	143	228

Note: (1) The coefficient of the variable is shown first, followed by the t statistic is in parentheses

(2) *, **, and *** indicate significance levels of 10, 5 and 1 percent, respectively

(3) Method of regression: Panel EGLS (Cross-section weights) with White cross section standard errors & covariance, and AR(1,2)

5.5 Summary

FDI and trade are both important sources of a country to expand its economic development. In literature, either complementary or substitutive relationship could hold. Horizontal FDI occurs when the multinational undertakes the same production activities in multiple and similar countries. It substitutes trade flows since a multinational enterprise is built in a host country to directly supply this market. The market is served

through local production instead of exports. Vertical FDI takes place when the multinational fragments the production process internationally, locating each stage of production in a country where it can be done at the least cost. Vertical FDI and trade are enhancing complementary relationship because there will be an increased exchange of intermediate and final goods between the home and host economies. Even though most theoretical studies are concluded the substitution relationship between FDI and trade (negative correlation), the empirical studies are mostly concluded the complementary relationship between FDI and trade (positive correlation).

The purpose of this chapter is to provide empirical evidence on the effect of FDI inflow on trade in Vietnam. Gravity model framework is applied to estimate the effect by using panel data of 30 trading partners of Vietnam throughout the period of 1993-2006. The model first explores the relationship between FDI and trade in the whole country sample. Then the chapter reveals the different patterns of the FDI-trade relationship in Vietnam studying on different groups of the countries. In all samples, the results support that current FDI inflow in Vietnam has positive effects on Vietnam's imports, exports and total trade. This suggests that FDI is complementary with international trade in Vietnam, presenting the vertical type. This case, Vietnam might increase its import of intermediate inputs to serve the newly created affiliate production and export the final good not only back to the home country but also to other countries that demand this good.

Moreover, there are also included the trade effect of other remaining variables in the model. Incomes of Vietnam's trading countries and its own income are also important determinants of the country trade, demonstrating that growing trade capacity and the competitiveness of Vietnamese products perform a critical role in enhancing its exports and imports. The coefficients of physical distance are found highly negative and significant, indicating that long distances reduce trade volume of Vietnam to other world countries. We found no evidence demonstrating that FTA with ASEAN countries promote imports from these countries. However, the empirical result suggests that the FTA with ASEAN significantly improved Vietnam's exports to the ASEAN market. In case of OECD countries, FDI inflows in Vietnam are contributed significantly to the

increase of the country's exports and imports presented the vertical type of FDI. However, the research found no evidence presenting that FDI inflow from the developing countries promoted exports to and imports from those countries.

CHAPTER VI

THE DYNAMIC RELATIONSHIPS AMONG FOREIGN DIRECT INVESTMENT, TRADE AND ECONOMIC GROWTH IN VIETNAM

6.1. Introduction

Since the launch of market-oriented economic reforms in 1986, Vietnam has been among the fastest growing countries in the Southeast Asia with the active participation of foreign investors in all fields of the economy. The Vietnamese government has quickly joined competition for foreign direct investment into regional and global markets by restructuring of the domestic economy; and opening up of the economy to the external trade and investment to increase its economy. For some recent years, Vietnam's GDP growth rates were average 7.5% annually. The total international trade of Vietnam in 1986-2006 was 498.58 billion USD. The value of international trade in the year of 2006 exceeded 84.72 billion USD, increasing by 28.8 times compared to that in 1986. The total registered capital of FDI in Vietnam in 2001-2005 was about 13 times of that in 1988-2000 period and the registered capital in 2006 was the highest amount (US\$12003 million) and accounted for 1/6 of the total capital registered. Foreign direct investment plays an important role in the process of Vietnam's economic development. The determinants and effects of FDI inflows on Vietnam's economic growth and international trade have been presented in chapter III, IV and chapter V of this research. The study shows that the determinant factors of FDI inflow in Vietnam are the market size, potential growth rate, and openness to trade, high labor force and low level of wages. Moreover, FDI can stimulate the economic growth through capital foundation, human

resources development (human skills and employment) and expanded international trade. Above chapters, however, present the relationships of FDI and growth or trade in the regression with a set of many explanatory variables through supply consideration. They did not consider the dynamic movement of FDI, trade and economic growth in a multi-variance framework. Understanding the casual connections between these phenomena is important for development strategies in Vietnam.

This paper aims to investigate the possible dynamic relationships among foreign direct investment inflow, international trade and economic growth in Vietnam by applying the variance decomposition and impulse response functions of the Vector Auto Regression (VAR) system. This study tests the integration properties of the data, then employs the Johansen procedure to detect the number of integrating vectors and then find how each variable response is shocked by other variables of the system.

The next part summarizes some empirical literatures about the relationship between FDI and trade and growth. Part 6.3 sets a model to test the FDI, trade and economic growth relationships. The empirical results of Vietnam's case study could be presented in part 6.4. Conclusions are in final part.

6.2. Empirical evidences on the causality relationship between FDI, trade and economic growth

In the current theoretical studies, most of the papers examine bivariate relations between the pairs of economic growth and exports (imports), economic growth and FDI or exports (imports) and FDI. In empirical works, however, several published works deal with the causality relationships among economic growth, trade and FDI variables.

Alici and Ucal (2003) developed a VAR model to test the causal relationship between economic growth rate, exports and FDI in Turkish economy. The paper is investigated by examining unit root properties and the Granger non-causality tests in Turkey's quarterly data from 1987 to 2002. The results showed that there was a unidirectional running from export growth to output growth and not found any significant

positive spillovers from FDI to export. It means that the integration of the Turkish economy with the world economy should be enhanced with policies to attract more FDI in order to gain the spillover effects of FDI to output and FDI-led export growth.

Liu, Burrige and Sinclair (2002) tested the relationships between economic growth, FDI, exports and imports in China using quarterly data from 1981 to 1997. The VARECM model showed that there existed two-way causal connection between economic growth, FDI and exports with rather weaker evidence of feedback from imports to the other three. The results also showed that the failure in accounting the interaction between FDI, growth and external trade could produce spurious results in the analysis of the relationships between these four variables, as it may be evident on some previous reported papers.

Dritsaki et al (2004) also investigated a relationship between trade, FDI and economic growth for Greece over the period 1960-2002. The co-integration analysis suggested that there was the long-run equilibrium relationship. There was a bilateral causal relationship between exports and economic growth, a unidirectional direction from foreign direct investments to GDP and a unidirectional causal direction from foreign direct investments to exports. These results supported the economic growth, trade and FDI appear to be jointly reinforcing under the open-door policy.

Hsiao and Hsiao (2006) examined the causality relations between GDP, exports and FDI among the eight rapidly developing countries in East and Southeast Asia (China, Korea, Taiwan, Hong Kong, Singapore, Malaysia, Philippines and Thailand) over 1986 to 2004. The authors, first, estimated the VAR model of the three variables for each of the eight economies by using time series data. They were not found any causality relations for Korea and Hong Kong. Other countries, except Thailand, had found only a few causality relations among the three variables and the causality directions are even not consistent. Second, the authors used panel data of the three variables for the eight economies as a group for Granger causality tests. The results showed that FDI has directly unidirectional effects on GDP and indirectly unidirectional effects on exports. There also exists bidirectional causality between exports and GDP for the group.

There are also some other papers examining the causality of the GDP, exports and FDI. Kohpaiboon (2003) showed the unidirectional causality from FDI to GDP for Thailand under the export promotion regime. By using the quarterly data of Mexico, Brazil and Argentina over 1970 to 2000, Cuadros et al. (2004) concluded that there are unidirectional causalities from real FDI and real exports to real GDP in Mexico and Argentina and unidirectional causality from real GDP to real exports in Brazil. Chowdhury and Mavrotas (2006) presented the unidirectional causality from GDP to FDI for Chile and bidirectional causality between FDI and GDP in Malaysia and Thailand using data from 1969 to 2000.

In general, the results reveal the positive relation from FDI and exports to GDP, even though it could be bidirectional or unidirectional causality relations.

6.3. Methodology

6.3.1. Regression model and estimation technique

The objective of this paper is to recognize the directly dynamic relationships among FDI inflows, economic growth and trade (including exports and imports) in Vietnam. More specific, the goal is to find how FDI, exports, imports and economic growth react to various shocks by other variables in the system. The innovation accounting technique (or both impulse response function and variance decomposition) of the Vector Auto Regression (VAR) model is one of the most well- knowing methods to solve this matter. The impulse response functions are used to determine how each variable responds over time to an earlier “shock” in that variable and to “shocks” in other variables. The forecast error of variance decomposition analysis allows us to infer the proportion of the movement from its own shocks and other variable shocks in the system. These two methods are termed accounting innovation and permitted an intuitive insight into the dynamic relationships among the economic variables.

Extending from the Granger causality analysis in Granger (1969), the VAR technique in econometric modeling firstly introduced in the *Econometrica Journal* by

Christopher A. Sims in 1980. To analyze the dynamic impact of random disturbances on the systems of variables, VAR methodology superficially resembles simultaneous-equation modeling in that we consider several endogenous variables together. Each endogenous variable is explained by its lagged values and the lagged values of all other endogenous variables. Mathematically, in a VAR model, each of the random variables in the system is expressed as a linear function of its own past values and the past values of other variables in the system. The system can be presented in the form of matrixes as follows:

$$[Y]_t = [A][Y]_{t-1} + \dots + [A^k][Y]_{t-k} + [e]_t \text{ or}$$

$$\begin{bmatrix} Y_t^1 \\ Y_t^2 \\ Y_t^3 \\ \dots \\ Y_t^p \end{bmatrix} = \begin{bmatrix} A_{11} & A_{12} & A_{13} & \dots & A_{1p} \\ A_{21} & A_{22} & A_{23} & \dots & A_{2p} \\ A_{31} & A_{32} & A_{33} & \dots & A_{3p} \\ \dots & \dots & \dots & \dots & \dots \\ A_{p1} & A_{p2} & A_{p3} & \dots & A_{pp} \end{bmatrix} \begin{bmatrix} Y_{t-1}^1 \\ Y_{t-1}^2 \\ Y_{t-1}^3 \\ \dots \\ Y_{t-1}^p \end{bmatrix} + \dots + \begin{bmatrix} A'_{11} & A'_{12} & A'_{13} & \dots & A'_{1p} \\ A'_{21} & A'_{22} & A'_{23} & \dots & A'_{2p} \\ A'_{31} & A'_{32} & A'_{33} & \dots & A'_{3p} \\ \dots & \dots & \dots & \dots & \dots \\ A'_{p1} & A'_{p2} & A'_{p3} & \dots & A'_{pp} \end{bmatrix} \begin{bmatrix} Y_{t-k}^1 \\ Y_{t-k}^2 \\ Y_{t-k}^3 \\ \dots \\ Y_{t-k}^p \end{bmatrix} + \begin{bmatrix} e_{1t} \\ e_{2t} \\ e_{3t} \\ \dots \\ e_{pt} \end{bmatrix}$$

where: p = the number of variables be considered in the system. k = the number of lags be considered in the system.

$[Y]_t, [Y]_{t-1}, \dots, [Y]_{t-k}$ = the $1 \times p$ vector of variables

$[A], \dots$ and $[A^k]$ = the $p \times p$ matrices of coefficients to be estimated

$[e]_t$ = a $1 \times p$ vector of the stochastic error terms - called impulses or innovations or shocks in the language of VAR- that may be contemporaneously correlated but are uncorrelated with their own lagged values and uncorrelated with all of the right-hand side variables.

Thus, with the objective is to recognize possible links among FDI inflows, imports, exports and economic growth, the system of Vector autoregressive model can be formulated as follows:

$$\begin{bmatrix} \ln FDI_t \\ \ln EX_t \\ \ln IM_t \\ \ln GDPG_t \end{bmatrix} = \begin{bmatrix} A_{01} \\ A_{02} \\ A_{03} \\ A_{04} \end{bmatrix} + \begin{bmatrix} A_{11} & A_{12} & A_{13} \\ A_{21} & A_{22} & A_{23} \\ A_{31} & A_{32} & A_{33} \\ A_{41} & A_{42} & A_{43} \end{bmatrix} \begin{bmatrix} \ln FDI_{t-1} \\ \ln EX_{t-1} \\ \ln IM_{t-1} \\ \ln GDPG_{t-1} \end{bmatrix} + \dots + \begin{bmatrix} A'_{11} & A'_{12} & A'_{13} \\ A'_{21} & A'_{22} & A'_{23} \\ A'_{31} & A'_{32} & A'_{33} \\ A'_{41} & A'_{42} & A'_{43} \end{bmatrix} \begin{bmatrix} \ln FDI_{t-k} \\ \ln EX_{t-k} \\ \ln IM_{t-k} \\ \ln GDPG_{t-k} \end{bmatrix} + \begin{bmatrix} u_{1t} \\ u_{2t} \\ u_{3t} \\ u_{4t} \end{bmatrix}$$

where A_0 is a vector of constant terms and A_i and A_i' are all matrices of coefficients to be estimated and it is a vector of residuals and assumed to be white noise, i.e. $\sim IN(0, 1)$.

In term of the variables to the present study, the VAR system can be presented in another form as bellowing:

$$\ln FDI_t = a_{01} + \sum_{i=1}^k a_{1i} \ln FDI_{t-i} + \sum_{i=1}^k b_{1i} \ln EX_{t-i} + \sum_{i=1}^k c_{1i} \ln IM_{t-i} + \sum_{i=1}^k d_{1i} \ln GDPG_{t-i} + u_{1t} \quad (6)$$

$$\ln EX_t = a_{02} + \sum_{i=1}^k a_{2i} \ln FDI_{t-i} + \sum_{i=1}^k b_{2i} \ln EX_{t-i} + \sum_{i=1}^k c_{2i} \ln IM_{t-i} + \sum_{i=1}^k d_{2i} \ln GDPG_{t-i} + u_{2t} \quad (7)$$

$$\ln IM_t = a_{03} + \sum_{i=1}^k a_{3i} \ln FDI_{t-i} + \sum_{i=1}^k b_{3i} \ln EX_{t-i} + \sum_{i=1}^k c_{3i} \ln IM_{t-i} + \sum_{i=1}^k d_{3i} \ln GDPG_{t-i} + u_{3t} \quad (8)$$

$$\ln GDPG_t = a_{04} + \sum_{i=1}^k a_{4i} \ln FDI_{t-i} + \sum_{i=1}^k b_{4i} \ln EX_{t-i} + \sum_{i=1}^k c_{4i} \ln IM_{t-i} + \sum_{i=1}^k d_{4i} \ln GDPG_{t-i} + u_{4t} \quad (9)$$

where FDI, EX, IM and GDPG are foreign direct investment inflows, exports, imports and GDP growth rate, respectively. a_0 , a , b , c and d are parameters; u are error terms; and k is the maximum number of lags in the VAR system. One of the important points that we need to consider in VAR model is the number of lag's order of variables. The results of the VAR tests are highly sensitive to the order of lags. Selecting a higher order lag length than the true one causes an increase in the mean-square forecast errors of the VAR and under fitting the lag length often generates autocorrelated errors (Lutkepohl, 1993). The optimal lag length can be selected by the minimum value of the Akaike Information Criterion (AIC) and Schwartz Bayesian Criterion (SBC) statistics.

There are three steps involving in implementing the direction of a VAR causality test: (i) unit root testing, taking account of the lag lengths using the Akaike criterion (AIC), (ii) checking for cointegrating among the variables using the Johansen maximum

likelihood ratio tests and (iii) estimating the appropriate VAR model, restricted or unrestricted, depending on whether the variables are cointegrated or not. According to Pack and Phillips (1989) and Sims et al. (1990), the conventional asymptotic theory is not applicable to test in levels VAR if variables are integrated or cointegrated. If variables are non-stationary and cointegrated then an unrestricted VAR in levels is appropriate. If economic variables of interest were integrated of order one $I(1)$ with noncointegration, then an unrestricted VAR in first order differences VAR is appropriate for hypothesis testing. In contrast, if economic variables were $I(1)$ with at least one cointegrating vector, the theory is valid for hypothesis testing in restricted VAR with difference and error correction model.

6.3.2. Data

The empirical analysis was presented by time series model. The time period of analysis is annually data from 1988 to 2007 in Vietnam (20 years). All data on FDI, imports and exports used in the tests are calculated from the Vietnamese Statistical Yearbooks at current price. The FDI, imports and exports are calculated in US dollars, and GDPG is evaluated in percentage.

6.4. Estimation results and Interpretation

6.4.1. Unit root tests

There are many methods to test for a stationary of variables such as graphical analysis, correlogram test or unit root test of variables. However, a widely popular method to test of stationary (or nonstationary) over the past several years is the unit root test. The most common tests to detect the existence of a unit root in time series are Dickey Fuller (DF), Augmented Dickey Fuller (ADF) and Phillips-Perron (PP). However, the test critical values (or p-values) for different small sample size has to be approximated asymptotically by simulation methods. Applying response surface analysis

to annual data, MacKimon (1996) calculated the test critical values available for 20 observations, which are available in an econometric software package, named Eviews 5.1. As the sample has 20 observations, the research uses MacKimon's p-values in the ADF unit root test. I also apply for another unit root test called the Phillips-Perron (PP) test for comparison.

Table 41: ADF Unit root test

Null hypothesis: lnFDI, lnEX, lnIM and lnGDPG contain unit root

	ADF Test statistic (p value)		PP Test statistic (p value)	
	Level series	1 st difference series	Level series	1 st difference series
lnFDI	-1.23 (0.63)	-2.33 (0.17) ^{w2}	-1.50 (0.51)	-2.35 (0.16) ^{w2}
lnEX	-1.09 (0.69)	-5.28 (0.00) ^{***}	-1.38 (0.56)	-5.28 (0.00) ^{***}
lnIM	0.82 (0.99)	-2.69 (0.09) [*]	0.58 (0.98)	-2.58 (0.11) ^{w1}
lnGDPG	-1.47 (0.39)	-3.67 (0.01) ^{***}	-1.74 (0.39)	-3.68 (0.01) ^{***}

Note: ***, **, *, w1 and w2 denote rejection of null hypothesis at 1%, 5%, 10%, 15% and 20% level of significance, respectively. Test includes intercept.

Prior to testing for a long-run relationship between the time series using Johansen's procedure, it requires that all the series are integrated of the same order (Mohsen and Rhee 1997). Table 41 presented the results from the ADF and PP unit root tests for the level series in logarithm forms and the difference series. The results suggest that the null hypothesis of a unit test in all variables can not be rejected on the level series. The variables of lnEX and lnGDPG are stationary in their first differences at 1% significant level. The variable lnFDI is stationary in the first difference level at 20% significant level. The variable lnIM is stationary in its first difference at 10% level of significance in ADF test and is stationary in PP test at 15% significant level. According to Maddala and Kim (1998), it is acceptable to set the level of significance around the 20% level in a unit root test. Then, the ADF and PP tests show that the variables (lnFDI, lnEX, lnIM and lnGDPG) are non-stationary at the level series and stationary series at the

first difference series. Based on the results, all the variables (lnFDI, lnEX, lnIM and lnGDPG) are integrated of order one I(1), permitting us to proceed with the next step, cointegration test, in order to investigate the long run relationships between GDPG, imports, exports and FDI.

6.4.2. Cointegration test

The purpose of the cointegration test is to determine whether the four non-stationary time series are cointegrated, that is to detect whether there are long run equilibrium relationships among the four variables. The interpretation of the cointegrating relationship is that if series are linked to form an equilibrium relationship spanning the long run, then they will move closely together over time, even though the series themselves may contain stochastic trends (or non stationary) and the difference between them will be stable (stationary). The cointegration test is performed for the long run relationship among series by using the Johansen approach procedure based on Maximum Likelihood.

Table 42: Johansen cointegration test

Null hypothesis: lnFDI, lnEX, lnIM and lnGDPG are no cointegration

Null	Alternative	Trace statistic	95% Critical value	Max-Eigen statistic	95% Critical value
Rank = 0	$r \geq 1$	45.2 **	40.17	24.1 **	24.16
Rank ≤ 1	$r \geq 2$	18.1	24.27	11.6	17.79
Rank ≤ 2	$r \geq 3$	6.5	12.32	4.1	11.22
Rank ≤ 3	$r = 4$	2.4	4.13	2.4	4.13

Note: (1) Test includes intercept (2) *, *** denote rejection of null hypothesis at the 10% and 1% level

Table 42 reports the results of Trace statistic and Max-Eigen Statistic test for the cointegration relationship among lnFDI, lnEX, lnIM and lnGDPG. The results show that the null hypotheses of no cointegration ($r = 0$) is rejected at the 5% significant level. The

others are not rejected. Consequently, we concluded that there is only one cointegrating vector among the four variables at 1% significant level.

6.4.3. Impulse response and variance decomposition analyses

Once the presence of cointegration is confirmed, the VAR can be estimated and the impulse responses and variance decomposition of forecast error can be found. A better understanding of the dynamic inter-relationships among the variables is provided by impulse response functions and variance decompositions of forecast-error, which can trace out the time path of various shocks and determine how each variable responds over time to shocks on the future states of a dynamic system.

As said, in VAR model, one of the important points that we need to consider is the number of lag's order of variables. The optimal lag length in our VAR is chosen by computer automatically based on minimum value of the Akaike Information Criterion (AIC) and Schwartz Bayesian Criterion (SBC) statistics based on an unrestricted VAR. Table 43 suggested the lag order of 3 is optimal lag structure of our VAR model since it yields the minimum Akaike's Final Prediction error (FPE), Schwartz Information Criteria (SIC), Hannan-Quinn information (HQ) and LR values.

Table 43: VAR Lag Order Selection Criteria

Endogenous variables: lnFDI, lnEX, lnIM and lnGDPG

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-8.550699	NA	5.15e-05	1.476553	1.672603	1.496041
1	53.87216	88.12639*	2.35e-07	-3.984960	-3.004709	-3.887521
2	70.61264	15.75574	3.23e-07	-4.072075	-2.307624	-3.896685
3	121.5886	23.98867	2.28e-08*	-8.186891*	-5.638239*	-7.933550*

* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

In order to examine whether the residuals of the VAR model are free from serial correlation and heteroskedasticity, the diagnostic checking on the residuals was performed. Table 44 shows the estimated results for residual diagnostics test. It shows that all models pass through a battery of diagnostic tests. That is, the computed LM test on two and three order autocorrelation of the residuals cannot reject the null of white noise residuals of 5% significance levels. Then, it indicates that the residuals are white noise. And the white heteroskedasticity test also can not reject the null of no heteroskedasticity, indicating no evidence of residual heteroscedasticity effects in systems. Therefore, the residuals of VAR system are free from serial correlation and heteroscedasticity.

Table 44: Residual diagnostics of autoregressive models

	Statistical value	P value
LM(1)	21.25	0.17
LM(2)	10.65	0.83
LM(3)	9.24	0.90
White heteroskedasticity test	82.83	0.39

Notes: Residual autocorrelation statistic is estimated by Lagrange Multiplier test (i.e., LM test)
Residual heteroskedasticity statistic is estimated by White heteroskedasticity test

6.4.3.1. Variance decompositions analysis

Variance decompositions demonstrate how the forecast error variance of our focus variables can be broken down into different components of the system. The estimated results for variance decomposition are reported in Table 45. The reported numbers indicate the percentage of the forecast error in each variable that can be attributed to innovations in tenth period (10 years).

As the results presented in part A of Table 6.5, the innovation of lnFDI in the twentieth period is accounted for large percentage of the forecast error variance by its own innovations (66.0%), while approximately small attributed to export (12.4%), import (2.9%) and economic growth (18.6%). The fact that level of FDI is explained

predominately by its past values suggests that current period of FDI inflow influences future flow trends in the business cycle.

From the results presented in part B, the own shocks of export is explained for nearly 96% of the forecast variance in the first period. In the tenth period, 65.4% variation is explained by its own change, 20% by foreign direct investment, 3.2% by import and 11.3% by economic growth. The twentieth period forecast error variance of export is accounted its own change (63.8%), followed by the most by FDI innovation (21.1%), import (2.4%) and economic growth (12.7%). Thus, beside explained by its own change, the forecast variance of export is explained more by the variance of FDI, implying that FDI inflow is an important source of export in case of Vietnam.

Table 45: Decomposition of ten-year forecast error variance (%)

A. Variance Decomposition of LnFDI

Period	S.E.	LnFDI	LnEX	LnIM	LnGDPG
1	0.34	100.00	0.00	0.00	0.00
2	0.48	86.32	3.36	0.73	9.59
3	0.57	76.86	5.66	1.89	15.58
4	0.61	72.41	6.93	2.67	17.99
5	0.62	70.58	7.68	2.99	18.75
6	0.63	69.82	8.19	3.06	18.93
7	0.63	69.42	8.59	3.04	18.95
8	0.64	69.11	8.95	3.02	18.93
9	0.64	68.82	9.29	3.00	18.89
10	0.64	68.53	9.62	2.99	18.86
11	0.64	68.25	9.94	2.98	18.83
12	0.64	67.97	10.26	2.97	18.80
13	0.65	67.70	10.57	2.96	18.77
14	0.65	67.43	10.86	2.95	18.75
15	0.65	67.18	11.15	2.95	18.72
16	0.65	66.94	11.43	2.94	18.70
17	0.65	66.70	11.69	2.93	18.67
18	0.65	66.47	11.95	2.92	18.65
19	0.66	66.25	12.20	2.92	18.63
20	0.66	66.04	12.44	2.91	18.61

B. Variance Decomposition of LnEX

Period	S.E.	LnFDI	LnEX	LnIM	LnGDPG
1	0.11	4.11	95.89	0.00	0.00
2	0.17	6.97	86.85	6.17	0.01
3	0.23	11.37	79.43	7.53	1.68
4	0.29	14.82	74.08	6.57	4.53
5	0.34	16.96	70.59	5.45	7.00
6	0.39	18.22	68.46	4.61	8.70
7	0.43	18.98	67.17	4.05	9.80
8	0.47	19.47	66.36	3.67	10.50
9	0.50	19.81	65.82	3.39	10.98
10	0.53	20.06	65.42	3.19	11.33
11	0.56	20.26	65.11	3.04	11.59
12	0.58	20.42	64.86	2.92	11.80
13	0.61	20.55	64.66	2.82	11.98
14	0.63	20.66	64.48	2.73	12.13
15	0.65	20.75	64.33	2.66	12.25
16	0.67	20.84	64.20	2.60	12.36
17	0.69	20.91	64.09	2.54	12.46
18	0.71	20.97	63.99	2.49	12.54
19	0.72	21.02	63.91	2.45	12.62
20	0.74	21.07	63.83	2.41	12.68

C. Variance Decomposition of LnIM

Period	S.E.	LnFDI	LnEX	LnIM	LnGDPG
1	0.15	11.12	60.93	27.96	0.00
2	0.23	17.07	61.47	16.47	4.99
3	0.30	19.57	60.63	10.95	8.86
4	0.35	20.59	60.25	8.22	10.93
5	0.40	21.04	60.28	6.73	11.96
6	0.43	21.26	60.47	5.82	12.46
7	0.47	21.38	60.68	5.22	12.72
8	0.50	21.46	60.87	4.79	12.88
9	0.52	21.52	61.01	4.46	13.00
10	0.55	21.58	61.12	4.21	13.09
11	0.57	21.62	61.21	3.99	13.17
12	0.60	21.66	61.28	3.82	13.24
13	0.62	21.69	61.34	3.67	13.30
14	0.64	21.72	61.39	3.54	13.35
15	0.66	21.74	61.43	3.43	13.39
16	0.67	21.76	61.47	3.33	13.43
17	0.69	21.78	61.51	3.25	13.46
18	0.71	21.80	61.54	3.17	13.49
19	0.72	21.81	61.56	3.10	13.52
20	0.74	21.83	61.59	3.04	13.54

D. Variance Decomposition of LnGDPG

Period	S.E.	LnFDI	LnEX	LnIM	LnGDPG
1	0.16	38.74	12.09	0.09	49.08
2	0.20	34.83	11.45	3.42	50.30
3	0.21	33.38	11.05	5.43	50.14
4	0.21	33.03	10.92	6.13	49.93
5	0.21	32.98	10.92	6.25	49.84
6	0.21	32.97	10.96	6.25	49.82
7	0.21	32.97	10.99	6.24	49.80
8	0.21	32.96	11.01	6.24	49.79
9	0.21	32.95	11.03	6.23	49.78
10	0.21	32.95	11.04	6.23	49.77
11	0.21	32.95	11.06	6.23	49.77
12	0.21	32.94	11.07	6.23	49.76
13	0.21	32.94	11.08	6.23	49.75
14	0.21	32.94	11.09	6.23	49.74
15	0.21	32.94	11.11	6.23	49.73
16	0.21	32.93	11.12	6.23	49.72
17	0.21	32.93	11.13	6.23	49.71
18	0.21	32.93	11.14	6.22	49.71
19	0.21	32.93	11.15	6.22	49.70
20	0.21	32.92	11.16	6.22	49.69

Cholesky Ordering: LnFDI LnEX LnIM LnGDPG

The results in the part C shows that the innovation of Import is accounted for a large percentage of the forecast error variance by the innovations of Export and FDI in the twentieth period, in which import explains 61.6% and 21.8% of the forecast error variance of Vietnam's export and FDI, respectively. Thus, the forecast variance of import is explained more by the variance of export, implying that export is an important source of import in case of Vietnam.

Same the case of export, the results in the part D shows that the innovation of GDPG is accounted for a large percentage of the forecast error variance by its own change and the innovations of FDI and export. The FDI and export explain 32.9% and 11.2% of the forecast error variance of Vietnam's economic growth respectively and GDPG accounts for 49.7% of the forecast error variance of its economic growth,

correspondingly. Consequently, the innovations in the economic growth are mainly explained by its own change, FDI and export.

The conclusion of the variance decomposition analysis is that the FDI, export and economic growth are sensitive to the changes of itself in Vietnamese economy. The other main factors effecting to export of Vietnam are the flow of FDI and growth in the country. The main sources of Import in the country are FDI, export and economic growth, while the former is more sensitive than the latter. Main determinant of economic growth is FDI and exports.

6.4.3.2. Impulse response analysis

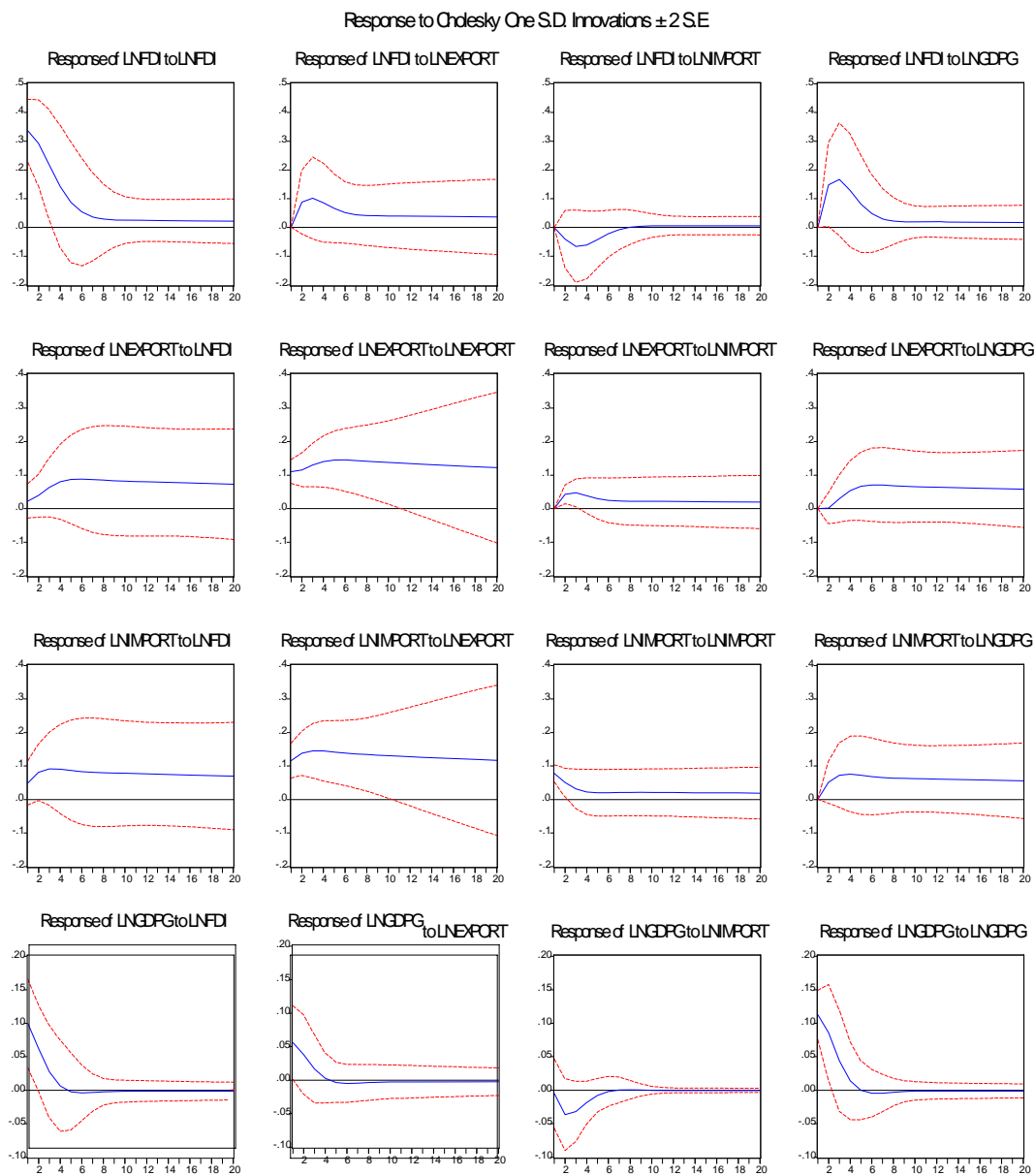
To represent further the behavior of a time series in response to the various shocks in the system, we derived impulse response from the VAR model. The impulse responses indicate the direction of the impact of an innovation in a variable on the changes in other variables. The results are plotted in Figure 6 together with Cholesky one-standard-error innovation and the dynamic responses are obtained from a time interval with twentieth periods (twenty years).

From the Figure 6, the illustrations of the response of FDI, Exports, Imports and GDPG to the other variables disturbance are given below:

Firstly, all the responses of FDI, Export and GDP to the other variables are positive effects over twentieth periods, even though the effects are so much different between variables.

Secondly, there are large and positive responses of exports, imports and economic growth to FDI. It can be explained that as positive shock in raid level of FDI inflows in Vietnam can induce the increase of exports, imports and economic growth of the country. This is consistent with the ideas that FDI is a main source factors to help increasing economic growth and trade in the host country.

Figure 6: Impulse response analysis



Thirdly, there are also the positive response of FDI, import and economic growth to exports, indicating that the increasing development of exports in Vietnam is depend on the expansion of FDI, import and economic growth.

Finally, even though there are positive responses of all FDI, trade and economic growth to imports, the impacts are quite constant.

Thus, the conclusion for Vietnam from the analysis is that inward FDI is encouraged by the expansion of international trade and economic growth. The findings described above are consistent with the so called market size hypothesis emphasizing that increase per capita income will attract huge inward FDI. Moreover, the effects of FDI on exports, imports and GDP are positively for the whole sample in the future, encouraging the development of those factors in the host country.

6.5. Summary

The purpose of this chapter is to address the dynamic links among FDI, GDP and trade in Vietnam by applying the VAR technique of variance decomposition and impulse response functions over the period 1988-2007. There are some conclusions from the analyses of this chapter.

1. There are two positive directions among FDI, Exports, Imports and economic growth in Vietnam. The results suggested that FDI invested in Vietnam was attracted by its economic growth and its foreign trade strategy. It also illustrated that FDI is an important factors that effect economic growth and trade in Vietnam. The results seem consistent with the findings from previous chapters saying that:

- Trade and economic growth are important factors determining FDI inflows in Vietnam.

- There are positive effects of FDI on economic growth and trade in Vietnam. The positive effects of FDI inflows in both imports and exports are presented the FDI inflow in Vietnam is trade oriented.

2. The FDI inflow in Vietnam is sensitive to the changes of itself in the economy. The main factor effecting Vietnam's exports is the flow of FDI in the country and its economic growth. The main sources of Imports are exports, FDI and economic growth, while the former is more sensitive than the latter. The results could be explained as follows. Most imports into Vietnam were raw materials; semi-manufactured products,

machinery and equipment to serve for foreign firms located in Vietnam to produce final products. The final products mostly are exported to the world economies. The host country as Vietnam had benefits from the process to increase its economic growth as the foreign firms used cheap labor of Vietnam and the country materials and resources to produce their products.

CHAPTER VII

CONCLUSIONS AND RECOMMENDATIONS

7.1. Introductions

Increased globalization over the last two decades has led to strong growth of international business activity and FDI, and then led to extensive research on the determinants and effects of FDI. Vietnam represents a significant recipient of FDI among developing countries over the last two decades, and has reported rapid and sustained growth rates in all different fields of the economy. Although FDI stock into Vietnam was so small in the world (worth US\$ 78.248 billion in 2006), Vietnam is ranked as the most attractive investment destination in the Asia. However, the empirical works on FDI's determinants and effects is still limited. Thus, an understanding of the determinants and effects of FDI is an important element for motivating and attracting more FDI into Vietnam. In addition, it is important for the Vietnamese government to promote and develop programs to attract FDI inflows.

The purposes of this thesis are to investigate which factors determine FDI inflows into Vietnam and what effects of FDI inflows on economic growth and trade in the Vietnamese economy. To analyze those questions, new and previously unused data on annual, province-specific and country-specific FDI in Vietnam have been investigated. From the findings, it can be clearly concluded that Vietnam has benefited from FDI inflows.

This chapter presents conclusions for the whole thesis and makes some recommendations for further research. Section 7.2 discusses the conclusions from the empirical models. Section 7.3 offers the policy implications from the research findings.

Section 7.4 points out the key contributions as well as limitations of this thesis. Section 7.5 provides some suggestions for future research.

7.2. The Conclusions

The thesis focuses on studying the determinants and effects of FDI inflows into whole Vietnam and its regions. Based on the main purposes, it discusses descriptively about Vietnam at the nation and regional levels, and then investigates some models building based on statistically econometric methods. The findings are specialized in typical parts of the thesis.

7.2.1. The determinants of FDI inflows in Vietnam

Chapter III of the thesis discovers the important factors determining FDI inflows in Vietnam at the country and regional levels based on the FDI theories and the findings of previous researches. The models used panel data covering 61 Vietnamese provinces over the period of 1995-2006. The explanatory variables in the FDI determinants models are GDP per capita, GDP growth rate, openness to trade, human capital, infrastructure, labor force, wage, accumulated FDI stock and region dummies (as Key economic Zones, coastal provinces, municipalities). The research reveals the factors that determine FDI inflows in Vietnam and its specific regions as presented in Table 46.

At the country level, the research reveals the determinant factors of FDI inflow in Vietnam are income per capita, GDP growth, available labor force and labor wage as well as openness to trade. In addition, the accumulated FDI stock and special economic zones are also important factors attracting FDI inflows into Vietnam. The findings are consistent with the widely accepted beliefs that low labor cost, growing market size and market potential create an incentive for foreign investors to gain market access and multinational firms prefer to locate in a more open and attractive policy economy. However, human capital and infrastructure are not yet attracting factors of FDI inflows in Vietnam in the studied time (1995-2006). This is because Vietnam is lacking in high

skilled labors and managers and the industrial sector still consists of industries producing labor-intensive goods that have not yet required a large amount of skilled labors. Moreover, infrastructure development of the country not yet meets requirements in quantity and quality of foreign investors that want to invest into Vietnam.

Table 46: Conclusions of the determinant factors of FDI inflows in Vietnam

Determinant Factors	Northern region			Central region			Southern region			
	Entire Vietnam	Whole region	Red River Delta	North Upland	Whole region	North Central Coast	South Central Coast	Whole region	South East	Mekong River Delta
Market size	+				+		+	+	+	
Growth rate	+	+	+				+	+		+
Labor force	+	+	+					+	+	
Infrastructure				+		+			-	
Accumulated FDI	+	+	+	+	+	+	+	+	+	+
Wage	-			-	-	-	-		+	-
Openness to trade	+	+	+	+				+	+	+
Human capital									+	
Key Economic Zones	+	+	+					+		+
Coastal zones	-									

Note: + and – present positive and negative significant effect, respectively. Blank shells present no significance effect in the models.

More specifically, the thesis explores the determinants of FDI in the different regions of Vietnam. The results present the main determinants of FDI inflow in regions are different based on the region characteristics. In the Northern region, the common determinant factors of the FDI inflow are the openness to the world trade as well as the level of exiting FDI invested in the region. The results confirm the hypothesis that the amount of FDI inflow is positively related to level of open to the outside world and level of agglomeration effects. More distinctively, as a central socio-economics of the

Northern region and Vietnam, the Red River Delta sub-region also attracts FDI inflows by its growth rate of GDP, available labor force, attractive policies and the development of key economic zones in the region. The negative and statistically significant of human capital related to FDI inflow explains that the Northern region investment projects concentrate more in labor-intensive industries such as electrical appliances, food processing, footwear, textiles and so on where the relatively lower level of skilled labors is required. The North Uplands region, on the other hand, attracts FDI inflow in the region by the low labor costs as well as the accessibility of land and other resources.

In general, the Central region of the country presents the accumulated FDI stock and the low labor as the main factors determining the level of FDI inflows. However, the main attractive factors of the FDI inflow in the sub-regions of the Central are different based on their geographies and economic developments. Lying in the main roads from the North to the South of Vietnam with many airports, wharfs, 670km of coastline and 23 estuaries as well as 8 industrial parks, the North Central Coast region attracts FDI inflow in the region not because of the infrastructure development but because of the infrastructure availability. The distinct determinants of FDI inflow of the South Central Coast region are high levels of income and economic growth rate as the region is one economic centers located in the Central region of Vietnam.

The high level of income per capita and potential growth rate, more openness to trade, labor force, accumulated FDI and the good policies and investment environment in some key economic areas are the main determining factors of the FDI inflows in the whole Southern region. The development of the Southern region is mostly based on the development of the South East sub-region, as it is the biggest central economic development of the region and all Vietnam. The listed determinant factors in the entire Southern region are also the main determinant factors in the South East sub-region. Moreover, due to the requirements of developing high technology industries in the region, both human capital and labor wage have been applied in the South East sub-region. On the other hand, the Mekong River Delta mainly attracts FDI inflow by the low labor cost and the advantages and policy incentives of some major provinces in the region. Long An

is one of the provinces attracting FDI inflow into the region based on the short distance of the province with Ho Chi Minh City as well as the attractive policy incentives. As the biggest city in the Mekong Delta, Can Tho also attracts FDI inflow because of well business environment, short time of business entry costs, good labor training, and quality of private sector development service as well as good access to investment information.

7.2.2. The effects of FDI inflows on economic growth in Vietnam

Chapter IV investigates the channels through which FDI effects on economic growth in Vietnam and its regions based on the Cobb Douglas production function of growth theories. In the models, the economic growth is a function of FDI, domestic capital, human capital, labor, trade and interactions between FDI and trade, domestic capital and human capital. The models use the panel data covering 61 Vietnamese provinces over the period of 1995-2006. The research discloses the effective channels of FDI influencing economic growth in Vietnam as presented in Table 47. At the country level, the research concluded that the beneficial effect on growth of FDI simply comes from the higher capital accumulation. The flow of advanced technology brought along by FDI seems not transferred to the low quality of Vietnamese human capital and the level of openness. The FDI firms investing in Vietnam is even competed with domestic firms in serving the local market and exports.

At the regional level, higher capital flow of foreign direct investment is a major factor effecting economic growth in the Northern region. The flow of superior technologies transferring from FDI firms can also increase the growth rate of the Central region only by interacting with that area's open trade regime. The South East region presents the contribution of FDI to economic growth enhanced by both increasing total capital accumulation and transferring new technologies and knowledge of the FDI enterprises through the human capital. Nevertheless, the South East region also shows the negative and significant interaction between FDI and trade, presenting the substitution between the two. The foreign firms in the South East region may not contribute or contribute small effect to the economic growth of the region as they only used small

resources of labor and place of the host area to produce and export their products. Even though FDI brings new technology and advanced managerial knowledge and skills to the host areas, it could also drive the domestic firms in those regions out of the market if the domestic firms are unable to absorb the technology and knowledge introduced and not be capable of competing in products effectively.

Table 47: Conclusions of the effects of FDI on economic growth in Vietnam

Factors	North region				Central region			South region		
	Entire Vietnam	Whole region	Red River Delta	North Uplands	Whole region	North Central Coast	South Central Coast	Whole region	South East	Mekong River Delta
FDI	+	+	+	+				+	+	
FDI* Trade		-			+	+	+		-	
FDI*DI	-	-	-	-	-				-	
FDI*HS						+			+	-
Trade	+				+	+	+		+	
HS						+		+		+
DI	+	+	+					+	+	
Labor force	+			+	+		+	+	+	

Note: + and – present positive and negative significant effect, respectively. Blank shells present no significance effect in the models.

Although the purpose of the empirical investigations in chapter four is to analyze the effects of FDI on economic growth through different channels, the models also include some other macroeconomic variables that may effect on the economic growth of Vietnam. At the country level, all trade, domestic investment and labor force show the positive and statistically significant in the growth models, suggesting their roles in advancing the economic growth of Vietnam. However, trade itself is only positive effect on economic growth in the Central region and the South East sub-region. Domestic investment itself is also positive effect on economic growth in the Red River Delta and

the South East sub-regions. As expected, the high development of labor force is positive effect on economic growth of the many regions.

7.2.3. The effects of FDI inflows on international trade in Vietnam

Chapter V presents the models to examine the effect of FDI inflows on Vietnam's trade based on the framework of the gravity model. Gravity model framework is applied to estimate the effect by using panel data of 30 trading partners of Vietnam throughout the period of 1993-2006. The model first explores the relationship between FDI and trade in the whole country sample. Then the chapter reveals the different patterns of the FDI-trade relationship in Vietnam studying on different groups of the countries. In the whole sample as well as sample of developed countries, the results support that current FDI inflow in Vietnam has positive effects on Vietnam's imports, exports and total trade. This suggests that FDI is complementary with international trade in Vietnam, presenting the vertical type. This case, Vietnam might increase its import of intermediate inputs to serve the newly created affiliate production and export the final good not only back to the home country but also to other countries that demand this good. However, the research found no evidence presenting that FDI inflow from the developing countries promotes exports to and imports from those countries. The reason is that those developing countries export only its goods to supply for demand of the Vietnamese market and import goods from Vietnam to supply demand of the market for their home countries, but not supporting for the activities of the FDI firms in Vietnam.

Moreover, there are also included the trade effect of other remaining variables in the model. Incomes of Vietnam's trading countries and its own income are also important determinants of the country trade, demonstrating that growing trade capacity and the competitiveness of Vietnamese products perform a critical role in enhancing its exports and imports. The coefficients of physical distance are found highly negative and significant, indicating that long distances reduce trade volume of Vietnam to other world countries. We found no evidence demonstrating that FTA with ASEAN countries promotes imports from these countries. However, the empirical result suggests that the

FTA with ASEAN significantly improved Vietnam's exports to the ASEAN market. In case of OECD countries, FDI inflows in Vietnam are contributed significantly to the increase of the country's exports and imports presented the vertical type of FDI.

Table 48: Conclusions of the effects of FDI on trade in Vietnam

Factors	Whole sample			Developed countries			Developing countries		
	Exports	Imports	Total trade	Exports	Imports	Total trade	Exports	Imports	Total trade
FDI	+	+	+	+	+	+			
GDP per capita_VN	+		+	+	+	+	+	+	+
GDP per capita	+	+	+	+	+	+			
Population_VN									
Population	+	+	+	+	+	+	+		+
Distance	-	-	-	-	-	-	-		
Exchange rate				+	+			-	
ASEAN	+								

Note: + and – present positive and negative significant effect, respectively. Blank shells present no significance effect in the models.

7.2.4. The dynamic relationships among FDI, trade and economic growth

Chapter VI again confirms the relationship among FDI, trade and economic growth in Vietnam. The results suggested that FDI invested in Vietnam was attracted by its economic growth and its foreign trade strategy. It also illustrated that FDI is an important factor that affects economic growth and trade in Vietnam. Moreover, by applying the VAR technique of variance decomposition and impulse response functions, the research shows that there is strong causality relationship between FDI and exports, even though FDI inflow in Vietnam is much depended on the changes of itself in the economy. The main sources of imports and economic growth in the country are FDI and

export. The results are consistent with the findings in chapter V saying that there is vertical FDI invested in Vietnam. That is imported goods into Vietnam were raw materials, semi-manufactured products, machinery and equipment to serve for foreign firms located in Vietnam to produce final products. The final products mostly are exported to the world economies. Vietnam has benefits from the process to increase its economic growth as the foreign firms used Vietnam's cheap labor and materials to produce the export products.

7.3. Policy Implications from the study findings

Based on the above finding results, this study yields some following recommendations for policy markers in Vietnam to enhance the attractiveness of the host country in order to attract more foreign investors and to sustain the path of growth and economic development.

As shown, Vietnam has made tremendous progress in terms of economic and social development since the introduction of Doi Moi reforms. From the findings in chapter IV, the strong economic growth of Vietnam over the decades is underpinned by an increasing output and employment, relatively high levels of domestic and foreign investment and rapid the external trade. However, Vietnam has been still a low-income economy striving for industrialization and moderation in the context of accelerating globalization and knowledge-based economy. Combining the findings in all chapters, there are causality relationship among FDI, economic growth and trade in Vietnam. Therefore, if Vietnam can sustain its path of growth and development, it could attract more FDI investors into Vietnam as well as expand its economic growth and international trade. The Strategy for Socio economic development 2001-2010, which was approved at the Ninth Party Congress in April 2001, has identified the major development goals until 2010, i.e. to increase GDP in 2010 by at least two times over as compared with 2000, to expand export growth rate in 2010 by at least double that of GDP growth and to decrease the structure of agriculture sector to 16-17% and increase the shares of industry

and service sectors to 41% and 43% in 2010, respectively. To catch up the development objectives, Vietnam need:

- to restructure sectoral economy in a progressive and efficient direction in the direction of paying attention to agricultural and rural development oriented towards industrialization and modernization in keeping with market demand, to develop strongly the industries which have a competitive advantage, to build a selective number of heavy industry establishments, to develop strongly the high-tech lines and export lines, to give adequate attention to developing small and medium-sized industrial establishments and and to develop infrastructural and service lines.

- to formulate cohesive market mechanisms

- to enhance the efficiency of foreign economic relations by expanding the country's external economic relations in the direction of multilateralization and diversification; to conduct active integration into the world economy by an itinerary which conforms to the conditions of our country, and to ensure our adherence to bilateral and multilateral commitments such as AFTA, APEC, Vietnam-US trade agreement, advancing to our accession to WTO.

Vietnamese government needs to pay more attention to improve the quality of its human capital and labor. Considering the results from Chapter III, the labor factor was always showing the negative and insignificant relationship with FDI inflow. In the early years, the boom of FDI into Vietnam is partly due to the cheap and hard-working labor and the rising labor cost in other Asian countries. The investments were mostly concentrated in the industrial sectors that required low skilled labors such as textiles and garment industry, footwear industry and the primary and agricultural products. Since then, the foreign investments invested in Vietnam are more concentrating in the higher technology industries, requiring the higher skilled labors which is lacking in Vietnam. To improve the quality of labor, the government has to improve the quality of educational system, encourage the MNEs to educate their labor, associate with foreign countries to educate the human capital. According to Mr. Quentin Dupriez, a authority of UNTACD, Vietnam has to accept to import high skilled labors to compensate for the shortage of

high skilled labors needed of the Vietnam's economy. If following this redirection, Vietnam will not only successfully reimburse the labor shortage but also increase the transferring higher technologies from the experts and make a competition between domestic labors and foreigner labors, forcing labors to improve themselves skills.

Vietnamese government needs to improve the country's physical infrastructure. The effects of FDI projects in a host country could be better if the host country developed its infrastructure satisfied the requirements of the MNEs. However, according to <http://news.cens.com>, the physical infrastructure of Vietnam is too low in comparison to other ASEAN countries (Table 49). The infrastructure level of Vietnam was below the average rank (2.5 points) and was only better than that of Myanmar Lao and Cambodia. Moreover, costs for using any services in Vietnam are higher compared to the other ASEAN countries. This is a disadvantage of Vietnam in attracting FDI inflows in the country. The major obstacles to improve infrastructure of Vietnam was lack of capital. Currently, this problem has been eased because the access to the international financial housing has been opened. The main task for Vietnamese government now is to effectively manage the international aid and loan. Priorities of publish investment is needed to study carefully.

Table 49: Comparison the physical infrastructure levels of ASEAN countries

Country	Airport	Seaport	Transport ation	Electricity	Telecomm unication	Average rate
Singapore	4.9	4.9	4.6	4.4	4.7	4.7
Brunei	3.3	3.0	3.3	3.6	3.5	3.3
Malaysia	3.1	3.1	2.7	2.6	3.2	2.9
Thailand	3.1	2.5	1.6	2.7	3.0	2.6
Indonesia	3.0	2.4	2.3	2.6	2.7	2.6
Philippine	2.3	2.4	1.9	2.2	2.7	2.3
Vietnam	1.9	2.0	1.9	1.9	2.2	2.0
Myanmar	1.6	1.5	1.6	1.4	1.4	1.5
Lao	1.5	-	1.5	1.7	1.5	1.5
Cambodia	1.6	1.5	1.8	1.4	1.4	1.5

Rank: Low to High: 1- 5 points

Source: <http://news.cens.com> 2006

Moreover, the government need to improve the investment environment and standard of services, the legal framework and keep the economic and political stability. The government has to:

- continue simplifying investment-licensing procedures
- expand the regime of investment-licensing registration for projects not included within the list of investment prohibition
- diversify legal and institutional forms of foreign-invested enterprises
- actively attract more foreign multi-ownership groups to invest in Vietnam
- institutionalize foreign investors' mortgage of assets in close links with land and the value of land-use right as guarantee in securing loans from lawful credit organizations in Vietnam. The land lease tenure shall be automatically extended according to investor's aspirations; the land rent is negotiable.

Vietnam has a long and rich coastal border, and then developing an economically maritime region is one of the best ways to help the coastal regions attract FDI inflows and develop its economics. To build up a maritime region, besides the government policies on constructions of infrastructure and capital, the government has to strongly develop science, technology and human resources to serve the purposes of maritime development. Moreover, it has to develop marine-culture and seafood exploitation, marine transport and tourism, oil extraction and processing as the core of maritime economy as well as construct industries and services supporting maritime economy. The incentive policies to attract FDI inflows in the region are also needed to be considering by the government.

To attract more FDI flow into the less developed regions of Vietnam, the government has to pay more attention to the construction of infrastructure, primarily transport and irrigational systems, clean water and electricity supplies, education and training development, improvement of people's intellectual standards and the quality of human resources.

If Vietnam wants to attract FDI without losing sight of the vital objective that FDI means to increase the country's welfare, it is important that the government not only attracts FDI, but also pay more attention to enhance the positive effects from such investment. The estimated results from Chapter IV supported that FDI has a positive effect on economic growth of Vietnam. The results from Chapter V show that FDI inflow in Vietnam has positive effects on imports, exports and total trade. However, Vietnam has experienced both the trade deficit as well as the balance of payment deficit over the years. The results indicate that Vietnam's current inward FDI is mainly market-oriented with little focus on exports. To enhance the positive effects of FDI, improve the production growth rate and examine the direction of FDI in the future, Vietnamese government should separate FDI strategy into two parts: export-oriented FDI and import-substituting FDI instead of FDI in general. Import-substitution is Vietnam's main strategy for stimulating economic development, which encourages industrial growth within the country by reducing import of goods and services. In contrast, an export-oriented strategy is an economic policy to accelerate the industrialization process of Vietnam through exporting to improve national income and productivity. The role of FDI differs in terms of the investment strategies of the Vietnamese government compared to foreign investors. The global market may need a larger focus on export-oriented FDI to design and supply products and services, whereas a domestic market focuses on import substitution FDI. International customers differ from domestic customers and product design can be changed to match differences in product expectations and the income level of customers. Specific FDI for either domestic or international customers can ensure the highest possible returns on capital resources and profits. At the same time, it is well understood that Vietnamese government is establishing promotional privileges attracting both import-substitution and export-oriented production.

7.4. Key contributions and Limitations

7.4.1. Key contributions to the literature

Although the issues of the determinants and effects on growth and trade of FDI inflow in a host country have been addressed in previous literature, the contribution of this issue in Vietnam is rather limited. Vietnam has been excluded from most of the regional studies, mainly due to lacking data for analysis. Vietnam has been in transition from a planned economy to a market oriented economy since December 1986. The short time period and insufficiency of Vietnam's data prevent the precise approximation of the analyses about Vietnam. In addition, even though the country looks to strongly develop some recent years with GDP growth is average 7.5% annually, it is still a small and developing country in the region and in the world, so that economists were not motivated to study about Vietnam.

Firstly, the thesis examines what are the determinant factors of FDI inflows into Vietnam. Previous studies about the determinants of FDI inflows into Vietnam presented their studies by using the cross section models (see Meyer and Nguyen, 2005; Pham Hoang Mai 2002 and Nguyen Ngoc Anh, 2007), the pooled regression (see Le Viet Anh, 2004) and the simultaneous equation models (see Malesky, 2005 and Nguyen Phi Lan, 2006). All of the paper examined the determinant factors of FDI inflows into Vietnam at the national level. Most of the papers shown that the factors attracting FDI inflow in Vietnam are the market size (including GDP, GDP per capita or GDP growth rate) and infrastructure. Moreover, scattered in different papers, some other factors that could help increasing FDI inflow are exports, low labor cost and accumulated FDI. The data used in those models were accounted from 1991 to 2003.

My work improves upon former studies in three aspects. First, the study is broader in statistical terms than all other studies by panel series data over 12 years of Vietnam's transformation (1995-2006). Second, it examines not only the determinants of FDI inflows at the national country (entire Vietnam), but also exposes the determinants at all eight regions of Vietnam. This is the first time the determinants of FDI in all eight regions and 61 provinces of Vietnam are discovered. Third, the study covers the larger set

of the explanatory variables to explain for FDI inflows in entire Vietnam and its regions. The explanatory variables not only include macroeconomic factors (GDP, GDP per capital, GDP growth rate, openness to trade, human capital, infrastructure, inflation, population and accumulated FDI stock), but also cover the regional integration dummy variables (ASEAN) as well as the Vietnamese's region dummies (Key economic Zones, coastal provinces, municipalities). Those explanatory variables in the empirical results have been well explaining the determinants of the FDI inflows into Vietnam.

Secondly, the second purpose of this study is to analyze what effect of FDI on economic growth in Vietnam is. There are only some papers analyzing the effect of FDI on economic growth in Vietnam over the past years and all the papers had shown a positive effect of the FDI on economic growth, even though they are used different methods and data samples. To analyze indirectly the impacts of FDI on poverty reduction in Vietnam in the 1990s, Hoa and Hemmer (2002) and Nguyen Manh Hung (2005) examined the effects of FDI on economic growth in Vietnam by using the panel data covering 61 provinces of Vietnam in 1990-2000 and the panel data collected from 12 provinces and cities in 1992-2002, separately. The results showed that FDI is positively affected on economic growth, then reducing poverty. Furthermore, using the panel data set for 61 provinces of Vietnam over the period 1996-2003 to test the effect of FDI on economic growth, Nguyen Phi Lan (2006) concluded that FDI had a positive and statistically significant impact on economic growth.

The same as in the FDI determinants' part, my study develops the previous studies in three aspects. The study firstly is broader in statistical terms than all other studies by using panel series data over 12 years of Vietnam's transformation (1995-2006). Secondly, it analyzes the effect of FDI inflows on economic growth at the two levels: national country (entire Vietnam) and regions. This also is the first time the economic growth effects of FDI inflows in all eight different regions and 61 provinces of Vietnam are evaluated. Lastly, the study covers the larger set of the explanatory variables served for the tests. The explanatory variables include the traditional variables used in the growth model (labor, human capital, domestic investment and FDI) as well as the

interactions between FDI and human capital, domestic investment and trade in order to examining the channels that FDI can effect on economic growth in the Vietnam and its regions.

Thirdly, the last purpose of this study is to examine the effects of FDI on international trade of Vietnam. Although FDI inflow and trade in Vietnam have been increasing in Vietnam over the years, very little empirical analysis of the FDI-trade relationship has been carried out for Vietnam compared to other developing countries. I found that there are only two papers testing the relationship between FDI and trade flows. Both are produced in 2006 and in applying the gravity model. Nguyen Lan (2006) tested the relationship between FDI and bilateral trade flows based on panel data set for 19 of Vietnam's trade partners over the period 1995-2004. Nguyen Thanh Xuan (2006) used the database covered FDI flows into Vietnam from 23 countries from 1990 to 2004 to analyze the impact of FDI on the exports of Vietnam. The two papers provided a clear complementary relationship between FDI and trade flows.

My research extends the previous studies to test the effects of FDI inflows on Vietnam's total trade, exports and imports. The gravity models use the broader set of explanatory variables that included the GDP, population, FDI, geographical distance, common border, as well as the regional integration dummy variable (ASEAN). The models of testing the effects of FDI on international trade in Vietnam use the bigger panel data set that covers 30 countries having both imports and exports relationship with Vietnam in the period from 1993 to 2006. The models analyze the effect of FDI inflows on international trade at the two different aspects: national country (entire Vietnam) and the developing and developed countries. The analysis the trade effects of FDI inflows in Vietnam by separately the trading partners in the country groups (developing and developed countries) is first presented in my study. It helps Vietnam identifying the different impacts of FDI inflows on trade in different country groups, and then gives the best policies for each group to increasing effect of FDI on Vietnam's trade.

Fourthly, this is the first time the dynamic relationships among four variables (FDI, economic growth, export and import) are investigated. It helps us recognizing the

direct relations between FDI inflow, economic growth and trade in Vietnam during the twenty years of its transition.

7.4.2. Limitations of the study

There are, however some caveats to this study, particularly those arising from data limitations. There are three data samples used in this study: the life time data of Vietnam transitions over 20 years, from 1988 to 2007 (1); the data of 61 Vietnam's provinces over 1995- 2006 (2) and the data of 30 trading partner countries of Vietnam over 1993 to 2006 (3).

To examine the determinants and effects of FDI inflow into Vietnam's regions, the models have to collect the data from each Vietnam's province in the region. Then, except some dummies, all variables used in the sample are transformed into the natural logarithm form to get the linear form of the models. However, some variables such as FDI, imports and exports are recorded zero in some years and the log 0 is undefined, those observations will be excluded from the estimated model. Followed the technique applied in papers of Sun, Tong and Yu (1999) and Pham Hoang Mai (2002), a small value of 10^{-2} is used to replace the zero whenever it occurs in our data set. The replacement may lead to biased estimation of the determinants and effect of FDI inflows in the regions.

Moreover, since 2003, the number of provinces in Vietnam has been 64 instead of 61 as before 2003. The three new established provinces such as Dien Bien, Dak Nong and Hau Giang were divided respectively from Lai Chau, Dak Lak and Can Tho and some parts of their neighbor provinces in 2003. However, the three new provinces are not included separately in the sample due to short time of analysis. The data of those provinces are counted for their old provinces for the sufficient sample. The counted data of three new provinces into their old provinces may lead to biased estimations of the region results.

To analyze the effects of FDI inflow on international trade, the sample size used in this study is limited to the number of investing partners on the information provided by

the MPI. The countries chosen include 12 Asian countries, 14 European countries, 2 countries from America (Canada and United States) and 2 last countries from Oceania (New Zealand and Australia). Although the data sample covers 30 major investing and trading partners of Vietnam, which accounted more than 90% of Vietnamese's total trade volume and 88% of total FDI inflows into Vietnam, most investing partners from America and Oceania and all investing partners from Africa are excluded due to a lack of available information.

In addition, 19 out of 30 countries in the sample are developed countries; however, eleven of them are from Europe. Similarly, 11 out of the 30 countries are developing countries in which eight are from Asia. This may lead to biased estimation of the effect on the inflows of FDI.

7.5. Suggestions for future research

This study is focused to determinants and effects of the FDI inflows distributed among Vietnam's regions and provinces as well as Vietnam's integration with most major trading countries. The effects of FDI inflows in the major sectors and the industries in Vietnam have not taken into account. Therefore, it will be interesting to launch a comprehensive study on the determinants and effects of FDI inflows in Vietnam's major sectors. The identified analyses of FDI inflows in the major sectors of Vietnam may be useful for policy makers and government agencies to develop FDI strategies and to attract more FDI into the sectors. It also could help guiding the policy markers in formulated development and planning those factors attending higher economic development and the living standards.

Moreover, besides the economic sectors, it would also be useful to examine the inflows of FDI in different kinds of industry, for example, automotive and parts, textile, electronics and electrical products, chemical and pharmaceutical products, and rubber products. Considering these inflows would help domestic investors, foreign investors, and policy makers to understand the nature of the industries better, as they would be able to measure the level of resources between each industry. The studies of specific industries

would allow policy makers to develop better strategies to attract greater inflow of FDI into Vietnam.

Finally, to fix the limitation of the effect of FDI inflows on trade used in this thesis, further study could increase the numbers of investing and trading countries from America and Oceania as well as from the Africa. The wider ranges of the statistic sample, the better the results are.

REFERENCES

- Agarwal, J.P. (1980). Determinants of Foreign Direct Investment: A Survey. **Weltwirtschaftliches Archiv-Review of World Economics** 116, 4: 739-773.
- Agosin, M. R. and R. Mayer (2000). Foreign Investment in Developing Countries: Does it Crowd in Domestic Investment? **Discussion Paper** no. 146, United Nations Conference on Trade and Development (UNCTAD), Palais des Nations, Geneva, Switzerland
- Aitken, B., Harrison A. and R. E. Lipsey (1996). Wages and Foreign Ownership: A Comparative Study of Mexico, Venezuela, and the United States. **Journal of International Economics** 40: 345-371.
- Aizenman, J. and M. M. Spiegel (2002). Institutional Efficiency, Monitoring Costs, and the Investment Share of FDI. **NBER Working Paper** No. W9324
- Alfaro, L., Chanda, A., Kalemli-Ozcan, S. and S. Sayek (2004). FDI and economic growth: the role of local financial markets. **Journal of International Economics** 64, 1: 89-112
- Alici, A. A. and M. S. Ucal (2003). Foreign direct investment, exports and output growth of Turkey: Causality Analysis. **Paper presented at the European Trade Study Group** (ETSG) fifth annual conference, Madrid, 11-13
- Arkadie and Raymonth (2003). **Vietnam – a transition tiger?** Asia Pacific Press at The Australian National University, Australia.
- Arrow, K. J., (1962). The economic implications of learning by doing. **The review of economics and statistics** 29: 155-173
- Asiedu, E. (2002). On the determinants of foreign direct investment to developing countries: is Africa different? **World Development** 30, 1: 107-119.
- Athukorala, P. (2002). Trade Policy Reforms, Export Strategies, and the Incentive Structure. **Background paper to the World Bank study** “Vietnam’s Exports: Policies and Prospects” (Hanoi: World Bank Vietnam).

- Athukorala, P. (2005). Trade Policy Reforms and the Structure of Protection in Vietnam. Forthcoming in **World Economy**.
- Athukorala, W. (2003). The impact of foreign direct investment of economic growth: A case study in Sri Lanka. **Paper submitted for the 9th International conference on Sri Lanka Studies**, 28th - 30th November 2003, Matara, Sri Lanka.
- Baharumshah, A. Z. and M. A. Thanoon (2006). Foreign capital flows and economic growth in East Asian countries. **China Economic Review** 17, 1: 70-83
- Balassa, B. (1966). American Direct Investment in the Common Market. Banca Nazionale Del Lavoro, **Quarterly Review**
- Balassa, B. (1985). Exports, Policy Choices, and Economic Growth. **Journal of Development Economics** 18, 1: 23-35
- Balasubramanyam, N. V., Salisu. M. and D. Sapsford (1996). Foreign Direct Investment and Growth in EP and IS Countries. **The Economic Journal** 106, 434: 92-105.
- Balasubramanyam, V. N., M. Salisu and D. Sapsford (1999). Foreign direct investment as an engine of growth. **Journal of International Trade and Economic Development** 8, 1: 27-40.
- Baltagi, H., (2001). **Econometric Analysis of Panel Data**, 2nd edition, New York: John Wiley & Sons, LTD.
- Bandera, V.N., and J.T. White (1968). US Direct Investments and Domestic Markets in Europe. **Economia Internazionale** 21:117-33.
- Barro, R. J. (1995). **Determinants of Economic Growth**. The MIT Press, London.
- Barro, R. J. and Sala-i-Martin, X., 1995. **Economic growth**. McGraw-Hill, Cambridge, MA.
- Bende-Nabende, A., Ford, J. and J. Slater (2001). FDI, Regional Economic Integration and Endogenous Growth: Some Evidence from Southeast Asia. **Pacific Economic Review** 6, 3: 383-399
- Bende-Nabende, A., Ford, J.L, B. Santoso, and S. Sen (2003). The Interaction between FDI, Output and the Spillover Variables: Cointegration and VAR Analyses for APEC. **Applied Economics Letters** 10, 3: 165-172

- Bende-Nabende, A., Ford, J.L. and Sen, S. and J. Slater (2000). FDI Locational Determinants and the Linkage Between FDI and Other Macro-Economic Factors: Long-run Dynamics in Pacific Asia. **Discussion paper** No. 00-11, Department of Economics, University of Birmingham
- Bevan, A. A. and S. Estrin (2004). The determinants of foreign direct investment into European transition economies. **Journal of Comparative Economics** 32, 4: 775-87.
- Bevan, Alan and S. Estrin (2000). The determinants of foreign direct investment in transition economies. **William Davidson Institute**, Working Paper Number 342.
- Billington, N. (1999). The Location of Foreign Direct Investment: An Empirical Analysis. **Applied Economics** 31: 65-76
- Blomstrom, M., S. Globerman, et al. (2000). The determinants of host country spillovers from foreign direct investment. **Centre for Economic Policy Research**. Discussion Paper Series No. 2350: 1-39.
- Blonigen B. A. (1997). Firm-Specific Assets and the Link Between Exchange Rates and Foreign Direct Investment. **American Economic Review** 87, 3: 447-465.
- Blonigen, B. A. (2005). A review of the empirical literature on FDI determinants. **National Bureau of Economic Research**. Working Paper Series No. 11299: 1-37.
- Blonigen, B.A. and M. Slaughter (2001). Foreign Affiliate Activity and U.S. Skill Upgrading. **Review of Economics and Statistics** 83: 362-376.
- Borensztein, E., Gregorio, J. and JW. Lee (1998). How does foreign direct investment affect economic growth? **Journal of International Economics** 45: 115-135.
- Braunerhjelm, P. and R. Svenson (1996). Host Country Characteristics and Agglomeration in Foreign Direct Investment. **Applied Economics** 28: 833-840
- Brooks, D. H. and V. Leproux (2004). Vietnam: Foreign direct investment and Postcrisis regional integration. **Asian Development Bank**. ERD working paper series No. 56.

- Buckley, J. P., Clegg, J. and C. Wang (2002). The impact of inward FDI on the performance of China's manufacturing firms. **Journal of International Business Studies**, 33, 4: 637-655.
- Buckley, P. and Cason, M. (1976). **The Future of the Multinational Enterprise**. London, Macmillan.
- Buckley, P. and Casson, M. (1985). **The Economic Theory of the Multinational Enterprise: Selected Papers**. London: Macmillan.
- Buckley, P. J. (1995). **Foreign direct investment and multinational enterprises**. Houndsmills, Basingstoke, Hampshire, Macmillan.
- Calvo, A., Leiderman, L. and M. Reinhart (1996). Inflows of capital to developing countries in the 1990s. **Journal of Economic Perspectives** 10, 2: 123-139.
- Campa, J., (1993). Entry by foreign firms in the United States under exchange rate uncertainty. **Review of Economics and Statistics** 75: 614-622.
- Campos, F. N. and Kinoshita, Y., 2003. Why Does FDI do Where it goes? New Evidence from the Transition Economies. **IMF working paper** 03/288
- Campos, N. F. and Y. Kinoshita (2002). Foreign direct investment as technology transferred: some panel evidence from the transition economies. **Manchester School** 70, 3: 398-419.
- Carkovic, M. and Levine, R., 2002. Does foreign direct investment accelerate economic growth? **University of Minnesota**, Department of Finance Working Paper
- Caves, R. E. (1971). International Corporations: The Industrial Economics of Foreign Investment. **Economica**, 38:1-27.
- Central Intelligence Agency CIA www.cia.gov
- Chakrabarti, A. (2001). The determinants of foreign direct investment: sensitivity analyses of cross-country regressions. **Kyklos** 54, 1: 89-114.
- Chen, C.-H. (1996). Regional determinants of foreign direct investment in mainland China. **Journal of Economic Studies** 23, 2: 18-30.

- Cheng, L. K. and Y. K. Kwan (2000). What are the determinants of the location of foreign direct investment? the Chinese experience. **Journal of International Economics** 51, 2: 379-400.
- Chowdhury, A. and G. Mavrotas (2006). FDI and Growth: what causes what? **The world economy** 29, 1: 9-19
- CIE (2000). Trade and industry policies for economic integration. **Report** for CIEM and UNIDO under UNDP funded project, Canberra.
- CIE (Centre for International Economics), 1998. **Vietnam's Trade Policies 1998**. Canberra.
- Cuadros, A., V. Orts and M. Alguacil (2004). Openness and Growth: re-examining Foreign Direct investment, trade and output linkages in Latin America. **The Journal of Development Studies** 40, 4: 167-192
- Cummins, J.G. and R.G. Hubbard (1995). The Tax Sensitivity of Foreign Direct Investment: Evidence from Firm-level Panel Data in **The Effects of Taxation on Multinational Corporations**, ed. by M. Feldstein, J.R. Hines, and R. G. Hubbard (Chicago: University of Chicago Press).
- Dapice, D. O.(2003). Vietnam's economy: success story or weird dualism? A SWOT analysis. Center for business and government, **John F. Kennedy College**, Cambridge, MA.
- De Mello, L. R. (1997). Foreign direct investments in developing countries and Growth: A selective survey. **The journal of development studies** 34, 1, 1 –34
- De Mello, L. R. (1999). Foreign Direct Investment-led Growth: Evidence from Time Series and Panel Data. **Oxford Economic Papers** 51: 133-151.
- Dritsaki, M., Dritsaki, C. and A. Adamopoulos (2004). A Causal Relationship between Trade, Foreign Direct Investment and Economic Growth for Greece. **American Journal of Applied Sciences** 1, 3: 230-235
- Du, T. (2004). Prime Minister's Decree on Three Key Economic Regions. [Online] Available from: <http://www.nld.com.vn/tintuc/chu-diem/98864.asp>

- Dunning, J. H. (1977). Trade, Location of Economic Activity and the MNE: A Search for an Eclectic Approach. In B. Ohlin, P.O. Hesselborn, and P.M. Wijkman (eds), **“The International Allocation of Economic Activity”**, Macmillan Press.
- Dunning, J. H. (1993). **Multinational Enterprise and the Global Economy**. Wokingham, Addison, Wesley
- Dunning, J. H. (1995). Reappraising the Eclectic Paradigm in an Age of Alliance Capitalism. **JIBS** 26, 3
- Dunning, J. H. (1995). The role of foreign direct investment in a globalizing economy. **Quarterly Review** / Banca Nazionale Del Lavoro 48, 193: 125-144.
- Dunning, J. H. (2000). **Regions, Globalization and the Knowledge Based Economy**. Oxford, Oxford University Press
- Dunning, J. H. and R. Narula (1996). **Foreign direct investment and governments: catalysts for economic restructuring**. University of Michigan Press.
- Dunning, J.H. and R. Narula (1995). The R&D Activities of Foreign Firms in the US, **International Studies in Management and Organisation** 1, 25: 39-73
- Dunning, J.H., (1988). **Explaining International Production**. Unwin Hyman, London.
- Durham, J. B. (2004). Absorptive capacity and the effects of foreign direct investment and equity foreign portfolio investment on economic growth. **European Economic Review** 48, 2: 285-306.
- Eiteman, D., Stonehill, A. and M. Moffett (1998). **Multinational Business Finance** (8th edition), Addison, Wesley and Sons
- Farrell, R., N. Gaston, et al. (2004). Determinants of Japan's foreign direct investment: an industry and country panel study, 1984-1998. **Journal of the Japanese and International Economies** 18, 2: 161-182.
- Feder, G. (1983). On Exports and Economic Growth. **Journal of Development Economics** 12: 59–73.
- Findlay, R. (1978). Relative Backwardness, Direct Foreign Investment and the Transfer of Technology: A Simple Dynamic Model. **Quarterly Journal of Economics** 92: 1-16.

- Flexner, N. (2000). Foreign Direct Investment and Economic Growth in Bolivia 1990–1998. **Central Bank of Bolivia Research Paper**, La Paz. April, 2000
- Fontagne, L. and Pajot, M. (1997). Relationships between Trade and FDI Flows within two Panels of US and French Industries. **Working Paper** of the University of Paris 1.
- Foreign direct investment and development.** Washington, DC, Institute for International Economics.
- Foreign direct investment and economic growth in China.** Cheltenham, UK ; Northampton, Mass., USA, E. Elgar.
- Foreign investment in developing countries.** Basingstoke, Hampshire ; New York, Palgrave Macmillan.
- Freeman, N. J. (2001). Understanding the decline in foreign investor sentiment towards Vietnam during the 1990s. **Asia Pacific Business Review** 8, 1
- Froot, K. A. and J. C. Stein (1991). Exchange rates and foreign direct investment: an imperfect capital markets approach. **Quarterly Journal of Economics** 106:1191-1217.
- Fry, M. J. (1992). Foreign Direct Investment in a Macroeconomic Framework: Finance, Efficiency, Incentives and Distortions. **PRE Working Paper**, Washington, District of Columbia: The World Bank
- Fung, H.G. and Zhang, et al. (2002). **Financial markets and foreign direct investment in greater China.** Armonk, N.Y., M.E. Sharpe.
- Gao, T. (2005). Foreign direct investment and growth under economic integration. **Journal of International Economics** 67, 1: 157-174.
- General Statistical Office (2004), **Socio-economic statistical data of 64 provinces and cities.** Statistical Publishing House, Hanoi.
- General Statistical Office (2006), **Vietnam – 20 years of renovation and development.** Statistical Publishing House, Hanoi.
- General Statistical Office, **Vietnam Statistical Yearbook**, several issues, Statistical Publishing House, Hanoi.

- Globerman, S. and D. Shapiro (2002). Global foreign direct investment flows: the role of governance infrastructure. **World Development** 30, 11: 1899-1919
- Goldberg, L. S. And Kolstad, C. D. (1995). Foreign direct investment, exchange rate variability and demand uncertainty. **International Economic Review** 36, 4: 855-873
- Goldberg, L., and Klein, M.(1997). Foreign Direct Investment, Trade and Real Exchange Rate Linkages in Developing Countries. **NBER Working Papers** No. 6344.
- Granger, C.W.J. (1969). Investigating causal relation by econometric and cross-sectional method. **Econometrica** 37: 424–438
- Greenaway, D. and D. Sapsford (1994). What does liberalization do for exports and growth? **Review of World Economics** 130, 1: 152-174
- Greene W. (1997). **Econometric Analysis**. Prentice-Hall International, Inc.
- Grossman, G. and E. Helpman.(1991). **Innovation and Growth in the Global Economy**. MIT Press, Cambridge.
- Grossman, G. M. and Helpman, E. (1991). **Innovation and growth in the global economy**. MIT Press, Cambridge, MA.
- Grubert, H. and J. Mutti (1991). Taxes, tariffs and transfer pricing in multinational corporate decision making. **Review of Economics and Statistics** 73, 2: 285-293.
- Gujarati, D. (2003). **Basis econometrics**, 4th ed., McGraw Hill, Singapore
- Habib, M. and L. Zurawicki (2002). Corruption and foreign direct investment. **Journal of International Business Studies**; Second Quarter 33, 2: 291-307
- Hanson, J.R. (1996). Human Capital and Direct Investment in Poor Countries. **Explorations in Economic History** 33: 86-106.
- Hemmer, H-R. and Nguyen, P. H. (2002). Contribution of Foreign Direct Investment to Poverty Reduction: The Case of Vietnam in the 1990s. **Justus-Liebig-Universität Giessen**, Discussion Papers in Development Economics No. 30.
- Hines, J. R. (1996). Taxes and the location of foreign direct investment in America. **American Economic Review** 86, 5: 1076-1094.

- Hines, J. R. and E. M. Rice (1994). Fiscal paradise: Foreign tax havens and American business. **Quarterly Journal of Economics**. 109, 1: 149-182.
- Hoeckman, B. and Kostecki, M. (2002). **The Political Economy of the World Trading System: The WTO and Beyond** (2nd edition) Oxford: Oxford University Press.
- Horst, T. (1972). Firm and industry determinants of the decision to invest abroad: an empirical study. **Review of economics and statistics** 54: 258-66
- Hsiao, C., (1985). Benefits and Limitations of Panel Data. **Econometric Reviews** 4: 121-174.
- Hsiao, C., (1986). **Analysis of Panel Data, Cambridge**, Cambridge University Press.
- Hsiao, F.S.T. and M-C.W. Hsiao (2006). FDI, exports, and GDP in East and Southeast Asia-panel data versus time-series causality analyses. **Journal of Asian Economics** 17, 6: 1082-1106
- Hymer, S. (1960). **The International Operations of National Firms: A Study of Direct Foreign Investment**. Cambridge, Mass.: The MIT Press (1976)
- Hymer, S. (1976). **The international operations of national firms: a study of direct foreign investment**. Cambridge, Mass., MIT Press.
- IMF (1993). **Balance of Payments Manual**, fifth Edition, Washington DC.
- Itaki, M. (1991). A Critical Assessment of the Eclectic Theory of the Multinational Enterprise. **Journal of International Business Studies** 25: 445-460
- John, Karl, (2007). Interview. Ho Chi Minh City, Vietnam [Online] Available from: [http:// www.tckgroup.com](http://www.tckgroup.com)
- Jorgenson, D. W. (1963). Capital theory and Investment behavior. **The American Economic Review** LVII 2
- Jun, K. W. and H. Singh (1996). The determinants of foreign direct investment in developing countries. **Transnational Corporations** 5: 67-105.
- Kaufmann, D., A. Kraay, and P. Zoido-Lobaton (1999). Aggregating governance indicators. **World Bank Working Paper**, no 2195 World Bank
- Kawai, H.(1994). International Comparative Analysis of Economic Growth: Trade. Liberalization and Productivity. **Developing Economies** 32: 372-397

- Khawar, M. (2005). Foreign Direct Investment and Economic Growth: A Cross Country Analysis. **Global Economy Journal** 5, 1: 1–11
- Kindleberger, C. P. (1969). **American Business Abroad**. New Haven, CT: Yale University Press.
- Klevmarcken, N. A., (1989). Panel Studies: What Can We Learn from Them? **European Economic Review** 33: 523-529.
- Kohpaiboon, A. (2003). Foreign trade regimes and the FDI-growth nexus: a case study of Thailand. **The Journal of Development Studies** 40, 2: 55-69
- Kojima, K. (1973). Toward a Theory of Industrial Restructuring and Dynamic Comparative Advantage, **Hitotsubashi Journal of Economics**, 26, 2: 51-63.
- Kojima, K. (1978). **Direct Foreign Investment: A Japanese Model of Multinational Business Operation**, London: Croom Helm.
- Kojima, K. (1982). Macroeconomic versus international business approach to direct foreign investment. **Hitotsubashi Journal of Economics** 23: 1-19.
- Kojima, K. (1985). Allocation of Japanese direct foreign investment and its evolution in Asia. **Hitotsubashi Journal of Economics** 26: 99-116.
- Kyrkilis, D. et al (2003). Macroeconomic Determinants of Outward FDI. **International Journal of Social Economics** 30, 7: 827-836
- Lall, S. (1983). **The New Multinationals: The Spread of Third World Enterprise**. John Wiley Sons.
- Le Dang Doanh (2002). Foreign Direct Investment in Vietnam: Results, Achievements, Challenges and Prospect. **International Monetary Fund Conference on Foreign Direct investment. Hanoi, Vietnam**.
- Le Thanh Thuy (2005). Technological spillovers from foreign direct investment: The case of Vietnam. **Discussed Paper in Graduate School of Economics, University of Tokyo**.
- Le Viet Anh (2004). Locational Determinants of Foreign Direct Investment: The Case of Vietnam. **Discussed Paper in Graduate School of International Development, Nagoya University**.

- Levchenko, A. A. (2004). Institutional quality and international trade. **IMF Working paper** No. 04/231, International Monetary Fund
- Li, X. and X. Liu (2005). Foreign direct investment and economic growth: an increasingly endogenous relationship. **World Development** 33, 3: 393-407.
- Lipsey, R. E. (2000). Interpreting Developed Countries' Foreign Direct Investment. **NBER Working Paper** No.7810, National Bureau of Economic Research, Cambridge, Massachusetts
- Liu, X., Burrige, P. and Sinclair, P. J. N. (2002). Relationships between economic growth, foreign direct investment and trade: evidence from China. **Applied Economics** 34: 1433-1440
- Loree, D. W. and S. E. Guisinger (1995). Policy and Non-policy Determinants of U.S. Equity Foreign Direct Investment. **Journal of International Business Studies** 2: 281-299.
- Lucas, R. E. B. (1993). On the determinants of direct foreign investment: evidence from East and Southeast Asia. **World Development** 21: 391-406.
- Lucas, R.E., (1990). Why doesn't Capital Flow from Rich to Poor Countries. **American Economic Review** 80: 92-96.
- Lunn, J.L.(1980). Determinants of US Direct Investment in the EEC. **European Economic Review** 13:93-101.
- Lutkepohl, H. (1993). **Introduction to Multiple Time Series Analysis**. Springer-Verlag, New York
- Maddala, G.S. and Kim, In-Moo (1998). **Unit Roots, Cointegration, and Structural Change**. Cambridge: Cambridge University Press
- Maki, D. R. and L. N. Meredith (1986). Production cost differentials and foreign direct investment: a test of two models. **Applied Economics** 18: 1127-1134
- Makiw, N.G., Romer, D. and Weil, D.N. (1992). A contribution to the empirics of economic growth. **The quarterly journal of economics** 107: 407-437
- Malesky, E. J. (2005). Straight Ahead on Red: The Mutually Reinforcing Impact of Foreign Direct Investment on Local Autonomy in Vietnam. **Paper presented at**

- the annual meeting of the American Political Science Association**, Marriott Wardman Park, Omni Shoreham, Washington Hilton, Washington, DC
- Matsuoka, A. (2001). Wage Differentials among Local Plants and Foreign Multinationals by Foreign Ownership Share and Nationality in Thai Manufacturing. **ICSEAD working paper** series 2001-25.
- Mekong Capital, www.mekongcapital.com.
- Meyer, K.E. and Estrin, S. (2001). Brownfield Entry in Emerging Markets. **Journal of International Business Studies** 32, 3: 575-584.
- Meyer, K.E. and Nguyen Vo Hung (2005). Foreign Investment Strategies and Sub-national Institutions in Emerging Markets: Evidence from Vietnam. **Journal of Management Studies** 42, 1: 63-93
- Ministry of Labor-Invalid and Social Affairs of Vietnam, <http://www.molisa.gov.vn>
- Ministry of Planning and Investment of Vietnam www.mpi.gov.vn
- Mohsen, B.O. and H-J. Rhee (1997). Structural change in import demand behavior, the Kores experience: a reexamination. **Journal of Policy Modeling** 19, 2: 187-193
- Moosa, I. A. (2002). **Foreign direct investment: Theory, evidence and practice**. New York, Palgrave Macmillan
- Morrisset P. (2000). Foreign Direct Investment to Africa: Policies also Matter. **Transnational Corporation** 9, 2: 107-125
- Nelson, R. R., and E. S. Phelps. (1966). Investment in Human, Technological Diffusion, and Economic Growth. **American Economic Review Proceedings** 6: 69-75.
- Nguyen Ngoc Anh and Nguyen Thang (2007). Foreign direct investment in Vietnam: An overview and analysis the determinants of spatial distribution across provinces. **MPRA Paper** No. 1921, posted 10.
- Nguyen Phi Hung (2002). Contribution of Foreign Direct Investment to Poverty reduction: The case of Vietnam, **Discussed paper**, CIEM, Vietnam.
- Nguyen Phi Lan (2006). Foreign Direct Investment in Vietnam: Impact on Economic Growth and Domestic Investment. **Discussed paper in Centre for Regulation and Market Analysis, University of South Australia**.

- Nguyen Thanh Xuan and Y. Xing (2006). Foreign Direct Investment and Exports: The Experience of Vietnam. **Working Paper** No. EDP06-11, Graduate School of International Relations, International University of Japan.
- Nguyen, N. B. and J. Haughton (2002). Trade Liberalisation and Foreign Direct Investment in Vietnam. **ASEAN Economic Bulletin** 19, 3: 302-318.
- Noorbakhsh, F., Paloni, A. and Youssef, A. (2001). Human capital and FDI inflows to developing countries: new empirical evidence. **World Development** 29, 9: 1593-1610.
- Nunnenkamp, P. and Spatz, J. (2003). FDI and economics growth in developing countries: How Relevant Are Host-country and Industry Characteristics? **Kiel Institute for World Economics**, Germany. Kiel Working Paper No. 1176.
- OECD (Organisation for Economic Cooperation and Development) (1996). **Benchmark definition of Foreign Direct Investment**, third Edition, Paris.
- Ondrich, J. and M. Wasylenko (1993). **Foreign Direct Investment in the United States: Issues, Magnitudes, and Location Choice of New Manufacturing Plants**. W.E. Upjohn Institute for Employment Research, Kalamazoo, Michigan.
- Pack, J. Y. and Philips, P. B.(1989). Statistical inference in regressions with integrated processes: part 2. **Economet Theory** 5: 59-132
- Pham Hoang Mai (2002). Regional Economic Development and Foreign Direct Investment Flows in Vietnam, 1988-98. **Journal of the Asia Pacific Economy** 7, 2: 182-202.
- Pham Hoang Mai (2004). **FDI and development in Vietnam: policy implications**. Institute of Southeast Asian Studies.
- Romer, D. (1986). Increasing returns and long run growth. **Journal of Political Economy** 94, 5: 1002-1037.
- Romer, D. (1990). Endogenous Technological change. **Journal of Political Economy** 98: 71-102
- Romer, D. (2001). **Advanced Macroeconomics** 2nd edition. New York, Mc Graw-Hill/Irwin

- Runckel C. (2005), Asia Focus - Location, Location, Location: Asian Comparison. [Online] Available from: http://www.businessin-asia.com/wire_journal_nov2005.html
- Runckel, C. (2006). Ports in Vietnam: Stunting amid economic development. Runckel & Associates. [Online] Available from: http://www.businessin-asia.com/port_in_Vietnam.html
- Runckel, C. (2006). Vietnam – Open for Business? [Online] Available from: http://www.business-in-asia.com/vn_industrial.html
- Saggi, K. (2002). Trade, foreign direct investment, and international technology transfer: a survey. **World Bank Research Observer** 17, 2: 191-235.
- Salvatore, D. and T. Hatcher (1991). Inward Oriented and Outward Oriented Trade Strategies. **Journal of Development Studies** 27: 7- 25.
- Schaumburg, M. (2003). Rise and fall of Foreign Direct Investment in Vietnam and its Impact on Local Manufacturing Upgrading. **The European Journal of Development Research** 15, 2: 44–66.
- Schmitz, A., and J. Bieri (1972). EEC Tariffs and US Direct Investments. **European Economic Review** 3: 259-270.
- Schneider, F. and B. S. Frey (1985). Economic and political determinants of foreign direct investment. **World Development** 13: 161-75.
- Shan, J., Tian, G. and Sun, F.(1997). The FDI-led growth hypothesis: further econometric evidence from China. **Australian National University**, Research school of Pacific and Asian Studies, Working paper No. 97: 2
- Sims, C. A. (1980). Macroeconomics and reality. **Econometrica** 48, 1: 1-48
- Sims, C. A., Stock, J. H. and Watson M. W. (1990). Inference in linear time series models with some unit roots. **Econometrica** 58: 113-144
- Smarzynska, B. K., and S. Wei (2002). Corruption and Cross-Border Investment: Firm-Level Evidence. **William Davidson Institute Working Paper** No. 494, University of Michigan School of Business.
- Smarzynska, J.B. and S. J. Wei (2002). Corruption and foreign direct investment: firm level evidence. **C.E.P.R. Discussion Papers** No. 2967.

- Socialist Republic of Vietnam. The law on foreign investment in Vietnam in 1996. The standing committee of national assembly.
- Solow, R.M. (1956). A contribution to the theory of economic growth. **The quarterly journal of economics** 70: 65-94
- Solow, R.M. (1957). Technical change and aggregate production function. **The review of economics and statistics** 39, 3: 12-20
- Strobl, E. and R. Thornton (2001). Do Large Employers Pay More in Developing Countries? The Case of Five African Countries. **Institute for the Study of Labor (IZA)**, IZA Discussion paper No. 660.
- Sun, Q., Tong, W. and Q. Yu (2002). Determinants of foreign direct investment across China. **Journal of International Money and Finance** 21, 1: 79-113.
- Taylor, C.T. (2000). The Impact of Host Country Government Policy on US Multinational Investment Decisions. **The World Economy** 5: 635-647
- Tran Trong Hung (2005). Impacts of Foreign direct investment on poverty reduction in Vietnam. **Discussed Paper in Graduate School of International Development, Nagoya University.**
- Urata, S., and Kawai, H. (1999), "The Determinants of the Location of Foreign Direct Investment by Japanese Small and Medium-sized Enterprises. **Working Paper** No. 158, Tokyo, Economic Research Institute.
- Velde, D. W. te and O. Morrissey (2001). Foreign Ownership and Wages: Evidence from five African Countries. **CREDIT Discussion Paper** 01/19. [Online] Available from: www.nottingham.ac.uk/economics/research/credit
- Velde, D. W. te and O. Morrissey (2002). Foreign Direct Investment, Skills and Wage Inequality in East Asia. **Paper presented at DESG conference** in Nottingham, April 2002
- Vernon, R. (1966). International Investment and International Trade in the Product Cycle. **Quarterly Journal of Economics** 80: 190-207.
- Viet Phong, 2004. Development Direction of Key Economic Regions. [Online] Available from: <http://vnexpress.net/Vietnam/Kinh-doanh/2004/09/3B9D62F7/>

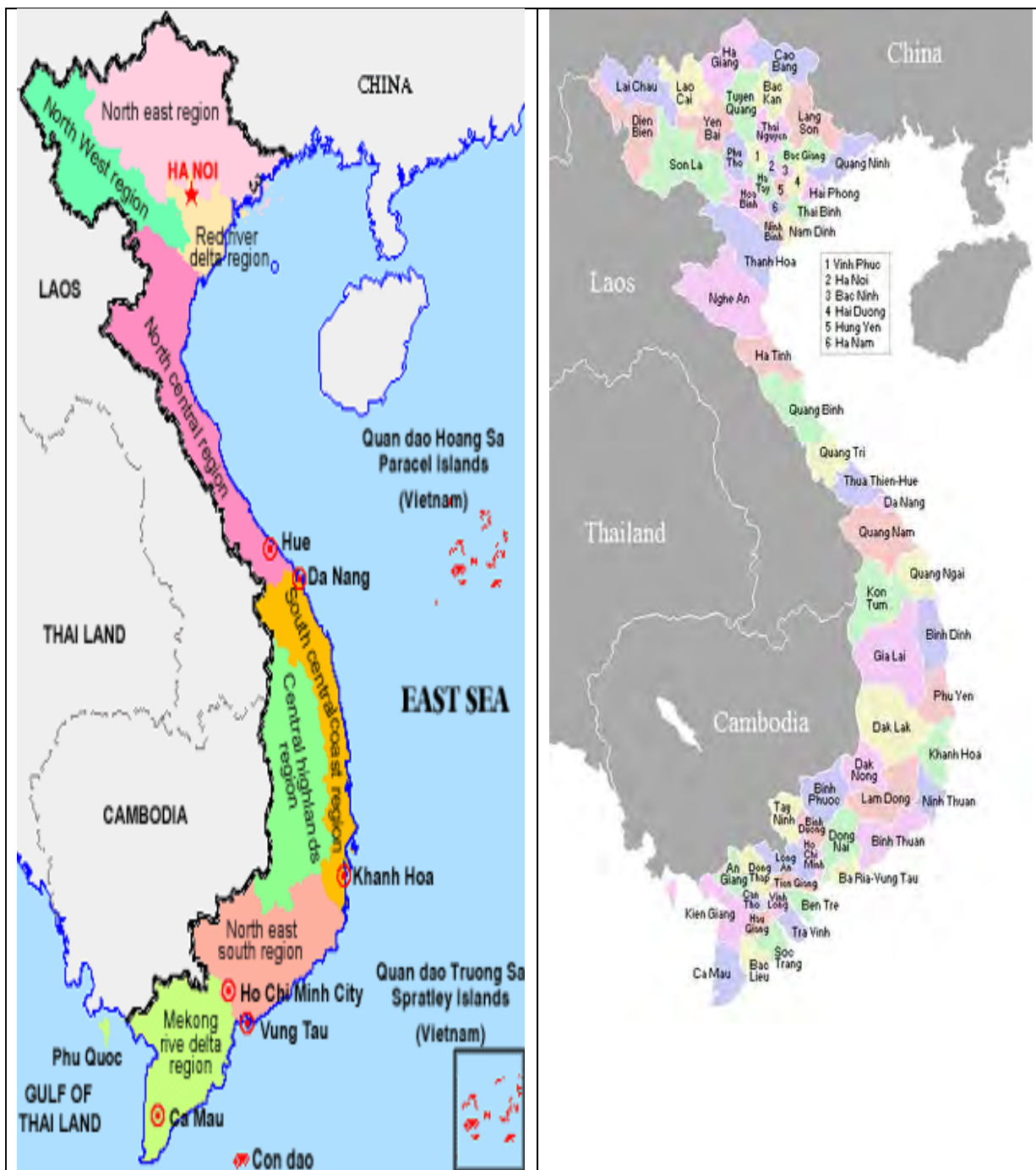
- Vietnam General Statistical Office. **Statistical Yearbook**, several issues, 1995-2007. Statistical Publishing House, Hanoi.
- Vietnamese Government (2006). Decree No 03/2006/NĐ-CP on Minimum Wage in Foreign invested enterprises and other foreign and international organizations in Vietnam.
- Vu Bang Tam, Gangnes, B. and I. Noy (2006). Is Foreign Direct Investment Good for Growth? Evidence from Sectoral Analysis of China and Vietnam. **Discussed paper** in Department of Economics, University of Hawaii-Manoa.
- Wei, Shang-Jin (1996). "Foreign direct investment in China: sources and consequences", in Takatoshi Ito and Anne Krueger, eds., **Financial Deregulation and Integration in East Asia** (Chicago: University of Chicago Press).
- Wheeler, D. and A. Mody (1992). International investment location decisions: The case for U.S. firms. **Journal of International Economics** 33: 57-76.
- World Bank [Online] Available from: www.worldbank.org.
- World Trade Organization [Online] Available from: www.wto.org
- Yang, J.Y.Y., Groenewold, N. and Tcha, M. (2000). The Determinants of Foreign Direct Investment in Australia. **Economic Record** 76: 45-54.
- Zaman, M. R. (2004). Flow of foreign direct investment: an examination of economic and non-economic factors. **International Journal of Finance** 16, 1: 2892-2903.
- Zhang, K. and J. Markusen (1999). Vertical Multinationals and Host-Country Characteristics. **Journal of Development Economics** 59: 233-252.
- Zhang, K. H. (2001). Does foreign direct investment promote economic growth? Evidence from East Asia and Latin America. **Contemporary Economic Policy** 19, 2: 175-85.
- Zhang, K. H. (2001). How does foreign direct investment affect economic growth in China? **Economics of Transition** / European Bank for Reconstruction and Development 9, 3: 679-693.

Zhang, K. H. (2006). Foreign direct investment and economic growth in China: A panel data study for 1992-2004. **Paper presented in the conference** of “WTO, China and Asian economies” in Beijing, China.

APPENDICES

Appendix A

Map of Vietnam



Appendix B

Provinces in Vietnam

	Province	Coastal province		Province	Coastal province
	Red River Delta (11)	(4)		South Central Coast (6)	(6)
1	Ha Noi		32	Da Nang	X
2	Vinh Phuc		33	Quang Nam	X
3	Bac Ninh		34	Quang Ngai	X
4	Ha Tay		35	Binh Dinh	X
5	Hai Duong		36	Phu Yen	X
6	Hai Phong	X	37	Khanh Hoa	X
7	Hung Yen			Central Highlands (4)	
8	Thai Binh	X	38	Kon Tum	
9	Ha Nam		39	Gia Lai	
10	Nam Dinh	X	40	Dak Lak	
11	Ninh Binh	X	41	Lam Dong	
	North East (11)	(1)		South East (8)	(4)
12	Ha Giang			Ninh Thuan	X
13	Cao Bang		42	Binh Thuan	X
14	Bac Kan		43	Binh Phuoc	
15	Tuyen Quang		44	Tay Ninh	
16	Lao Cai		45	Binh Duong	
17	Yen Bai		46	Dong Nai	
18	Thai Nguyen		47	Ba Ria-Vung Tau	X
19	Lang Son		48	Ho Chi Minh City	X
20	Quang Ninh	X	49	Mekong River Delta (12)	(7)
21	Bac Giang			Long An	
22	Phu Tho		50	Tien Giang	X
	North West (3)		51	Ben Tre	X
23	Lai Chau		52	Tra Vinh	X
24	Son La		53	Vinh Long	
25	Hoa Binh		54	Dong Thap	
	North Central Coast (6)	(6)	55	An Giang	
26	Thanh Hoa	X	56	Kien Giang	X
27	Nghe An	X	57	Can Tho	
28	Ha Tinh	X	58	Soc Trang	
29	Quang Binh	X	59	Bac Lieu	X
30	Quang Tri	X	60	Ca Mau	X
31	Thua Thien - Hue	X	61		X

Appendix C

Correlation matrixes and Descriptive analyses (Chapter III)

Appendix C1: Vietnam at 61 provinces

Descriptive statistics – common

	LnFDI	LnGDPPC	LnGDPG	LnL	LnOPEN	LnTEL	LnHS	LnRWAGE	LnCFDI	KEZ	COASTAL
Mean	1.98	8.33	1.94	3.91	3.01	5.64	1.09	4.31	6.31	0.33	0.46
Median	3.83	8.24	2.04	3.91	3.18	5.63	1.12	4.33	6.51	0.00	0.00
Maximum	10.39	11.47	2.54	4.14	6.74	8.85	3.08	5.78	12.56	1.00	1.00
Minimum	-4.61	6.67	-1.45	3.32	-4.61	2.81	-0.62	3.30	-4.61	0.00	0.00
Std. Dev.	5.01	0.66	0.38	0.08	1.59	1.08	0.54	0.49	3.58	0.47	0.50
Observations	732	732	732	732	732	732	732	732	732	732	732

Common Correlation matrix

	LnGDPPC	LnGDPG	LnL	LnOPEN	LnTEL	LnHS	LnRWAGE	LnCFDI	KEZ	COASTAL
LnGDPPC	1	0.11	0.03	0.52	0.81	0.57	0.66	0.52	0.39	0.13
LnGDPG	0.11	1	-0.08	0.11	0.16	0.03	0.14	0.08	0.06	-0.11
LnL	0.03	-0.08	1	-0.07	0.17	0.22	0.30	0.03	-0.07	-0.17
LnOPEN	0.52	0.11	-0.07	1	0.50	0.32	0.28	0.29	0.41	0.06
LnTEL	0.81	0.16	0.17	0.50	1	0.73	0.87	0.52	0.26	0.05
LnHS	0.57	0.03	0.22	0.32	0.73	1	0.65	0.43	0.31	0.03
LnRWAGE	0.66	0.14	0.30	0.28	0.87	0.65	1	0.41	0.06	-0.03
LnCFDI	0.52	0.08	0.03	0.29	0.52	0.43	0.41	1	0.32	0.03
KEZ	0.39	0.06	-0.07	0.41	0.26	0.31	0.06	0.32	1	-0.08
COASTAL	0.13	-0.11	-0.17	0.06	0.05	0.03	-0.03	0.03	-0.08	1

Appendix C2: The Northern region

Descriptive statistics – common

	LnFDI	LnGDPPC	LnGDPG	LnL	LnOPEN	LnTEL	LnHS	LnRWAGE	LnCFDI	POL
Mean	1.85	8.14	1.91	3.96	2.38	5.44	1.17	4.24	5.64	0.32
Median	3.59	8.07	2.04	3.96	2.81	5.39	1.24	4.27	6.17	0.00
Maximum	10.26	9.98	2.54	4.14	5.89	8.35	3.08	5.23	12.21	1.00
Minimum	-4.61	6.67	-1.45	3.59	-4.61	2.81	-0.62	3.30	-4.61	0.00
Std. Dev.	4.95	0.57	0.46	0.07	2.05	1.15	0.57	0.50	4.02	0.47
Observations	300	300	300	300	300	300	300	300	300	300

Common Correlation matrix

	LnGDPPC	LnGDPG	LnL	LnOPEN	LnTEL	LnHS	LnRWAGE	LnCFDI	POL
LnGDPPC	1	0.04	0.30	0.65	0.91	0.84	0.68	0.56	0.52
LnGDPG	0.04	1	-0.06	0.04	0.10	0.00	0.14	0.04	-0.02
LnL	0.30	-0.06	1	0.24	0.39	0.29	0.53	0.19	-0.04
LnOPEN	0.65	0.04	0.24	1	0.56	0.53	0.30	0.25	0.52
LnTEL	0.91	0.10	0.39	0.56	1	0.80	0.84	0.55	0.30
LnHS	0.84	0.00	0.29	0.53	0.80	1	0.62	0.46	0.41
LnRWAGE	0.68	0.14	0.53	0.30	0.84	0.62	1	0.38	0.01
LnCFDI	0.56	0.04	0.19	0.25	0.55	0.46	0.38	1	0.25
POL	0.52	-0.02	-0.04	0.52	0.30	0.41	0.01	0.25	1

Appendix C3: The Red River Delta r sub-region

Descriptive statistics – common

	LnFDI	LnGDPPC	LnGDPG	LnL	LnOPEN	LnTEL	LnHS	LnRWAGE	LnCFDI	POL
Mean	2.82	8.38	1.89	3.96	3.35	5.61	1.38	4.21	5.98	0.64
Median	4.92	8.29	2.02	3.97	3.23	5.59	1.39	4.20	7.26	1.00
Maximum	10.26	9.98	2.51	4.14	5.89	8.35	3.08	5.23	12.21	1.00
Minimum	-4.61	7.32	-1.45	3.59	-0.48	2.83	0.43	3.39	-4.61	0.00
Std. Dev.	5.28	0.59	0.48	0.07	1.22	1.24	0.51	0.48	4.95	0.48
Observations	132	132	132	132	132	132	132	132	132	132

Common Correlation matrix

	LnGDPPC	LnGDPG	LnL	LnOPEN	LnTEL	LnHS	LnRWAGE	LnCFDI	POL
LnGDPPC	1	0.09	0.10	0.77	0.95	0.88	0.76	0.64	0.37
LnGDPG	0.09	1	-0.22	0.17	0.12	0.11	0.12	0.00	0.09
LnL	0.10	-0.22	1	-0.08	0.15	-0.05	0.41	0.16	-0.13
LnOPEN	0.77	0.17	-0.08	1	0.69	0.76	0.51	0.34	0.63
LnTEL	0.95	0.12	0.15	0.69	1	0.88	0.86	0.63	0.27
LnHS	0.88	0.11	-0.05	0.76	0.88	1	0.68	0.56	0.38
LnRWAGE	0.76	0.12	0.41	0.51	0.86	0.68	1	0.46	0.10
LnCFDI	0.64	0.00	0.16	0.34	0.63	0.56	0.46	1	0.21
POL	0.37	0.09	-0.13	0.63	0.27	0.38	0.10	0.21	1

Appendix C4: The North Uplands sub-region

Descriptive statistics – common

	LnFDI	LnGDPPC	LnGDPG	LnL	LnOPEN	LnTEL	LnHS	LnRWAGE	LnCFDI	POL
Mean	1.08	7.95	1.93	3.95	1.62	5.30	1.00	4.26	5.36	0.07
Median	2.90	7.89	2.08	3.96	1.92	5.19	1.09	4.30	5.63	0.00
Maximum	8.30	9.54	2.54	4.09	5.23	7.91	2.19	5.18	9.99	1.00
Minimum	-4.61	6.67	0.17	3.75	-4.61	2.81	-0.62	3.30	-4.61	0.00
Std. Dev.	4.54	0.49	0.45	0.06	2.24	1.05	0.56	0.52	3.08	0.26
Observations	168	168	168	168	168	168	168	168	168	168

Common Correlation matrix

	LnGDPPC	LnGDPG	LnL	LnOPEN	LnTEL	LnHS	LnRWAGE	LnCFDI	POL
LnGDPPC	1	0.03	0.54	0.56	0.92	0.78	0.74	0.50	0.47
LnGDPG	0.03	1	0.10	0.01	0.10	-0.05	0.15	0.09	-0.10
LnL	0.54	0.10	1	0.44	0.64	0.60	0.65	0.24	0.00
LnOPEN	0.56	0.01	0.44	1	0.54	0.35	0.31	0.22	0.29
LnTEL	0.92	0.10	0.64	0.54	1	0.76	0.86	0.44	0.31
LnHS	0.78	-0.05	0.60	0.35	0.76	1	0.68	0.38	0.18
LnRWAGE	0.74	0.15	0.65	0.31	0.86	0.68	1	0.32	-0.01
LnCFDI	0.50	0.09	0.24	0.22	0.44	0.38	0.32	1	0.36
POL	0.47	-0.10	0.00	0.29	0.31	0.18	-0.01	0.36	1

Appendix C5: The Central region

Descriptive statistics – common

	LnFDI	LnGDPPC	LnGDPG	LnL	LnOPEN	LnTEL	LnHS	LnRWAGE	LnCFDI	POL
Mean	1.50	8.19	1.95	3.87	3.15	5.66	1.24	4.32	6.50	0.32
Median	3.80	8.10	2.04	3.88	3.06	5.65	1.31	4.35	6.76	0.00
Maximum	9.76	9.78	2.47	3.99	5.85	8.85	2.69	5.27	10.46	1.00
Minimum	-4.61	7.34	0.62	3.32	1.68	3.05	-0.17	3.38	-4.61	0.00
Std. Dev.	4.94	0.48	0.35	0.07	0.84	0.99	0.50	0.48	3.17	0.47
Observations	192	192	192	192	192	192	192	192	192	192

Common Correlation matrix

	LnGDPPC	LnGDPG	LnL	LnOPEN	LnTEL	LnHS	LnRWAGE	LnCFDI	POL
LnGDPPC	1	0.15	0.05	0.48	0.89	0.83	0.80	0.50	0.16
LnGDPG	0.15	1	-0.04	0.28	0.18	0.03	0.08	-0.05	0.00
LnL	0.05	-0.04	1	-0.15	0.04	0.00	0.16	0.21	0.08
LnOPEN	0.48	0.28	-0.15	1	0.44	0.30	0.18	0.21	0.10
LnTEL	0.89	0.18	0.04	0.44	1	0.82	0.84	0.46	0.15
LnHS	0.83	0.03	0.00	0.30	0.82	1	0.77	0.52	0.27
LnRWAGE	0.80	0.08	0.16	0.18	0.84	0.77	1	0.44	-0.02
LnCFDI	0.50	-0.05	0.21	0.21	0.46	0.52	0.44	1	0.11
POL	0.16	0.00	0.08	0.10	0.15	0.27	-0.02	0.11	1

Appendix C6: The North Central Coast and Highlands sub-region

Descriptive statistics – common

	LnFDI	LnGDPPC	LnGDPG	LnL	LnOPEN	LnTEL	LnHS	LnRWAGE	LnCFDI	POL
Mean	0.18	8.08	1.92	3.86	2.91	5.51	1.18	4.32	6.13	0.10
Median	0.41	8.03	2.03	3.86	2.85	5.57	1.25	4.35	6.35	0.00
Maximum	9.18	8.97	2.47	3.97	4.36	7.13	2.52	5.14	9.65	1.00
Minimum	-4.61	7.34	0.85	3.32	1.78	3.05	-0.17	3.38	-4.61	0.00
Std. Dev.	4.79	0.37	0.35	0.07	0.61	0.92	0.50	0.46	2.99	0.30
Observations	120	120	120	120	120	120	120	120	120	120

Common Correlation matrix

	LnGDPPC	LnGDPG	LnL	LnOPEN	LnTEL	LnHS	LnRWAGE	LnCFDI	POL
LnGDPPC	1	0.11	0.24	0.21	0.86	0.82	0.93	0.40	0.16
LnGDPG	0.11	1	-0.04	0.27	0.23	-0.01	0.12	-0.12	-0.01
LnL	0.24	-0.04	1	-0.12	0.13	0.13	0.25	0.31	-0.16
LnOPEN	0.21	0.27	-0.12	1	0.39	0.05	0.20	0.07	0.01
LnTEL	0.86	0.23	0.13	0.39	1	0.75	0.86	0.27	0.16
LnHS	0.82	-0.01	0.13	0.05	0.75	1	0.82	0.46	0.32
LnRWAGE	0.93	0.12	0.25	0.20	0.86	0.82	1	0.37	0.03
LnCFDI	0.40	-0.12	0.31	0.07	0.27	0.46	0.37	1	0.17
POL	0.16	-0.01	-0.16	0.01	0.16	0.32	0.03	0.17	1

Appendix C7: The South Central Coast sub-region

Descriptive statistics – common

	LnFDI	LnGDPPC	LnGDPG	LnL	LnOPEN	LnTEL	LnHS	LnRWAGE	LnCFDI	POL
Mean	3.69	8.39	1.99	3.90	3.55	5.90	1.35	4.33	7.10	0.68
Median	5.11	8.34	2.07	3.90	3.65	5.91	1.34	4.34	8.11	1.00
Maximum	9.76	9.78	2.43	3.99	5.85	8.85	2.69	5.27	10.46	1.00
Minimum	-4.61	7.37	0.62	3.72	1.68	3.61	0.39	3.43	-4.61	0.00
Std. Dev.	4.40	0.57	0.33	0.06	1.01	1.07	0.50	0.50	3.39	0.47
Observations	72	72	72	72	72	72	72	72	72	72

Common Correlation matrix

	LnGDPPC	LnGDPG	LnL	LnOPEN	LnTEL	LnHS	LnRWAGE	LnCFDI	POL
LnGDPPC	1	0.14	-0.44	0.54	0.94	0.89	0.78	0.58	-0.18
LnGDPG	0.14	1	-0.15	0.28	0.08	0.06	0.00	0.03	-0.18
LnL	-0.44	-0.15	1	-0.53	-0.27	-0.41	0.01	-0.06	-0.11
LnOPEN	0.54	0.28	-0.53	1	0.42	0.48	0.20	0.28	-0.27
LnTEL	0.94	0.08	-0.27	0.42	1	0.92	0.84	0.67	-0.06
LnHS	0.89	0.06	-0.41	0.48	0.92	1	0.71	0.58	0.13
LnRWAGE	0.78	0.00	0.01	0.20	0.84	0.71	1	0.54	-0.10
LnCFDI	0.58	0.03	-0.06	0.28	0.67	0.58	0.54	1	-0.11
POL	-0.18	-0.18	-0.11	-0.27	-0.06	0.13	-0.10	-0.11	1

Appendix C8: The Southern region

Descriptive statistics – common

	LnFDI	LnGDPPC	LnGDPG	LnL	LnOPEN	LnTEL	LnHS	LnRWAGE	LnCFDI	POL
Mean	2.53	8.68	1.97	3.89	3.69	5.89	0.87	4.37	7.01	0.35
Median	3.91	8.52	2.01	3.88	3.61	5.90	0.94	4.39	6.85	0.00
Maximum	10.39	11.47	2.48	4.05	6.74	8.32	2.13	5.78	12.56	1.00
Minimum	-4.61	7.45	0.88	3.65	1.47	3.36	-0.29	3.39	-4.61	0.00
Std. Dev.	5.11	0.75	0.29	0.08	0.96	1.01	0.46	0.49	3.15	0.48
Observations	240	240	240	240	240	240	240	240	240	240

Common Correlation matrix

	LnGDPPC	LnGDPG	LnL	LnOPEN	LnTEL	LnHS	LnRWAGE	LnCFDI	POL
LnGDPPC	1	0.15	0.06	0.28	0.73	0.68	0.64	0.49	0.45
LnGDPG	0.15	1	-0.06	0.16	0.22	0.14	0.19	0.25	0.29
LnL	0.06	-0.06	1	-0.06	0.29	0.30	0.41	-0.07	-0.21
LnOPEN	0.28	0.16	-0.06	1	0.35	0.35	0.28	0.31	0.56
LnTEL	0.73	0.22	0.29	0.35	1	0.84	0.92	0.49	0.29
LnHS	0.68	0.14	0.30	0.35	0.84	1	0.80	0.53	0.27
LnRWAGE	0.64	0.19	0.41	0.28	0.92	0.80	1	0.42	0.17
LnCFDI	0.49	0.25	-0.07	0.31	0.49	0.53	0.42	1	0.60
POL	0.45	0.29	-0.21	0.56	0.29	0.27	0.17	0.60	1

Appendix C9: The South East sub-region

Descriptive statistics – common

	LnFDI	LnGDPPC	LnGDPG	LnL	LnOPEN	LnTEL	LnHS	LnRWAGE	LnCFDI	POL
Mean	5.67	8.95	2.10	3.84	4.07	6.27	1.00	4.47	8.95	0.75
Median	6.99	8.76	2.14	3.83	3.78	6.31	1.02	4.41	8.99	1.00
Maximum	10.39	11.47	2.48	4.02	6.74	8.32	2.13	5.78	12.56	1.00
Minimum	-4.61	7.45	1.28	3.65	1.47	4.01	0.02	3.63	-4.61	0.00
Std. Dev.	4.28	1.02	0.24	0.07	1.26	1.04	0.48	0.47	2.54	0.44
Observations	96	96	96	96	96	96	96	96	96	96

Common Correlation matrix

	LnGDPPC	LnGDPG	LnL	LnOPEN	LnTEL	LnHS	LnRWAGE	LnCFDI	POL
LnGDPPC	1	0.00	0.07	0.24	0.66	0.70	0.59	0.60	0.47
LnGDPG	0.00	1	0.10	0.17	0.05	-0.10	0.08	0.03	0.13
LnL	0.07	0.10	1	0.32	0.45	0.23	0.41	-0.03	0.21
LnOPEN	0.24	0.17	0.32	1	0.44	0.50	0.44	0.47	0.56
LnTEL	0.66	0.05	0.45	0.44	1	0.87	0.94	0.46	0.18
LnHS	0.70	-0.10	0.23	0.50	0.87	1	0.86	0.63	0.28
LnRWAGE	0.59	0.08	0.41	0.44	0.94	0.86	1	0.49	0.14
LnCFDI	0.60	0.03	-0.03	0.47	0.46	0.63	0.49	1	0.57
POL	0.47	0.13	0.21	0.56	0.18	0.28	0.14	0.57	1

Appendix C10: The Mekong River Delta sub-region

Descriptive statistics – common

	LnFDI	LnGDPPC	LnGDPG	LnL	LnOPEN	LnTEL	LnHS	LnRWAGE	LnCFDI	POL
Mean	0.44	8.49	1.88	3.92	3.44	5.63	0.78	4.31	5.71	0.08
Median	2.07	8.46	1.92	3.91	3.54	5.65	0.87	4.36	6.09	0.00
Maximum	8.39	9.41	2.39	4.05	4.41	7.28	1.69	5.27	9.82	1.00
Minimum	-4.61	7.63	0.88	3.76	2.26	3.36	-0.29	3.39	-4.61	0.00
Std. Dev.	4.53	0.39	0.29	0.07	0.57	0.91	0.42	0.50	2.83	0.28
Observations	144	144	144	144	144	144	144	144	144	144

Common Correlation matrix

	LnGDPPC	LnGDPG	LnL	LnOPEN	LnTEL	LnHS	LnRWAGE	LnCFDI	POL
LnGDPPC	1	0.13	0.62	0.05	0.92	0.72	0.89	0.27	0.05
LnGDPG	0.13	1	0.18	-0.09	0.16	0.17	0.18	0.10	0.00
LnL	0.62	0.18	1	-0.15	0.61	0.69	0.67	0.39	0.20
LnOPEN	0.05	-0.09	-0.15	1	0.05	0.00	0.03	-0.17	0.36
LnTEL	0.92	0.16	0.61	0.05	1	0.78	0.93	0.37	0.03
LnHS	0.72	0.17	0.69	0.00	0.78	1	0.75	0.39	0.00
LnRWAGE	0.89	0.18	0.67	0.03	0.93	0.75	1	0.35	0.05
LnCFDI	0.27	0.10	0.39	-0.17	0.37	0.39	0.35	1	0.30
POL	0.05	0.00	0.20	0.36	0.03	0.00	0.05	0.30	1

Appendix D

Descriptive analyses and Correlation matrixes (Chapter IV)

Appendix D1: Vietnam at 61 provinces

Descriptive statistics – common

	LnGDPG	LnFDIG	LnDI	LnHS	LnL	LnTRADE
Mean	1.94	-0.71	2.17	1.09	3.91	3.01
Median	2.04	0.06	2.15	1.12	3.91	3.18
Maximum	2.54	6.37	4.32	3.08	4.14	6.74
Minimum	-1.45	-4.61	-0.04	-0.62	3.32	-4.61
Std. Dev.	0.38	3.15	0.71	0.54	0.08	1.59
Observations	732	732	732	732	732	732

Common Correlation matrix

	LnGDPG	LnFDIG	LnDI	LnHS	LnL	LnTRADE
LnGDPG	1	0.16	0.17	0.03	-0.08	0.11
LnFDIG	0.16	1	-0.01	0.31	0.05	0.32
LnDI	0.17	-0.01	1	0.12	0.16	-0.15
LnHS	0.03	0.31	0.12	1	0.22	0.32
LnL	-0.08	0.05	0.16	0.22	1	-0.07
LnTRADE	0.11	0.32	-0.15	0.32	-0.07	1

Appendix D2: The Northern region

Descriptive statistics – common

	LnGDPG	LnFDIG	LnDI	LnHS	LnL	LnTRADE
Mean	1.91	-0.64	2.28	1.17	3.96	2.38
Median	2.04	0.26	2.31	1.24	3.96	2.81
Maximum	2.54	4.97	4.32	3.08	4.14	5.89
Minimum	-1.45	-4.61	-0.04	-0.62	3.59	-4.61
Std. Dev.	0.46	3.16	0.88	0.57	0.07	2.05
Observations	300	300	300	300	300	300

Common Correlation matrix

	LnGDPG	LnFDIG	LnDI	LnHS	LnL	LnTRADE
LnGDPG	1	0.11	0.21	0.00	-0.06	0.04
LnFDIG	0.11	1	-0.08	0.34	0.13	0.37
LnDI	0.21	-0.08	1	-0.05	0.10	-0.27
LnHS	0.00	0.34	-0.05	1	0.29	0.53
LnL	-0.06	0.13	0.10	0.29	1	0.24
LnTRADE	0.04	0.37	-0.27	0.53	0.24	1

Appendix D3: The Red River Delta sub-region

Descriptive statistics – common

	LnGDPG	LnFDIG	LnDI	LnHS	LnL	LnTRADE
Mean	1.89	-0.21	1.66	1.38	3.96	3.35
Median	2.02	0.74	1.65	1.39	3.97	3.23
Maximum	2.51	4.97	3.11	3.08	4.14	5.89
Minimum	-1.45	-4.61	-0.04	0.43	3.59	-0.48
Std. Dev.	0.48	3.27	0.64	0.51	0.07	1.22
Observations	132	132	132	132	132	132

Common Correlation matrix

	LnGDPG	LnFDIG	LnDI	LnHS	LnL	LnTRADE
LnGDPG	1	0.13	0.15	0.11	-0.22	0.17
LnFDIG	0.13	1	0.07	0.37	0.02	0.41
LnDI	0.15	0.07	1	0.37	0.08	0.24
LnHS	0.11	0.37	0.37	1	-0.05	0.76
LnL	-0.22	0.02	0.08	-0.05	1	-0.08
LnTRADE	0.17	0.41	0.24	0.76	-0.08	1

Appendix D4: The North Uplands sub-region

Descriptive statistics – common

	LnGDPG	LnFDIG	LnDI	LnHS	LnL	LnTRADE
Mean	1.93	-0.98	2.77	1.00	3.95	1.62
Median	2.08	-0.01	2.70	1.09	3.96	1.92
Maximum	2.54	4.69	4.32	2.19	4.09	5.23
Minimum	0.17	-4.61	0.55	-0.62	3.75	-4.61
Std. Dev.	0.45	3.03	0.73	0.56	0.06	2.24
Observations	168	168	168	168	168	168

Common Correlation matrix

	LnGDPG	LnFDIG	LnDI	LnHS	LnL	LnTRADE
LnGDPG	1	0.11	0.29	-0.05	0.10	0.01
LnFDIG	0.11	1	-0.06	0.28	0.24	0.35
LnDI	0.29	-0.06	1	0.10	0.24	-0.10
LnHS	-0.05	0.28	0.10	1	0.60	0.35
LnL	0.10	0.24	0.24	0.60	1	0.44
LnTRADE	0.01	0.35	-0.10	0.35	0.44	1

Appendix D5: The Central region

Descriptive statistics – common

	LnGDPG	LnFDIG	LnDI	LnHS	LnL	LnTRADE
Mean	1.95	-0.96	2.12	1.24	3.87	3.15
Median	2.04	-0.15	2.12	1.31	3.88	3.06
Maximum	2.47	6.37	3.15	2.69	3.99	5.85
Minimum	0.62	-4.61	0.80	-0.17	3.32	1.68
Std. Dev.	0.35	3.19	0.46	0.50	0.07	0.84
Observations	192	192	192	192	192	192

Common Correlation matrix

	LnGDPG	LnFDIG	LnDI	LnHS	LnL	LnTRADE
LnGDPG	1	0.09	0.17	0.03	-0.04	0.28
LnFDIG	0.09	1	0.13	0.34	0.07	0.25
LnDI	0.17	0.13	1	0.23	-0.03	0.49
LnHS	0.03	0.34	0.23	1	0.00	0.30
LnL	-0.04	0.07	-0.03	0.00	1	-0.15
LnTRADE	0.28	0.25	0.49	0.30	-0.15	1

Appendix D6: The North Central Coast and Highlands sub-region

Descriptive statistics – common

	LnGDPG	LnFDIG	LnDI	LnHS	LnL	LnTRADE
Mean	1.92	-1.85	2.05	1.18	3.86	2.91
Median	2.03	-3.24	2.09	1.25	3.86	2.85
Maximum	2.47	5.76	3.15	2.52	3.97	4.36
Minimum	0.85	-4.61	0.80	-0.17	3.32	1.78
Std. Dev.	0.35	3.01	0.43	0.50	0.07	0.61
Observations	120	120	120	120	120	120

Common Correlation matrix

	LnGDPG	LnFDIG	LnDI	LnHS	LnL	LnTRADE
LnGDPG	1	-0.03	0.20	-0.01	-0.04	0.27
LnFDIG	-0.03	1	0.03	0.26	0.03	0.02
LnDI	0.20	0.03	1	-0.02	0.01	0.40
LnHS	-0.01	0.26	-0.02	1	0.13	0.05
LnL	-0.04	0.03	0.01	0.13	1	-0.12
LnTRADE	0.27	0.02	0.40	0.05	-0.12	1

Appendix D7: The South Central Coast sub-region

Descriptive statistics – common

	LnGDPG	LnFDIG	LnDI	LnHS	LnL	LnTRADE
Mean	1.99	0.52	2.23	1.35	3.90	3.55
Median	2.07	1.16	2.16	1.34	3.90	3.65
Maximum	2.43	6.37	3.11	2.69	3.99	5.85
Minimum	0.62	-4.61	1.04	0.39	3.72	1.68
Std. Dev.	0.33	2.94	0.50	0.50	0.06	1.01
Observations	72	72	72	72	72	72

Common Correlation matrix

	LnGDPG	LnFDIG	LnDI	LnHS	LnL	LnTRADE
LnGDPG	1	0.20	0.10	0.06	-0.15	0.28
LnFDIG	0.20	1	0.13	0.37	-0.18	0.26
LnDI	0.10	0.13	1	0.53	-0.28	0.53
LnHS	0.06	0.37	0.53	1	-0.41	0.48
LnL	-0.15	-0.18	-0.28	-0.41	1	-0.53
LnTRADE	0.28	0.26	0.53	0.48	-0.53	1

Appendix D8: The Southern region

Descriptive statistics – common

	LnGDPG	LnFDIG	LnDI	LnHS	LnL	LnTRADE
Mean	1.97	-0.60	2.06	0.87	3.89	3.69
Median	2.01	-0.09	2.08	0.94	3.88	3.61
Maximum	2.48	5.30	3.67	2.13	4.05	6.74
Minimum	0.88	-4.61	0.06	-0.29	3.65	1.47
Std. Dev.	0.29	3.11	0.60	0.46	0.08	0.96
Observations	240	240	240	240	240	240

Common Correlation matrix

	LnGDPG	LnFDIG	LnDI	LnHS	LnL	LnTRADE
LnGDPG	1	0.34	0.11	0.14	-0.06	0.16
LnFDIG	0.34	1	0.01	0.31	-0.09	0.49
LnDI	0.11	0.01	1	0.40	0.23	0.17
LnHS	0.14	0.31	0.40	1	0.30	0.35
LnL	-0.06	-0.09	0.23	0.30	1	-0.06
LnTRADE	0.16	0.49	0.17	0.35	-0.06	1

Appendix D9: The South East sub-region

Descriptive statistics – common

	LnGDPG	LnFDIG	LnDI	LnHS	LnL	LnTRADE
Mean	2.10	1.51	2.14	1.00	3.84	4.07
Median	2.14	1.99	2.17	1.02	3.83	3.78
Maximum	2.48	5.30	3.67	2.13	4.02	6.74
Minimum	1.28	-4.61	0.06	0.02	3.65	1.47
Observations	0.24	2.64	0.74	0.48	0.07	1.26

Common Correlation matrix

	LnGDPG	LnFDIG	LnDI	LnHS	LnL	LnTRADE
LnGDPG	1	0.23	0.09	-0.10	0.10	0.17
LnFDIG	0.23	1	-0.17	0.31	0.32	0.60
LnDI	0.09	-0.17	1	0.24	0.23	0.16
LnHS	-0.10	0.31	0.24	1	0.23	0.50
LnL	0.10	0.32	0.23	0.23	1	0.32
LnTRADE	0.17	0.60	0.16	0.50	0.32	1

Appendix D10: The Mekong River Delta sub-region

Descriptive statistics – common

	LnGDPG	LnFDIG	LnDI	LnHS	LnL	LnTRADE
Mean	1.88	-2.00	2.01	0.78	3.92	3.44
Median	1.92	-2.04	2.04	0.87	3.91	3.54
Maximum	2.39	3.45	3.00	1.69	4.05	4.41
Minimum	0.88	-4.61	0.84	-0.29	3.76	2.26
Std. Dev.	0.29	2.57	0.48	0.42	0.07	0.57
Observations	144	144	144	144	144	144

Common Correlation matrix

	LnGDPG	LnFDIG	LnDI	LnHS	LnL	LnTRADE
LnGDPG	1	0.14	0.08	0.17	0.18	-0.09
LnFDIG	0.14	1	0.05	0.16	0.21	0.15
LnDI	0.08	0.05	1	0.58	0.44	0.12
LnHS	0.17	0.16	0.58	1	0.69	0.00
LnL	0.18	0.21	0.44	0.69	1	-0.15
LnTRADE	-0.09	0.15	0.12	0.00	-0.15	1

Appendix E

List of Vietnam's trading partners used in the sample

Vietnam's trading partners	Developed countries	Developing countries	ASEAN
Countries in Asia			
1 Cambodia		X	X
2 Indonesia		X	X
3 Laos		X	X
4 Malaysia		X	X
5 Philippines		X	X
6 Singapore		X	X
7 Thailand		X	X
8 Taiwan		X	
9 Korea, Rep of	X		
10 Hong Kong		X	
11 Japan	X		
12 China		X	
Countries in Europe			
13 Poland	X		
14 Hungary	X		
15 Russian Federation		X	
16 United Kingdom	X		
17 Denmark	X		
18 Norway	X		
19 Sweden	X		
20 Italy	X		
21 Austria	X		
22 Belgium	X		
23 Germany	X		
24 Netherlands	X		
25 France	X		
26 Switzerland	X		
Countries in America			
27 Canada	X		
28 United States	X		
Countries in Oceania			
29 New Zealand	X		
30 Australia	X		
	19	11	7

Appendix F

Descriptive statistics and correlation analyses (Chapter V)

Appendix F1: The 30 countries

Descriptive statistics – common

	LnTT	LnIM	LnEX	LnGDPPC	LnGDPPCV	LnPOP	LnPOPV	LnDIST	LnFDI	LnREX	ASEAN
Mean	5.82	5.04	4.97	9.16	5.96	10.23	11.25	8.42	5.31	6.84	0.23
Median	5.96	5.04	5.14	9.95	5.96	10.21	11.25	8.97	5.79	7.57	0.00
Maximum	9.25	8.91	8.97	11.19	6.59	14.09	11.34	9.50	9.21	10.36	1.00
Minimum	1.03	0.10	-2.30	3.99	5.22	8.11	11.15	6.18	-4.61	-0.80	0.00
Std. Dev.	1.66	1.74	1.81	1.60	0.37	1.41	0.06	0.90	2.66	2.84	0.42
Observations	420	420	420	420	420	420	420	420	420	420	420

Common Correlation matrix

	LnGDPPC	LnGDPPCV	LnPOP	LnPOPV	LnDIST	LnFDI	LnREX	ASEAN
LnGDPPC	1	0.10	-0.33	0.10	0.67	0.34	0.63	-0.68
LnGDPPCV	0.10	1	0.02	0.97	0.00	0.36	0.07	0.00
nNPOP	-0.33	0.02	1	0.02	-0.02	0.21	-0.16	0.02
LnPOPV	0.10	0.97	0.02	1	0.00	0.33	0.07	0.00
LnDIST	0.67	0.00	-0.02	0.00	1	-0.07	0.52	-0.71
LnFDI	0.34	0.36	0.21	0.33	-0.07	1	0.30	-0.07
LnREX	0.63	0.07	-0.16	0.07	0.52	0.30	1	-0.42
ASEAN	-0.68	0.00	0.02	0.00	-0.71	-0.07	-0.42	1

Appendix F2: The Developing countries

Descriptive statistics – common

	LnTT	LnIM	LnEX	LnGDPPC	LnGDPPCV	LnPOP	LnPOPV	LnDIST	LnFDI	LnREX
Mean	6.38	5.76	5.42	7.81	5.97	10.55	11.25	7.42	5.56	5.53
Median	6.52	5.95	5.56	7.89	5.96	10.55	11.25	7.47	6.30	6.19
Maximum	9.25	8.91	8.08	10.31	6.58	14.09	11.34	8.82	9.21	9.25
Minimum	3.21	2.03	2.27	3.99	5.25	8.11	11.15	6.18	-4.61	0.36
Std. Dev.	1.38	1.65	1.24	1.69	0.35	1.66	0.06	0.67	2.82	2.86
Observations	154	154	154	154	154	154	154	154	154	154

Common Correlation matrix

	LnGDPPC	LnGDPPCV	LnPOP	LnPOPV	LnDIST	LnFDI	LnREX
LnGDPPC	1.00	0.11	-0.38	0.10	0.18	0.80	0.77
LnGDPPCV	0.11	1.00	0.03	0.97	0.00	0.27	-0.07
nNPOP	-0.38	0.03	1.00	0.03	0.49	-0.11	-0.14
LnPOPV	0.10	0.97	0.03	1.00	0.00	0.25	-0.07
LnDIST	0.18	0.00	0.49	0.00	1.00	0.26	0.34
LnFDI	0.80	0.27	-0.11	0.25	0.26	1.00	0.56
LnREX	0.77	-0.07	-0.14	-0.07	0.34	0.56	1.00

Appendix F3: The Developed countries

Descriptive statistics – common

	LnTT	LnIM	LnEX	LnGDPPC	LnGDPPCV	LnPOP	LnPOPV	LnDIST	LnFDI	LnREX
Mean	5.53	4.72	4.70	9.98	5.97	10.09	11.25	8.99	5.27	7.60
Median	5.59	4.70	4.80	10.15	5.96	9.85	11.25	9.03	5.89	8.77
Maximum	9.20	8.46	8.97	11.19	6.58	12.61	11.34	9.50	9.13	10.36
Minimum	1.03	0.10	-2.30	7.48	5.25	8.18	11.15	7.92	-4.61	-0.80
Std. Dev.	1.70	1.65	1.99	0.69	0.35	1.26	0.06	0.35	2.52	2.54
Observations	266	266	266	266	266	266	266	266	266	266

Common Correlation matrix

	LnGDPPC	LnGDPPCV	LnPOP	LnPOPV	LnDIST	LnFDI	LnREX
LnGDPPC	1.00	0.25	-0.20	0.23	0.17	0.09	0.44
LnGDPPCV	0.25	1.00	0.01	0.97	0.00	0.41	0.17
LnPOP	-0.20	0.01	1.00	0.01	-0.12	0.51	-0.24
LnPOPV	0.23	0.97	0.01	1.00	0.00	0.38	0.17
LnDIST	0.17	0.00	-0.12	0.00	1.00	-0.26	0.60
LnFDI	0.09	0.41	0.51	0.38	-0.26	1.00	0.05
LnREX	0.44	0.17	-0.24	0.17	0.60	0.05	1.00

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