บทบาทการลงทุนทางตรงจากต่างประเทศที่มีผลต่อความจำเริญเติบโตของการส่งออกของประเทศไทย

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ROLE OF FDI ON THAILAND'S EXPORT GROWTH

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การลงทุนทางตรงจากต่างประเทศ เป็นที่ยอมรับกันเป็นเวลานานแล้วถึงประโยชน์ในอันที่จะเป็นเครื่องมือในการเพิ่มผลิตผลของประเทศ และผลที่สุดคือการเพิ่มขึ้นของการส่งออกของประเทศ อย่างไรก็ตาม ถึงแม้การส่งออกและการลงทุนทางตรงจากต่างประเทศของประเทศไทยจะมีการเพิ่มขึ้นอย่างรุนแรง และแม้ว่าจะมีการค้นพบความสัมพันธ์แบบส่งเสริมซึ่งกันและกันในงานวิจัยหลายชิ้น ความสัมพันธ์ในระดับเศรษฐศาสตร์มหภาคระหว่างการลงทุนทางตรงจากต่างประเทศและการส่งออกสำหรับประเทศไทยยังแทบไม่ได้รับการทดสอบ ดังนั้นการวิเคราะห์สำหรับงานชิ้นนี้ จะเน้นถึงความสัมพันธ์ที่เกิดขึ้นระหว่างการเข้ามาของการลงทุนทางตรงจากต่างประเทศและการส่งออก และมุ่งการวิเคราะห์ว่าการลงทุนทางตรงจากต่างประเทศนั้นมีบทบาทต่อการเติบโตของการส่งออกของประเทศไทยหรือไม่ โดยอาศัยข้อมูลรายปีของประเทศไทยตั้งแต่ปี ค.ศ. 1972 ถึง 2002 งานชิ้นนี้แบ่งการวิเคราะห์ออกเป็นสองส่วนได้แก่การวิเคราะห์เชิงคุณภาพและเชิงปริมาณ จากการศึกษาพบว่าในขณะที่การส่งออกเพิ่มขึ้นนั้น โครงสร้างของการส่งออกได้มีเปลี่ยนแปลงจากการส่งออกสินค้าที่มีมูลค่าต่ำเป็นสินค้าที่มีมูลค่าสูงขึ้น ควบคู่ไปกับการเพิ่มขึ้นของการลงทุนทางตรงจากต่างประเทศ ซึ่งหลั่งไหลเข้ามาเป็นพิเศษสู่สินค้าที่ใช้เทคโนโลยีขั้นสูงกว่าในการผลิต ผลการศึกษาของทั้งสองส่วนพบว่าในช่วงเวลาที่ทำการศึกษานี้ปรากฏความสัมพันธ์ที่เป็นเหตุและผล ระหว่างการเข้ามาของการลงทุนทางตรงจากต่างประเทศและการส่งออก ซึ่งอยู่ในรูปแบบการลงทุนทางตรงจากต่างประเทศช่วยส่งเสริมการส่งออกทั้งในระยะยาวและระยะสั้น อย่างไรก็ตามการลดลงอย่างรวดเร็วของการลงทุนทางตรงจากต่างประเทศในช่วงปีหลังของการศึกษาสะท้อนให้เห็นถึงการสูญเสียความสามารถในการแข่งขันเพื่อที่จะดึงดูดการลงทุนทางตรงจากต่างประเทศ ซึ่งเป็นปัญหาสำคัญที่รัฐบาลต้องทำการแก้ไขด้วยการปรับปรุงนโยบาย โดยเริ่มแรก จากความสำคัญของสินค้าส่งออกที่มีมูลค่าเพิ่มสูง ดังนั้นประเทศควรมุ่งเน้นอุตสาหกรรมที่ใช้เทคโนโลยีขั้นสูง ขั้นต่อมาประเทศควรพัฒนาความได้เปรียบทางการแข่งขันด้านใหม่ และสุดท้ายการรวมกลุ่มควรได้รับการก่อตั้งขึ้นเพื่อเพิ่มความสามารถในการแข่งขัน

สาขาวิชา เศรษฐศาสตร์และการเงินระหว่างประเทศ ลายมือชื่อนิสิต.....

ปีการศึกษา.....2546..... ลายมือชื่ออาจารย์ที่ปรึกษา……...

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KEY WORD: FDI / EXPORT / VAR / CAUSALITY TEST

SUPARERK PUPONGSAK : ROLE OF FDI ON THAILAND'S EXPORT GROWTH
THESIS ADVISOR : ASST. PROF. JUNE CHAROENSEANG, Ph.D

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Foreign Direct Investment has long been accepted for its benefits as a tool to raise country's productivity and finally increase the country's export. However, although Thailand experienced a substantial growth for both export and FDI, and despite the finding of complementarity relationship by most literatures, in the case of Thailand, the macroeconomic relationship between FDI and export has been barely test. So, the analysis in this paper concentrates the empirical relationship between inward FDI and export and aims at the analysis of whether FDI plays role on Thailand's export growth or not, with Thailand annual data for the period 1972-2002. The study divides the analysis into two parts which are qualitative analysis and quantitative analysis. From the study, it is found that while export has increased, the export structure changed from low-value product to higher-value product, in line with the increase of FDI which especially flows to higher-technology manufactured product. The results of both parts point to the existence of long-run and short-run causality from inward FDI to export, according to a complementarity relationship, for the Thailand case during the period of analysis. However, the rapid drop of FDI in later years of the study reflects the loss of competitive ability of attracting FDI which is the important problem that government has to solve by developing policies. First, according to the importance of high value-added products export, the country should concentrate on high-tech-intensive industries. Next, the country should develop new competitive advantages and last, clusters should be promoted to increase the ability of competitiveness.

Field of study International Economics and Finance Student's signature.....

Academic year.....2003..... Advisor's signature……..

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CONTENTS

CHAPTER IV : ANALYSIS AND RESULTS

CHAPTER V : CONCLUSIONS AND POLICY IMPLICATIONS

LIST OF TABLES

Page

LIST OF FIGURES

Page

ABBREVIATION

AIC	Akaike Information Criterion
BOI	Board of Investment
ECM	Error Correction Mechanism
ELG	Export-Led Growth
EPZ	Export Processing Zones
EXIM Bank	Export and Import Bank
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
H-O model	Heckscher-Ohlin Model
H-O-S model	Heckscher-Ohlin-Samuelson Model
MNCs	Multinational Companies
M&A	Mergers and Acquisitions
NICs	Newly-Industrialized Countries
OLI	Ownership-Location-Internalization
OLI	Ordinary Least Squares
R&D	Research and Development
SC	Schwartz Criterion
SUR	Seemingly-Unrelated Regression
VAR	Vector Autoregression

CHAPTER I

INTRODUCTION

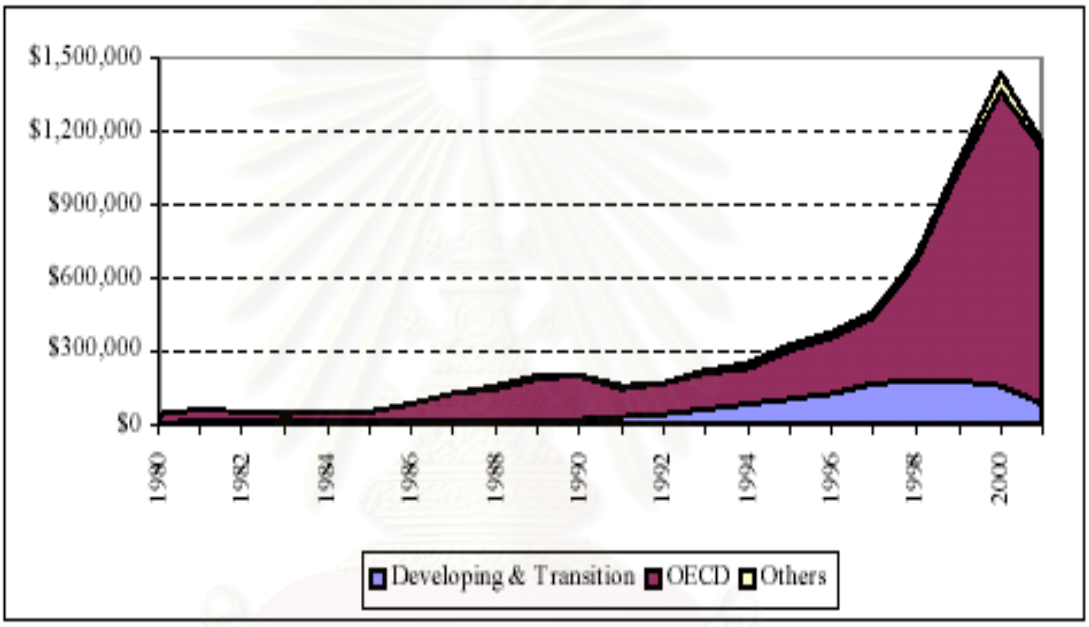
1.1 Background and Rationale

It is known and agreed that there is a linkage between investment and international trade. Export, one of many macroeconomics important tools, is well known for its role in inducing more income to the country. It can also improve the balance of payment of the country that finally will develop the country's position. But after many countries decide to have more degree of openness to trade, many restrictions are set by them also, to prevent their interest and to gain more from others. These reasons emerge a new kind of international investment, known as foreign direct investment (FDI), which is first used to avoid those restrictions. However, not long afterwards, FDI is realized as an influential source to bring certain benefits to national economies. It can contribute to Gross Domestic Product (GDP), Gross Fixed Capital Formation (total investment in a host economy) and balance of payments. There have been empirical studies indicating a positive link between higher GDP and FDI inflows (United Nations Conference on Trade and Development [UNCTAD], 1999). FDI, where it generates and expands businesses, can also help stimulate employment, raise wages and replace declining market sectors. In the case of Infrastructure development and technology transfer, parent companies can support their foreign subsidiaries by ensuring adequate human resources and infrastructure are in place. In particular "Greenfield" investments into new business sectors can stimulate new infrastructure development and technologies to host economies. These developments can also result in social and environmental benefits, where they "spill over" into host communities and businesses. Investment in research and development (R&D) from parent companies can stimulate innovation in production and processing techniques in the host country.

As mentioned earlier, in this era of increasingly globalized world economy, FDI is a particularly significant driving force behind the independence of national economies. Even though most of the FDI flows has always concentrated in the

developed countries, its importance is undeniable for developing countries as well (Figure 1). As shown in table 1, between 1980-2000, while the aggregate wealth of the developing world nearly quadrupled and its total trade volumes rose more than five folds, FDI flows into developing countries grew by over 18 times. Through private direct investments, developing countries are participating more than ever before in the global production network.

Figure 1: FDI Flows in the World (US$ millions)



Source: IMF International Financial Statistics, 2002

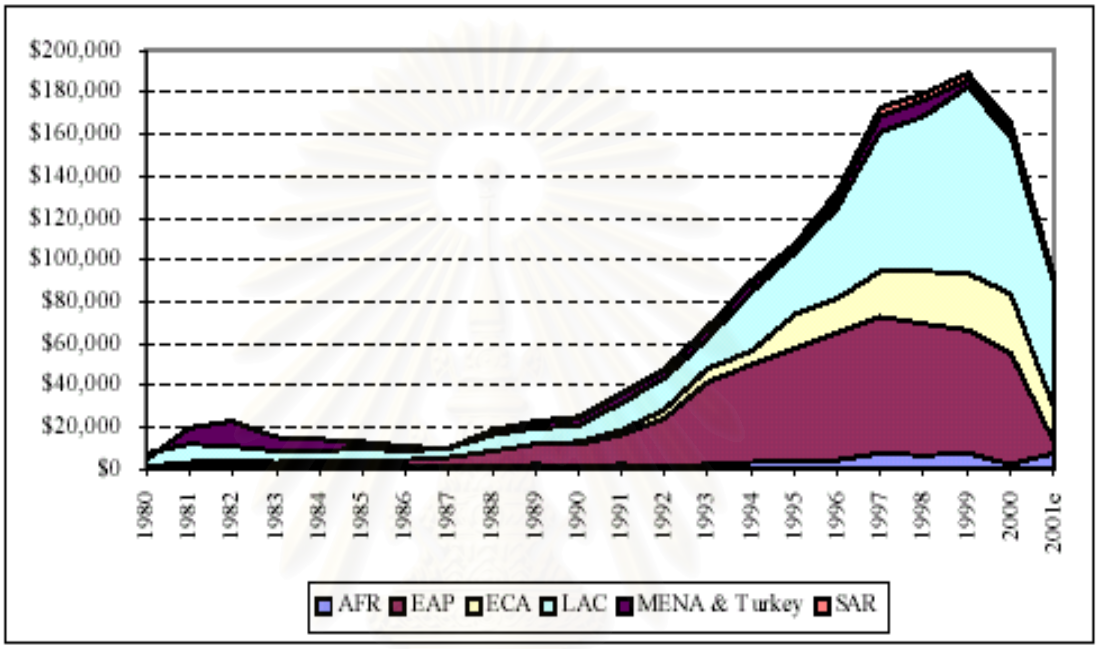
Table 1: Growth of Income, Trade, and Investment in Developing Countries (Ratio of the two periods)

	1990/1980	2000/1990	2000/1980
Gross National Income	2.20	1.62	3.65
Export	2.00	3.03	6.20
Import	1.80	2.81	5.14
Aggregate resource flows	1.22	2.75	3.77
Private flows	0.92	5.51	5.10
FDI flows	2.48	7.48	18.58

Source: World Bank, Global Development Finance, 2002

However, this extraordinary phenomenon is not unfolding equally in all developing countries. During the last two decades, as FDI inflows to the Middle East and Northern Africa region stagnated, more remarkable, those to East Asia rose by 40 times (Figure 2).

Figure 2: FDI Flows to Developing Countries (US$ millions)



Source: IMF International Financial Statistics, 2002

As a result, the regional distribution of FDI flows changed substantially over this period. Once a leading destination of the world's private capital, the Middle East and Northern African countries hosted less FDI than the sub-Sahara African countries by the late 1990s, while the weight of East Asia rose dramatically since the late 1980s (Table 2).

Table 2: Evolution of FDI in Developing Countries

	FDI Distribution			
	1980s		1990s	
	Early	Late	Early	Late
AFR	6.0	8.8	4.0	3.9
EAP	15.3	40.2	48.7	37.3
ECA	0.1	0.6	8.6	13.2
LAC	35.4	38.2	29.8	39.8
MENA	42.5	10.1	7.4	3.5
SAR	0.6	2.1	1.5	2.3

Source: World Bank, Global Development Finance, 2002

These basic facts tell us that more than any other economic forces, FDI is driving the process of globalization by creating an increasingly tighter global production network. FDI can be said to be a powerful tool of export promotion, which it is a part of the success stories of East and South East Asian countries. This is because multinational companies (MNCs) through which most FDI is undertaken have the well established contacts and up to date information about foreign markets. Furthermore, the role of FDI in export promotion in developing countries remain controversial and depends crucially on the motive for such investment. If the motive behind FDI is to capture domestic market (tariff-jumping type investment), it may not contribute to export growth. On the other hand, if the motive is to tap export markets by taking advantage of the host country's comparative advantage, then FDI may contribute to export growth. Thus, whether FDI contributes to export growth or not depends on the nature of the policy regime. In conclusion, it is well known that an outward-oriented regime encourages export-oriented FDI while an inward-orient policy regime attracts FDI mainly to capture domestic rather than export markets (World Bank, 1993).

In the case of Thailand, the evolution of Thai export facilitating institutions and their corresponding export policies has been shaped markedly by the orientation of macroeconomic policies during each stage of economic development. Table 3 shows

the chronology of this development. In retrospect, some export promotion schemes were in place as early as the 1960s, but these played a minor role, if any, in supporting Thai export industry. The reason for this is that the dominant macroeconomic policy of Thailand during this period had been formulated during the “import substitution” regime. It was not until the mid-1980s, when the government resorted to export promotion policy to boost the slackened economy, that the export facilitating institutions began to play a more active role in Thai export-led industrialization.

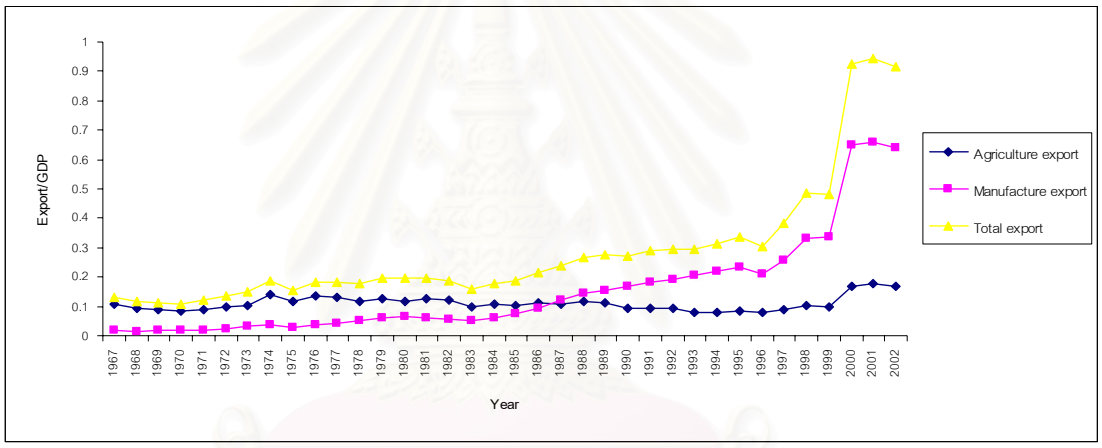
Table 3: Chronological Summary

Period	Events
State Capitalism 1940s-1950s	• Monopolization by the government of all importation and exportation activities. • No evidence of concrete export promotion policies.
Import Substitution 1960s-1970s (Conflict between import substitution and export promotion)	• High levels of protectionism on capital intensive industries, such as textile, automobile, and pharmaceutical industries. • High tariff wall on finished consumer goods protect domestic manufacturing. Widening gap between the tax rate on consumer goods, machinery, and raw material. • Establishment of the Board of Investment in 1959. • The Industrial Promotion Act passed by the government, providing incentives of tax and tariff concessions for both local and foreign investors in 1960. • Inadequate export promotion policies. Among the actively employed tools were those aiming to offset the increase in cost of intermediate goods. • Various governments created disadvantages such as quantitative restrictions, tariffs, import bans and surcharges, and domestic content requirements on domestic sales of certain products (Herderschee). • In 1954-60, the Industrial Promotion Act granted only the exemption or reduction in export duty under limited periods of time as export promotion schemes.
Export Promotion 1980s-2002	• In 1971 the Customs Department allowed the duty drawback on raw material or merchandise used in producing products for export. • In 1971 the state reduced the import duty on raw materials for export industry. • Establishment of Export Processing Zones in 1972. • In 1972, under its export promotion incentives, the revised Investment Promotion Act offered the exemption on raw materials and intermediate items used in production process. • Establishment of the Customs bonded warehouse in 1975. • In 1975, the government increased the tariffs to aid recovery from the first Oil Crisis. • During 1967-72, various international and local organizations publicly questioned the future of import substitution and recommended the use of export promotion schemes. • Amendments of Industrial Promotion Act to the Investment Promotion Act B.E. 1977. Early 1980s, Thailand faced economic recession and the aftermath of the second oil crisis. • In 1981, the Ministry of Finance passed the Compensation Act to overrule the duty compensation announcement made in 1971. • In 1983-85, major policy reforms were favored over export promotion. • In 1985, the BOI relaxed its import duty exemption for raw material and machinery for projects located in Bangkok and Samut Prakan. • In 1987, the BOI imposed bank guarantee requirements to slow down the dramatic industrial expansion. • Active export promotion tools: tax privileges and refunds, industrial zonings and export processing zones, electricity cost reduction, refinancing facilities, marketing assistance, international trading agency and firms, and quality control, for instance. • In 1992 the BOI liberalized its investment promotion criteria, which in effect overruled the requirement on bank guarantees. Establishment of BOI-TDMA cooperation committee to support companies in the diamond industry in 1993. • In 1992, policies for company cooperated with foreign company were reformed to be more flexible in 3 main points. (1) For agriculture, fishering, mining, and service sector, foreigners can increase their stock holders from 30% to 49% maximum. (2) For any foreign owner's industries, in the past, goods of those industries must be exported all but now not less than 80%. (3) These following projects were changed to be not considering about stocks of foreigners' owners; transportation project, infrastructure project, environment project, and Technology improvement project. • In 1993, government reformed the law that any projects in zone 3, foreigner can hold the whole stock of project in this zone, although it was not an export project. • In 1995, government made concession in zone 3 project to be more flexible. • In 1996, government attracted more foreigners to set up the branch office in Thailand, to make Thailand to be the center of Southeast Asia economy. • In 1997, Thailand faced economic crisis and depreciate local currency afterward. • Local currency changed from about 70% and BOT changed policy from fixed exchange rate to managed float. • Between 1997 and 1999, foreigners were increased their majority in stock holders or can hold all stock of project in zone 1 and 2. • In 2001, government changed policies from attracting more foreigners to paying more attention on Thai entrepreneur and supported them to have more export ability.

Source: Chris Baker, Pasuk Phongpaichit, "Thailand Economics and Politics" 1995, Customs Announcement 1960s-1980s, Customs Department and the BOI

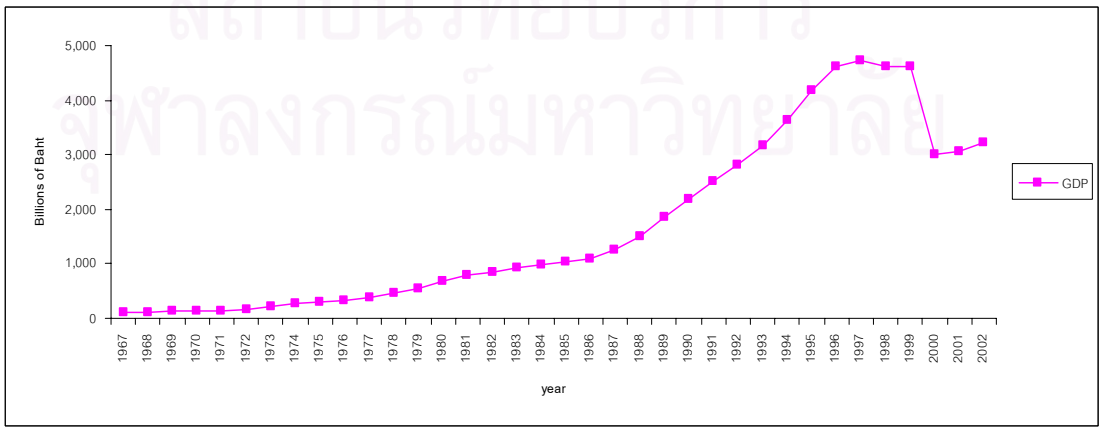
In the late 1960s and 1970s relatively continuous expansion in agricultural exports and import-substitution-based growth in manufacturing led to a 7 to 8 percent annual growth. During the first half of the 1980s oil and commodity price shocks caused an abrupt slowdown, with rising debt, austerity, and a slower growth of exports and national income. Thailand's post-1985 economic performance, by contrast, is virtually unparalleled; since 1986 improving commodity prices and a 40 percent annual growth in manufactured exports have led to a 30 percent annual growth in total exports and double-digit GDP growth (Thailand Development Research Institute [TDRI], 2000) (Figure 3,4).

Figure 3: Export of Thailand (Ratio of GDP)



Source: Bank of Thailand

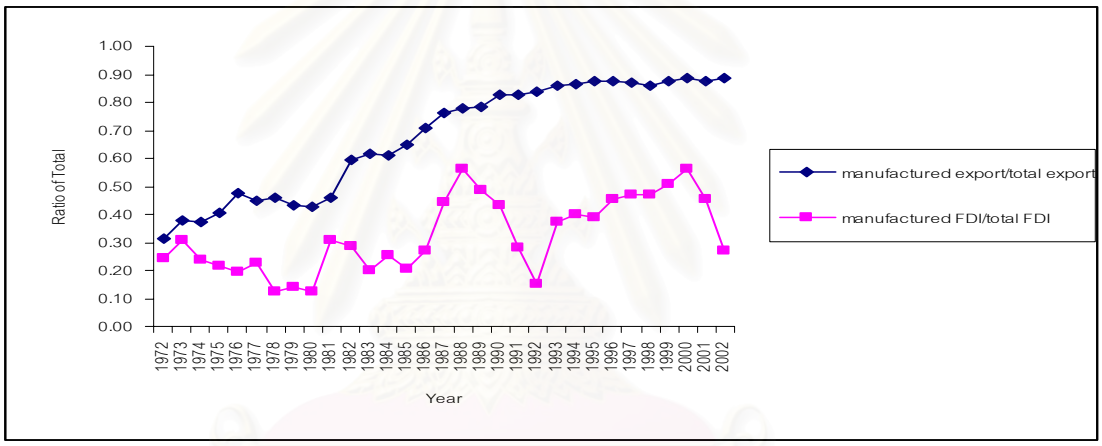
Figure 4: Thailand GDP



Source: Bank of Thailand

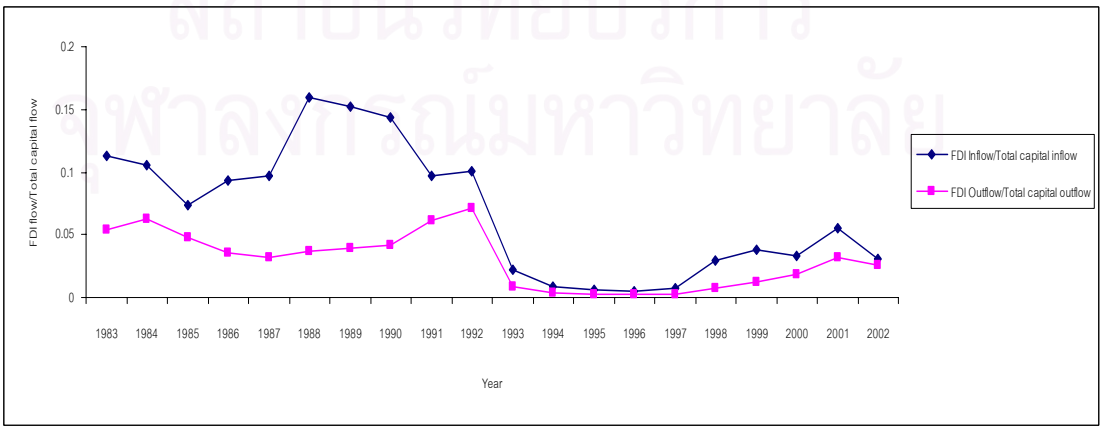
Although FDI affects the growth of exports of many countries, in the case of Thailand, growth of investment, especially foreign investment, does not turn out to be a major part of Thailand's export growth. At least in the 1985-88 period, the growth of manufactured exports began well before any increase in overall investment rates (Figure 5). The initial growth in manufactured exports appears to have come largely from excess capacity associated with a slumping domestic economy and excessive investment in early years. Subsequent growth in capacity has been financed largely from domestic sources (TDRI, 1989). And even as investment has begun to increase in recent years, the role of foreign direct investment has remained surprisingly small (Figure 6).

Figure 5: Comparison of Exports and FDI in Manufactured Sector



Source: Bank of Thailand

Figure 6: Thailand FDI Inflows and Outflows



Source: Bank of Thailand

Moreover, when considering total value of export and FDI, although many studies found the complimentarity relationship between them, in the case of Thailand, while export shows a continually increase, FDI which flows into the country shows a great volatility, especially in the period of rapid increase of export, for example, from 1985 to 1988 and 1993 to 1995 (Figure 7). These incidences raise the crucial question about the impact of FDI on Thailand's exports, whether it plays role to the country's export growth.

Figure 7: Comparison of Total Exports and Total FDI

Source: Bank of Thailand

1.2 Research Question

This study will try to address the following research question:

"Does foreign direct investment have any impact on Thailand's export growth?, and if it has, how does it play role to the country's export?"

1.3 Research Objectives

1.3.1 The main purpose of the study is to find whether FDI plays the major role on Thailand's export growth or not since it is found that there are many factors aside from FDI that affect Thailand's exports. Moreover, the effect of FDI on exports of many developing countries is unclear and remains controversial depending on the motive behind FDI and the role of domestic investment. The study shows how FDI is important and also shows which variables significantly influence behind Thailand's exports.

1.3.2 To understand more clearly about the role of FDI and exports, this study also provides descriptive analysis of FDI and exports of Thailand from 1972 to 2002. The purpose of this part is to provide detailed accounts in the past thirty years of changes in FDI and exports of Thailand that are potentially crucial to the understanding of the relationship between them. By this way, the changes of the quantity of both FDI and exports can be investigated together with the changes of their policies.

1.4 Scope of the study

The study investigates all FDI from every country which came into Thailand, together with examines exports of all sectors in Thailand. Other variables which are price of export goods, world income, and exchange rate are also included in the model to see how they affect the export sector of Thailand. By using annual data, the time range of this study is from 1972 to 2002. In this work, in order to analyze the effect of FDI and export growth efficiently on specific sector, FDI and export goods are divided into two groups according to UNCTAD, World Investment Report; WIR (Appendix 1):

1. Primary Products

2. Manufactures

    2.1 Resource-based Manufactured Products

    2.2 Low-technology Manufactured Products

    2.3 Medium-technology Manufactured Products

    2.4 High-technology Manufactured Products

In the case of Thailand, the proportion of high-technology manufactured is very low when compares with others so it is combined with medium-technology manufactured and so now there are four sectors of export goods and FDI to analyze.

1.5 Possible Benefit

Because it is necessary for the country to count the cost of attracting FDI, this may be useful for policy makers and authorities to determine regulations if FDI is needed to help improve the country's export position.

CHAPTER II

LITERATURE REVIEW

2.1 Theoretical Background

In this part, the paper shows the main distinctions between general equilibrium models that find that factor mobility and trade are substitutes, versus those models that find they are complements. In these general equilibrium models, the relative returns to factors and the level of production and trade are jointly determined. Typically, models differ in their predictions about the relationship between factor movements and trade volumes because of differences in assumptions about production, which lead to differences in the relative returns to factors. Across models, however, the manner in which the change in a factor endowment affects the production of each good in the economy is similar. The basis of this relationship is on the association between factor flows and trade volumes. The association between capital flows and trade volumes can be concerned in two types of models: in the first, countries differ in their endowments of factors but have identical production technologies (a Heckscher-Ohlin-Samuelson style model). In the second, production technologies are different in the two countries (a Ricardian style model). Basic forms of these models include two goods and two factors: labor and capital. It states that, given the prices of goods, an inflow of capital leads to an increase in the level of production of the good which uses capital relatively intensively, and a decrease in the level of production of the good which uses labor relatively intensively. These changes in production have direct implications for trade volumes and, in fact, will be the sole source of changes in trade volumes under the assumption of homothetic and identical preferences in each country.

2.1.1 Trade and FDI as a Substitute

In the 1950s, a time when cross-border capital movements were largely interested by U.S. government, Robert Mundell published a series of papers studying the implications of capital mobility. Today's central paradigms for studying events in a world characterized by vast flows of capital across national boundaries draw on

Mundell's analysis that foresaw such a world. Mundell studied capital mobility in a variety of frameworks. He is best known for the Mundell-Fleming model which analyses the effect of portfolio capital movements on the efficacy of monetary and fiscal policy. Monetary authorities today are intimately aware of the central lessons this model. Less well-known, but increasingly relevant, are issues considered in Mundell's work on the implications of physical capital mobility for international trade. In a word of significant growth of both international direct investment and international trade, this work raises important considerations for policy makers who are concerned with understanding trade and direct investment linkages among countries.

In "International Trade and Factor Mobility" (1957), Mundell demonstrates the substitutability of international trade and factor mobility. In the context of the Heckscher-Ohlin-Samuelson model, perfect factor mobility across sectors within an economy provides a tendency for commodity-price equalization, even in the absence of international trade in goods. This result complements the Stolper-Samuelson theorem, which demonstrates the tendency for factor-price equalization as a consequence of goods trade, even in the absence of international trade in factors. International factor mobility also serves as a substitute for trade in another sense in the Heckscher-Ohlin-Samuelson (H-O-S) model, since an increase in the volume of factor movements can decrease the volume of trade.

Mundell studied the relationship between factor flows and trade in a H-O-S model. He considered a situation where a prohibitively-high tariff on imports shut off trade and raises to capital in the country where it is the relatively scarce factor. This leads to a capital inflow to that country and, an increase in the production of the capital-intensive good (which had been the imported good before the tariff was put in place) and a decrease in the production of the labor-intensive good (which had been the export). Capital inflows continue until relative factor endowments in the two countries are identical.

If the tariff were then removed, there would be no trade in goods. The reason is that the initial basis for trade in this model, the differences in relative factor

endowments and the accompanying differences in relative goods prices, has been eliminated through factor flows. Factor flows can give rise to commodity price equalization, much as in the standard H-O-S model goods trade gives rise to factor price equalization. More broadly, in a model of this nature, an increase in the volume of factor flows causes a decrease in the volume of trade. Factor flows substitute for trade flows.

Another work based on the substitution principle is the product-cycle theory of Vernon (1966). From H-O model, a country that has a large supply of one resource relatives to its supply of other resources is abundant in that resource. A country will tend to produce relatively more of goods that use its abundant resources intensively. The result is the basic Heckscher-Ohlin theory of trade: Countries tend to export goods that are intensive in the factors with which they are abundantly supplied. But from the Leontiff paradox, the failure of H-O model, it was found that U.S. exported rice, which is the labor-intensive good, but from the study, U.S. is the capital-intensive country. From this empirical study, Vernon studied why U.S. imported capital-intensive good and exported labor-intensive good. By using his product or process cycle theory, he found that every good first comes from innovation and becomes new good but overtime new becomes old. He divided the cycle into three stages. In early stage, output and consumption grow rapidly together. The production needs high skilled labor so the good in this stage is produced in the parent country. In maturity stage, output still grows rapidly but consumption slowdown. In this stage, the producer finds the way to reduce cost of production but the good is still produced in its parent country. In the last stage, output decreases but consumption constants. The production moves to wherever unskilled labor because of cheaper cost. The skill labor in its country will move to produce a new good which needs this kind of labor. Consequently, foreign direct investment replaces the export as the product matures.

2.1.2 Trade and FDI as a Complement

An alternative result can arise in a Ricardian model in which countries have different technologies. Suppose that each of two countries has the same labor

productivity but one country enjoys higher capital productivity. The country with the higher capital productivity will export the capital-intensive good. When capital is internationally mobile, it will seek its highest returns and thus flow to the high capital productivity country. These capital inflows increase the production of the capital intensive good (that country's export) and decrease the production of the labor intensive good (that country's import). In this case, factor flows complement trade flows.

Subsequent theoretical work has demonstrated that many models, which diverge from the standard H-O-S assumptions, can result in complementarity, rather than substitutability. First, in "Factor Mobility and International Trade: The Case of Complementarity" (1970), Andrew Schmitz and Peter Helmberger demonstrated that international capital movements and trade in primary products and primary manufacturing are not substitutes but are instead complements. They also indicated that it is theoretically possible to construct models in which long-term international investment and product trade are complements, not substitutes, in that impediments to the movement of one also impede the movement of the other. In order to prove this relationship, they used a spatial equilibrium framework and relaxed at least one of the assumptions underlying the Heckscher-Ohlin theory apart from the assumption of international factor immobility. That is, the assumption of identical international production functions. In addition, although not as crucial as the production function assumption, they also assumed that there are different demand conditions among regions.

In "Technology, Trade and Factor Mobility" (1972), Douglas D. Purvis supported the theory that there is a positive relationship between factor mobility and international trade. From H-O-S model, he explored the implications of relaxing the identical production functions as between countries, that is, he specified technologies as differing between countries. In his work, he defined "substitutes" into two senses: First, it refers to the case where either trade or international mobility of factor is sufficient to establish efficiency in world production, and hence maximize potential world welfare. Second, it refers to Mundell's result that impediments to trade will stimulate factor movements, and such relocation of factors of production will eliminate trade in goods. In

his model, he assumed two countries producing two final goods under conditions of constant returns to scale, using two homogeneous factors of production, capital and labor. After that, he relaxed the identical technologies assumption, and found that free trade is, in general, not sufficient to establish world efficiency in production; further, capital mobility is a necessary condition for such efficiency. Hence, the substitute relationship in the first sense breaks down. He found also that the introduction of capital mobility into a free trade situation may serve to increase the volume of trade, and hence the substitute relationship in the second sense may also break down.

In “Factor Movements and Commodity Trade As Complements” (1983), James R. Markusen published a paper which examines a number of situations in which factor movements and trade in commodities are complements in the volume of trade sense, that is, factor movements between two economies lead to an increase in the volume of commodity trade. By considering these following assumptions;

1. countries have identical relative factor endowments;
2. countries have identical technologies;
3. countries have identical homothetic demand;
4. production is characterized by constant returns to scale;
5. production is characterized by perfect competition; and
6. there are no domestic distortions in either countries.

he retained the first assumption and then relaxed any of assumption one by one. After the introduction of differences in production technology, production taxes, monopoly market structure, external economies of scale or factor market distortions, he found that, in all of the model, factor mobility leaves countries relatively well endowed with the factor used intensively in the production of the export good. He said that, in the Heckscher-Ohlin model, this is the cause of trade in goods, whereas in his models it is the result of trade in factors. One empirical implication of this finding is that it suggests that there is an identification problem inherent in simple tests of the Heckscher-Ohlin theorem. In conclusion, he concluded that differences in factor endowments are the proximate cause of trade.

2.1.3 Later Works of FDI Theory

On the other hand, starting from Hymer (1976), the theories of the multinational enterprise (MNE) state that MNEs must own some particular advantage over domestic firms in the host country. Given such an ownership advantage, it must be beneficial for the MNE to internalize it within the firm by means of FDI, provided that the foreign country possess a location advantage over the home country making FDI more profitable than exporting. This is the essence of the well-known Dunning's OLI (ownership-location-internalisation) paradigm (Dunning, 1977).

These considerations have been incorporated in formal general equilibrium models in which MNEs arise endogenously. Helpman (1984) and Helpman and Krugman (1985) combine ownership and location advantages in a monopolistic competition model with horizontally differentiated goods, where MNEs develop some specific and highly specialized inputs (such as management, marketing, and product-specific R&D), that are not tradable. So, if differences in factor endowments exist, the firms from the country relatively abundant in headquarter services become MNEs, and both intra-industry trade in differentiated products and intra-firm trade in such specialized inputs will appear. Ethier (1986) endogeneizes the internalization decision of the MNE. He finds that both a greater uncertainty faced by the firm and (unlike the models by Helpman, Helpman and Krugman) a greater similarity in factor endowments between countries, make FDI more likely, leading to two-way FDI and a relatively higher intra-industry and intra-firm trade. In a similar line, Barrios (1997) shows that, for a peripheral country engaged in a process of economic integration, both intermediate imports and exports of the final good would be higher as integration deepens.

The previous models refer to "vertical" FDI, when MNEs locate each state of the production process in different countries according to relative cost advantages, which results in FDI and trade being complements. However, there are also models for "horizontal" MNEs, aimed to gain an easier access to a foreign market (for reasons of transport costs, or being closer to the final customer), which might lead to FDI and trade being substitutes rather than complements.

Brainard (1993) develops a two-sector, two-country model where firms in a differentiated-products sector choose between exporting and FDI as alternative methods of foreign market penetration. This sector is characterized by increasing returns to scale at the firm level due to some specialized input (such as R&D), scale economies at the plant level, and transport costs increasing with distance. From here, an equilibrium with MNEs is more likely the higher are scale economies at the firm level relative to those at the plant level, and the higher are transport costs relative to plant-level scale economies. Also, for intermediate ranges of transport costs and firm-level scale economies relative to those at the plant level, there can be an equilibrium with MNEs and domestic firms in the differentiated sector, with two-way trade in both differentiated products and intangible inputs. Similar results are found by Markusen and Venables (1995), who add what they refer as the "convergence hypothesis": MNEs become more important relative to trade as countries become more similar in size, relative endowments, and technologies.

The above arguments show that there are not a priori theoretical reasons to ascertain a clear-cut relationship between FDI and trade because, as mentioned earlier, it depends on what assumptions the theory based on, so now, turning to previous works of FDI and exports to see the differences and similarities in their works.

2.2 Previous Studies

Elhanan Helpman, Marc J. Melitz, and Stephen R. Yeaple (2003) focused their work on the firm's choice between exports and "horizontal" FDI. They found that relative to FDI, exporting involves lower sunk costs but higher per-unit costs. They built a simple multicountry, multisector general equilibrium model that explains the decisions of heterogeneous firms to serve foreign markets through exports or local subsidiary sales. They tested the predictions of the model on U.S. exports and affiliate sales data that cover 52 manufacturing industries and 38 countries. The study found that the least productive firms leave the industry, because they cannot generate positive operating profits no matter how they organize. Other low productivity firms choose to serve only the domestic market. The remaining firms serve the domestic market as well as foreign

markets. The most productive firms in the group choose to invest in foreign markets while the less productive firms choose to export.

Robert E. Lipsey (1999) studied the role of multinational enterprises (MNEs) in the development of the exports of their host countries. He also paid attention to their role in the development of host country production. By descriptive analysis, he analyzed the data of East Asian country (Hong Kong, Korea, Singapore, Taiwan, Indonesia, Malaysia, Philippines, and Thailand), the host countries, between 1977 and 1995 based on the data such as exports of manufactures from these eight East Asian developing countries, total MFG exports from these eight East Asian developing countries. The result of the study showed the differences in export behavior between U.S. and Japanese affiliates in each country. In the case of Thailand, the differences between U.S. and Japanese firms did not appear as large. Both were focused substantially on their home markets, although the dependence had been rising for Japanese firms and declining for U.S. affiliates. Japanese affiliates were much more important than U.S. affiliates, accounting for 22 percent of Thai exports of non-petroleum manufactured exports, as compared with 8 percent of U.S. affiliates. Exports were concentrated in electric and computing machinery, especially on the part of U.S. affiliates.

Mary Hallward-Driemeier, Giuseppe Iarossi, and Kenneth L. Sokoloff (2002) employed firm-level surveys to study manufacturing productivity in five East Asian economies (Indonesia, Korea, Malaysia, the Philippines, and Thailand) during the late 1990s. They focused on the question of whether firms self-select to compete in world markets and make the appropriate investments that boost productivity and allow them to be successful in that broader arena, or whether relatively exogenous realizations of higher productivity allow the favored firms to export their output. In order to explore the systematic patterns in manufacturing productivity, they estimated a variety of multivariate regressions across the firms within each country, with different measures of the log of total factor productivity as the dependent variable, and a set of dummy variables controlling for sector, year, firm size, whether the firm was located in the capital city, the extent of foreign investment in the firm, whether output was exported

during the year the firm was established, whether the firm was not established as an exporter but became an exporter later, and a variety of other characteristics included as independent variables. After running the regressions based on total factor productivity (TFP) measures derived from the two different production function specifications (the series estimator (based on the Levinsohn-Petrin procedure for dealing with simultaneity) and the more conventional OLS Cobb-Douglas specification with value added as the measure of output), they found that in early-industrializing Asian economies total factor productivity has generally been much higher among firms that are integrated into broader markets. The magnitude of estimated differentials in productivity are largest in the least developed economies of Indonesia and the Philippines, still substantial in Thailand, and smallest in the most developed economies of Malaysia and especially South Korea. The study concluded that firms that began as exporters not only have higher levels of productivity years later than other classes of firms, but that they also differ systematically in the training of their work forces, the vintage of their capital equipment, the use of auditing, and other aspects of their production processes and operations.

Jonathan E. Haskel, Sonia C. Pereira, and Matthew J. Slaughter (2002) interested to find the answer of two empirical questions. First, are there productivity spillovers from FDI to domestic firms? Second, if so, how much should host countries be willing to pay to attract FDI? They studied FDI spillovers using plant-level data spanning the entire manufacturing sector of the U.K. By using the ARD (Annual Census of Production Respondents Database) data set, which is the micro-data underlying the U.K. Census of Production, they constructed the domestic plant output model which includes many variables such as inputs, foreign presence in the region and industry, and other control regressors. After using OLS estimation to find out the answer for the first question, they found that industry-mediated productivity spillovers are positive and significant. Moreover, they suggested that the ability of domestic plants to realize FDI spillovers depends on two things: the absorptive capacity and the nationality of foreign ownership. For the second question, they constructed the estimation model to estimate cost of government FDI subsidies for several high-profile cases in the United Kingdom

and United States. By using cost-benefit analysis on a present-value, they found that each industry receives different subsidies from the government.

Bruce A. Blonigen (1999) studied the substitution and complimentarity effects between exports and foreign affiliate sales by examining product-level data. He used data on Japanese production in and exports to the United States during the late 1970s through the early 1990s for two types of products (automobile parts and consumer products). First, he analyzed product-level data on a specific group of Japanese automobile products in two ways (looking at simple plots of exports and U.S. production of these products and running seemingly-unrelated regression (SUR) for the set of products based on a model of U.S. demand for imported Japanese auto parts). The study found that there is a complementary relationship between Japanese automobile production in the United States and Japanese exports of automobile parts. At the same time, there is a substitute relationship between Japanese production of automobile parts in the United States and Japanese exports of those same products to the United States. Second, he examined a separate set of consumer products exported from Japan and produced in the United States by Japan affiliates by the same ways as before. He found that nine of the eleven of these products show a negative relationship between U.S. production by Japanese firms and Japanese exports of these products to the United States, with seven of these statistically significant at standard confidence level. There is only one product that displays a statistically significant positive effect of local production on the exported good.

Linda S. Goldberg and Michael W. Klein (1997) investigated the relationships among trade, foreign direct investment and the real exchange rate between a set of Southeast Asian countries (Malaysia, Philippines, Indonesia, and Thailand : ASEAN4) and Latin American countries (Chile, Brazil, and Argentina) and both the United States and Japan. ASIAN4 nations are strong net recipients of private direct investment and long term capital flows whereas, the Latin American countries, each of which is a net importer of long term capital. By using econometric method, they ran regressions over a time series panel data. The data set used in these regressions consisted of a cross-section time series panel of annual observations. The time series

ran from 1978 to 1993 or 1994, depending upon the country. All estimation was done using a fixed-effects model. The result of the study provided two types of linkages between Latin American and Southeast Asian countries with the United States and Japan, the link between the real exchange rate and direct investment and the link between the real exchange rate and trade. First, direct investment regressions, the study found that the real exchange rate and FDI linkage is statistically significant only for Southeast Asia but not significant for Latin America so they concluded that there are significant linkages between Southeast Asian bilateral exchange rates and direct investment from both Japan and the United States. Second, trade regressions, the study divided the effects of real exchange rates on trade into two ways; direct (relative price) and indirect (via FDI) effects. They found that real exchange rates have the most significant effect on trade and FDI patterns for Southeast Asia. The effects of FDI on subsequent trade also are strongest. Moreover, the source of FDI, that is, Japan or the United States, influences the degree and direction of the trade effects of FDI.

Linda S. Goldberg and Michael W. Klein (1999) investigated whether FDI serves as a complement to trade or a substitute for trade based on the effects identified by the Rybcznski theorem whereby an increase in a factor of production used intensively in one sector affects production both in that sector and in other sectors. They studied how the net exports of specific manufacturing sectors of eight Latin American countries (Argentina, Brazil, Chile, Colombia, Ecuador, Mexico, Peru, and Venezuela) respond to direct investment from the United States into those specific sectors, as well as into other manufacturing and non-manufacturing sectors of their economies. By using cross-country and time-series data from 1972 through 1994, they built the basic time-series cross-section regression equation for each Latin American country. After testing, the regression result showed that some FDI tends to expand manufacturing trade, while other FDI clearly reduces the volumes of manufacturing trade. In Latin American countries, FDI from the United States can lead to significant, and varied shifts in the composition of activity in many countries across many manufacturing sectors.

Nadiya Mankovska (2000) analyzed relationships between FDI flows into Ukraine, and imports and exports to and from the country. The study concerned two

sources of FDI which came from the European Union (EU) and countries of the former Council of Mutual Economic Assistance (CMEA) and divided industries into two levels which are primary-industry and secondary-industry (primary-industry regards industries in the field of agriculture and resource-based industries, whereas secondary-industry regards industries in the field of manufacturing). He constructed models for export supply function and import demand function and after that run pool regression. The study found that FDI from the EU into primary-industry is mostly export-oriented and thus complement trade, whereas that into secondary tends to substitute for trade. By contrast, FDI from CMEA complements trade both in primary and secondary products. The paper also concluded the motivation of FDI from both sources. Primary-industry FDI from the EU is motivated by Ukraine's comparatively abundant and cheap natural resources, whereas secondary-industry FDI is motivated on the cost side by Ukraine's low wage labor and on the revenue side by its large and relatively untapped domestic market. FDI from the CMEA is motivated by the potential for economies of scale.

Jason Teo Chee Keong and Wang Ruifang (2001) investigated quantitatively the relationships between FDI and four main aggregate variables (economic growth, exports, imports, and domestic investment). The analysis of the macro-effects was based on Fry (1993) in which FDI was used as an explanatory variable. The data used was time series (1985-1993) and cross section data for twelve provinces of China (Guangdong, Fujian, Jiangsu, Shangdong, Zhejiang, Shanghai, Beijing, Liaoning, Tianjin, Hainan, Guangxi, and Sichuan). They built four equations (the growth equation, the export equation, the import equation, and the domestic investment equation) and estimated them by using panel data (To account for how FDI is affected by the degree of openness of each province and to detect the relative importance of FDI for each province). The result of the study can be divided into four parts.

1. Economic Growth: FDI has a very small effect on growth, whereas exports have a greater contribution to economic growth.
2. Exports: It was found that FDI is not an important driving force for export expansion but the real exchange rate itself exerts a positive influence on exports.

3. Imports: China's imports were positively affected by FDI and exports but negatively affected by a real depreciation of domestic currency.
4. Domestic Investment: The study found that instead of crouding out domestic investment, FDI stimulates domestic investment. Moreover, a real depreciation of domestic currency tends to encourage domestic investment and more profitable export production leads to more domestic investment also.

Jordan Shan, Gary Gang Tian, and Fiona Sun (1997) contributed the question "Was economic growth in China FDI-led, or was it the other way around?" To investigate the relationship, they built three hypotheses which are (1) the FDI-led growth hypothesis; (2) the growth-driven FDI hypothesis; and (3) the two-way causal hypothesis. Focussing on the FDI-led growth hypothesis, they constructed a six-variable vector autoregression (VAR) model (imports, industrial out, energy consumption, labor force, FDI, and capital expenditure) for the Chinese economy. The model was estimated using quarterly and seasonally-adjusted data, in logarithms and real terms from February 1985 to February 1996. After testing for causality relationship, they found that both the null hypotheses of "Granger no-causality from FDI to growth" and the null hypothesis that "Granger no-causality from growth to FDI" can be rejected at 99% significance level so they concluded that there is a two-way causality running between industrial growth and FDI in China.

Oscar Bajo-Rubio and Maria Montero-Munoz (1999) investigated the empirical relationship between outward FDI and exports for the Spanish case at a macroeconomic level, by means of Granger-causality tests in a cointegration framework, with Spanish quarterly data for the period 1977-1992. In order to avoid possible spurious results due to the omission of some relevant variables, they explored Granger-causality relationships between exports and outward FDI both in a bivariate and a multivariate setting. After testing, they obtained a positive and statistically significant in long run relationship between exports and outward FDI, but by using ECM, they found that there is no relationship between exports and outward FDI in short run.

Azmat Gani (1999) investigated the direction of causation between FDI and economic growth in Fiji. By using annual data for the period 1976-1995, the study discerned both long-run and short-run relationships between variables (GDP and FDI) and the direction of causality. After using the vector autoregression (VAR) model to test for cointegration and causality, it was found that real GDP growth rate and real FDI growth rate exhibited long-run associations in Fiji. Since cointegration was supported, error correction models were formulated. The result suggested that FDI has positively contributed to growth of GDP but the growth in GDP has not caused growth in FDI so it can be concluded that, for Fiji, there is one-directional causal relationship between FDI and economic growth.

A. Bende-Nabende, J.L. Ford, S. Sen, and J. Slater (2000) studied the macro locational determinants of FDI inflows, and the linkage between FDI and other macro-economic variables (instance output, growth, human capital, and international trade) in the economies of Pacific Asia. By using data from 1986 to 1996, first, they tested nine determinants of FDI by using cointegration to see the long-run relationship between FDI and those variables. They found that the result for the real wage rates variable exhibits long-run relationships with FDI for all countries. In addition, the foreign exchange rate and interest rates variables display long-run relationships with FDI except in Hong Kong, Malaysia and Singapore. The results for the investment environment improving factors, which include degree of openness and liberalization, indicate that only FDI flows into Hong Kong, Malaysia, the Philippines and Singapore exhibit long-run relationships with at least one of the two variables. Human capital stock emerges as a dominant long-run determinant of FDI flows to Pacific Asia. However, FDI tends to exhibit long-run relationships with either market size or market growth but not both; with only FDI flows into Hong Kong, Korea, Singapore, Taiwan, and Thailand exhibiting such long-run relationships. With regard to export-orientation policy, the results for Thailand demonstrate that the export-oriented policy has been capable of significantly inducing long-run FDI inflows. Moreover, they used variance decomposition to test for the sources of variation of both FDI and growth of output and they found some similarities and differences for each country. They also used impulse response functions to see the

impact of FDI on output growth, each variable to FDI, and output growth to each variable. Second, they studied the linkage between FDI and other macro-economic variables by using Granger causality. They found that FDI stimulates human capital in all the countries except Malaysia, Singapore and Thailand. It also has positive impact on output in Singapore but negative in Indonesia. Furthermore, FDI stimulates growth in Thailand but negates it in China, Hong Kong, Korea and Taiwan. They also found that FDI impacts positively on international trade in China, Hong Kong, Malaysia and Taiwan.

Cuadros, A., Orts, V., and Alguacil, M.T. (2002) considered the influence of FDI on the relation between exports and economic growth. They re-examined the export-led growth (ELG) hypothesis by considering a different specification of the traditional export-led growth model. They adopt an aggregate time series approach using aggregate data on domestic income, exports, inward FDI, and foreign income. In this study, they tested the causal relationship among output level, inward FDI, and trade in Argentina, Brazil, and Mexico during the period 1975-1997 by using quarterly data (seasonal adjusted). In order to test their relationships, they used a vector autoregressive (VAR) model for both multivariate cointegration analysis and Granger temporal causality testing. By using the cointegration analysis, they found that all these four variables are tied together by a long-run equilibrium relationship in the case of Argentina, and Mexico but not for Brazil. After that, they used ECM to test for the short-run equilibrium but the results that they obtained do not seem to support the ELG hypothesis for the three analysed countries. Only in the Mexican case, they found short run relation going from export to output level. In the Argentine and Mexican cases, there is a negative long run causal relationship going from domestic income to exports. They also found strong significant impact of FDI on national income, especially in the Mexican case. With respect to the relationship between FDI and exports, they found a complementarity relation between these two variables, that is a positive long run causal relationship in Mexico and Argentina and short-term Granger causality in Mexico and Brazil. They also found that foreign income seems to have played an important role in these countries as there exists a positive causal relationship for both short-run and long-run.

Miguel Leon-Ledesma (2002) pointed that, for every country, in order to gain export market share at the expense of others or able to export more than others, they should improve quality and variety of their export goods. This can be done by looking at innovation and the accumulation of knowledge. However, as much of the knowledge generated in one economy can be enjoyed by other countries with similar characteristics so he suggested that the capacity to export will be determined not only by the country's stock of knowledge but also by other countries' knowledge. He also stated that foreign technology could have a positive and a negative impact on a country's competitiveness. A negative impact because it improves the foreign country's competitiveness and hence reduces home country's market share. A positive impact because the spillover of foreign technology into home economy will enhance its capacity to produce new and higher quality varieties of goods. In order to test this evidence, he used aggregate export data for a set of 21 OECD for the period 1971 to 1990. After testing for unit root and cointegration, he concluded that knowledge spillovers are an important factor determining export competitiveness for the set of OECD economies. For the G7 group, foreign knowledge has a negative impact on exports, but for the less advanced countries he found that foreign knowledge has a strong positive impact on competitiveness.

Yong Li and Shukun Tang (2002) analysed the FDI's role in China's manufacturing development, both across industries and through time. They also divided the contributions of FDI into three different categories, which included (1) contribution to capital formation and to gross value of industrial output of manufacturing (GVIO); (2) contribution to manufacturing exports; and (3) contribution to manufacturing technology progress, and divided manufacturing industry into three major categories; consumer goods industry, intermediate goods industry, and equipment goods industry. By using annual data set of 29 manufacturing industries for the years 1979-2000 and constructing a VAR model in order to test for the direction in long-run and short-run Granger causality between variables (FDI, the gross value of manufacturing industrial output, and the average project scale of FDI), they found that although FDI play an important role in China's manufacturing growth through its contribution to capital formation and industrial

output growth, its success in earning foreign exchange and improving the total factor productivity growth is limit. They also found that in the consumer goods industry, there exists a two-way link between FDI and the gross value of manufacturing industrial output, while for equipment goods industries as well as the whole manufacturing industry the causal relationship flows from FDI to the gross value of manufacturing industrial output appear to be a short-run phenomenon.

2.3 Summary of Previous Works

After reviewing these studies, it is found that they all studied about FDI and, from many theories of FDI and some of these works such as “Modelling the Macro Effects of China’s Inward Foreign Direct Investment” (Teo and Wang, 2001), it is found that FDI affects host countries in many ways. Not only it affects trade (export and import), but it also plays roles on many economic activities such as employment and domestic investment which influence economic growth. In this study, the highlight is only on exports because it is interesting to investigate its role which boosts most income to the country. Most studies found that there are some linkages between FDI and exports. Some of them found the complimentarity (Lipsey, 1999), (Goldberg and Klein, 1999), (Bajo-Rubio and Montero-Munoz, 1999), (Driemeier, Iaross, and Sokoloff, 2002), (Haskal, Pereiro and Slaughter, 2002), some found both complimentary and substitutes (Blonigen, 1999), (Mankovska, 2000), but some found there is no relationship between them (Sharma, 2000) so it is interesting to find that is there any relationship between FDI and exports in Thailand? And, if so, how does FDI play role on Thailand’s export? From reviewing, it is also found that many variables, other than FDI, may influence Thailand’s export growth. Relative prices and exchange rate are variables which are found in almost all works but there are also some interesting variables such as factor of production (Blonigen, 1999), domestic demand, infrastructure (Sharma, 2000) and transportation cost (Helpman, Melitz, and Yeaple, 2003). These variables vary in each work. They depend on countries and what researchers interested in but it can be concluded that the most important variables for exports are price of export goods, country’s exchange rate, and here, in the case of Thailand, the world income will be realized. From reviewing the work of Balasubramanyam, Salisu, and Sapfords (1996),

they stated that the effectiveness of FDI in promoting growth (both economic growth and export growth) is a function of the type of trade regime in place in the host country, varying according to whether that country is following the export promoting (EP) or the import substituting (IS) strategy. That is, FDI can promote growth in the presence of a liberal trade regime. According to their work, this study sets the beginning year in 1972 and the ending year in 2002. The reason of choosing the starting year in 1972 is that, in this year, it is the beginning of Thailand's 3rd development plan which concentrates mainly on export promotion. For the ending year 2002, although, from plan 7 to plan 9, FDI is not the main concentration for government to boost economy from export sector, the investment from foreigner is still necessary. The main purpose of plan 7 to plan 9 is to create the stability to the country development by improving Thai industries to be more strengthened. But after Thailand faced economic crisis, foreign money and foreign investment are still needed to reduce effects of world economic recession so FDI and exports are still important for the country development plan. Next, for better understanding, according to the study of Lipsey (1999), the descriptive analysis of both Thailand's FDI and exports will be added. Many previous studies also suggested that it is better to divide the analysis in to sectors such as (Lipsey, 1999), (Blonigen, 1999), (Goldberg and Klein, 1999), (Mankovska, 2000), (Li and Tang, 2002) so the descriptive analysis part of this study divides those industries into 4 sectors and categorizes them into appropriate group. Moreover, from these works, it is found that there are many methods of studying FDI and exports such as OLS (Driemeier, Iarossi, and Sokoloff, 2002), (Haskel, Pereira, and Slaughter, 2002), cross-section (Goldberg and Klein, 1997), (Goldberg and Klein, 1999), (Mankovska, 2000), (Teo and Wang, 2001), seemingly-unrelated regression (Blonigen, 1999), and VAR (Shan, Tian, and Sun, 1997), (Gani, 1999), (Rubio and Munoz, 1999), (Nabende, Ford, Sen, and Slater, 2000), (Li and Tang, 2002), (Ledesma, 2002), (Cuadros, Orts, and Alguacil, 2002). Considering the purpose of this study, the best methodology which is appropriate to use for this work is VAR. By using this procedure to analyse, not only long-run and short-run relationship can be shown but the causal relationship between variables can also be obtained.

CHAPTER III

METHODOLOGY

3.1 Research Methodology

In this study, the analysis of FDI and exports is divided into two parts, including qualitative and quantitative analysis.

Qualitative Method

In the first part, the descriptive analysis describes the overview of foreign direct investment and exports of Thailand between 1972 and 2002. This part provides a brief summary of Thailand's National Economic and Social Development Plans and its structural changes, together with exports and FDI policies that government has issued. To understand more clearly, historical background of exports and FDI is explained before analyzing them in each sector. According to many works such as Lipsey (1999), each export group should be divided by time. By observing the statistical data, it is found that the rise and the fall of each sector can be categorized into 4 periods:

1. 1972-1981, which is the period of primary product export leader.
2. 1982-1989, which is the period of resource-based manufactured export leader.
3. 1990-1993, which is the period of low-technology manufactured export leader.
4. 1994-2002, which is the period of medium & high-technology manufactured export leader.

Quantitative Method

The second part is the part of quantitative analysis. As conventional econometric models using ordinary least square (OLS) may yield spurious regression results if time series data are not integrated, a vector autoregression (VAR) developed in Johansen and Juselius (1990) is particularly useful for this purpose. The vector autoregression (VAR) is commonly used for forecasting systems of interrelated time series and for analyzing the dynamic impact of random disturbances on the system of variables. The VAR approach sidesteps the need for structural modeling by treating

every endogenous variable in the system as a function of lagged values of all of endogenous variables in the system. So, the most acceptable process of managing with non-stationary data are cointegration and error correction mechanism which will be used in this study.

The unit root test is the first step of cointegration and error correction mechanism process. This step is used for testing whether variables which are used in the model are stationary (I (0), integrated of order 0) or non-stationary (I (d); d>0, integrated of order d). The detection for the existence of unit roots in the variables considers and uses Augmented-Dickey-Fuller (ADF) test. After testing for order of integration of each variable, if it is found that all variables have the same order of integration, the step of finding lag length of variables is now considered. The most appropriate process is to consider all possible lagged term but choose the one which yields the least value of the two-criterion which are Akaike Information Criterion (AIC) and Schwartz Bayesian Criterion (SBC). However, this process should be carefully analyzed because of the problem of the degree of freedom.

Based on a VAR model and time-series data, a long-run cointegrated relationship is identified among these variables. Two important conclusions can be drawn from the VAR results. First, to see whether each variable tends to move together (cointegrate) over time or not and, if so, is there any relationship or equilibrium in the short-run? This can be found by using ECM. Second, to see whether there is causality or not. To analyse the causal relationship, it is needed to solve two main problems. Firstly, to determine the optimal lag length in the autoregressive model. Secondly, to identify the possible long-term relationships among variables included in the system. In selecting the number of lags to be included in the model, this can be done by following the procedure suggested by Hendry and Mizon (1993) and Hendry and Doornik (1994), and sequentally looked at the Akaike Information Criterion (AIC) and Schwartz Bayesian Criterion (SBC) as mentioned earlier. Once the optimum lag length was found, the test for both cointegration and ECM is applied to find long-term and short-term relationship, respectively. Finally, the traditional Wald and *t* tests is used to test for short and long term causality.

3.2 Conceptual Framework

The time series econometric model which is applied in this study is drawn from the standard export function. International economics theory states that the export volume is the function of price level of export goods, income of trade partners, and exchange rates. So the export function can be written as:

Export = f (Export price, Income of trading partners, Exchange rate)

This is in the line with many studies such as Goldberg and Klein (1997) which studied the relationship among FDI, trade, and real exchange rate and they used real exchange rate as the proxy of exchange rate, Goldberg and Klein (1999) which used real GDP of U.S. proxies as income of trade partner country, and Sharma (2000) which used relative price of exports as the price level of export goods, the real effective exchange rate as exchange rates, and world income as income of trade partner. From these studies and many works, it is stated in the same way that higher price of export goods will increase the value of export. Like commodity price, the more income of trading partners, the more purchasing power, thus higher income will encourage buyers to consume more. So the result is, if income of trade partners increases, the export volume will increase. From macroeconomic theory, it has been proved by many empirical studies that the devaluation of the country's currency will improve export volume of that country. Thus, in this study, for all pairs, the positive relationship between price of export goods and export value, between income of trade partners and export value, and between exchange rate and export value, is expected.

The last variable that is concerned and is the most important variable for this study is foreign direct investment. Many works that are stated earlier also included FDI in their study. Although FDI is expected to have different effects in each research, this study concentrates only in the time range which government has encouraged the export promotion policy so FDI in this study should be complementary with the export and so it will be expected to have a positive relationship with the export volume.

After describing effects of each factor on exports, the implicit function of Thailand's export can be written as:

$$\text{Export} = f(\text{Export price}^{+}, \text{Income of trading partners}^{+}, \text{Exchange rate}^{+}, \text{FDI}^{+})$$

3.3 Definition and Data Unit Measurement

1. EX_t implies for export value of Thailand at time t. The unit of measurement is millions of baht.
2. P_t implies for world commodity price at time t. It is represented for price of Thailand's export goods. The unit is shown in the form of index.
3. Y^*_t implies for world GDP at time t. It is represented for income of Thailand's trading partners. The unit of measurement is billions of US$.
4. ER_t implies for Thailand official exchange rate at time t. The unit of measurement is Baht/US$.
5. FDI_t implies for the inflows of foreign direct investment into Thailand at time t. The unit of measurement is millions of baht.

3.4 Data Collection

Both qualitative and quantitative analyses in this study use the secondary data which is running from 1972 to 2002, collected annually by several organizations.

1. Export value, both total value and each sector value, uses the data collected by Bank of Thailand (BOT).
2. World commodity price index uses the data collected by World Trade Organization (WTO).
3. World GDP uses the data provided by World Bank.
4. Official exchange rate uses the data provided by Bank of Thailand, and
5. The inflows of foreign direct investment uses the data collected by Bank of Thailand.

CHAPTER IV

ANALYSIS AND RESULTS

4.1 Descriptive Analysis

In this part, more background of export and foreign direct investment will be provided to help conceive in their changes and relationship. The structural changes of the country and its national economic and social development plans will be described in the first section. Following by the country's policies of exports and investment from other countries, this section will show how the authorities realize about the important role of both export and FDI to improve the prosperity to the country. To examine how they change and relate along the study period, the last part describes Thailand exports and FDI history. This part also concludes some important numeric information involving both export and FDI data.

4.1.1 Brief Summary of Thailand's National Economic and Social Development Plans and Structural Changes

Since the early 1960s, when the first development plan was implemented, the government has supported private enterprise and limited government involvement in the economy to the key utility and infrastructure sectors and to maintaining an incentive structure to encourage the private sector.

In the 1960s, the government followed a traditional import-substitution strategy, imposing tariffs on imports, particularly on finished products. The role of state enterprises was greatly reduced from the 1950s and investment in infrastructure was raised. Attention was given to nurturing the institutional system necessary for industrial development.

By the late 1960s and the early 1970s, the import substitution policy had led to balance of payments problems since most components, raw materials, and machinery to support finished product production had to be imported. A major policy shift towards export promotion took place.

The late 1970s and early 1980s saw continued interest in export industries, small-scale industries, resource-based and labor-intensive industries and the promotion of the regional industries. In particular on the FDI front, in 1977 a new Investment Promotion Law was passed which provided the BOI with more power to provide incentives to priority areas and remove obstacles faced by private investors. Regional inequalities also became a key concern and the BOI steadily shifted its emphasis from promoting export activities to promoting regional areas.

By the early 1980s, policy makers had become aware of the inefficiencies fostered by high protection. In the late 1980s and early 1990s, therefore, they started to promote openness and competitiveness.

The financial crisis, in particular, forced the government to focus on the short-run financial restructuring and corporate restructuring of the large distressed companies. In light of increasing awareness of the importance of competitiveness, and the declining position of Thailand in the international competitiveness sweepstakes, the post crisis period also saw a number of initiatives to develop the industrial base and exports, largely in the form of supporting institutes.

In early 2002, a very high-level National Competitiveness Committee was established to spearhead government's policy efforts across a wide range of related areas, combined with the establishment of a special office for SMEs Promotion, something related to the Board of Investment focusing on supporting SMEs.

According to the national development plans, the industrial development strategy of Thailand first focused on the promotion of import substitution and the reliance on domestic raw materials (1st and 2nd National Economic Development Plans of 1961-66 and 1967-71). A policy reorientation could be observed in the 3rd National Economic Development Plan (1972-76) in favor of the promotion of export oriented industries and labor-intensive industries, although import substitution continued to be important. Policies shifted further in the 5th and 6th National Economic and Social Development Plans (1982-86, 1987-91), where greater emphasis was laid on international competitiveness and industrial restructuring, rather than on policies sheltering particular

sectors. The main policy of the 7th and 8th National Economic and Social Development Plans (1992-96, 1997-2001) pointed to the sustainable development of the country's economy, income distribution, and human resource. The 9th Economic and Social Development Plan which started in 2002 identified competitiveness as one of the main pillars and embodied the return to longer-term issues.

4.1.2 Export and Foreign Direct Investment Policies

4.1.2.1 Export Policies and Instrument Used

1. Exchange Rate

The exchange rate policy of the Thai monetary authorities is characterized by a great stability, a quasi-continuous peg to the USD and occasional corrections for overvaluations. Since the start of the 1970s, Thailand's exchange rate regimes are as follows: fixed (but adjustable) exchange rate with the USD until 1978 (leading to overvaluation), floating exchange rate during 1978-79, peg to a currency basket during 1979-1981, peg to the USD during 1981-84, managed float between 1984-87, peg mainly to the USD from 1987 to 1996, and (as a result of the country's economic crisis) managed float again since 1997. The exchange rate changed in the same period from 20.5 THB per 1 USD at the beginning of 1973, 20 THB in 1973-78, 23 THB in 1981, 27 THB in 1984-87, to 25.7 THB in 1989, 25.3 THB in 1993, 24.91 THB in 1995, fluctuated between 40-55 THB from 1977 to 2002 since the devaluation in 1997 (BOT).

2. Price Level

Inflation in Thailand has been at a moderately low rate. During the period 1980-91, consumer prices rose on average at 4.5% per year. Since the beginning of the 1990s, inflation stepped up and reached 5.8% in 1995 before increased to around 8% in 1998. After 1998 the inflation was at a low rate around 2-3% per year (BOT). The absence of higher inflation can partly be attributed to structural characteristics of the country, and partly to pursued export promotion policies. As far as monetary policy in Thailand is concerned, the preferred instruments of the Bank of Thailand are the

discount rate and interest rate restrictions, rather than legal reserve ratios or open-market operations. The Bank of Thailand seems to have played a relatively successful stabilizing role in Thai economy. Policies have tended to be a restrictive, but not strictly monetarist.

3. Low Wage Policies

To a large extent, the success of Thailand's export policies has been built on low wages, both to create competitive advantages for the national producers, as well as to attract FDI from higher wage countries. The government is following a policy of controlling wage increases, mainly through its conservative minimum wage policy.

An additional way to controlling labor costs is through a wider supply of skilled labor in the provinces in order to cope with local shortages and competition for labor in the Bangkok area. However, increasing competition for labor and rising income inequalities raise questions as to the sustainability of these low-wage policies.

4. Privileges granted by the Board of Investment and Industry Targeting

One of many policies was the incentives provided by the Board of Investment. This authority may grant privileges for investors under the Investment Promotion Act of 1977. According to this Act, promoted investment should correspond to general guidelines related to economic and technological development, environmental policies, and balance of payments considerations as stated in the National Economic and Social development Plans. A number of criteria concerning the invested capital apply, for possibly benefiting from the privileges. These privileges are modulated in two respects: according to the geographical zone in which the companies are located, and whether they are part of an industrial estate or not (Table 4). Three geographical zones are distinguished: Zone I (Bangkok Area and 5 neighboring provinces), Zone II (10 central provinces), and Zone III (the rest of the country). Special status is further given to micro-zones with special status: General Industrial Zones, Special Areas, and Export Processing Zones.

Table 4: Modulation of Investment Promotion by Zones

SPECIAL STATUS	GEOGRAPHICAL ZONES		
	ZONE I	ZONE II	ZONE III
	BMA Samut Prakan Samut Sakhon Pathum Thani Nonthaburi Nakhon Pathom	Samut Songkhram Ratchaburi Kanchanaburi Suphanburi Angthong Ayutthaya Saraburi Nakhon Nayok Chachoengsao Chonburi	All other provinces
GIZ	Bang Chan Lat Krabang I-II-III Minburi I-II Gemopolis Bang Poo I-IIA-IIB Bang Plee I-II Theparak Navanakorn Bangkadi Mah Boonkrong Mueng Thong Thani Samut Sakhon Jongsatit	Rojana I-II-III Hi-tech I-II Bang Pa-In Saharattananakorn Ayutthaya Saraburi Nong Kae Siam Cement Ratchburi Well Grow I-III Gateway City Bangpakong Chonburi Sriracha Laem Chabang	Eastern Rayong Ma Ta Phut TPI Suranaree PCS Kabinburi Prachinburi Prosperity Northern Region Saha Group
SA	Samut Sakhon		
EPZ	Lat Krabang I-II-III Bang Poo I	Hi-Tech Bang Pa-In Saharattananakorn Saraburi Nong-Kae Ratchburi Gateway City Chonburi Laem Chabang	Ma Ta Phut Suranaree Kabinburi Prachinburi Northern Region

Source: BOI (2002)

In general, privileges reduce the investment cost and the operation cost. Current government policies consider export supporting industries, to be promoted mainly with the objective to boost exports: e.g. automotive parts, electronic parts and further components.

5. Financial support policies

In February 1994, the EXIM Bank of Thailand started its operations under the supervision of the minister of Finance. It is the specialized financial institution of the government mandated to promote Thailand's exports and investment abroad by providing credit, guarantees, insurance, or other financial services. For export part, the operation of the EXIM Bank includes:

- the export refinancing service formerly under the Bank of Thailand.
- a short-term revolving credit facility (the Pre-shipment Facility) designed for exporters with purchase orders but no access to the commercial bank credit lines.
- a medium-term Credit for Business Expansion to support exporters who are expanding production capacity.
- a long-term financing facility to support the export of capital goods and services from Thailand.
- an Export Insurance Scheme against commercial and political risks.

4.1.2.2 The FDI Policy Approach

The Thai government has in general taken a very favorable approach toward FDI. Although there have been laws and regulations which limit foreign ownership in certain activities, they have been progressively liberalized over the past decade, with an acceleration of this trend in the period since the crisis.

1. Alien Business Law

The Alien Business Law, which was enacted in 1972 and restricted majority foreign ownership in certain activities, was amended in 1999. The new law relaxes limits on foreign participation in several professions such as law, accounting, advertising, and most types of construction, which have been moved from a completely prohibited list to the less restrictive list of business. It also reduces previous limits on foreign ownership of firms and manufacturing certain products such as cement, pharmaceuticals, alcohol, textiles and garments, and footwear. However, newspaper publishing, farming and antique trading have become more restricted. Previous

restrictions on retail company and securities brokerage have been relaxed and no longer require special government approval of foreign ownership.

2. BOI's Ownership Limits and Conditions

The government promotes foreign investment in Thailand through the Board of Investment (BOI). The Board of Investment is the government agency responsible for administering incentives and providing services with a view to encouraging investment in priority areas. It comprises two bodies: The Board itself and the Office of the Board of Investment. Chaired by the Prime Minister, the Board is responsible for administering the investment promotion law and establishing overall policy guidelines. In response to the changing situation in the economy, the BOI has designated a range of select investment categories for promotional privileges and incentives under the Investment Promotion Act. The general guidelines used by the BOI in granting approval are derived directly from national development priorities. Accordingly, the BOI gives special consideration to investment projects which are export oriented, support resource development, substantially increase employment, locate in the provinces, establish of develop industries which form the base for further stages of industrial and technological development. Projects which carry out significant R&D activities, or establish basic transportation, networks, public utilities and environmental protection systems are considered priority projects and are eligible for special incentives. The BOI lists seven categories of economic activities, covering hundreds of types of businesses that are eligible for investment incentives. Potential investors who meet any or all the following criteria are eligible for BOI incentives:

- Significantly strengthen Thailand's balance of payments position, especially through production for export.
- Support the development of the country's resources.
- Increase employment.
- Locate operations in provinces outside the Bangkok metropolitan area.
- Conserve energy or replace imported energy supplies.
- Establish or develop industries that form the base for further technological supplies.
- Are considered important and necessary by the government.

Promotions offered to investors by the BOI are categorized as either tax incentives, or non-tax privileges. Corporate income tax and import tariff incentives are offered to businesses whose activities fall under the BOI's priority industries, or who operate in Export Processing Zones (EPZ). Non-tax privileges including guarantees, protection, permissions and services, which are offered to all BOI-Promoted projects. EPZ's fall within Thailand's network of Industrial Estates, which offer incentives to foreign and domestic businesses who operate within the designated estate area.

Many aspects of Thailand's economy have slowed considerably since the economic meltdown, including foreign investment. The value of projects approved by the BOI in 1997 was U.S. $ 9.2 billion, falling to 6.4 billion in 1998 and reduced further the following year to 4.2 billion. Leading foreign investors in Thailand include Japan, the U.S., Singapore, the U.K., and the Netherlands (Table 5).

Table 5: Foreign Investment Projects Approved by the BOI

	1997		1998		1999	
	Number of projects	Value	Number of projects	Value	Number of projects	Value
U.S.A.	61	2,209	62	478	53	1,220
Japan	219	3,667	158	1,388	188	712
Canada	4	8	9	67	3	684
Netherlands	12	106	22	2,258	18	592
Taiwan	56	298	69	257	86	208
Singapore	43	1,476	49	273	52	184
U.K.	24	712	33	805	17	103
Malaysia	33	118	21	106	27	90
Switzerland	10	22	11	40	10	83
France	9	42	12	5	11	74
Hong Kong	9	35	16	130	25	50
Germany	19	236	22	221	12	49
India	5	5	10	260	6	36
Australia	16	118	13	71	10	31
Indonesia	3	14	2	12	5	30
Korea	20	99	13	47	19	26
Belgium	3	43	8	24	7	23
China	1	1	2	2	7	15
Italy	7	23	4	20	3	3
Philippines	0	0	0	0	1	2
Total	554	9,232	536	6,463	560	4,215

Millions of U.S. dollars

Source: Bank of Thailand

The BOI aims to supplement and strengthen the domestic resources by encouraging foreign businesses which allow technology transfer, encourage Thai participation in ownership and management, help upgrade the product quality of Thai suppliers and subcontractors. For those companies and industries enjoying promoted status, the basic incentives offered by the BOI include tax incentives such as corporate income tax holidays, exemption or reduction of import duties on imported items, and exclusion from taxable income on dividends during the tax holiday, etc.

In recent years the BOI has been shifting its emphasis towards a more services oriented role. The general activities time reduced by 40 percent. In addition, they provide investment information, investment opportunity surveys and identify potential joint venture partners. The BOI also assists promoted companies in obtaining the permits and licenses that are required for starting up operation and also facilitates work permits and visas for foreigners working on promoted projects or carrying out feasibility studies.

Thailand's investment promotion policy is likely to face significant challenges in the future to comply with obligations they have made to the World Trade Organization. A revamp of promotional zones along with a plan to allow more foreign-owned companies access to investment incentives is likely in store.

In order to support the government's decentralization policy, the BOI began overhauling the criteria for granting privileges on September 1, 1987, with the most recent revisions becoming effective on April 1, 1993. The new provisions grant promoted status to existing projects if they relocate to regional areas. Promoted projects receive privileges according to the Zone they are located in. Promoted projects which are located in Zone 1 receive the least benefits while those in Zone 3 obtain the maximum benefits. These promotional privileges, however, are non-compulsory requirements for investment in Thailand. Investors may exercise the option of developing their projects on a non-promoted basis.

Thailand has created a network of Industrial Estates, which operate almost as free trade zones, in order to promote exports, foreign investment and

economic decentralization from Bangkok. The Industrial Estate Authority of Thailand (IEAT), which is attached to the Ministry of Industry and whose objective is to ensure orderly planned industrialization, administrates the numerous estates in the kingdom.

There are mainly two categories of estates with the first being General Industrial Zone (GIZ), which is the area reserved for the location of industries manufacturing for domestic and/or export consumption. The other is Export Processing Zone (EPZ), which is the area reserved for location of industries manufacturing for export only. Firms located in an EPZ or GIZ receive benefits that include:

- Corporate tax exemptions.
- Reduction or exemption of import duties on machinery or materials used in factory manufacturing.
- Permission to own land.
- Permission to use foreign consultants, skilled technicians and experts.
- EPZ's will usually contain a customs clearing house for fast clearance of goods.

The extent of the benefits granted to a company operating in an EPZ or GIZ depends upon the area of the country it is located in. Thailand's Board of Investment (BOI) created three Investment Promotion Zones in the country with projects in each zone receiving additional incentives, tax and duty reductions as well as allowances for infrastructure investments.

For Projects in Zone 1:

- No tax exemption or reduction on machinery, except projects which export not less than 80% of total sales or locate their factories in industrial estates or promoted industrial zones. Such projects will receive a 50% import duty reduction on machinery which is not included in the tariff reduction notification of the Ministry of Finance (Notification C 13/2533) and which is subject to import duty greater than or equal to 10%.
- No corporate income tax exemption, except for projects which export not less than 80% of total sales and locate their factories in industrial estates or promoted industrial zones, in which case a three-year exemption will be granted.

- Exemption from import duties on raw or essential materials used in export products for a period of one year.

For Projects in Zone 2:

- 50% import duty reduction on machinery, which is not included in the tariff reduction notification of the Ministry of Finance (Notification No. C 13/2533) and which is subject to import duty greater than or equal to 10%.
- Corporate income tax exemption is given for 3 years, extendable up to 7 years, for projects, which locate their factories in industrial estates or promoted industrial Zones.
- Exemption from import duties paid on raw or essential materials used in export products for a period of one year.

For Projects in Zone 3:

- Exemption from import duties paid on machinery.
- Corporate income tax exemption for 8 years.
- Exemption from import duties on raw or essential materials used in export products for a period of 5 years.
- 75% reduction of import duty on raw and essential materials used in production for domestic sales for 5 years, renewable on an annual basis, provided that raw or essential materials comparable in quality are not being produced or do not originate within the Kingdom in sufficient quantity to be acquired for use in such activity.

Special privileges are granted as follows:

- A reduction in corporate income taxes paid by 50%, available for 5 years after the exemption period.
- Double deduction from the taxable income of water, electricity, and transport costs for 10 years from the date of first sales.
- Deduction from net profit of 25% of the costs of installation or construction of the project's infrastructure facilities is given.

The Board of Investment (BOI) used to restrict majority foreign ownership in promoted projects that are resource based, services, and manufacturing mainly for the domestic market. It has gradually relaxed this condition over the past decade. In

1993, it allowed 100 percent foreign ownership for manufacturing projects located in Zone 3 or exporting at least 80 percent of total sales. The BOI also no longer considers the level of foreign ownership firms for projects that develop transportation systems and public utilities, improve the environment, and are directly involved in technological development.

Since the end of October 1997, the BOI provides approval on a case-by-case basis for foreign manufacturing firms in Zones 1 and 2 to change their equity ownership to become majority or 100 percent foreign-owned if local shareholders give their consent. The BOI also abolished foreign ownership restrictions for new manufacturing projects in Zones 1 and 2 since August 2000 under the new incentive package.

The BOI has been active in undertaking other policy and service measures to stimulate expansion projects from existing investors and new Greenfield projects, and also to encourage foreign investment. Policy changes and incentives aimed at foreign investors include the following:

- The granting of investment promotion to existing non-BOI promoted companies seeking additional foreign equity participation. The following conditions shall apply in this case:
    - Companies must conduct activities eligible for promotion. However, location requirements shall not be imposed.
    - Application must be submitted within 1999.
    - Only non-tax incentives will be granted, including permission to own land, and to bring in foreign experts and technicians.
- BOI-promoted companies are entitled to own land for residential and business purposes.
- Foreigners are now allowed to obtain permanent residence permits by investing certain sums in Thailand.
- Establishment of a one-stop shop in 1997 to provide foreign companies with expedited services related to bringing in expatriates to work in Thailand.

- The granting of non-tax incentives to trade and investment support offices, with a view to facilitating foreign companies' operations in Thailand.

The BOI has enhanced its role in matchmaking by introducing a Vendors Meet Customers Program (VMC), which involves regular arrangement of supplier tours to select automotive and electronics assemblers and aims to encourage subcontracting businesses in Thailand. The BOI has also launched the ASEAN Supporting Industry Database (ASID) in order to encourage sourcing of local parts and components.

4.1.3 Export and FDI History

Exports have been the prime mover in Thailand's drive towards prosperity. In 1972, the first year the government shifted toward export promotion as a core policy, they accounted for only 13 percent of the country's gross domestic product. By 1987 the ratio had risen to 23 percent and by 1998 it was 50 percent.

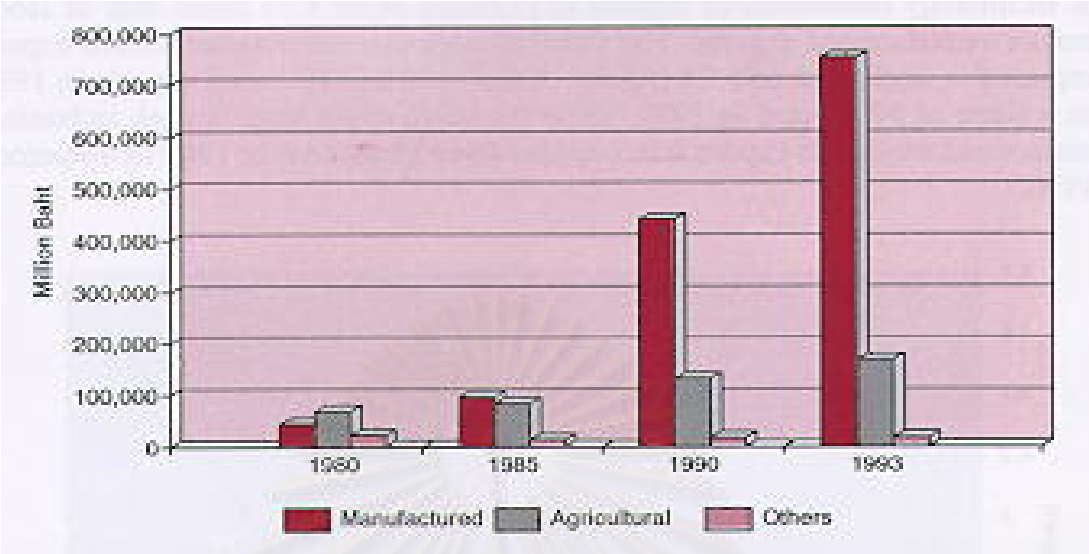
Since the 1970s, the Thai economy experienced steady export growth. The country did relatively well in the oil-crisis struck 1970s and a new acceleration in growth has been observed during the second half of the 1980s. In spite of a recession in large parts of the industrialized world, high growth continued in Thailand along the study period. Exports of 2002 were at B 2,952,067 million, an increase with more than 300% since last decade. Since the beginning of 1996, export growth seems to slow down, mainly because of the country's economic crisis, tight monetary policy and political instability.

Thailand has long been famous as an exporter of food and traditional commodities, and while their importance is still great, high technology exports have become the largest and fastest growing part of the economy. Large investments from multi-nationals have helped Thailand to become an important Southeast Asian production center for many manufacturers of computers, electronic integrated circuits, automobiles, auto parts and air conditioners. The government's initiatives to promote foreign investments, improved business infrastructures and emerging local entrepreneurs have helped Thailand to expand beyond its traditional export patterns.

Thailand's competitive advantages have not been ignored and the country remains a key figure in the export of many commodities and products associated with Southeast Asia. The kingdom is the Number one rice exporter in the world and, in fact, the only net food exporter in Asia. It also leads the world in exports of tapioca, rubber, canned pineapple and frozen shrimp while being a major player in sugar, corn and poultry. A growing agro-industry sector has emerged with the emphasis on adding value to these products before they are exported.

In 1994, the Thai economy started on the path of a second major restructuring of its trade and production systems. The first major restructuring occurred in the mid-1980s, when, driven by the rapid growth of manufactured exports and tourism, the economy quickly transformed from an agrarian and food based economy to one based on modern industry and services. This dramatic change can be seen in Thailand's export structure. Prior to 1985, agricultural exports (including fisheries) had always been larger than manufactured exports (including only resource-based manufactured products). In 1985, the value of this type of manufactured exports surpassed the value of agricultural exports for the first time. During that time, when calculated all kinds of manufactured goods, their exports increased by 30 to 40 percent per annum, while agricultural exports achieved growth rates of only 5 to 10 percent per annum. As a result, by 1990, the value of manufactured exports was over three times larger than that of agricultural exports (Figure 8).

Figure 8: Thai Merchandise Exports



Source: Ministry of Commerce

In the second half of the 1980s, the bulk of Thailand's manufactured exports consisted of labor- intensive products, such as garments, shoes, artificial flowers and gems and jewelry. The production base for these industries shifted from the Asian Newly-Industrialized Countries (NICs) to Southeast Asian countries, such as Thailand, as a result of changes in comparative advantage. The Asian NIC's mean while moved up to export more sophisticated and technologically-intensive products. Thailand's advantage as a production base for labor-intensive manufactured products, however, has been quickly eroding, with intense international competition from lower cost countries, such as China, Indonesia and Vietnam. While Thai labor-intensive manufactured exports were growing at 30 to 40 percent per annum in the late 1980s, the growth rates are now about 10 percent per annum, or less (TDRI, 2002).

Fortunately, the declining growth rates of labor-intensive manufactured exports have been made up for by persistently high export growths of medium to high technology manufactured products. Exports of items, such as computers and parts (classified under "machineries and mechanical appliances"), electrical appliances, electrical circuits apparatus, and vehicles and parts have been growing at 25 to 40 percent per annum since 1990. The value of medium to high technology manufactured

exports has quickly caught up with that of labor-intensive manufactured exports. And just as 1985 was a significant year for Thai exports, with the value of manufactured exports surpassing that of agricultural exports for the first time, 1994 was another significant year, when the value of medium to high technology manufactured exports first exceeded that of labor-intensive manufactured exports (Table 6).

Table 6: Thai Manufactured Exports

	1989	1991	1994
Labor-intensive Products			
-Textiles	105,181	119,351	129,568
-Footwear	13,524	23,798	27,936
-Furniture and Parts	9,746	13,626	16,738
-Rubber Products	5,464	7,116	11,373
-Travel Goods	5,464	7,116	11,373
-Sports Equipment and Related	1,222	4,102	6,801
-Leather Products	1,448	2,678	4,257
-Artificial Flowers and Related	2,867	2,271	2,598
-Precious Stones and Jewelry	28,393	35,903	41,030
-Toys and Games	4,218	7,800	7,928
Total Labor-intensive Products	**177,527**	**223,761**	**259,602**
Average Growth		**12.27%**	**7.71%**
Medium-High Technology Products			
-Machineries and Mechanical Appliances	31,154	57,455	90,802
-Electrical Appliances	18,851	47,875	62,634
-Electrical Circuits Apparatus	26,521	44,209	75,622
-Electric Cables	3,545	4,821	10,365
-Transformers, Generators and Motors	2,073	4,947	10,382
-Clocks, Watches and Parts	2,484	7,556	7,266
-Optical Appliances	1,123	2,566	7,838
-Vehicles, Pats and Accessories	4,431	6,885	16,532
Total Medium-High Technology Products	**90,182**	**176,314**	**281,441**
Average Growth		**39.82%**	**26.34%**
Other Manufactured Products			
-Process Products	43,345	36,086	52,332
-Others	43,100	117,027	159,182
Total Other Manufactured Products	**86,445**	**153,113**	**211,514**
Average Growth		**33.09%**	**17.53%**
Total All Manufactured Products	**354,154**	**553,188**	**752,557**
Average Growth		**24.98%**	**16.64%**

Source: Bank of Thailand

After hard times recently, Thailand's exports are increasing and helping to rejuvenate the economy. Export numbers uncharacteristically decreased in 1996 because of lower cost competitors such as India, China and Vietnam in low-end labor-

intensive manufacturing. They decreased further in 1997 hampered by the removal of many GSP privileges. Recent figures have seen export volumes rising when measured with the devalued baht, but falling when measured in U.S dollars. Thailand's exports increased in 1999 showing a 4 percent gain over the previous year with strong gains made in automobiles and parts, electrical circuits and plastic industries. Agricultural based products did not fare as well with low commodity prices affecting exports of rice, rubber, seafood, and tapioca (Table 7).

Table 7: Thailand's Exports Classified by Product

Products	1995	1996	1997	1998	1999
Computers & parts	5,292	6,647	7,035	7,805	8,060
Electronic integrated circuits	2,347	2,321	2,481	2,279	2,945
Garments	4,115	3,167	3,126	2,991	2,918
Motor vehicles, parts and accessories	1,120	1,158	1,548	1,681	2,426
Rice	1,959	2,012	2,076	2,099	1,949
Canned fish	1,343	1,357	1,533	1,653	1,733
Gems and jewelry	2,117	2,152	1,800	1,387	1,575
Fresh, chilled or frozen shrimp	2,029	1,720	1,516	1,419	1,274
Electronic products	1,274	1,373	1,400	1,402	1,242
Petrochemical products	439	423	737	990	1,215
TOTAL 10 ITEMS	22,034	22,329	23,252	23,705	25,337
OTHERS	34,691	33,612	35,076	30,786	33,126
TOTAL EXPORTS	56,725	55,941	58,329	54,490	58,463

in millions of U.S dollars

Source: Bank of Thailand

So, manufactured exports explain the major part of Thailand's performance. During the past three decades (1972-2002), the relative importance of manufactured exports increased from 45% to 92%. In 2002, many manufactured export items took an important part in total exports; computers and components (13.35%), integrated circuits (12.92%), electrical appliances (8.24%), textile and garment (7.47%),

vehicles and parts (4.37%), plastic products (4.09%), canned food (3.66%), precious stones and jewelry (2.59%) and rubber (2.53%). Computers and parts overtook textile and garment as the top export product in 1995.

Although manufacturing contributed for the major part to the export growth, agricultural (primary products) still counts for a fairly important share of exports although much less than before. Agricultural export counted for 8% of total exports in 2002, whereas they still counted for 55% of export earnings in 1972. Rice, maize and tin have been important currency earners. The success of Thai agricultural exports can be attributed to its successful adaptation and diversification into changing and new markets (Herderschee, 1993). The declining relative importance of agricultural exports further masks the expansion of exports of processed foodstuffs.

On the other hand, since the end of 1986, Thailand has been a favorite location for foreign firms escaping appreciating currencies and escalating labor costs. The flow of foreign firms has been matched by local investors who are stimulated by lower interest rates and a booming economy, and have also increased investment activities.

Manufacturing has been the longest recipient of FDI. Despite a decline in other sectors, FDI in manufacturing continues to expand, with the petroleum sector attracting the largest amount of FDI.

The government continues to take a very positive stance towards foreign direct investment in the manufacturing sector. The Thai government has consistently welcomed foreign investment, recognizing the important role played by foreign technology, management and marketing skills as dynamic forces contributing to Thailand's economic development. Investment is encouraged whether from domestic sources of abroad.

Thailand’s government maintains an open, market-oriented economy and encourages foreign direct investment as a means of promoting economic development, employment and technology transfer. Foreign investment in Thailand significantly

influenced the buoyant economic growth of the last 15 years, spurring Thailand's transformation from an agriculture-based economy, to one balanced with industry and manufacturing.

FDI inflows into Thailand increased substantially in the second half of the 1980s. From 1986 to 1989 Thailand attracted on average B 27,220 million per annum of FDI inflows. From 1990-2002, FDI stood around a plateau of over B 171,570 million per year, with a slight drop to B 66,768 million in 1993 and B 61,599 million in 1994 as the effects of the political unrest in the early 1990s affected foreign investor confidence. FDI experienced a drop again to B 200,741 million in 1999 and B 319,436 million in 2002 because of the slow down of the world economic growth. During this period, there were substantial FDI flows into large-scale basic industries such as steel and petrochemical, as well as infrastructure projects.

Following the depreciation of the Baht in 1997, FDI inflows have shown a dramatic increase, totaling B 165,143 million in 1997, B 284,938 million in 1998, B 200,741 million in 1999, B 256,282 million in 2000 and reaching the highest at B 393,542 million in 2001 before falling to B 319,436 million in 2002. This growth of FDI in the post-crisis period was characterized by a dramatic increase in mergers and acquisitions (M&A) as foreign firms took over Thai companies that faced severe debt and liquidity problems. UNCTAD's World Investment Report 2000 reported that cross-border M&A sales or M&A FDI in Thailand amounted to about US$ 0.6 billion in 1997 before rising to US$ 3.2 billion in 1998 and slightly dropping to US$ 2.0 billion in 1999 and US$ 2.6 billion in 2000.

Considering FDI by sector since 1970, the manufacturing sector has consistently been a large recipient of FDI with an increasing share in FDI inflows. Sectors which received most shares of FDI changed from resource-based to low-tech and medium & high-tech respectively. In recent year, within the manufacturing sector, the electronics industry relatively consistently attracts large volumes of FDI, amounting to 17.6% in 2001. For the period 1998-2000, however, electronics was overtaken by machinery and transport equipment, deriving mainly from the automotive industry, as

many Japanese automotive parent companies injected capital to assist their subsidiaries and suppliers in Thailand following the crisis. The chemical industry surged in 2000 as a number of local producers were restructured, accounting for 13.6% of FDI, before completely dropping off in 2001 (BOT, 2002).

Sources of FDI in Thailand have generally been quite diversified, including Japan, the United States, Europe, Taiwan, Hong Kong, and Singapore. Japan had been the largest national source of FDI since the late 1970s with the exception of being overtaken by the US in 1999 and by Singapore in 2001. Japanese FDI dropped sharply in 1999 as a result of the weak economic conditions in the home economy, but bounded back in 2000 and 2001 as Japanese firms increased equity shares in local subsidiaries. Since 1998, Singapore has ranked high as a number of high profile Singaporean investments took place in banking, telecommunications, and others, and certain foreign investors used their Singapore-based affiliates as vehicles for activities in Thailand. The importance of Singapore is potentially a worrying signal in light of the weaknesses in the global electronics sector and the potential for Singaporean investors to sustain such high levels of investment. European investment rose strongly in 1998 and 1999, led by the Netherlands, but fell off rapidly in 2000 and 2001, with a substantial net outflow of Dutch FDI in both years. This decline was mirrored by a dramatic fall-off in US FDI to only 1.5 percent in 2001 (TDRI, 2002).

To understand more clearly about the change of exports and foreign direct investment, the rise and the fall of each export group, the analysis will be divided into four periods, depending on their export value. Each group is as follow;

1. 1972-1981: The period of “primary products” as export leader.
2. 1982-1989: The period of “resource-based manufactured products” as export leader.
3. 1990-1993: The period of “low-tech manufactured products” as export leader.
4. 1994-2002: The period of “medium & high-tech products” as export leader.

4.1.3.1 Primary Products Leading Export

Export:

1. 1972-1975

In this period, most export income of the country came from the export of primary goods. Thailand's exports increased markedly from B 22,516 million in 1972 to B 50,363 million in 1974 (Figure 9) due mainly to rising prices of major export items (BOT). In 1975, it experienced a little drop in export value to B 48,520 million (Figure 9). In average, the exports grew about 29% each year (Figure 14).

In this four year, exports of Thailand entirely based on two product groups which are primary products and resource-based manufactured products, altogether, accounted for over 70% of the total (Figure 23). For other groups, 1972 was the first year that textile which is the low-technology manufactured product appeared in the export items list but its value was still very low compared with other major export items. There was no medium and high-technology manufactured products appeared for exporting in this period. The major export items of the country in this period were, ranked by value, rice, maize, rubber, tapioca products, and sugar.

Primary Product

Exports of primary products increased steadily from B 12,436 million in 1972 to B 20,276 million in 1975 (Figure 11) or 18% average each year (Figure 15). Exports of this group were accounted for over 40% of total exports (Figure 23). Although there was not much increase in the export volume of primary commodities as several crops were damaged by the 1972 drought, a fall in output of some products and partly to a decline in demand from some traditional markets, prices of most primary products rose further this part as world output fell owing to unfavorable weather conditions, shortage of fertilizer, the oil crisis and scarcity of certain materials (BOT). The principal export items of this group, namely, rice, maize, and tin accounted for about 40%, 30%, and 10% of the total export value of this group, respectively.

Resource-based Manufactured Products

Products which were increasing in importance belonged mostly to this group. Resource-based manufactured export goods rose at a relatively high rate from B 6,446 million in 1972 to B 17,695 million in 1975 (Figure 11) or 40% average each year (Figure 17). Exports of this group were accounted for about 30% of total exports (Figure 23). This product group also benefited from higher export prices of almost all commodities, brought about by world economic and monetary crisis as well as the revaluation of major foreign currencies, helped to raise the export value of this group to a significant high level (BOT). The major export commodities were rubber, tapioca products and sugar, which, accounted for 31%, 24%, and 21% respectively or altogether about 76% of the total export value of their group. Apart from the products mentioned above, other exports of many types of this group also increased a great deal, particularly precious stones and jewelry.

Low-technology Manufactured Products

Although the growth of exports of this group was about 46% per year (Figure 19), the highest of all, compared with other groups, the value of exports of low-tech manufactured products was quite low in this period which is B 1,997 million in 1975. However, the product which became more important was textile and garment which was the only major export good of this group in this time. For example, the export value of textile products amounted to B 1,835 million in 1975, the seventh of top ten major exports, although it has confronted with marketing problems and a setback in the price (BOT).

2. 1976-1981

Although primary products experienced a slightly drop in their growth in the first three years of this period, this group remained most export income receiver of the country. This period was also the beginning of medium and high-technology manufactured products as the export item group. Thailand's exports in this duration increased from B 60,300 million in 1976 to B 153,001 million in 1981 (Figure 9) or 20%

average each year (Figure 14). The increase in export earnings could be attributed to success in export promotion as well as higher demand, following recovery in world economic conditions. In addition the government imposed several measures to help promote export of those commodities, namely, rice, sugar, textile and garment. However, Thailand's export performance was not quite buoyant. Underlying reasons were the lull in economic conditions of the major purchasing countries and continued fiscal and monetary restraint exercised by various countries which resulted in a decline in aggregate expenditure (BOT). Hence, demand from overseas market somewhat weakened this period.

In this period, although primary products were mostly still being the first and major export group, manufactured products became more interesting in their export value, especially for resource-based manufactured products (Figure 11). For low-technology manufactured products, textile and garment was still being the only major exports of this group. In 1976, it was the first year that Integrated circuit (IC's) was shown in the export list. The principal export goods of the country in this period were rice, tapioca products, rubber, textile and garment, and tin.

Primary Products

For primary products, although there was increase in export value from B 22,572 million in 1976 to B 53,213 million in 1981 (Figure 11) or 19% average each year (Figure 15), their share in total export decreased from 37% in 1976 to 35% in 1981. This was the sign which told that the leading exports would change to other groups in the near future. Nevertheless a slightly rising price and volume, both fluctuated over the period. However, the major export items of this group were still being rice, tin, and maize which accounted for about 40%, 20%, and 15% respectively.

Resource-based Manufactured Products

Resource-based manufactured exports increased from B 23,861 million in 1976 to B 50,646 million in 1981 (Figure 11) or 16% average each year (Figure 17). The share of this group expanded to about 35% of total exports (Figure 23), almost

equal to that of primary products. However, in the last year of this period, exports of this group experienced a setback as against the uptrend which had prevailed in the last few years. The major export goods of this group were also rubber, tapioca products, and sugar, which, altogether accounted for about 77% of total export value of this group. Most share came from tapioca products and then rubber and sugar which accounted for 32%, 26%, and 19% respectively. Precious stones and jewelry also showed a good sign for exporting.

Low-technology Manufactured Products

The value of exports of low-technology manufactured products increased from B 4,111 million in 1976 to 13,487 million in 1981 (Figure 11) or 27% average each year (Figure 19). Although it had a little share in total exports, accounted for about 8% (Figure 23), textile and garment which is the only major export goods of this group increased significantly to be the fifth in top ten export product chart. In 1981, footwear also appeared in export list of this group for its first year.

Medium and High-technology Manufactured Products

This was the first period that the goods of this group was included in the export list. Medium and High-technology manufactured export value increased from B 837 million in 1976 to B 6,193 million in 1981 (Figure 11) or 49% average each year (Figure 21). Although the share in total exports was quite low, about 4% (Figure 23), the export growth rate of this group was the highest among all. The notable product was integrated transistor circuit, the value of which grew at a high rate along the period. For IC's, it became the tenth of top major export list in 1976, the first year this item was appeared in the export chart, and changed to the eighth in 1981, the last year of this period.

Foreign Direct Investment:

In this analysis, FDI will be categorized into two groups. The first group is FDI for exporting sector such as mining, oil exploration, food, petroleum products, textiles, electrical appliances, machinery and equipments. The second group is FDI for

non-exporting sector such as real estate, construction, services, financial institutions and trade.

In the first year, 1972, total FDI was accounted for B 1,554 million (Figure 10), which can be divided: B 557 million for exporting sector and B 997 million for non-exporting sector (Figure 12). The share in this year was 36% and 64% for each group. At the end of this period, 1981, total FDI increased to B 9,342 million (Figure 10); B 3,677 million for exporting group and B 5,665 million for non-exporting group (Figure 12). There was an increase in FDI share for exporting sector to 39% and so decreasing in non-exporting sector to 61% in this year. However, the average FDI share along the period for exporting sector was only 28% whereas that of non-exporting sector was 72% (Figure 23). For exporting sector, the groups which received most shares were low-tech manufactured products and medium & high-tech manufactured products, each accounted for 8%, following by primary products and resource-based manufactured products which accounted for 7% and 5% respectively (Figure 23). Considering the growth, by average, total FDI grew about 22% each year; 23% for exporting sector and 21% for non-exporting sector (Figure 14).

Considering FDI value of each group in exporting sector, in the first year, 1972, low-tech manufactured products began to be the highest FDI recipient, following by primary products and medium & high-tech manufactured products. Resource-based manufactured products were the least recipient in this year. From 1973 to 1977, the highest recipient was still low-tech manufactured products whereas medium & high-tech manufactured products rose up significantly to the second. The FDI value of primary products and resource-based manufactured products increased at the same rate. However, from 1978 to 1981, medium & high-tech manufactured products turned out to be the highest recipient while low-tech manufactured products dropped in value to the last group. FDI in primary products and resource-based manufactured products still grew continually (Figure 13).

Primary products

In this group, although there was an increase in FDI value from B 176 million in 1972 to B 775 million in 1981 (Figure 13), the value fluctuated along the period. Especially in 1974, the value highly rose up to B 1,214 million (Figure 13), mainly because of the investment of oil exploration companies. By average, the FDI growth of this group was accounted for 18% each year (Figure 16). When considering only the FDI share of exporting sector, this group was accounted for about 21% but when considering the share of total FDI, this group was accounted for only 7% (Figure 23).

Resource-based manufactured products

The same as primary sector, the FDI value of this group was not standing out. The value increased from B 62 million in 1972 to B 140 million in 1980 before rose up sharply to B 1,718 million in 1981 (Figure 13) or accounted for about 45% average growth (Figure 18). Actually, the value of FDI of this group was quite low along the period, except for 1981, the sharp increase mainly due to the inflows from affiliated companies to petroleum industry. In conclusion, FDI of this group was accounted for about 17% share in the exporting sector but only 5% share in total FDI (Figure 23).

Low-technology manufactured products

Low-tech manufactured products began with being the highest recipient of FDI in 1972 with the value B 193 million (Figure 13), remaining the highest until 1978 before the value dropped quickly. This group ranked the lowest recipient in 1979 and 1981. In 1981, the value rose a little to B 222 million (Figure 13), accounted for only 2% annual growth (Figure 20). Considering the share, this group was accounted for 28% share in the exporting sector and 8% share in total FDI (Figure 23). Capital inflow under direct investment in this group was mainly to textile and garment industries.

Medium & High-technology manufactured products

Medium & high-manufactured goods were the only group that had continually growth along the period. The value of FDI of this group increased from B 125

million in 1972 to B 962 million in 1981 (Figure 13), accounted for 25% annual growth (Figure 22). This group received the highest share, 34% among four groups and 8% share in total FDI (Figure 23). Major items which received most FDI were electrical appliances and chemical products.

4.1.3.2 Resource-based Manufactured Products Leading Export

Export:

1. 1982-1984

After remained the major export group of the country, primary products dropped down to the second in this period, replaced by the rise of resource-based manufactured products. This is also the last period that rice was the number one major export good of the country. The export value rose from B 159,728 million in 1982 to B 175,237 million in 1984 (Figure 9) or only about 10% increase (Figure 14). This was because of the depressed prices of primary commodities in the world market and the economic recession prevailing in both industrial and developing countries that had exerted downward pressure on prices of several export goods since the beginning of 1982 (BOT). In 1983, Thailand experienced the decrease in export value to B 146,472 million (Figure 9). The major reason for such decrease in the export value lay in lower volumes of major export items. This was caused by drought in 1982 which yielded lower output. In addition, restrictions imposed by Thailand's trading partners affected the export volume of some products such as textile and garment, tin, and tapioca products. However, on account of the official promotion measures implemented together with the reduction in export tax, premium and royalty, the abolition of export quotas as well as the devaluation of the baht (BOT), the export value improved a little in the last year of this period. The major export goods in this period were rice, tapioca products, textile and garment, rubber, and maize.

Primary Products

Although rice was the first in major export goods, its group, primary products, was not the highest value group anymore. The export value was B 58,822

million in 1982, dropped to B 52,550 million in 1983 and rose up to B 63,322 million in 1984 (Figure 11) or about 8% change (Figure 15). The export share of this group was about 36% from total export (Figure 23). Although there was an increase in volume due mainly to higher agricultural production level as well as government measures such as the liberalization of export trade for rice, and maize, export promotion through cost reduction measures, export market extension measures, increased government-to-government sales and barter arrangements, pricewise, however, faced with downward trend in line with prevailing world market prices (BOT). The major export items of this group were rice, maize, and tin accounted for about 40%, 15%, and 10% respectively. For maize and tin, they were less important for exporting in this period.

Resource-based Manufactured Products

Export value of this group increased at a high rate from last period. In 1982, the value was B 73,718 million (Figure 11) or about 46% increase from the last year (Figure 17). In 1983, the value dropped a little to 68,400 million and then rose back to B 77,911 million in 1984 (Figure 11). Considering about the share of exports, this group received the highest among all. It was accounted for about 46% of total exports (Figure 23). The principal commodities of this group which had high export value were tapioca products, rubber, sugar, precious stones and jewelry, and canned food, accounted for 23%, 16%, 11%, 9%, and 6% share of total of this group, respectively. Products which had more role in this group were precious stones and jewelry and canned food while sugar was less important.

Low-technology Manufactured Products

Low-technology manufactured export was the only group that the export value increased continually. It increased from B 13,487 million in last period to B 15,345 million in 1982, then B 16,094 million in 1983, and jumped up to B 22,074 million in 1984 (Figure 11). The growth was, from 1982 to 1984, 14%, 5%, and 37% respectively (Figure 19). Product of this group which experienced high value was only textile and garment. Its rank in major export goods rose from the third up to the second in 1984.

Medium and High-technology Manufactured Products

Medium and High-technology manufactured export value experienced a little drop from B 6,193 million in 1981, down to B 5,930 million in 1982 and B 5,829 million in 1983 before it rose up to B 7,352 million in 1984 (Figure 11) or accounted for 19% increase from last period (Figure 21). The important export item in this group was only IC's.

2. 1985-1989

Resource-based manufactured products were still the major group leading income to the country. However, in this period, textile and garments showed a dramatically increase in value to the top of export item. Considering agricultural products, a steep decline in basic commodities prices in international markets pulled down the value of Thai exports sharply, especially most important agricultural items. The value of Thailand's primary exports grew at a very low rate in spite of the increased competitiveness of Thai goods after the adjustment of the baht exchange rate. At the same time, the prices of manufactured exports rose significantly, helping push the total value of exports up (BOT). The value of exports totaled B 193,366 million in 1985 and quickly rose to B 516,315 million in 1989 (Figure 9), an increase of 28% average each year (Figure 14). The competitiveness of exports, especially of manufactured goods, highly improved in 1987, 1988, and 1989. This was partly because the value of US dollar by currencies of major industrialized countries continued to weaken significantly, and partly because the Thai government persued an exchange rate policy which was consistent with economic and international trade conditions. Such a policy resulted in a substantial depreciation of the baht against the currencies of major trading partners. In addition, the design and quality of Thailand's exports were improved to meet the criteria of foreign markets. As a result, despite severe protectionist policies, Thai manufactured exports continued to increase rapidly. The additional reasons for export improvement were also due to an increase in demand and purchasing power in world markets as the world economy expanded at a higher rate and oil prices and interest rates in world markets remained stable (BOT). The major export items in this period changed a little to

be textile and garment as a leader, following by rice, rubber, tapioca products and precious stones and jewelry.

Primary Products

The value of exports of this group remained the second from last period until the last two years of this period, 1988 and 1989, its value dropped to the third (Figure 11). This showed some interesting points that, for Thailand which has long been known for an agricultural export country, this sector might not be the highest source of income anymore. However, the export value increased from B 63,997 million in 1985 to B 103,274 million in 1989 (Figure 11) or accounted for only 13% increase each year (Figure 15). The main reason of the rising in value was the uptrend of export price of almost all export goods in 1988 and 1989. The export share dropped promptly from 33% in 1985 to only 20% in 1989. The principal export goods of this group namely, rice, frozen shrimp and prawn, and maize, accounted for about 37%, 10%, and 8% respectively. The other good which showed a significantly rose up in value was frozen poultry.

Resource-based Manufactured Products

Resource-based manufactured export value increased rapidly in this period. The value was just B 89,887 million in 1985 but it went up to B 237,263 million in 1989 (Figure 11) or about 27% each year (Figure 17). The share of this group in total export was accounted for about 47% (Figure 23), which reached the historical high share record. The price of most important commodities such as rubber, tapioca products, sugar, precious stones and jewelry, and canned food, rose up at a high rate. As a result, this group received the highest income among all sector. The major export commodities of this group were rubber, tapioca products, precious stones and jewelry, canned food, and sugar which their share in the group were accounted for 14%, 14%, 12%, 9%, and 7% respectively.

Low-technology Manufactured Products

The export value of this group also went up at a high rate from B 27,595 million in 1985 to B 122,157 million in 1989 (Figure 11) or account for 45% growth each year (Figure 19), the same rate as resource-based manufactured sector. Different from the mentioned group, the interesting point is, in this group, textile and garment was the only major export product for its group whereas, for resource-based manufactured sector, many commodities were included as the principal export goods. Moreover, for textile and garment, 1985 was the first year that this product was ranked the first among all export items of the country. The share of this group in all export sectors was accounted for 20% (Figure 23) and the share of textile and garment in its group was about 72%. Other goods which increased significantly in value were footwear and plastic products.

Medium and High-technology Manufactured Products

Although it received a little share in total export, only 7% (Figure 23), the export value of this group increased at the highest rate when compared with other groups. The value increased from B 8,249 million in 1985 to B 46,524 million in 1989 (Figure 11) or accounted for 54% growth each year (Figure 21). The commodities in this group that performed particularly well included IC's and computers and components. Especially for the latter product, it went up from the eighth of the country's export products in 1988 to the fourth in 1989. Vehicles and parts also showed a good sign for exporting in the last two years. The shares of IC's and computers and components in their group were accounted for 74% and 24% respectively.

Foreign Direct Investment:

Total FDI in 1982 was accounted for B 9,540 million (Figure 10); B 4,430 million for exporting sector and B 5,110 million for non-exporting sector (Figure 12), slightly increased from that of 1981 about 2% (Figure 14). The increase continued until the end of 1984 with the value B 16,970 million (Figure 10). In 1985, FDI fell sharply to B 10,166 million (Figure 10) in line with the decline of the world economy's growth rate

(BOT). After 1985, FDI rose up again with a low rate in 1986 and 1987 before it dramatically increased in 1988 and 1989, the last two years of this period, with the value B 32,738 million and B 53,079 million respectively (Figure 10). At the end of this period, the annual growth of FDI, accounted from 1982, was about 28% (Figure 14). The interesting point is when considering the FDI value of exporting sector, since 1972, it is found that its value was less than that of non-exporting sector all the time until 1988 and 1989. In 1989, the FDI value of exporting sector was accounted for B 27,285 million and that of non-exporting sector was B 25,795 million (Figure 12), accounted for annual growth about 30% and 26% respectively. In these two years, the higher value of exporting sector than that of non-exporting sector showed that the higher volume of money was mainly invested in the production for export, reflected Thailand as one of important production base countries in that time. In this period, the share of exporting sector increased to 44% (medium & high-tech manufactured products 17%, primary products 10%, low-tech manufactured products 9%, and resource-based manufactured products 8%) while that of non-exporting sector decreased to 56% (Figure 23).

Considering each product group, from 1982 to 1984, primary products turned back to be the highest recipient of FDI with a very high growth rate while other sectors grew slowly at the same rate. However, from 1985 to 1989, although every group experienced a continual growth in FDI value, medium & high-tech manufactured products went back to the highest again with the standing out value whereas FDI growth of primary products dropped rapidly. FDI of resource-based manufactured products and low-tech manufactured products still grew continually (Figure 13).

Primary products

This group experienced a high growth from 1982 to 1984. In 1982, the value was at B 1,698 million, rising up to B 3,312 million in 1984, before dropping down to B 1,335 million in 1989 (Figure 13), accounted for -3% annual growth (Figure 16). The main reason of increase in FDI in 1982 to 1984 was the more investment in oil exploration. However, in 1985, FDI dropped to the normal and continued slightly increasing until the end of this period. As a result of increasing of FDI in the first three

years, the share of this group was accounted for 24% of exporting sector and 10% of total FDI (Figure 23).

Resource-based manufactured products

FDI of this group greatly fluctuated along this period. The value began with B 916 million in 1982 (Figure 13), dropped from that of 1981 about 47% (Figure 18). In 1983, the value dropped rapidly to B 300 million, but rose up sharply in 1984 to B 1,655 million before declined again in 1985 and 1986 to B 709 million and B 701 million respectively (Figure 13). The reason for sharp decline of FDI was that, in those years, there was no investment in petroleum products as it had before. However, in the last two years, FDI of this group sharply increased in line with total FDI and FDI of other groups. In 1989, the value was at B 4,625 million (Figure 13), accounted for 26% annual growth (Figure 18). The share of this group was accounted for 18% of exporting sector and 8% of total FDI (Figure 23).

Low-technology manufactured products

The value of this group increased from B 749 million in 1982 to B 6,273 million in 1989 (Figure 13) or accounted for 35% annual growth (Figure 20). Between the period, FDI value of this group experienced a severely dropped in 1985 and 1986, mainly due to the decrease of investment in textile products. However, the value rose up rapidly again in 1987 to 1989 with the increasing investment in metal production and textile and garment. The share of this group was accounted for 20% of exporting sector and 9% of total FDI (Figure 23).

Medium & High-technology manufactured products

FDI of this group continually increased since 1982 but it experienced a little drop in 1985 in line with the slow down of the world economy. However, in 1988 and 1989, FDI value of this group increased rapidly as a result of the highly increasing investment in electrical appliances. In summary, the FDI value of this group increased from B 1,067 million in 1982 to B 15,052 million in 1989 (Figure 13) or accounted for

46% annual growth (Figure 22). This group still remained the highest share at 38% of exporting group and 17% of total FDI (Figure 23).

4.1.3.3 Low-Tech Manufactured Products Leading Export

Export:

After showing a steady increase for many years, textile and garments led their group, low-technology manufactured products, to be the major export in this time. Exports amounted to B 589,813 million in 1990 (Figure 9), an increase of only 14% from previous year (Figure 14). However, in this period, the value of exports amounted to B 935,862 million in 1993 (Figure 9), or accounted for 17% growth each year (Figure 14). The continual decline of both prices and volume of agricultural products strongly affected the sectors that related to these products which are primary sector and resource-based manufactured sector. The decline of agricultural exports owed to a slump in world commodity prices, intensified competition, the reduction of agricultural price support of the EU's Common Agricultural Policy, and reduced domestic output of some crops following drought conditions (BOT). Moreover, competition in the world market intensified as more and more countries placed emphasis on exports to stimulate growth, particularly the new exporting countries such as China and Vietnam. Notwithstanding a marked decline in agricultural exports, manufactured exports, especially for medium and high-technology manufactured products, continued to expand briskly, benefiting from market expansion in the high-growth Asia-Pacific region. In summary, exports in this period benefited particularly from the expansion in exporting businesses, from the low level of inflation, exchange rate stability, the diversification of export markets, and the increased exports from previous investment in the exporting industry during past period (BOT). From BOT, an empirical econometric study of export performance attributes the growth of manufactured export to the following major factors: 1. Relative cost factor 2. External demand and 3. Supply factor approximated by growth of foreign direct investment. The major export goods of the country in this period changed considerably to low-to-high technology manufactured products. After ranked,

there were textile and garment, computers and components, IC's, precious stone and jewelry, and rice.

Primary Products

In this period, the export value of this group dropped to the fourth, the last group among all sectors (Figure 11). The export value in 1990 amounted to B 85,817 million (Figure 11), a decrease of 17% from the previous year (Figure 15). After the fall in first year of the period, it rose up a little to B 118,578 million in 1993 (Figure 11) or accounted for 38% increase from 1990, but only 15% from 1989 (Figure 15). The share of this group along the period was about 14% (Figure 23), continually dropped from previous period. In 1990, rice which was the major exports of this group, registered the largest decline of nearly 40%. Other products which experienced a sharp decline were maize and tin. The decline in export value was caused principally by substantial decline in both the world demand and the country's supply (BOT). For rice, it started by the fourth of top ten country's export products in 1990 before it dropped rapidly to the ninth in 1993. Product which showed increasing in value was frozen shrimp and prawn. The principal export products of this group, namely, rice and frozen shrimp and prawn, accounted for the share about 30% and 28%.

Resource-based Manufactured Products

Resource-based manufactured products began with the second of all export groups before it dropped to the third in the last year, 1993, showing less important than it was in the past (Figure 11). Export value of this group fell sharply to B 162,798 million in 1990 (Figure 11), or 31% decrease from 1989 (Figure 17). After the fall, the value rose up slightly to B 202,563 million in 1993 (Figure 11) or accounted for about 24% increase from 1990 but still be about 15% decrease from 1989 (Figure 17). The share of this group dropped quickly from about 47% from last period to only about 25% in this period (Figure 23). This was mainly due to the high linkage of the dropped of both prices and volume of agricultural exports. The major export goods were still precious stones and jewelry, canned food, rubber, and tapioca products which shares were accounted for about 20%, 16%, 15%, and 13%, respectively.

Low-technology Manufactured Products

In this period, low-technology manufactured exports turned out to be the leader export group (Figure 11). The export value in 1990 was B 199,411 million (Figure 11) or 63% increase from that of 1989 (Figure 19). At the end of this period, the value reached B 303,996 million (Figure 11) or about 15% increase each year (Figure 19). The share in total exports of this group reached its highest at 34%, increasing from 20% in last period (Figure 23). However, although textile and garment was still the number one of country's major export goods, it began growing at a low rate. Items which recorded major gains were textile and garment, footwear, and plastic products, accounted for about 42%, 9%, and 7% share in their group, respectively.

Medium and High-technology Manufactured Products

Although Medium and high-technology manufactured export group was ranked on the third in value from four groups in this period, it was the most fascinating group with the favorable increase in export value from last period. Export value of this group in 1990 was B 125,056 million (Figure 11), increasing about 169% from last year (Figure 21). In 1993, the export value reached B 299,554 million (Figure 11) or about 34% average increase each year (Figure 21). Moreover, in the last year of this period, the ranking of this group was risen up to the second among all. The export share of this group also rose to about 25% (Figure 23). This rapid expansion increase mirrored successful developments of new manufactured export items including electrical appliances and computers and components. The new export items generally have higher value added than the traditional manufactured items, thereby boosting the share of this group in total export value. Major items which increased significantly were computers and components, IC's, and electrical appliances, which were accounted for about 30%, 18%, and 12% share of their group, respectively.

Foreign Direct Investment:

Total FDI in 1990 highly increased from that of 1989. Total value in this year was accounted for B 77,266 million (Figure 10) or about 46% increase from last

year (Figure 14). This value can be divided into two parts; B 35,482 million for exporting sector and B 41,785 million for non-exporting sector (Figure 12). FDI, in total, still grew continually and reached the highest in this period in 1992 with the value B 135,028 million (Figure 10). However, FDI in 1993 faced with a severely decline to B 66,768 million (Figure 10); B 28,704 million for exporting sector and B 38,064 million for non-exporting sector (Figure 12). This was because economic conditions in several countries were sluggish together with the fact that Thailand's ability to attract foreign direct investment declined relative to major competitors like China and Indonesia, which have an advantage of lower wage (BOT). As a result, the annual growth of total FDI was accounted for -5%, divided into 7% decrease in exporting sector and 3% drop in non-exporting sector (Figure 14). Considering the share in total FDI, the share of exporting sector dropped to 34% (medium & high-tech manufactured products 18%, resource-based manufactured products 7%, low-tech manufactured products 6% and primary products 4%), whereas the share of non-exporting sector rose up to 65% (Figure 23).

Although medium & high-tech manufactured products experienced a decrease in value along the period, it was still the highest recipient sector. Differently from primary sector, which value continually rose in this period, this group was still the lowest recipient of FDI. The value of resource-based manufactured products was close to that of low-tech manufactured products and their growths were also in the same rate (Figure 13).

Primary products

Primary products were the only group which value continually increased in this period. The value rose from B 2,133 million in 1990 to B 3,819 million in 1993 (Figure 13) or accounted for 21% annual growth (Figure 16). The sector which received most investment was mining and oil industry. However, although FDI value rose up, the share of this group was still the lowest, accounted for 11% of exporting sector and 4% of total FDI (Figure 23).

Resource-based manufactured products

FDI value of this group was accounted for B 6,614 million in 1990 before dropped by a half in 1991. However, the value increased in 1992 and 1993 and reached B 7,141 million in the last year (Figure 13). The annual growth was accounted for 3% (Figure 18) while the share was close to that of low-tech manufactured products which it is 18% of exporting sector and 7% of total FDI (Figure 23). Food industries and petroleum industries were sectors which received most FDI in this group.

Low-technology manufactured products

With the value close to that of resource-based manufactured group, FDI of this group started at B 6,430 million in 1990 and ended at B 4,117 million in 1993 (Figure 13) or accounted for 14% decrease each year (Figure 20). The share of this group also dropped to 18% of exporting sector and 6% of total FDI (Figure 23). FDI flows of textile sector in 1993 dropped noticeably for the first time since 1986, which is the time of exports and FDI boom.

Medium & High-technology manufactured products

Although it received the highest value of FDI, the value of this group dropped rapidly in 1991 and 1992 before rose up a little in 1993. The value was accounted for B 20,304 million in 1990 and ended at B 13,627 million in 1993 (Figure 13) or 12% drop each year (Figure 22). However, the share of this group rose up to 53% of exporting sector and 18% of total FDI (Figure 23). The sector which attracted most foreign direct investment was the industry sector which related to electrical appliances, machinery and vehicles.

4.1.3.4 Medium & High-Tech Manufactured Products Leader Export

Export:

The export value of medium and high-technology manufactured products increased rapidly since 1993. As a result, this group became the export leader in this period. 1994 was the first year that the value of exports exceeded B 1,000 billion,

with export value totaling B 1,137,600 million (Figure 9). In all, exports grew by around 22% from the previous year (Figure 14). Exports continued to grow at a high rate in 1995. The value of exports in 1995 accounted to B 1,406,311 million (Figure 9), up 24% from the preceding year (Figure 14). In these two years, two key supporting factors were the expansion of Thai products into the rapidly growing markets of Asia-Pacific, and the quality improvement of exports (BOT). After experiencing relatively high growth in the previous year, the Thai exports recorded a more moderate growth rate of only 0.41% in 1996 (Figure 14). With the sluggish performance of exports, the export value amounted to B 1,412,111 million, approximating to that of 1995 (Figure 9). The slowdown in growth of world trade and Asian economies, as well as import demand of major trading partners, contributed to the dampening of demand for Thai exports. Meanwhile, some export sectors, particularly agricultural sector, faced shortages of raw materials and trade barriers imposed by some markets. In addition, the competitiveness of some low-technology manufactured exports such as certain textile products, toys, and plastic products also weakened, although higher-technology and higher-value-added exports such as computers and components, electrical appliances and certain electronic equipment, and vehicles and parts continued to expand at relatively high rates (BOT). Because of eroding competitiveness, exports continued to be sluggish from 1996 until mid-1997.

In 1997, export value amounted to B 1,806,699 million (Figure 9), increasing by 28% from last year (Figure 14). This reflected a substantial growth in the second half of the year as a result of the sharp depreciation of the baht since its flotation on 2 July, which helped improve export competitiveness especially in resource-based manufactured, low-technology, medium and high-technology manufactured exports. In 1998, exports continued to be the main factor preventing the Thai economy from contracting by as much as domestic demand (BOT). Export value amounted to B 2,247,454 million (Figure 9), growing by 24% (Figure 14), reflecting mainly the increase in export performance due to the currency depreciation. However, in 1999, the total value of exports fell to B 2,215,178 million (Figure 9), decreasing by 1.44 % (Figure 14), resulting from the slowdown of the world economy and financial crises in Asian countries

which were major trading partners of Thailand. The value decline was caused mainly by the reduction in export prices following intense price competing among Thailand's major competitors whose currencies also depreciated substantially. The decline in export prices, in line with the subdued world commodity prices, and the consolidation of the baht, reflected the decrease in value in this year (BOT). Export value began to increase again in 2000 with the value of B 2,773,826 million (Figure 9), equivalent to a growth of 25% from that of 1999 (Figure 14). The growth somehow was mainly due to the increase in volume, while the prices of exports remained low (BOT). In the last two years of this period, 2001 and 2002, exports experienced the decline in growth rate which was adversely affected by the world economic slump. In 2001, export value amounted to B 2,893,178 million (Figure 9), showing an increase of only 4% from previous year (Figure 14). The reduction of export growth was observed in almost all types of goods, especially manufactured goods; of which medium and high-technology manufactured products were the hardest hit, with only 2% growth (Figure 21). The growth of exports dropped down further in 2002 with the increase of total exports only about 2% (Figure 14) and the export value in this year amounted to B 2,952,067 million (Figure 9). However, export sector which showed most favorable prospect was medium and high-technology manufactured products, with the growth of about 4% (Figure 21). In this period, the major export products of the country were computers and components, IC's, textile and garment, electrical appliances, and canned food.

Primary Products

Export value of primary products amounted to B 141,478 million in 1994 (Figure 11), the beginning year of this period, accounted for 19% increase from that of 1993 (Figure 15). It ended this period with the value B 230,035 million (Figure 11), only about 6% increasing each year (Figure 15). However, this group experienced a little decline in 1996, decreasing by 2% from the previous year, and a sharp drop in 1999 and 2002, falling by 12% and 6% respectively, compared to that of 1998 and 2001 (Figure 15). Along the period, the increase in value was due to the increase in world prices of many primary products such as rice and frozen poultry. In the same way, the decrease in 1996, 1999, and 2002 was mainly because of the decline in export prices.

In addition, the shortage of supply of shrimp and prawn was the major reason for the decline in value of this product (BOT). The share of this group in total exports was about 10% (Figure 23), showing downward trend. The principal exports of this group were rice, frozen shrimp and prawn, and frozen poultry, which accounted for about 32%, 26%, and 7% respectively.

Resource-based Manufactured Products

Although resource-based manufactured products were affected by the agricultural price reduction in some years, export value of this group showed a continual increase along the period. In 1994, the value of this group was B 236,920 million (Figure 11), increasing by 17% from that of 1993 (Figure 17). The export value of this group reached B 575,254 million in 2002 (Figure 11), accounted for a growth of 12% each year (Figure 17). Exports of resource-based manufactured products benefited from increased supply of domestic raw material, and the strategy to shift towards exporting to compensate for the decline in domestic demand (BOT). Notwithstanding, the share of this group slightly dropped to 20% (Figure 23). The major export goods of this group were canned food, rubber, precious stones and jewelry, and sugar, which were accounted for 20%, 15%, 14%, and 7% respectively.

Low-technology Manufactured Products

After exports of this group perpetually increased and it was the leader export in last period, it ranked the second in this period (Figure 11). The export value of this group in 1994 was started by B 344,733 million (Figure 11), an increase of 13% from last year (Figure 19), before ended this period in 2002 by B 682,482 million (Figure 11), or accounted for 9% increase each year (Figure 19). The export value of this group faced with a sharp drop in 1996, about 18% drop from that of 1995 and a little decline again in 1999, about 3% fall compared with that of 1998 (Figure 19). From TDRI research, labor-intensive exports, such as textile and garment and footwear, experienced sharp contraction. This indicated that Thailand had lost competitiveness in this sector on account of rising labor costs and increasing competition from lower-waged countries such as China, Vietnam, and Indonesia (TDRI). The share of this group

in total exports dropped down to 25%. The principal export products of this group were textile and garment and plastic products which were accounted for 37% and 14% share of their group.

Medium and High-technology Manufactured Products

Manufactured exports which experienced a sharp increase were the medium and high-technology products. Export using higher technology performed particularly well in this time and so became the export leader (Figure 11). This export group experienced an increase in value along the period. The export value of this group in 1994 was about B 403,939 million (Figure 11), an increase of 35% from that of 1993 (Figure 21). By the end of this period, the value reached B 1,366,998 million (Figure 11), accounted for 16% increase each year (Figure 21). The share in total exports of this group was accounted for about 42% (Figure 23). High-technology exports recording brisk growth were computers and components, IC's, electrical appliances, and vehicles and parts, which accounted for 33%, 26%, 18%, and 6% share of their group, respectively.

Foreign Direct Investment:

After experienced a drop in 1993, FDI value declined again in 1994, 1999, and 2002. Starting at 1994 with the total value B 61,599 million (Figure 10), it decreased from 1993 about 8% (Figure 14). At the end of this period, the value reached B 319,436 million (Figure 10), accounted for 23% increase each year (Figure 14). For exporting sector, FDI value rose from B 27,232 million in 1994 to B 94,581 million in 2002 (Figure 12) or 17% annual growth. On the other hand, FDI value of non-exporting sector increased from B 34,367 million in 1994 to B 224,856 million in 2002 (Figure 12) accounted for 26% average growth. In this period, there are four years that the value of exporting sector exceeds that of non-exporting sector which are 1998 to 2001. Considering the FDI share in this period, the share of exporting sector was accounted for 49%, closed to that of non-exporting sector which is 51%. For exporting sector, medium & high-tech manufactured products received most share accounted for 28%,

followed by low-tech manufactured products 9%, resource-based manufactured products 7%, and primary products 5% (Figure 23).

In this period, medium & high-technology manufactured products were still the highest recipient of FDI which continued from last period. On the other hand, primary products were also the sector which received least FDI continued from last period. Low-tech manufactured products, in this period, showed more clearly to be the second of FDI recipient while resource-based manufactured products, although had some growths, the value was still less than that of low-tech manufactured products (Figure 13).

Primary products

FDI of this group still dropped in 1994 and 1995 with the value B 2,552 million and B 1,927 million respectively (Figure 13). The value fluctuated along the period before ended in 2002 at B 9,070 million (Figure 13), accounted for 17% annual growth (Figure 16). FDI of this group reached the peak in 2001 with the value B 85,852 million (Figure 13). This dramatically increase was mainly due to the high investment in oil exploration in this year. However, the share of this group was still the lowest with 10% of exporting sector and 5% of total FDI (Figure 23).

Resource-based manufactured products

The value movement of this group was somewhat like that of primary products. In 1994, the value dropped from last year to B 5,525 million and continually declined in 1995. Three years later, it increased and reached the highest in 1998 with the value B 25,010 million. After that, it decreased and made a new high again in 2001 at B 37,378 million before dropped in the last year to B 7,701 million (Figure 13). The new high in 2001 was mainly due to investment in petroleum products. The growth of this group was accounted for 4% (Figure 18) and the share of this group was accounted for 15% of exporting sector and 7% of total FDI (Figure 23).

Low-technology manufactured products

FDI value of this group increased from B 5,743 million in 1994, reached the highest at B 32,639 million in 1998 before dropped to B 19,141 million in 2002 (Figure 13), accounted for 16% annual growth (Figure 20). In 1998, the investment in textile and metal industries rose back at a high rate again, helped the value increased in this year. The share of this group ranked the second with 18% of exporting sector and 9% of total FDI (Figure 23).

Medium & High-technology manufactured products

In 1994, FDI value was accounted for B 13,412 million, dropped a little from that of 1993. However, from 1995 to 2001, it continually increased until the value dropped again to B 58,668 million in 2002 (Figure 13), accounted for 20% growth (Figure 22). The value of this group reached the highest in 2001 with the value B 115,029 million (Figure 13). The sector which received most investment was electrical appliances. Considering the share of this group, it received the highest share with 58% of exporting sector and 28% of total FDI (Figure 23).

4.1.4 Summary of Qualitative Analysis

Since Thailand changed its policy from the import substitution to export promotion in the 3rd National Economic Development Plan, beginning in 1972, its export has experienced with a steady growth. Considering the export value in 1972, it was only about twenty thousand million baht, but at the ending year of the study, 2002, the export value stood at three thousand billion baht, or about a hundred fold increase. This incidence affirms the success of many policies that government has issued such as financial support policies and the creation of special areas, for example, General Industrial Zones (GIZ) and Export Processing Zones (EPZ).

On the other hand, FDI continually flew into Thailand in line with the rise of exports. It rose from about one hundred million baht in 1972 to about three hundred thousand million in 2002. However, it is not before the second half of the 1980s that FDI showed a substantial increase, especially in 1988 and 1989. It still went up in 2 years

after, before dropping down in the early of 1990s, caused by the political unrest which affected foreign investor confidence. Although declining for 3 or 4 years, it increased again in 1997, with the depreciation of the country's currency, and this time, it increased with a dramatically high value.

In the four-period of the study, it consists of the rise and fall of each export group. In the first period, most part of the country's export relied on two sectors which are primary and resource-based. While primary products played more important role and accounted to have the highest in value, it seems that this sector can no longer maintain its export position. Manufactured products became more interesting, especially for resource-based manufactured products which grew up rapidly in this period. For low-tech and medium and high-tech, although they were accounted for only a small value in this time, some products showed a high export value, such as textile and garment which increased significantly in value to be the fifth in top ten export chart. When considering FDI in this time, the sectors which received most shares of FDI were both low-tech and medium and high-tech manufactured. Surprisingly, for primary product, it seems to be the least recipient of FDI in this period. However, FDI in this period was quite volatile, for example, low-tech, which received the highest FDI until 1977, dropped down in value rapidly since 1978, and after that, medium and high-tech rose up sharply. Noticeably, products which received most FDI in this period were textile and garment, electrical appliances and chemical products, which are grouped in low-tech and med and high-tech, respectively.

In the second period, the export value of primary product increased only a little relative to other sectors, especially for that of resource-based manufactured product which increased at a high rate. Considering other groups, for low-tech manufactured product, the value of this group also increased continually but there is some interesting point, while other sectors have many principal export items, for low-tech, it was only textile and garment which is the major item for this group, showing a significantly increase in value since 1984. For medium and high-tech, the export value of this group was the lowest compared with others. However, when considering FDI in this period, the result is inverse. Although every group experienced a continual inflows of

FDI, since 1985, medium and high-tech received the highest with the standing out value. Most part of FDI flow into the investment in electrical appliances. The second recipient of FDI is low-tech manufactured product. Almost all FDI of this sector flow to textile and garment. However, the outstanding inflow of this group was not shown until the second half of the 1980s.

After showing a steady increase for many years, in the third period, low-tech manufactured exports turned out to be the leader, with textile and garment led their group to be the major export in this time. However, medium and high-tech manufactured sector was the most fascinating group, with the favorable increase in export value and the rapid expansion of FDI, although most FDI faced with a severely decline in the early 1990s.

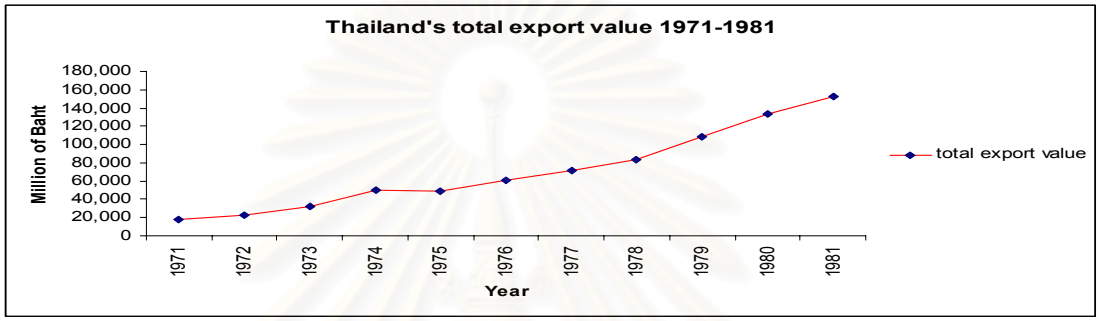
In the last period, medium and high-tech manufactured product experienced a sharp increase, although the country's economy faced with the depression in 1996. Export using higher technology performed particularly well in this time and so became the export leader. This rapid expansion mirrored successful developments of new manufactured export items which generally have higher value added than the traditional manufactured items. Moreover, medium and high-tech was still the highest recipient of FDI in this period whereas FDI of other sectors increased only with a low rate and quite volatile.

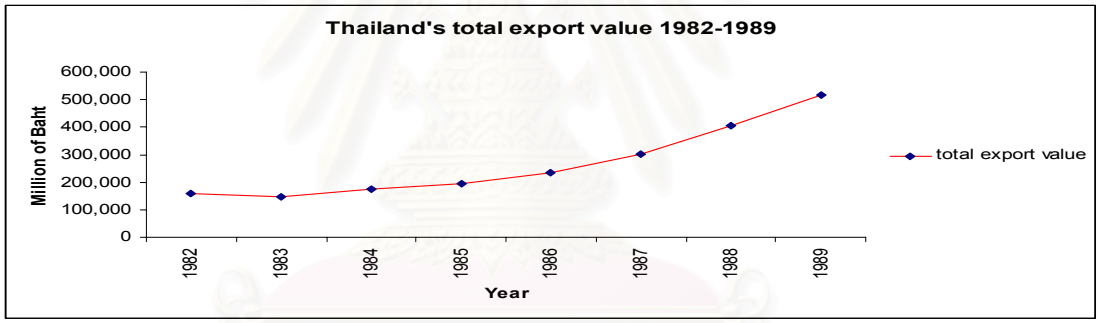
So, it is only part true that Thailand's export successes are completely attributable to the FDI boom. As Akrasanee e.a. (1991) have rightly pointed out the investment boom did not precede the accelerating export growth, taking due account of the usual start-up periods. The first signs of export breakthrough could be observed as soon as 1985, whereas investments took off only in 1987, resulting in a substantial inflow of FDI in 1988 and therefore probably pushing up exports not before 1988. Hence, the first of the more recent export successes was achieved mainly with domestic capital and was partly induced by excess capacities of protected industries. This excess capacity effect was the combined result of investment policies and import protection (Akrasanee, 1991), and its effect has probably been strengthened by anticipating behavior of

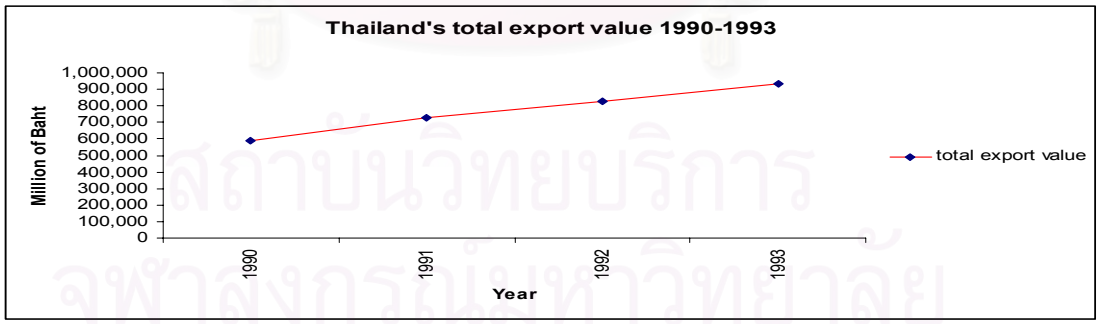
companies faced with capacity controls by the Ministry of Commerce (Herderschee, 1993).

The above argument evidently does not imply that inward FDI has not been extremely important in strengthening Thailand's export capacity. Although FDI at first did not precede the development of Thailand's exports, there is a remarkable association in time between both and causality between FDI and exports can, therefore, be assumed. This in turn implies that export growth and industry performance are at least partly dependent on the source of investment.

Figure 9: Thailand's Total Export Value







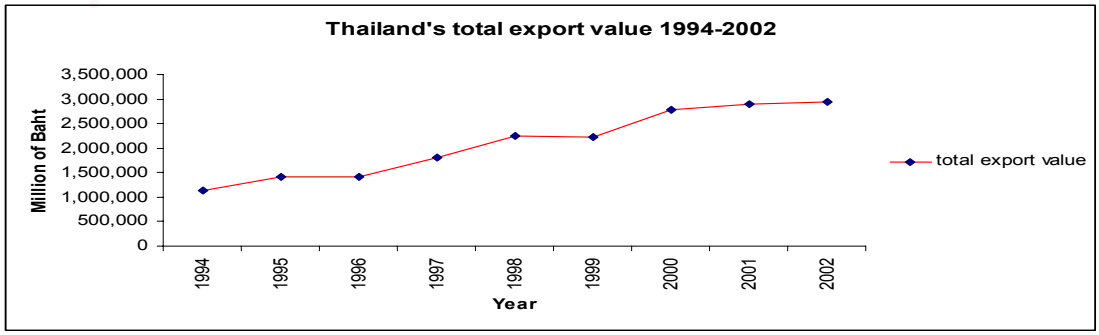
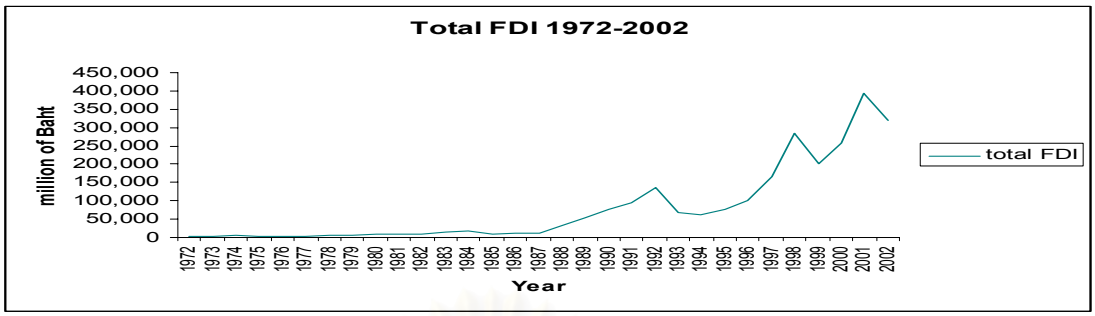
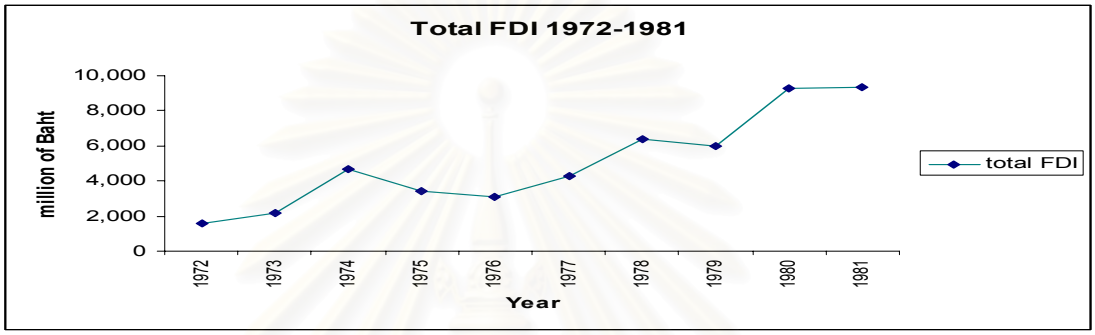
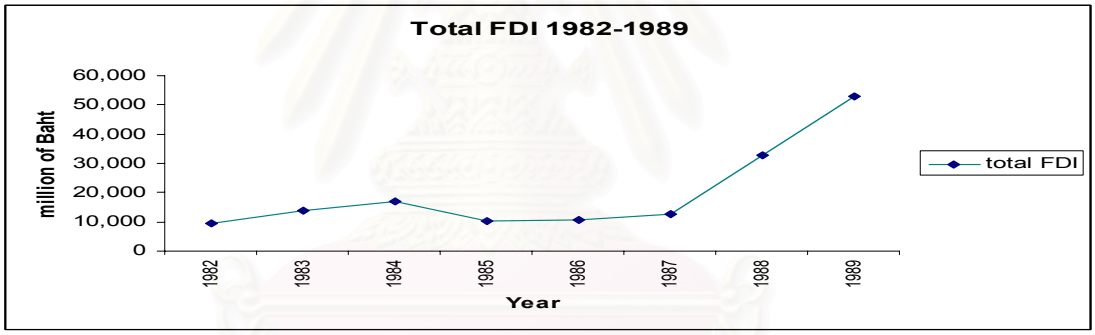
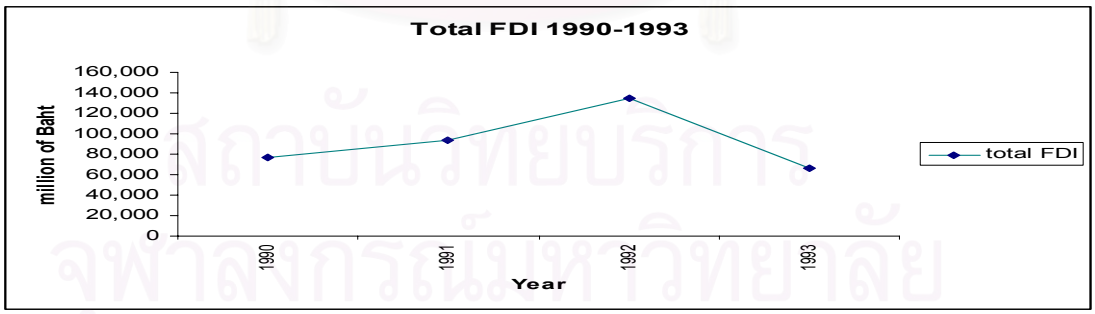


Figure 10: Thailand's Total FDI









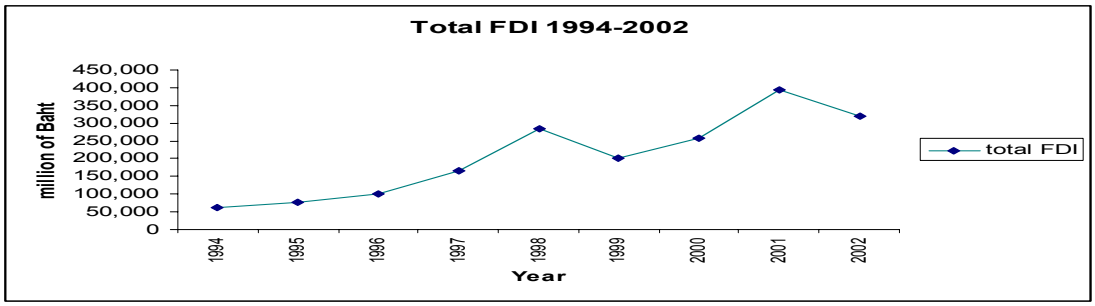
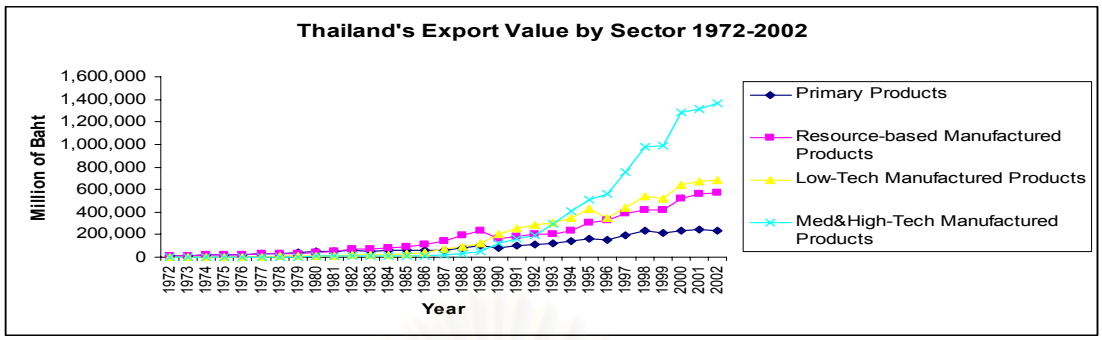
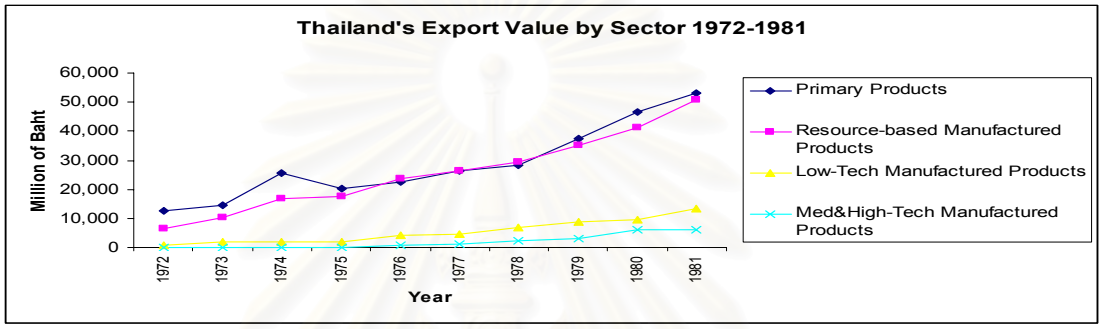
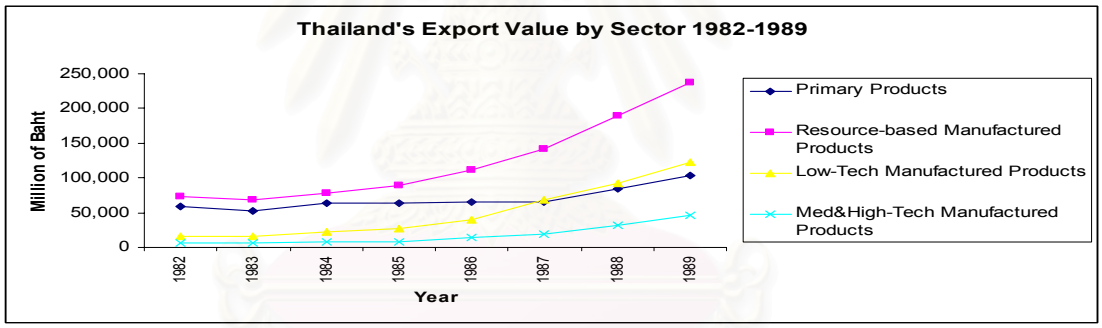
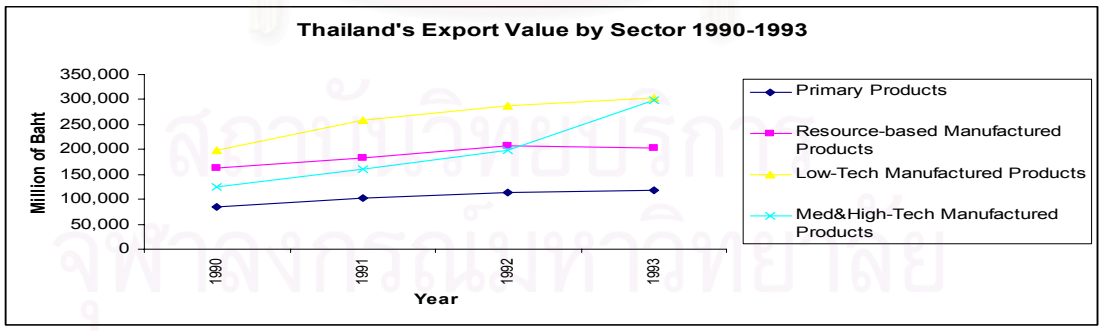


Figure 11: Thailand's Export Value by Sector









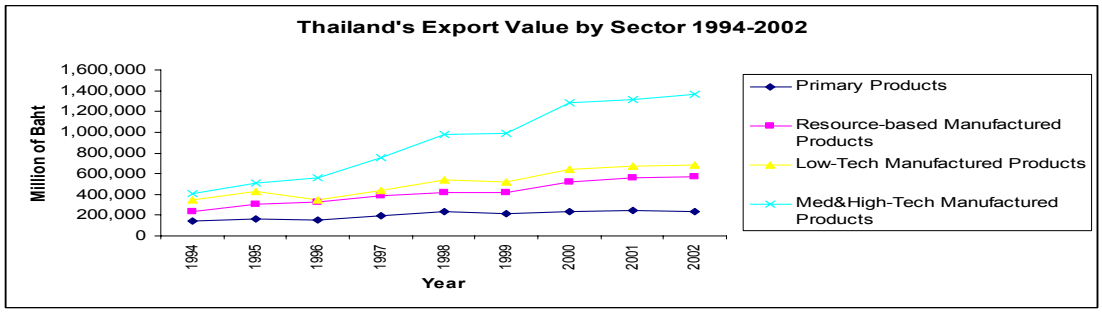
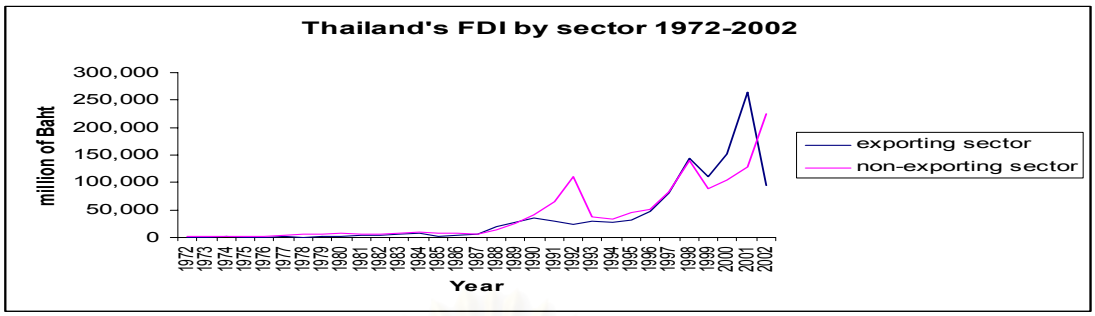
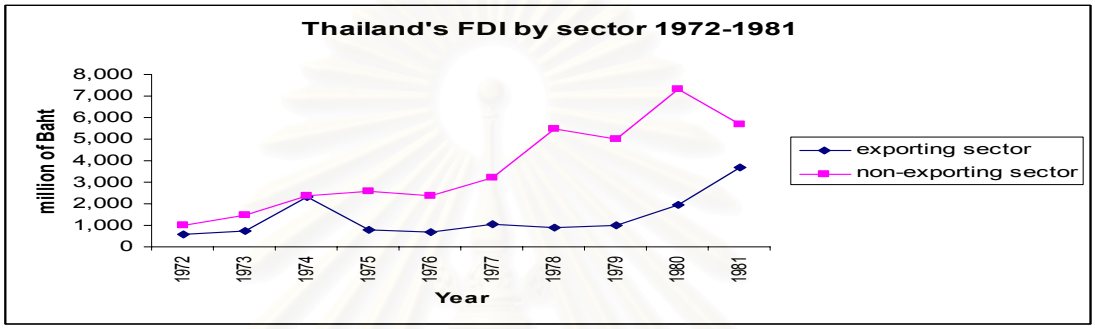
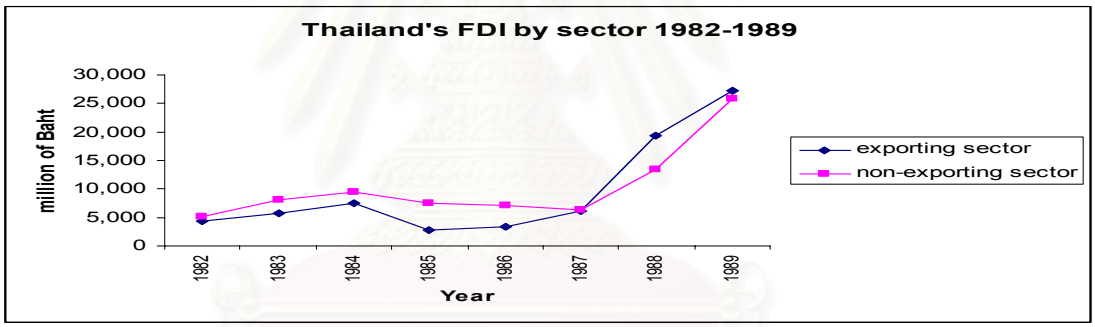
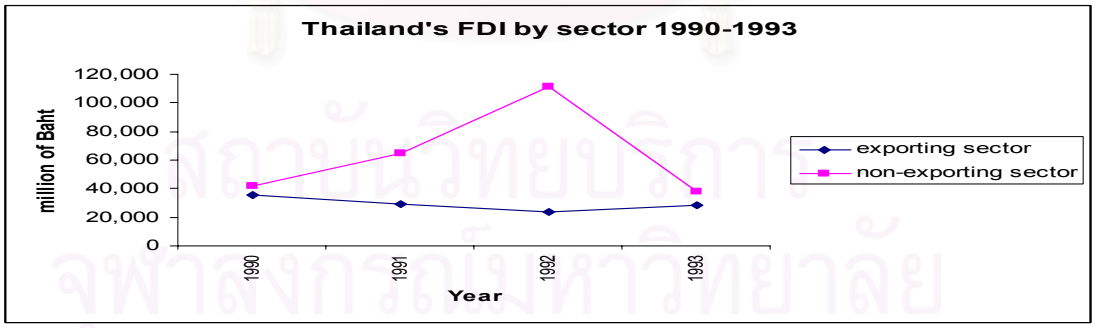


Figure 12: Thailand's FDI by Sector









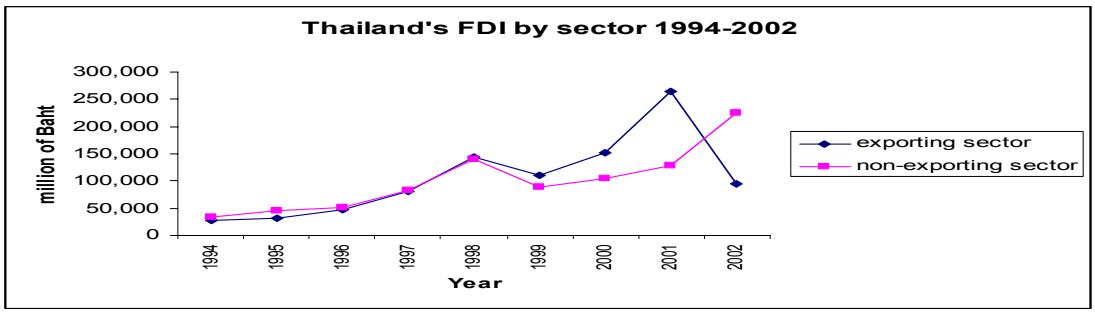
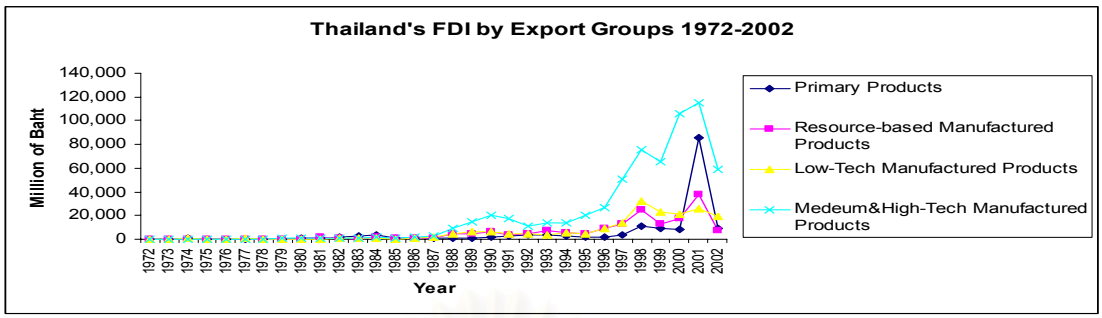
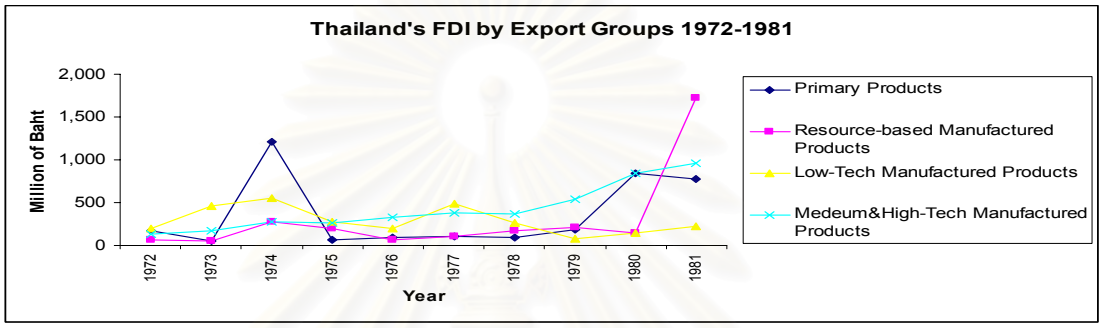
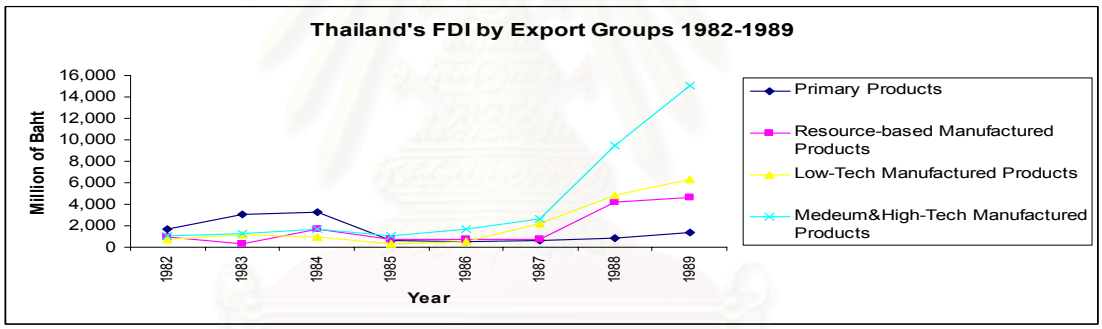
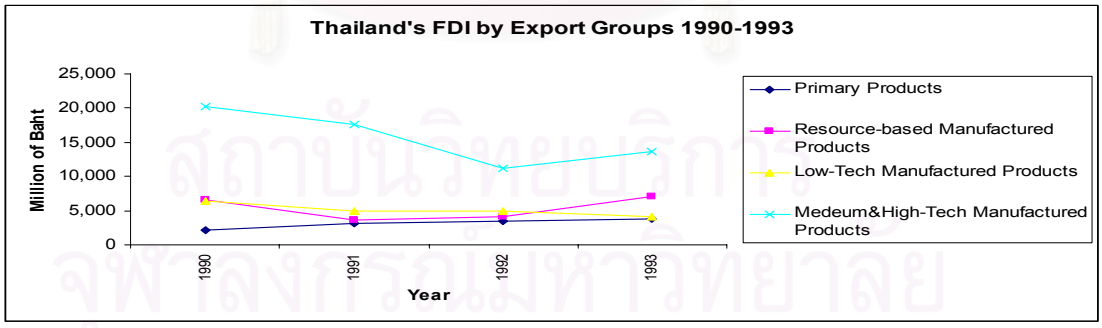


Figure 13: Thailand's FDI by Export Groups









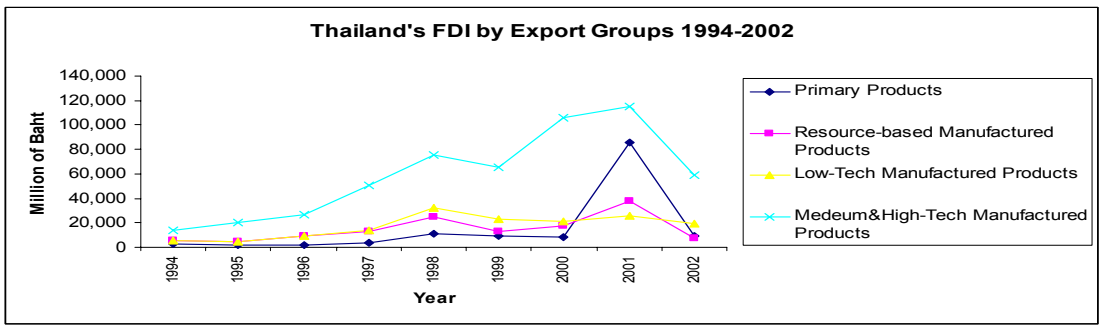
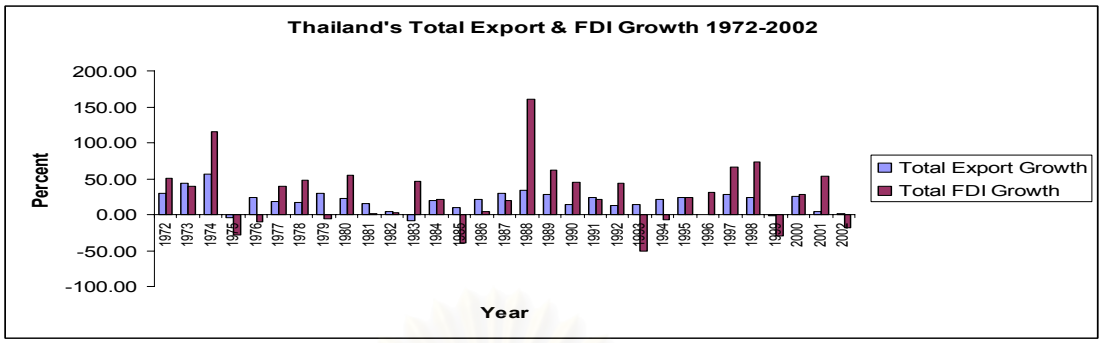
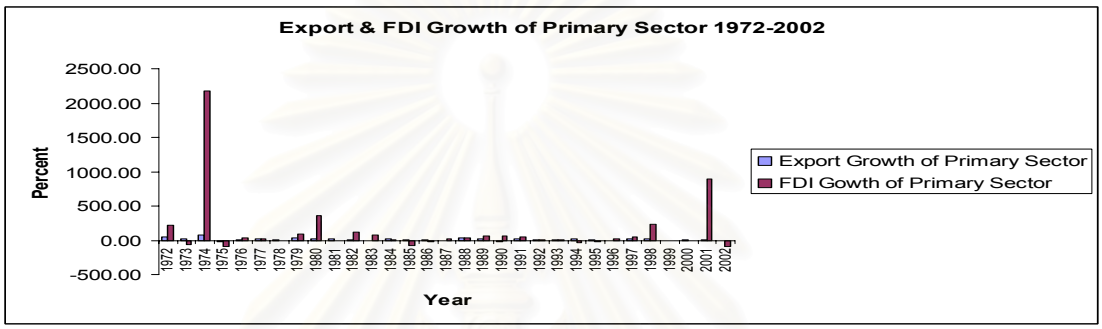
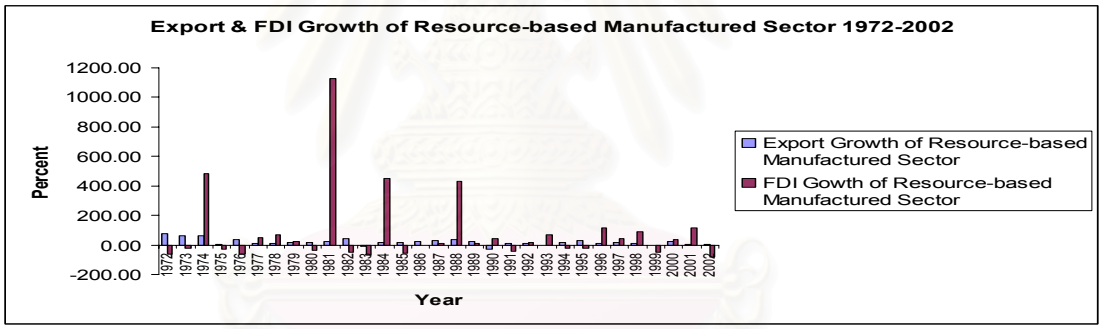
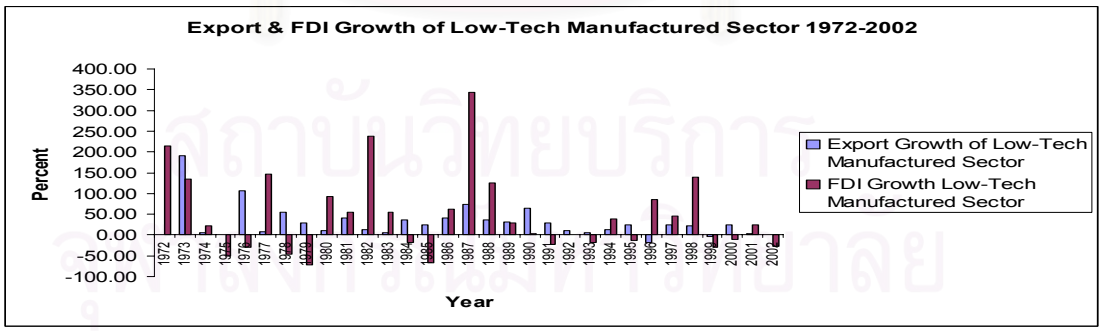


Figure 14: Comparison of Export and FDI Growth









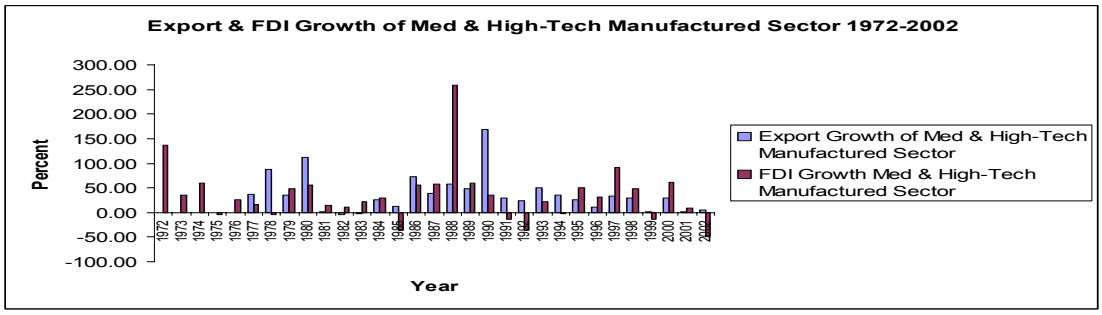
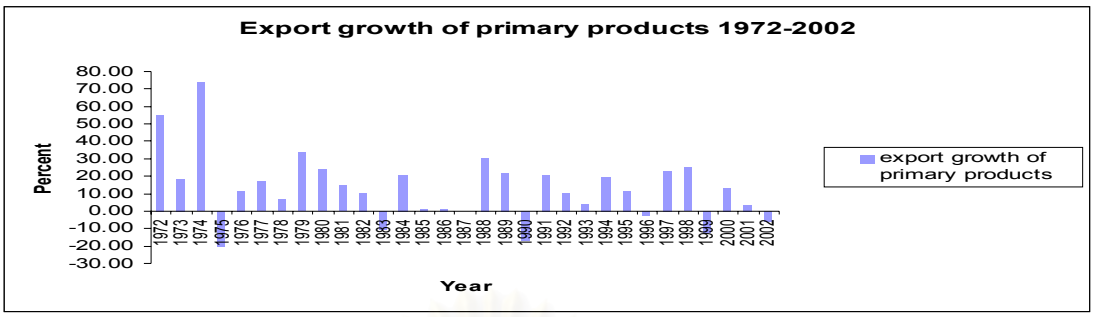
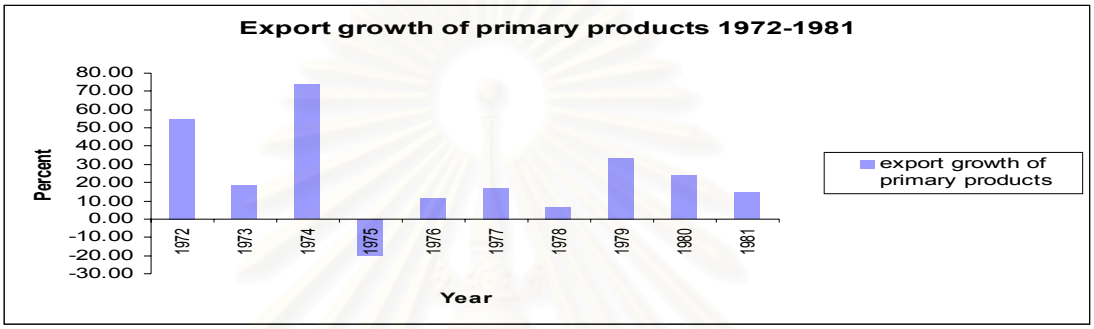
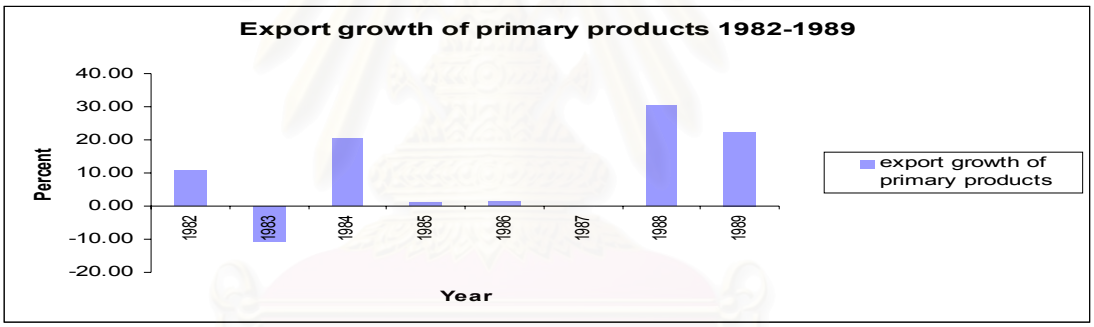
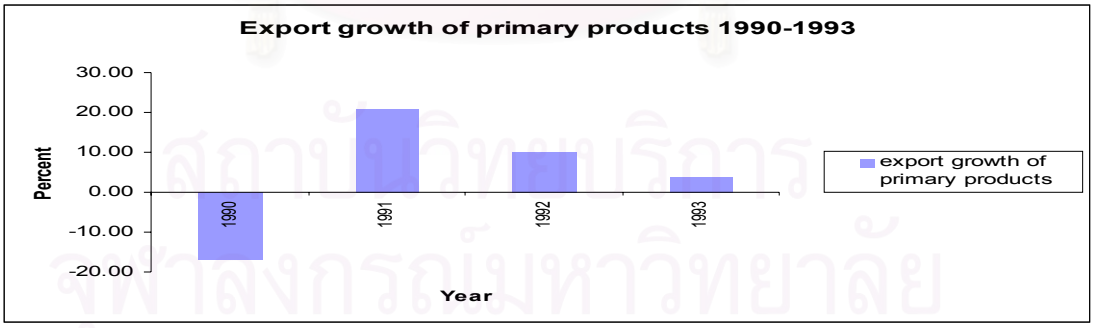


Figure 15: Export Growth of Primary Products









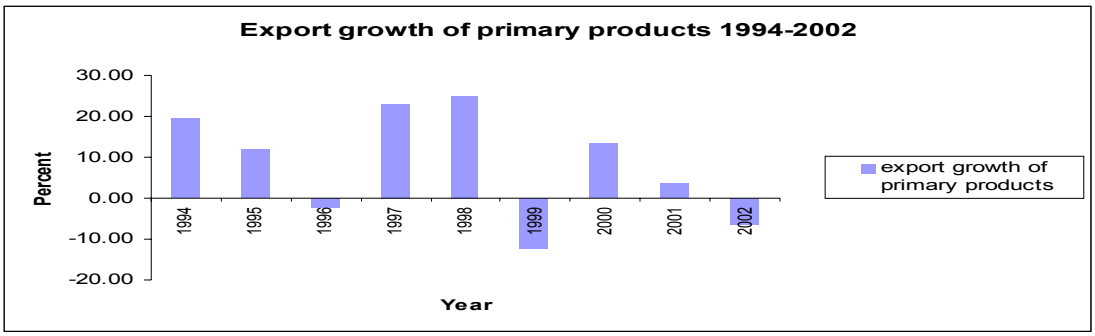
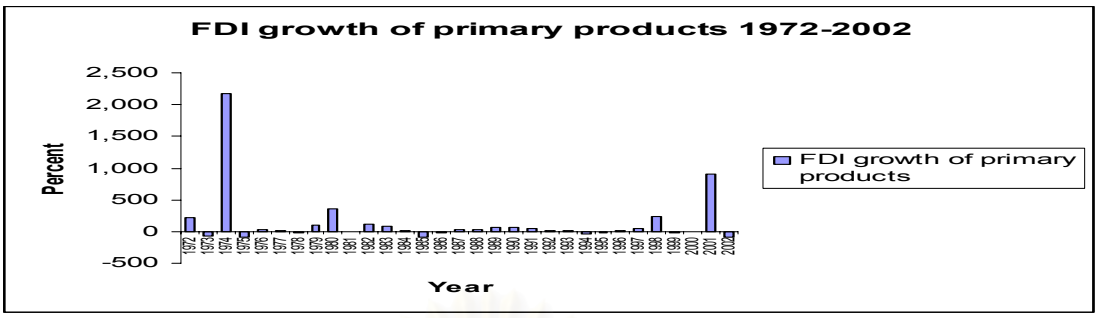
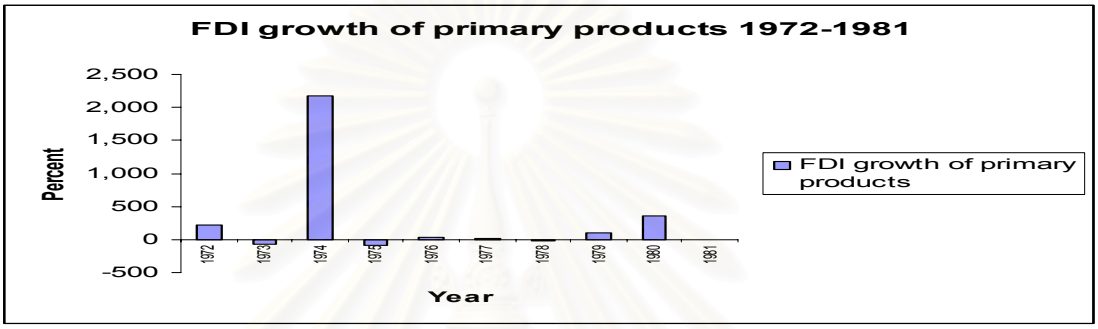
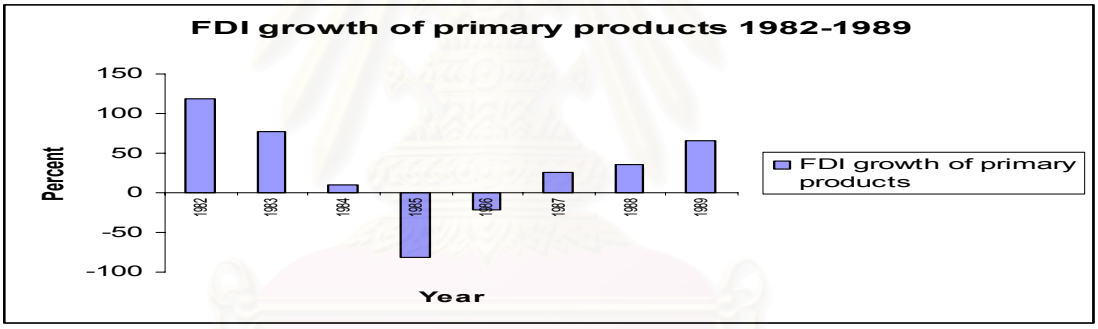
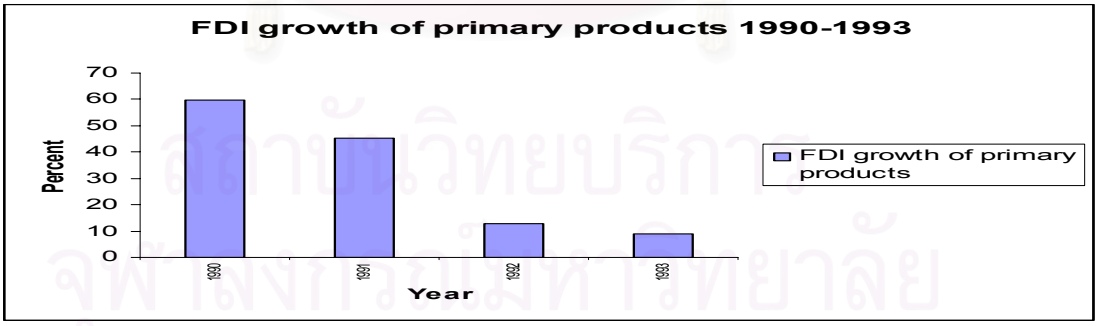


Figure 16: FDI Growth of Primary Products









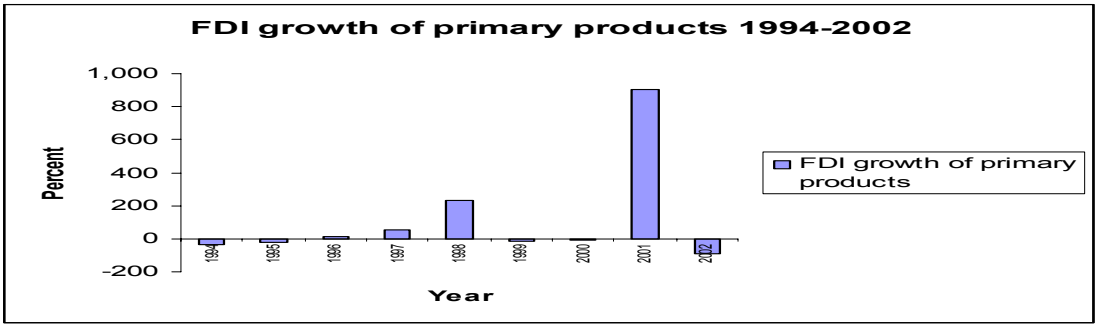
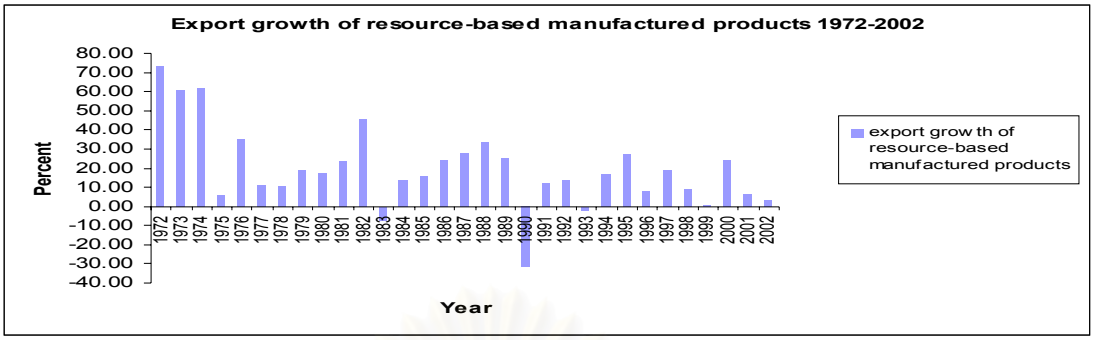
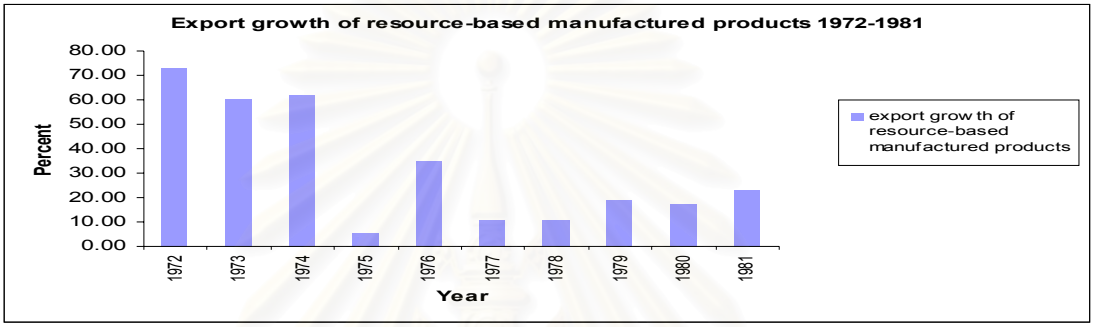
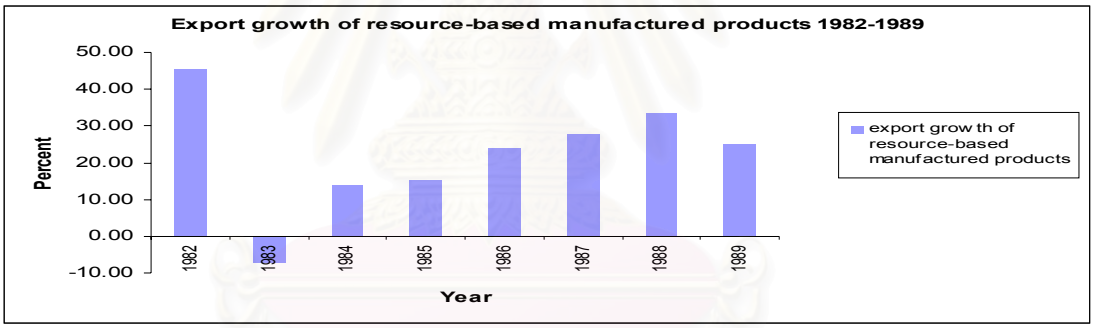
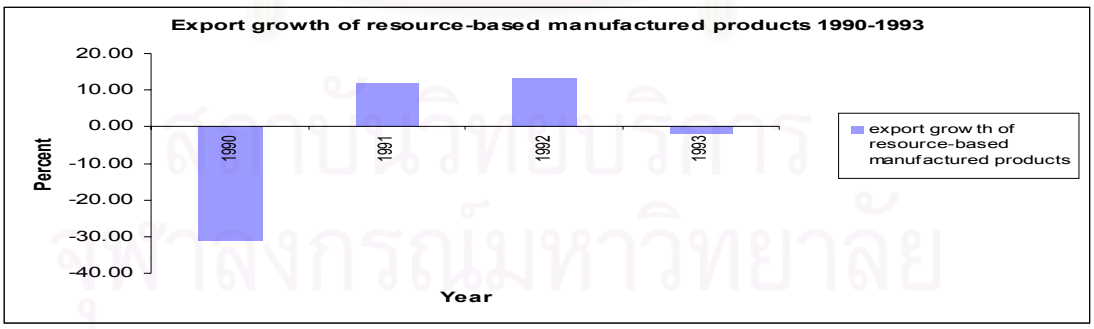


Figure 17: Export Growth of Resource-based Manufactured Products









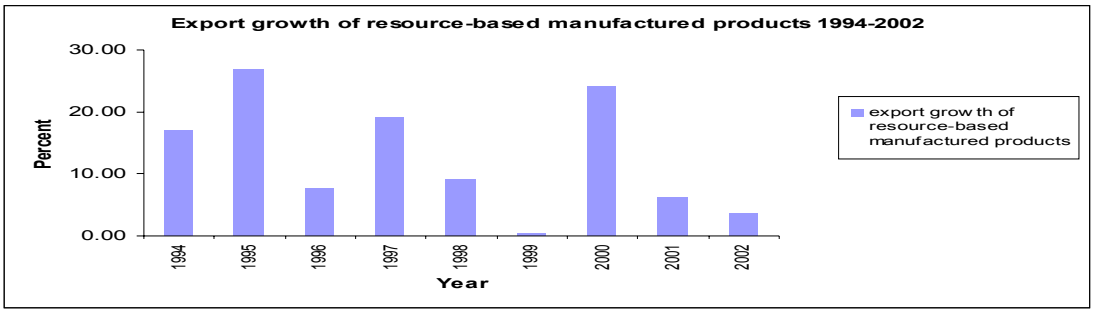
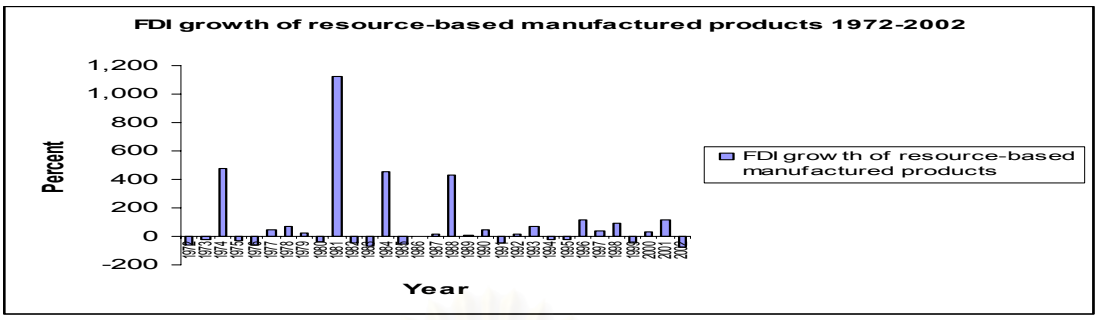
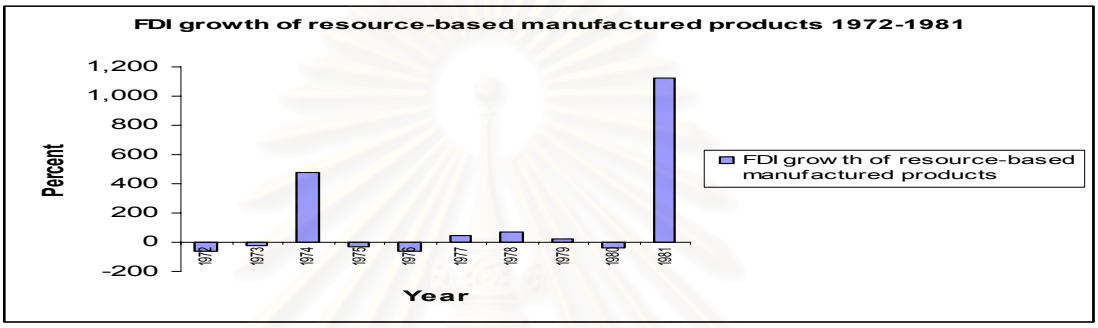
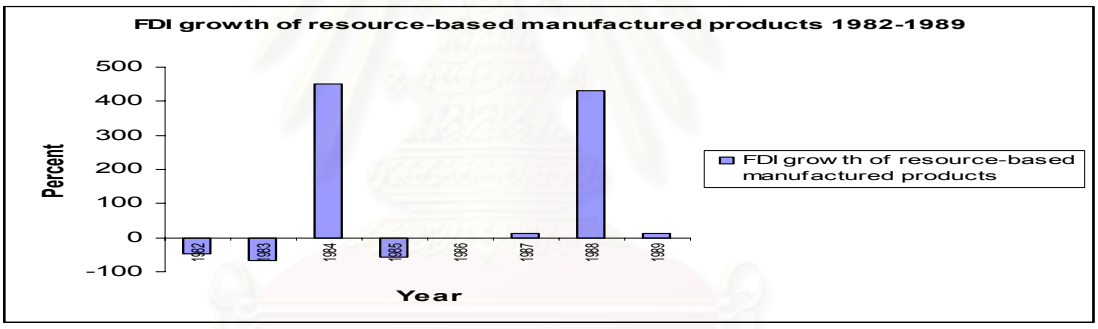
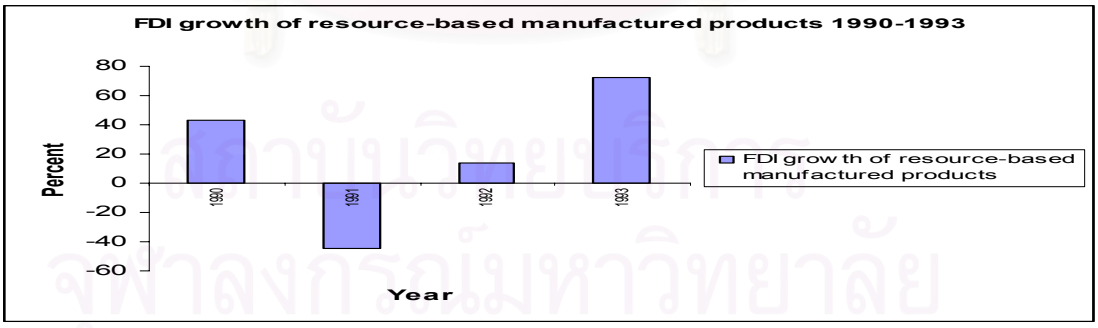


Figure 18: FDI Growth of Resource-based Manufactured Products









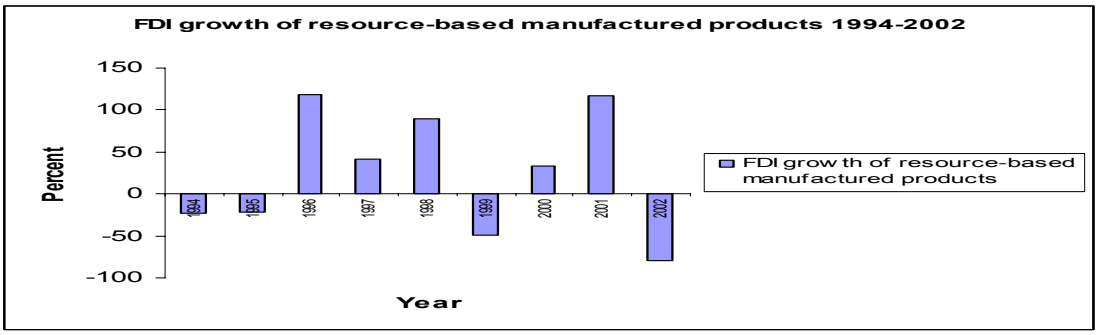
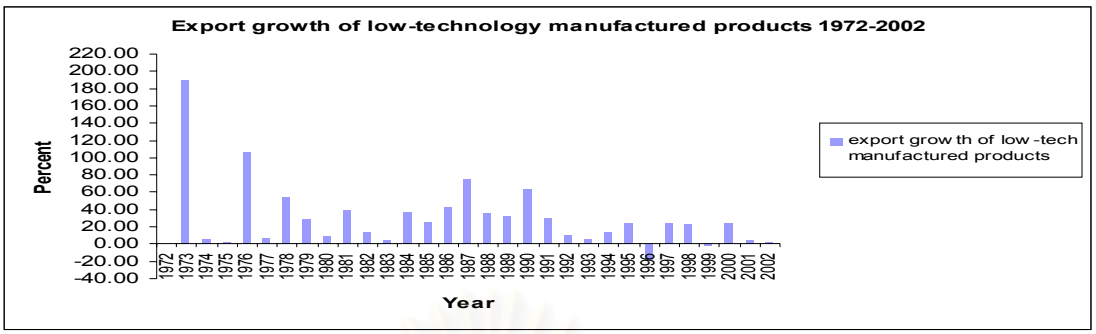
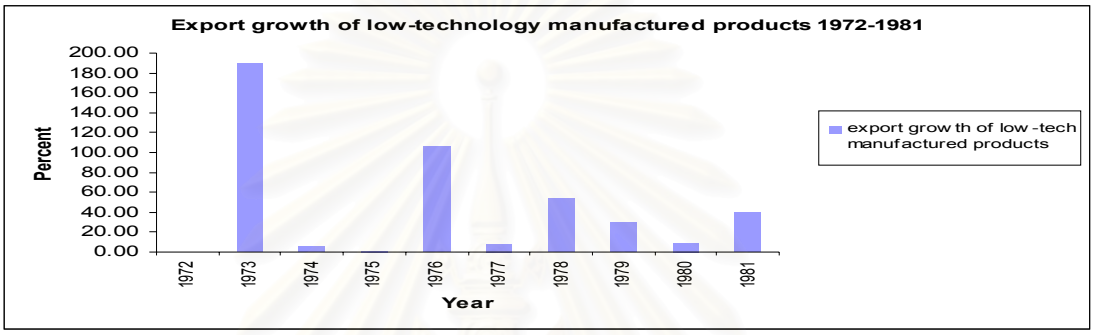
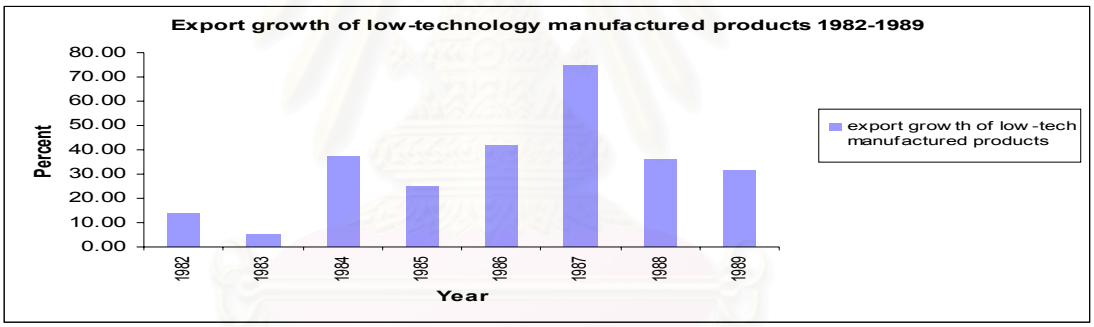
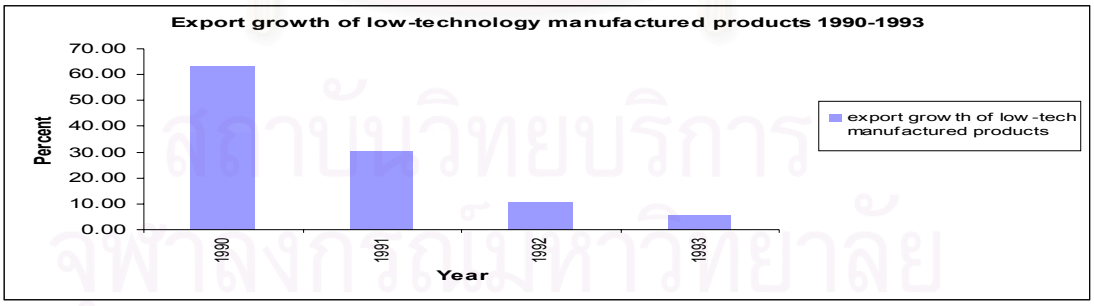


Figure 19: Export Growth of Low-Technology Manufactured Products









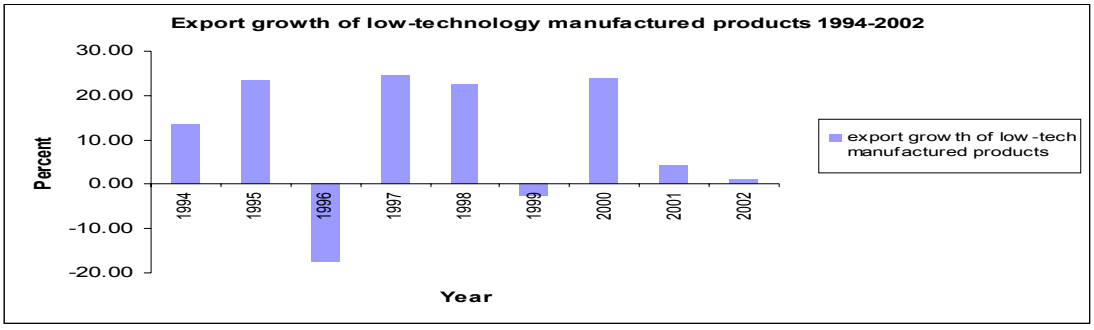
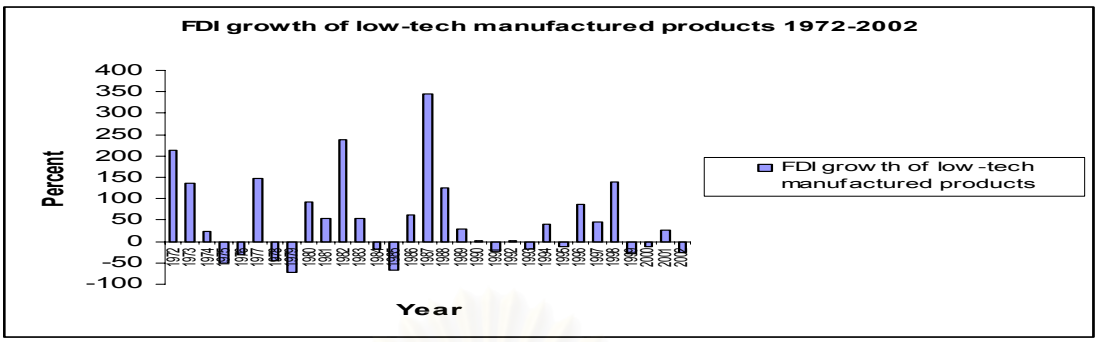
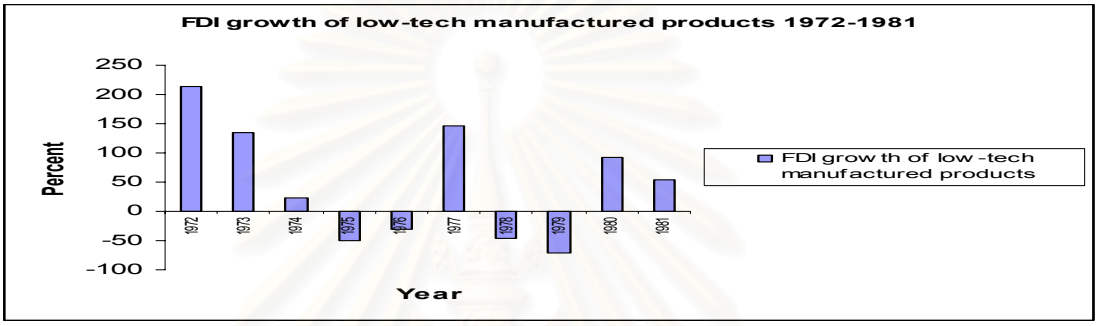
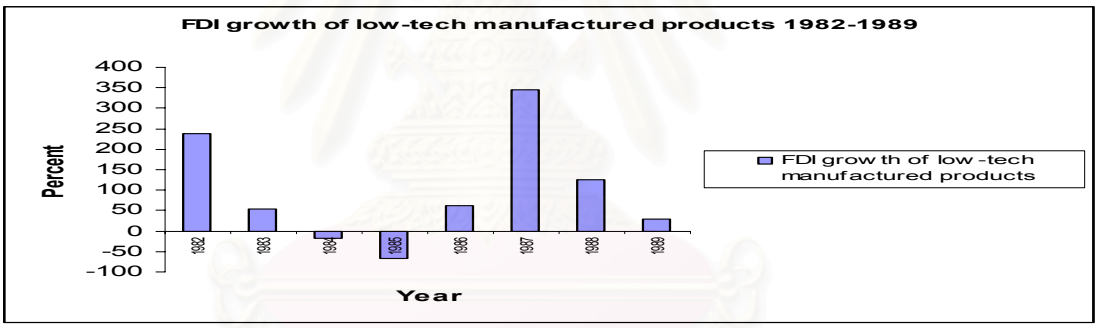
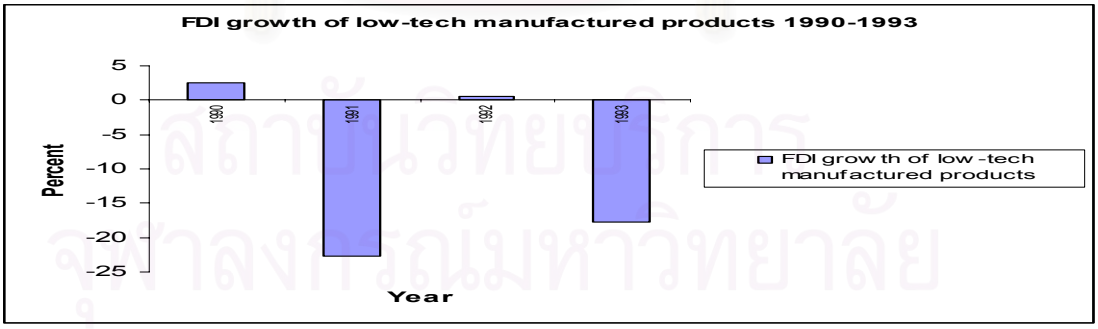


Figure 20: FDI Growth of Low-Technology Manufactured Products









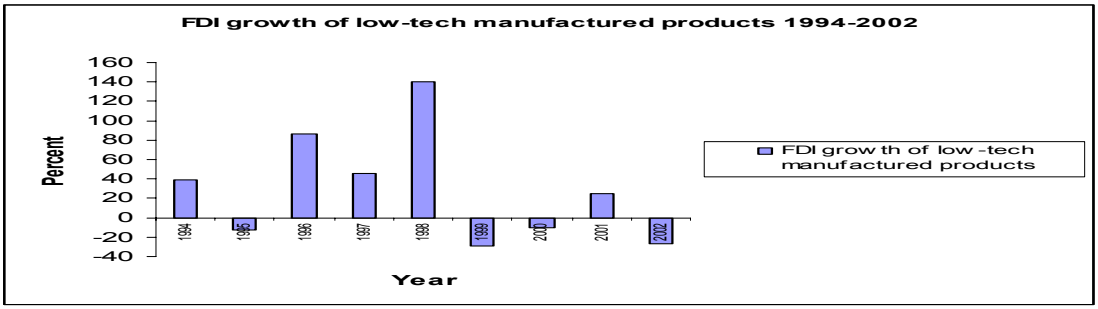
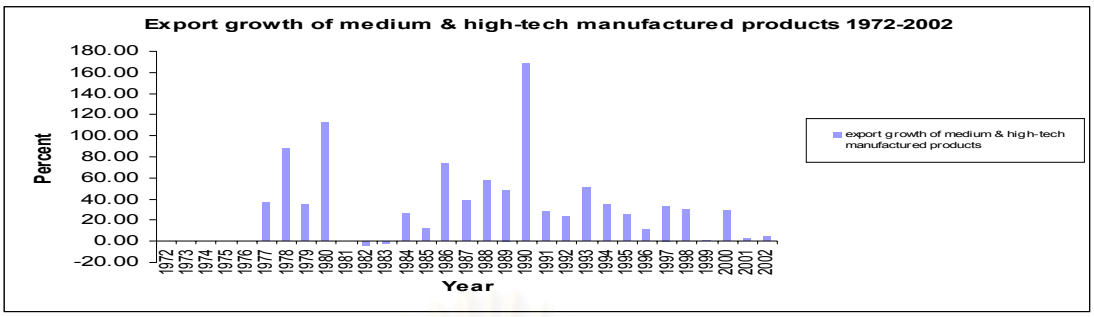
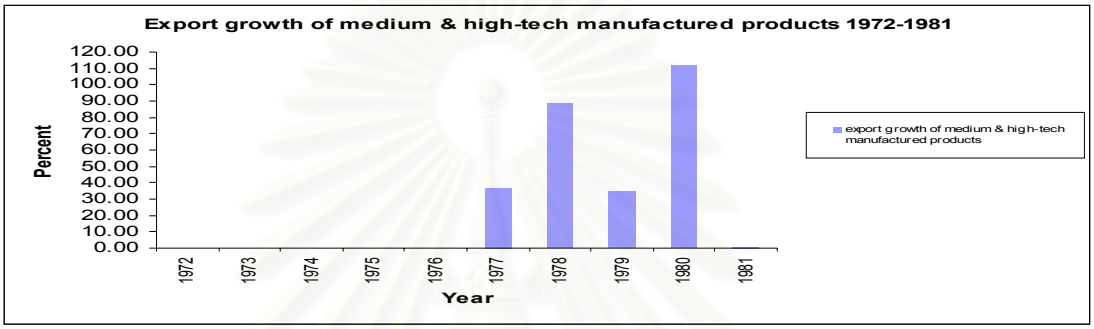
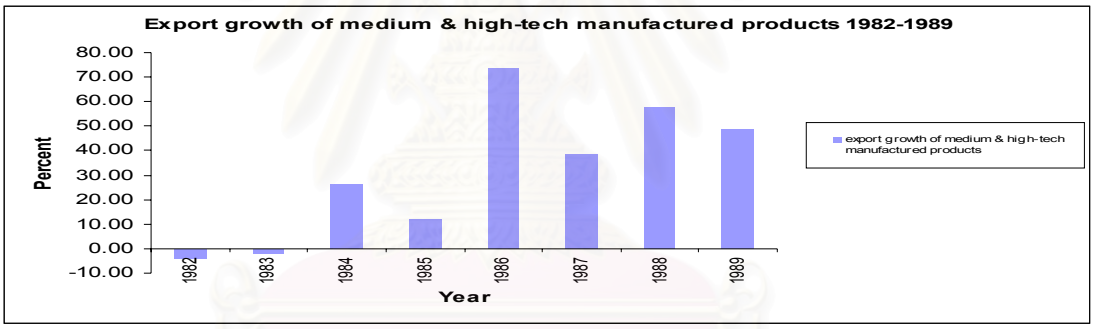
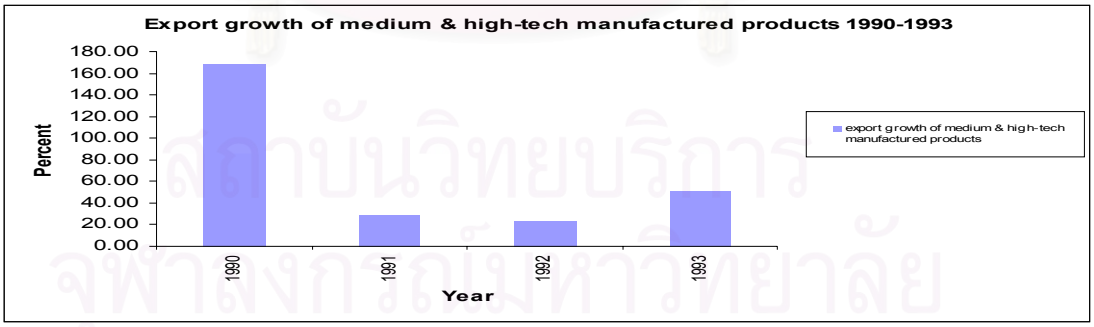


Figure 21: Export Growth of Medium and High-Technology Manufactured Products









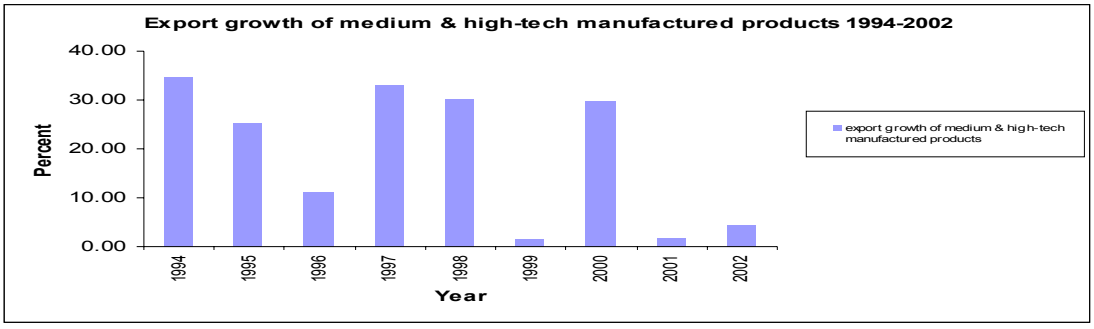
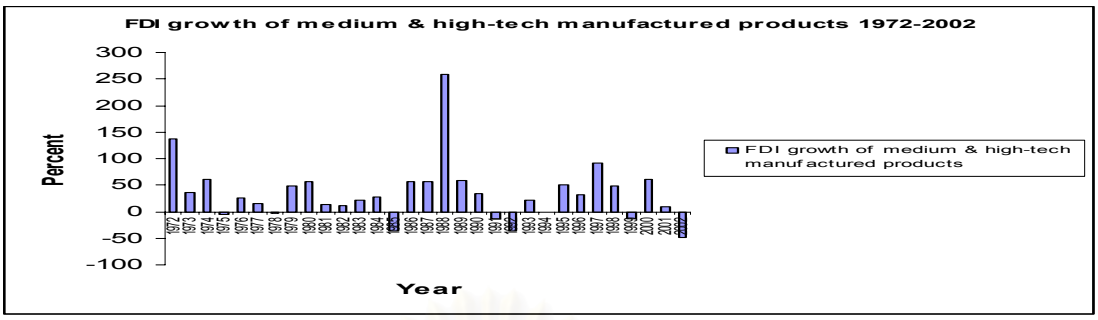
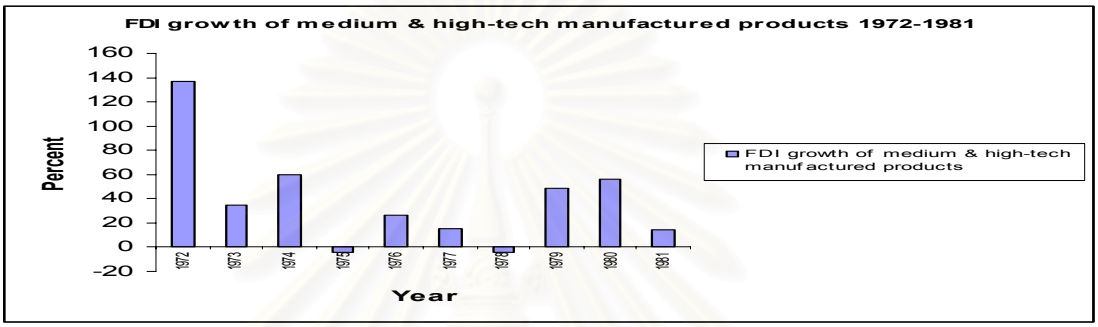
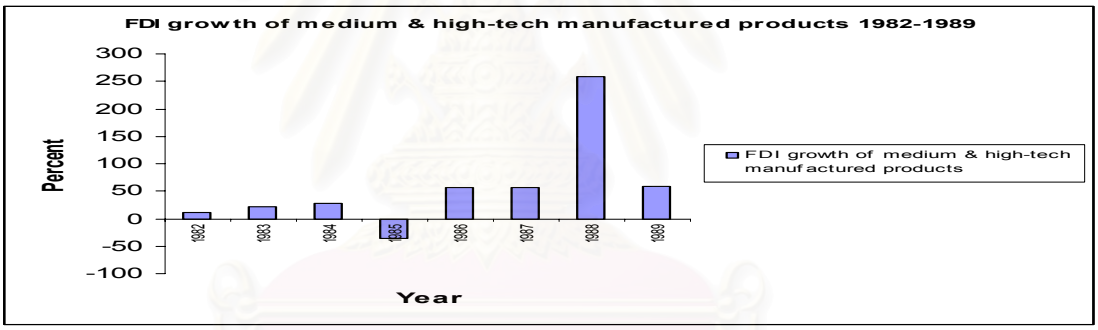
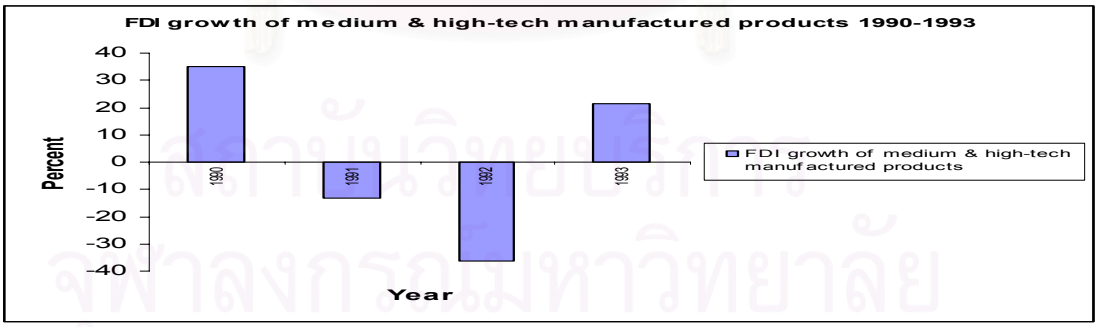


Figure 22: FDI Growth of Medium and High-Technology Manufactured Products









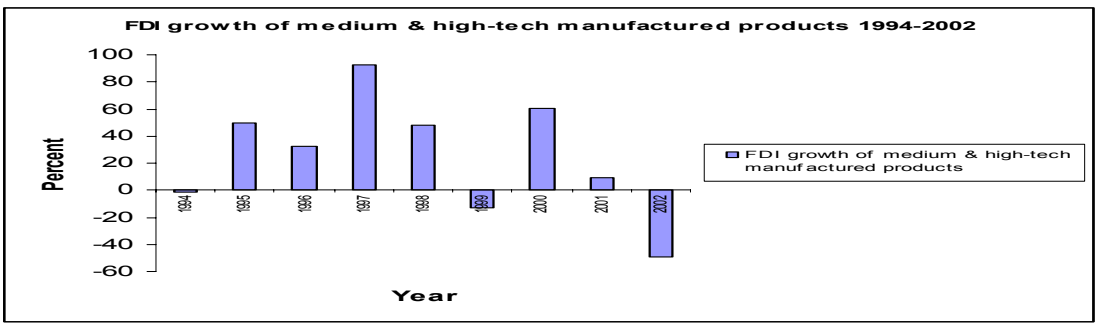
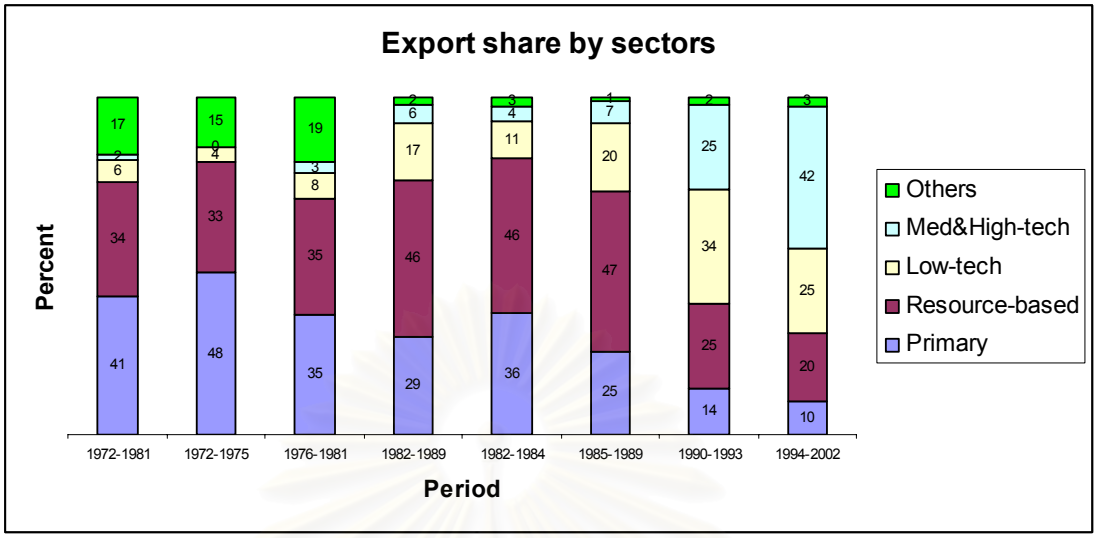
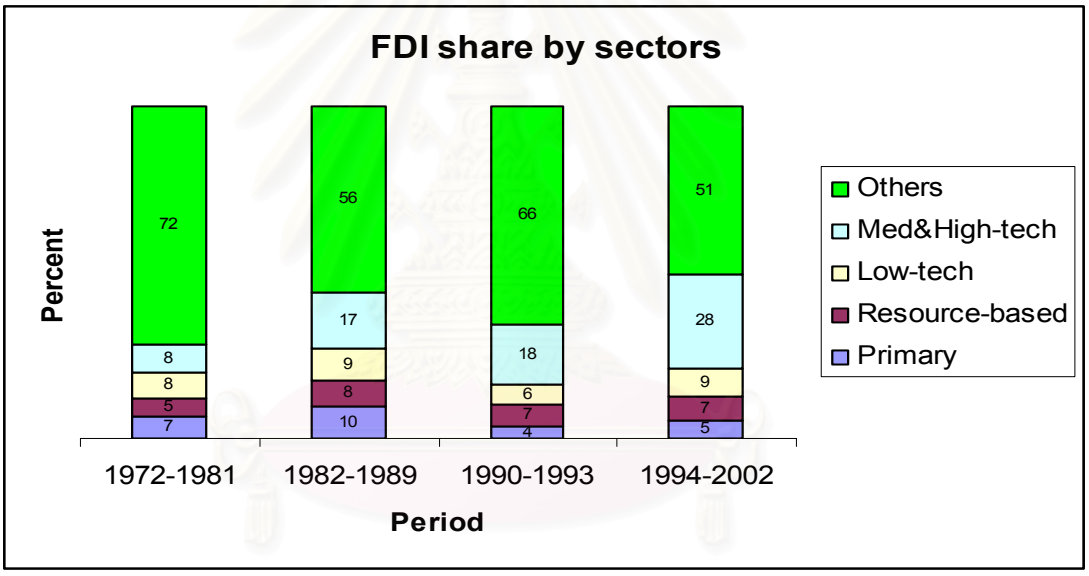


Figure 23: Export & FDI Share By Sectors





4.2 Empirical Results

4.2.1 Unit Root Test

In the first step, the unit root test must be applied to check the stationary of the data because if variables which are used to analyzed follow random walk, a regression of one against another can lead to spurious results. Only first-differencing will yield stationary series so in this work Augmented-Dickey-Fuller (ADF) test, the widely accepted procedure, is used to test them. It is found that all variables, which are export (EX), world commodity price (P), world GDP (Y*), exchange rate (ER) and foreign direct investment (FDI), have the same order of integration I(d) which is I(1), statistically significant at 1% level. Both world commodity price and exchange rate are random walk process, whereas world GDP and foreign direct investment are random walk with drift. Only export is a random walk with drift around a stochastic trend (Table 8).

Table 8: Unit Root Test by Augmented-Dickey-Fuller (ADF) test

A. Test at Level

Variable	Model	t-stat	Test critical value		
			1%level	5%level	10%level
EX_t	Intercept + Trend	0.4225	-4.3098	-3.5742	-3.2217
P_t	None	0.7997	-2.6471	-1.9529	-1.6100
Y^*_t	Intercept	-0.3541	-3.6793	-2.9678	-2.6230
ER_t	None	1.4644	-2.6471	-1.9529	-1.6100
FDI_t	Intercept	0.8417	-3.6793	-2.9678	-2.6230

B. Test at First Difference

Variable	Model	t-stat	Test critical value		
			1%level	5%level	10%level
EX_t	Intercept + Trend	-5.3634***	-4.3240	-3.5806	-3.2253
P_t	None	-3.8262***	-2.6501	-1.9534	-1.6098
Y^*_t	Intercept	-3.9501***	-3.6892	-2.9719	-2.6251
ER_t	None	-3.7401***	-2.6501	-1.9534	-1.6098
FDI_t	Intercept	-5.3327***	-3.6892	-2.9719	-2.6251

*** denotes rejection of the hypothesis at the 1% level

4.2.2 Finding Lag Length

There are many approaches to decide how many lags to include in the model. In choosing lag length, one wants lag long enough to fully capture the dynamics of the system being modeled. On the other hand, the longer the lags, the greater the number of parameters that must be estimated and the fewer the degrees of freedom. Two statistics which yield more accurate result are Akaike Information Criterion (AIC) and Schwartz Criterion (SC). These formula penalize the addition of right-hand-side variables (which reduces the number of degrees of freedom) more heavily. Both the AIC and the SC are measures of goodness of fit that correct for the loss of degrees of freedom that results when additional lags are added to the model. So both statistics can be used to help determine the number of lags to include in a VAR. With respect to the number of lags in the model, in principle, one could select a lag structure by increasing the number of lags up to the point where the AIC and SC reach a minimum value. In this study, a system with a lag length of one is opted because the one-period lag appears to have the least AIC and SC as shown in table 9.

Table 9: Akaike Information Criterion (AIC) and Schwartz Criterion (SC)

	None	Intercept	Trend and Intercept
Lag-Length = 1	(77.8453) [79.0130]	(77.8517) [79.2329]	(78.0387) [79.6734]
Lag-Length = 2	(78.8243) [81.1817]	(78.7522) [81.3454]	(78.5044) [81.3333]
Lag-Length = 3	(78.8536) [82.4220]	(78.8341) [82.6404]	(78.2112) [82.2554]

Notes:

( ): Akaike Information Criteria

[ ]: Schwarz Criteria

4.2.3 Test for Cointegration and Cointegrating Vector

Engle and Granger (1987) pointed out that a linear combination of two or more non-stationary series may be stationary. If such a stationary linear combination exists, the non-stationary time series are said to be cointegrated. The stationary linear combination is called cointegrating vector or cointegrating equation and may be interpreted as a long-run equilibrium relation among variables. So at first, the cointegration test is applied to determine whether a group of non-stationary series are cointegrated or not. For the identification of possible long-term relations, the analysis has been performed using the Johansen (1988) and Johansen and Juselius (1990) maximum likelihood procedure. In table 10, the results of both Johansen's maximum eigenvalue test (λ_{max}) and trace statistic are reported for the presence of long-term relationships. Results in this table suggest that it is possible to accept the hypothesis that a single cointegration vector is present in the model, since the null hypothesis that r=0 is rejected but the null that r=1 is not rejected. This confirms the long-run relationship among variables in the model. So the appropriate model is VAR Model which has no intercept and no linear trends, with one lag length and single cointegrating vector.

Table 10: Cointegration Test

A. Cointegration LR test based on **Max-Eigenvalue** (λ_{max}) of the stochastic matrix

Null	Alternative	Statistic	95% Cr.Value	99% Cr.Value
r = 0	r = 1	49.5556***	30.04	35.17
$r \leq 1$	r = 2	21.8044	23.80	28.82
$r \leq 2$	r = 3	8.6350	17.89	22.99
$r \leq 3$	r = 4	6.5116	11.44	15.69
$r \leq 4$	r = 5	1.7566	3.84	6.51

B. Cointegration LR test based on **trace** of the stochastic matrix

Null	Alternative	Statistic	95% Cr.Value	99% Cr.Value
r = 0	r = 1	88.3131***	59.46	66.52
$r \leq 1$	r = 2	38.7576	39.89	45.58
$r \leq 2$	r = 3	16.9532	24.31	29.75
$r \leq 3$	r = 4	8.3182	12.53	16.31
$r \leq 4$	r = 5	1.7566	3.84	6.51

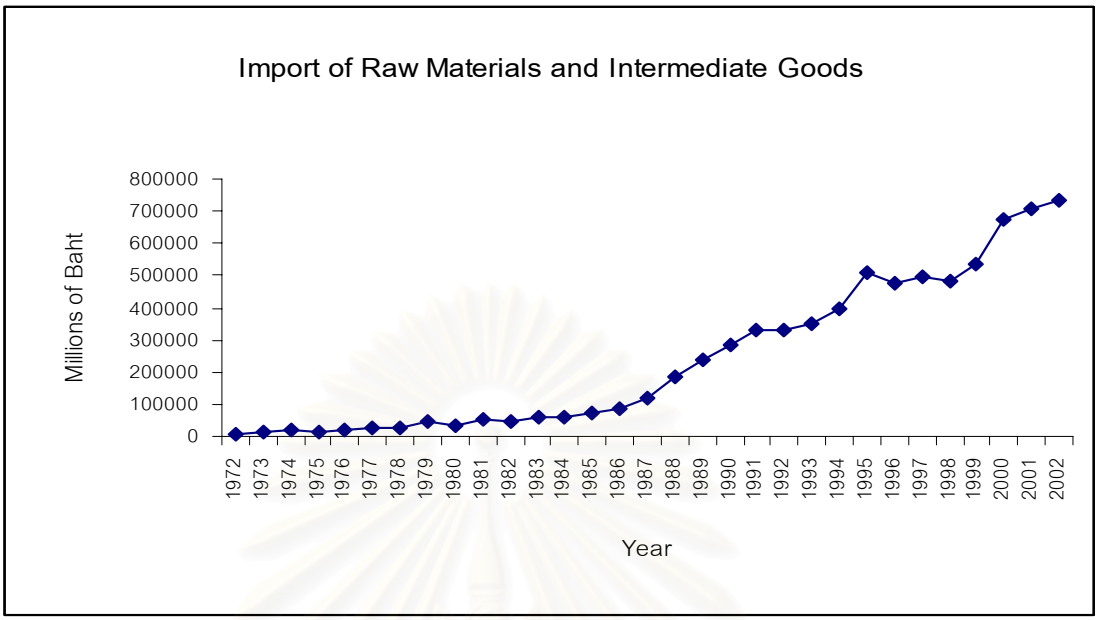
*** denotes rejection of the hypothesis at the 1% level

C. Cointegrating Equation

$$EX_t = 94512.3160*P_t + 459.2622*Y^*_t - 425803.6888*ER_t + 52.6556*FDI_t$$

From the equation, there is a positive long-term relationship between export and foreign direct investment. So it can be concluded about the complementarity between them. As expected, the positive relation also exists in world commodity price and world GDP. There is only exchange rate that shows negative relationship with export. This unexpected result may cause by the government's intention to change Thailand to be an industrialized country. From the 1980s to the early of 1990s, the policy of export linked import liberalization followed in Thailand, increasing the import of raw materials in a large number of sectors, enabled the export sector to increase its quantity exports. Especially in the second half of 1980s, there is a significantly rise of import of raw materials and intermediate goods (figure 24).

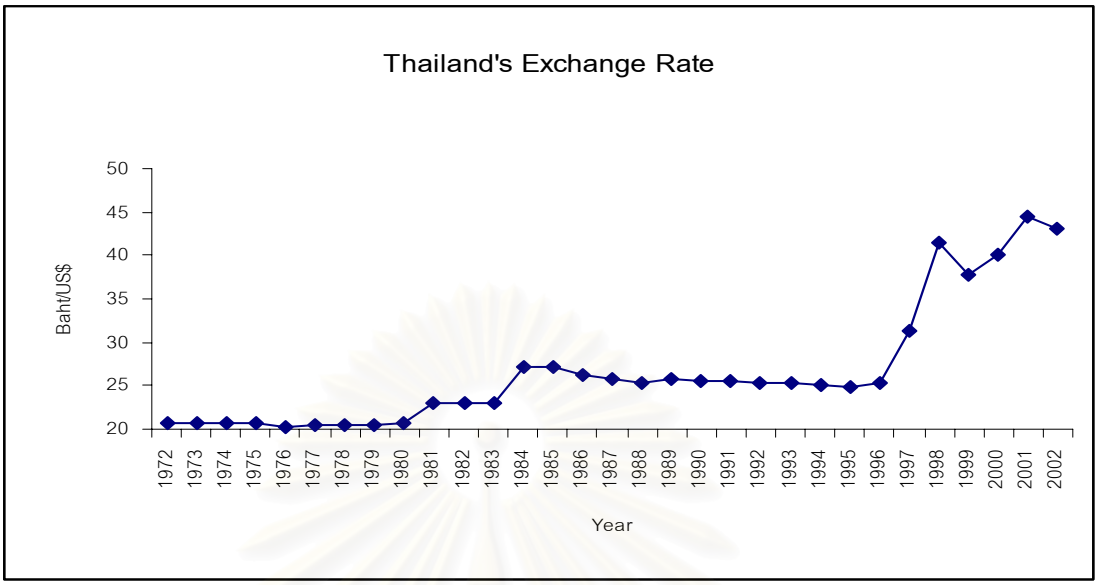
Figure 24: Import of Raw Materials and Intermediate Goods



Source: Bank of Thailand

From the descriptive analysis, it is found that the import of raw materials and intermediate goods during this period increased in line with the sharp rise of export of the country so the increase of export can partly be explained by the rising of import of raw materials. Since government realized about this relationship, government has issued many policies to achieve the import-led-export growth. One of many policies is the exchange rate policy which tried to maintain the country's currency to fix at some rate which would not affect import and export, and moreover to induce the import of intermediate goods. This can be seen by considering the exchange rate in the period of 1985 to 1995 which is fixed at about 25 Baht/US$ (Figure 25).

Figure 25: Thailand's Exchange Rate



Source: Bank of Thailand

As shown by the two-graph above, a little appreciation of the baht in the second half of 1980s to the early of 1990s made imported raw materials cheaper and thus led to the rise of import of those goods, which in turn, increased the volume of export.

4.2.4 Error Correction Mechanism

After those non-stationary series are known to be cointegrated, a vector error correction (VEC) model is applied. The Error Correction Mechanism (ECM) restricts the long-run behavior of the endogenous variables to converge to their cointegrating relationships while allowing for short-run adjustment dynamics. The cointegration term is known as the error correction term since the deviation from long-run equilibrium is corrected gradually through a series of partial short-run adjustment. Following Johansen and Juselius (1990) work, and according to the results previously obtained in model selection and cointegration analysis, the error correction model can be found as shown in table 11, so it would now be possible to separate the long-term relationship between the economic variables from their short-term responses. The speed of adjustment (ecm) which is -0.0193, means that if any variables deviate from the long-run equilibrium, the

error correction term will be nonzero and each variable adjusts to partially restored equilibrium relation by this speed which is quite low.

Table 11: Error Correction Mechanism

1A. ECM for variable EX estimated by OLS based on cointegrating VAR(1), Dependent variable is d(EX).

Regressor	Coefficient	t-ratio	Standard errors
d(EX (-1))	-0.1956	-0.9203	0.2126
d(P(-1))	1425.6873	0.7378	1932.2981
d(Y*(-1))	11.2807	0.5920	19.0556
d(ER(-1))	13150.0421	0.9632	13651.8250
d(FDI (-1))	2.5982***	3.6646	0.7090
ecm	-0.0193***	-6.0815	0.0032

List of additional temporary variables created:

d(EX) = $EX_t - EX_{t-1}$

d(EX(-1)) = $EX_{t-1} - EX_{t-2}$

d(P(-1)) = $P_{t-1} - P_{t-2}$

d(Y*(-1)) = $Y^*_{t-1} - Y^*_{t-2}$

d(ER(-1)) = $ER_{t-1} - ER_{t-2}$

d(FDI(-1)) = $FDI_{t-1} - FDI_{t-2}$

ecm = $EX_{t-1} - 94512.3160*P_{t-1} - 459.2622*Y^*_{t-1} + 425803.6888*ER_{t-1} - 52.6556*FDI_{t-1}$

1B. Other statistics of ECM for variable EX estimated by OLS based on cointegrating VAR(1).

R-squared	Adj. R-squared	F-statistic	Akaike AIC	Schwarz SC
0.6225	0.5404	7.5848***	25.9950	26.2778

***, **, * denotes rejection of the hypothesis at 1%, 5%, and 10% level respectively.

However, when considered FDI as dependent variable, the ECM shown is not statistically significant. This result suggests that, although, in this case, export may

affect FDI in short-run, the significance of short-term relationship among those variables is not confirmed.

2A. ECM for variable FDI estimated by OLS based on cointegrating VAR(1), Dependent variable is d(FDI).

Regressor	Coefficient	t-ratio	Standard errors
d(EX (-1))	0.2722**	3.3048	0.0824
d(P(-1))	844.8736	1.1287	748.5584
d(Y*(-1))	-3.7161	-0.5034	7.3820
d(ER(-1))	-8649.8518	-1.6356	5288.6193
d(FDI (-1))	-0.3777	-1.3751	0.2747
ecm	0.0005	0.3666	0.0012

2B. Other statistics of ECM for variable FDI estimated by OLS based on cointegrating VAR(1).

R-squared	Adj. R-squared	F-statistic	Akaike AIC	Schwarz SC
0.4401	0.3184	3.6160	24.0983	24.3812

***, **, * denotes rejection of the hypothesis at 1%, 5%, and 10% level respectively.

4.2.5 Causality Test on ECM

After the model is correctly specified, the last step of this study is to focus on the causality testing which is the test for a common problem in economics in determining whether changes in one variable are a cause of changes in another. Causality can be derived through: a) the χ^2 test of the joint significance of lags of other variables (Wald test), and b) the significance of lagged ECM (t-test). Table 12 presents the results of causality testing.

Table 12: Causality tests on ECM

Left hand side variable	Right hand side variable					ECM	
	χ^2						
	ΔEX	ΔP	ΔY*	ΔER	ΔFDI	t	Coeff.
ΔEX	-	0.5444	0.3505	0.9278	13.4296***	-6.0815***	-0.0193
ΔP	0.0703	-	0.3993	0.0038	0.0258	0.2185	7.56E-08
ΔY*	1.1223	0.7521	-	1.6218	0.4707	-1.0182	-2.92E-05
ΔER	1.1028	0.0056	0.3679	-	0.5925	-0.8953	-7.73E-08
ΔFDI	10.9216***	1.2739	0.2534	2.6751*	-	0.3666	0.0005

***, ** and * denote significance at the 1%, 5% and 10%, respectively.

From table 5, the ECM is statistically significance only in the Export equation and there exists a strong evidence about a significant impact of FDI on export growth. This result seems to confirm a complementarity relation between these two variables since there is a positive long-run causal relationship between them.

4.2.6 Summary of Quantitative Analysis

Results of ADF tests indicated that all variables are non-stationary ate the level. However, results for the first differences reject the null hypothesis of unit root implying that the variables are first difference stationary.

The choice of lag length for the VAR may affect inferences made from the causality test in later process: if lag length is too large degrees of freedom are wasted, and if it is too small, the model is mis-specified. To determine the optimal lag length for the VAR, the AIC and SC criterion are used. Both criterions indicate the same result that they are minimized for the first lag.

So, the one-lag-length is used in the test for cointegration. Both Johansen's maximum eigenvalue test (λ_{max}) and trace statistic prove for the existing long term relationship among variables. By considering the cointegrating equation, it is found that, in the case of Thailand, there is a complementarity relationship between export and FDI as stated in Ricardo and Purvis&Markusen model.

The short-run relationship was also found after applying the error correction mechanism. The result means that both long-run and short-run equilibrium are existing in the model. Then the error correction model is used to test for the direction of long-run and short-run relationship. The presence of one cointegrating relationship makes it easy to use this error correction model to test for causality. The coefficient of error correction term (ecm) contains the information about whether the past values of variables affect the current values of the variable under study. Since it is found that lag length is equal to one, a significant coefficient implies that past FDI plays a role in determining the current export value.

The result from causality testing indicates that, for whole variables, only the coefficient of error correction term in the export equation is significant. The result suggests that there is a one-way relationship between FDI and export, that is FDI long-run and short-run causes export, however, there is no any positive impact from export to FDI.

CHAPTER V

CONCLUSIONS AND POLICY IMPLICATIONS

5.1 Conclusions

After three decades of Thailand's export-oriented policy, the country's current trade and foreign investment experiences with a substantial increase. One important explanation for a large increase in export is the impact of foreign direct investment. FDI has a role to play, particularly in terms of international economies that it establishes and enhances links with the world economy. Not only can FDI bring capital, technology, know-how, jobs and inducement of domestic investment, but it also stimulates the country's export growth. Now, the important of foreign direct investment for export growth is widely accepted. FDI is perceived as an important export growth catalyst, and the academic literature has generally found a positive association between FDI inflows and export growth. Today, country faces strong competition for attracting FDI. In parallel, economics policies in many developing countries have become increasingly focused on attracting FDI inflows.

From the descriptive analysis, Thailand's impressive export growth over the past three decades, with an annual growth of remarkable 19% during the period 1972-2002, has been partly assisted by FDI inflows. This outstanding growth, concluded from policies, mainly has been driven by the inflow of FDI, while other policies such as exchange rate policy, maintaining price level, low wage policy and government financial support have played a minor role.

While total export value has increased continually, the country has undergone a gradual transformation from a predominantly agricultural economy to one whose export growth is led mainly by manufactured sector. Considering numerical data, the change in export structure began in mid 1970s. In the early 1980s, rising manufacturing export exceeded increasing agricultural export and since then, the export value of manufactured group has never less than that of agricultural group. Although FDI inflows have increased in line with the rise of export value, it should be

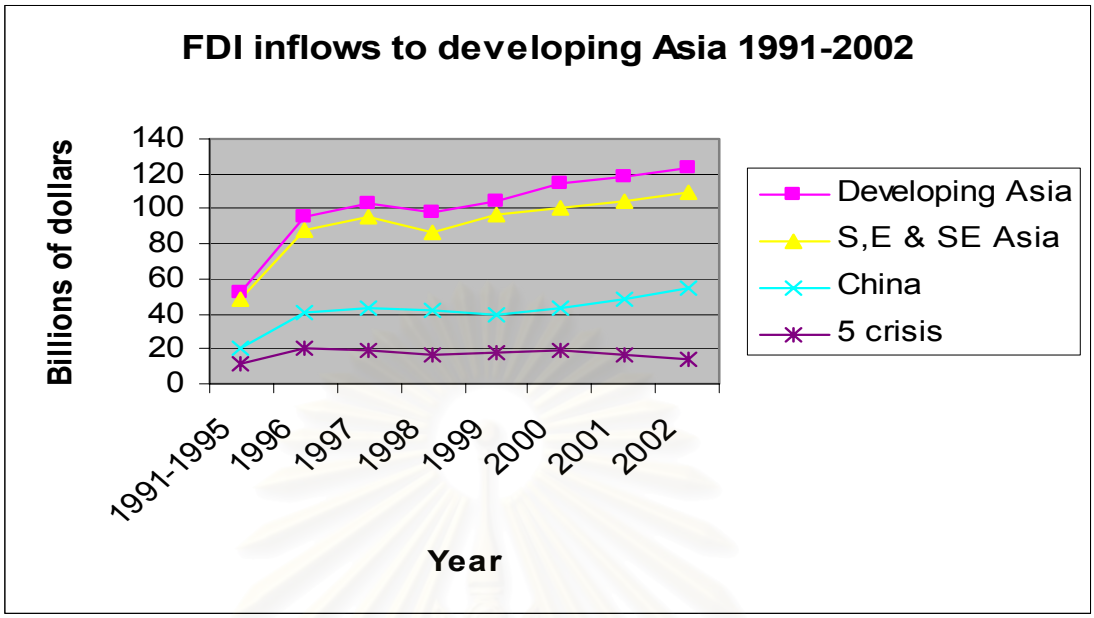
noted that not until the late 1980s that FDI inflows showed a dramatic increase. However, it is observed that most FDI tend to flow to manufactured sector since the beginning. This fact may reveal the relationship between export and FDI since most part of export value has also come from the manufactured sector.

Conclusions from quantitative analysis are likely to be the same, that there exists both the long-run and short-run relationship between export and FDI. The causality is found from inward FDI to exports, with a positive sign, which would point to a complementarity relationship between FDI inflows and the country's export growth running from the former to the latter. These results suggest a potentially positive effect from the inflow of FDI into increased exports. However, while there exists a strong evidence of the impact of FDI on export growth, other export determinants seem to play only a minor role. As expected, the positive relationship is found for commodity price and trading partners' GDP. There is only exchange rate which shows a negative sign, instead of positive as expected from theory. This surprising result can be explained by the import-led-export policy during the second half of 1980s and the early of 1990s. Since import of raw materials and intermediate goods was considered as one of the sources of export improvement in that time, government issued many policies to induce the growth of international trade, including maintaining exchange rate policy.

Although it is admitted that there is a complimentarity between FDI and export in Thailand, the criticism about the role of FDI and export in later years should be realized. While export still increases, the country began to face with a decrease of FDI, especially a sharp drop in 2002. This conflicted relation may result from the government policy that has concentrated more on the export, which comes from domestic sector and the local investment (for example, the substantial existence of SMEs), instead of the intensity of FDI attraction. However, since FDI is accepted as a tool to raise factor productivity, create new jobs, upgrade skill, increase technology transfer and encourage reform of the country industries, such benefit cannot be denied. The cause of the decrease of FDI in Thailand must be investigated.

The main reason of a decline of the inflows of investment to Thailand seems to be the openness of the big economy country such as China. Since the 1990s, China has carried out massive economic reforms in an effort to restructure their economy to be more market-oriented. Foreign Direct Investment was one of the main pillars of reform. The government has gradually liberalized its restrictions on FDI in order to reap the rewards of foreign investment: technology transfer, modern management skills, and foreign exchange. The results of the reforms have been extraordinary. Thousands of multinational corporations have invested in China, bringing with them billions of dollars in FDI. In order to continue to attract foreign investment into China, the government is now joining WTO membership. As China prepared to enter the WTO, it had to make a number of commitments to modernize and restructure its centrally planned economy. These policies are great potential for China to continue to attract multinational corporations and foreign direct investment in record amounts. Like Thailand, by almost all accounts, FDI in China has been one of the major success stories of the past 10 years. However, for the competition of FDI attraction, China's FDI has increased consecutively after it joined as a member of WTO. Although FDI comes more into Asia, most FDI flows to China both in the sense of money and ratio. In 2000, all FDI flow around this region was accounted to 57.2%, increasing from 1999 which was accounted at 43.3%, but when considering about FDI flows in Thailand, it was only 2.4 billion US$ or only 1.8% of all FDI which came into this region (or only 0.19% of FDI flows around the world), decreasing from 1999 which was accounted at 3.6 billion US$ or 3.7% of all FDI which came into this region (or 0.33% of FDI flows around the world). This may due in part to the flattening of the wave of massive recapitalizations in the banking industry, which had reached exceptionally high levels in 1998 and higher cost of production in Thailand (WIR, 2000). Among the five countries most affected by the crisis, flows declined most in the Philippines, Indonesia, and Thailand, while increasing significantly in Malaysia and in the Republic of Korea (WIR, 2000) (Figure 26). This evidence suggests that the competitive ability to attract FDI of Thailand is decreasing, and so, the diminishing trend of FDI in Thailand may continue.

Figure 26: FDI Inflows to Developing Asia 1991-2002



Source: World Investment Report 2002

5.2 Policy Implications and Further Study

With liberal policy frameworks becoming commonplace and losing some of their traditional power to attract FDI, government should pay more attention to broader measures and policy tools including investment promotion and facilitation. As foreign investors have a variety of locations to choose from, making investors aware of the opportunities, improving national image and more importantly providing an enabling environment, can often determine the attractiveness of the country as a host country for a particular investment. However, since it is found that most part of the country's export value has come from the products linked with medium and high technology for many years and this kind of export tends to have more and more important role in the future. Moreover, it is found the strong linkage between FDI and export, with the complementary relationship from foreign investment to export sector. These incidences suggest that government should adjust its policies by promoting FDI with more advance technology.

- So, at first, government should select upgraded FDI which concentrates on high-tech-intensive industries such as electronics, machinery, electrical appliances and

computers. These high value-added products help enhancing more foreign income to the country which, in turn, encourages growth to Thailand's economy.

FDI is attracted much less than in the past by conventionally cited factor advantages such as cheap labor, lax environmental rules and low taxes than by "modern" location advantages such as high quality infrastructure and a concentration of technology and skills in a geographical spot. So, in order to attract the higher kind of FDI, the government should;

- Enhance the attractiveness of the factors which particularly determine medium and high-technology FDI. Since some of our factors such as the market size and the labor cost, are realized that they cannot compete with those of other countries, especially China, government should improve the attractiveness of other factors to develop a new competitive advantage such as
    - Industrial location: One general but important factor of attracting FDI is the location cost. However, in order to attract medium and high-technology FDI, which is different from common FDI, government should emphasize more on promoting the country's advantage of location for investment. Because technology changes rapidly, transportation and all accommodations must be specially provided and prepared for this kind of investment. Government should ensure the provision of essential infrastructure needed by industry – industrial estates, modern factory and office buildings, utilities (electricity, gas, water), influent treatment, drainage, telecommunications (including access to broadband networks) and different modes of transport. By doing this, policy should be granted to make Thailand to be a transportation center of the region. This advantage help lowering the transporting cost for business and reducing the wasted time. Next, special areas in which provide for investment, should be strengthened by developing, increasing, and upgrading more infrastructure. The easier the transportation and the more the comfortability, the more the attractiveness of medium and high-technology FDI.

- Human capital: Since China has been well known for its lower wage labor, the investment which flows into China takes benefit from this comparative advantage by mostly basing its investment on the country's plentiful unskilled labor. However, Thailand can compete this situation by concentrating on developed human capital as a key competitive factor and by this way, the country will differentiate from China and as a result, it can influence more FDI. In order to create a new competitive advantage which bases investment on knowledge workers, first, government should select the appropriate sector which the workers should be developed. It should be associated with the production linked with the use of hi-tech machinery or high-skilled labor. Next, in order to produce highly skilled labor, government should promote domestic innovation capacity and human resource development. One way to improve the quality of labor is to take the advantage of technology transfer of FDI. This can also be done by increasing the subsidy to industrial R&D and worker training. By changing the country to be knowledge-based economy, Thailand will gain more benefit and export value from high-technology product which is different from China in which bases its export value on labor-intensive product.

The strategies of nurturing "clusters" advocated by Michael Porter seem very interesting for host countries in present day. The cluster is defined as a geographically proximate group of interconnected companies and associated institutions in a particular field linked by commonalities and complementarities. By developing clusters, there are many competitive advantages such as reducing transaction costs because of superior access to specialized inputs, having diverse specialization that focuses on core competences and increases flexibility, improving capacity to innovate through access to knowledge, stimulating process of firm formation through start-up and spin-off.

- In order to promote cluster, government should first proactive targeting of investors, both by sector and by region, for improving both the quality and quantity of investment. Accordingly, three major regions should be targeted as the focus for

advertising, marketing and promotional efforts. Europe, Asia (especially Japan), and North America will be beneficiaries of this new focus. Then, from a sectoral perspective, three industries should be aggressively targeted: Automotive, Information and Communications Technology (ICT) including Electronics, and High value-added products and services. After having identified the industries, the next step is to develop policies, measures, and marketing strategies specific to each industry, taking into consideration their needs, based on factors such as competitiveness, market potential and levels of technology. These steps mentioned earlier should be used in line with the establishment of investment promotion agencies (IPAs), with the specific objective to attract inward FDI. The investment promotion agencies should be used to improve the country's effectiveness in attracting foreign direct investment and maximize the benefits for local economy. Government should develop all for local, national and regional IPAs, as the relationship between investment promotion at the local, national and regional levels varies markedly between industries. By working together, these kinds of government support will almost certainly lead to cluster development which in turn help achieve the benefits that come with it.

Clearly, Thailand should provide better policies in order to attract larger increase in FDI and to improve the ability of FDI competitiveness. Better policies not only bring in more capital, but they tend to strengthen the foreign capital-domestic investment relationship and convince the foreign investor to reinvest its gain in our economy.

There are a number of directions in which this study will move in future papers. Since now it is found that the competitive ability of attracting FDI into the country has decreased, the study of factors determining FDI should be reconsidered. There are many interesting factors to be realized such as:

- *The regulatory framework* is the fundamental concern of most investors. Establishing a competitive business environment through removal of unnecessary regulations is considered essential by many companies. An efficient administrative apparatus, devoid of corruption, and striving to improve transparency and coherence, is also

identified as a factor likely to increase attractiveness of FDI. Further study should concentrate more on developing an adequate protection regime of intellectual property rights (likely to be the serious problem for Thailand), which would contribute greatly to enhancing Thailand's attraction.

- *Access to fundamental infrastructure* is also stressed as a factor highly taken into consideration by enterprises considering investment abroad. This includes supplying stable resources of gas, electricity, and water, good transport systems, telecommunications, as well as the provision of efficient financial services.

- *Availability of natural resources* is also important in attracting FDI. Some FDI stress at the abundance of mineral resources, energy, agricultural products, and land development which will benefit for their production process.

- *Human capital* is important in promoting FDI flows to the country. Not only low-labor cost can be determinant in attracting FDI, but skilled labor is also now more important. By this way, Thailand can improve its comparative advantage by developing education and professional training.

- *An attractive environment* such as schools and hospitals will also increase the chances of attracting FDI.

Further study in this field might also worthwhile. While many factors are needed to be improved for maintaining and attracting more FDI, it is necessary to accurately determine the policy to improve and create a new country's comparative advantage so that the country can compete with others in the severely competition of attracting FDI.

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APPENDICES

Appendix I

Export goods are divided into two groups (broad classification).

1. Primary Products: cover mineral and agricultural or forest products exported in an unprocessed state.

2. Manufactures

   2.1 Resource-based manufactures: include processed foods and tobacco, simple wood products, refined petroleum products, dyes, leather (not leather products), precious stones and organic chemicals. Resource-based products can be technologically simple (food or leather processing) or capital-scale- and skill-intensive (e.g. petroleum refining).

   2.2 Low-technology manufactures: include textiles, garments, footwear, other leather products, toys, simple metal and plastic products, furniture and glassware. These products tend to have stable, well-diffused technologies largely embodied in capital equipment, with low R & D and skill requirements and low economies of scale. Labor costs tend to be a major element of cost and barriers to entry are relatively low, at least in the segments in which developing countries specialize.

   2.3 Medium-technology manufactures: are “heavy industry” products such as automobiles, industrial chemicals, machinery, and standard electrical and electronic products. They tend to have complex but not fast-changing technologies, with moderate levels of R & D but advanced engineering and design skills and large scales of production. Barriers to entry tend to be high because of capital requirements and strong “learning” effects in operation, design and product differentiation.

   2.4 High-technology manufactures: are complex electrical and electronic (including information and communication technologies) products, aerospace products, precision instruments, fine chemicals and

pharmaceuticals. Most call for advanced manufacturing capabilities, large R & D investments, advanced technology infrastructures and close interactions between firms, universities and research institutions. However, many activities, particularly electronics, have final assembly processes with simple technologies where low wages are an important competitive factor.

Source: WIR 99, Chapter 8. Information and communication technologies comprise SITC.

Appendix II

Foreign trade has been looked at suspiciously since the beginning of history. The Greek philosophers and early Christians were disdainful of merchants in general and since early trade meant dealing with merchants this was not a positive thing.

Before Marco Polo trade really did not exist. Each Manor house was a city unto itself and strove to be as self sufficient as possible. To the extent travel took place it was often done by armies from one castle trying to conquer another to get their resources. Land travel was difficult so almost all trade was by sea. Europe started international trade as we know it when Marco Polo discovered China in AD 1100. He took goods to barter and came back with silk and spice. Explorers thereafter spent hundreds of years searching for an easy water route to China in order to get these spices and silks, thereby discovering the new world. Most of this effort was spent trying to establish colonies they could monopolize to become captive suppliers of raw materials and suppliers of gold. This was not trade as we know it. People had not yet accepted the fact that they could bargain for the goods they needed and give up goods they had extra of. Instead they wanted to take as much as possible. Certainly it is easier to steal rather than trade for goods especially if you are a lot stronger than other guy. The Industrial Revolution marked a turning point in trade. England and France in particular had manufacturing capacity but needed raw materials to supply their machines and keep their people employed. Raw materials went into the manufacture of goods that then became the exports to colonies. This was similar to today in that the purpose was to keep local people employed. The Industrial Revolution allowed countries to produce more than they could use and required more raw materials than they could supply. This created a great impetus to international trade and exploitation. For the Colonial Power they could plunder a region of its wealth for either nothing or just token goods like liquor or axes. At this time many colonies were beginning to flex their economic muscles and demanding to be treated like trading equals. This gave rise to movements such as the American Revolution.

Finally a trade system much as we have today sprang up. By the early 19th century there was a flourishing trade between Europe and North America. Most of this was made up of ships going out laden with locally made goods returning with products bartered for. No currency was exchanged. International Banking sprang up along with a large part of the insurance industry because traders needed to finance their ships inventory and to insure the cargo against loss. Currency was not needed and was not accepted unless it was a readily accepted coin. Later countries started to trade for other than the bartered goods. They needed some medium of exchange. This was typically gold. Gold was difficult to move and could easily be stolen. Ultimately Merchant Bankers were able to get their credit accepted by trading partners around the world.

To go side by side with the history of international trade, the theory of international trade and commercial policy is also one of the oldest branches of economic thought. From the ancient Greeks to the present, government officials, intellectuals, and economists have pondered the determinants of trade between countries, and, more importantly, have asked whether trade bring benefits or harms to the nation. Since the time of the ancient Greek philosophers, there has been a dual view of trade: a recognition of the benefits of international exchange combined with a concern that certain domestic industries (or laborers, or culture) would be harmed by foreign competition. Depending upon the weights put on the overall gains from trade or on the losses of those harmed by imports, different analysts have arrived at different conclusions about the desirability of having free trade. But economists have likened free trade to technological progress: although some narrow interests may be harmed, the overall benefits to society are substantial. Still, as evidenced by the intense debates over trade today, the tensions inherent in this dual view of trade have never been overcome.

The first reasonably systematic body of thought devoted to international trade is called “mercantilism” and emerged in seventeenth and eighteenth century Europe. An outpouring of pamphlets on economic issues, particularly in England and especially related to trade, began during this time. Although many different viewpoints are expressed in this literature, several core beliefs are pervasive and tend to get

restated time and time again. For much of this period, mercantilist writers argued that a key objective of trade should be to promote a favorable balance of trade. A “favorable” balance of trade is one in which the value of domestic goods exported exceeds the value of foreign goods imported. Trade with a given country or region was judged profitable by the extent to which the value of exports exceeded the value of imports, thereby resulting in a balance of trade surplus and adding precious metals and treasure to the country's stock. Scholars later disputed the degree to which mercantilists confused the accumulation of precious metals with increases in national wealth. But without a doubt, mercantilists tended to view exports favorably and imports unfavorably. Even if the balance of trade was not a specific source of concern, the commodity composition of trade was. Exports of manufactured goods were considered beneficial, and exports of raw materials (for use by foreign manufacturers) were considered harmful; imports of raw materials were viewed as advantageous and imports of manufactured goods were viewed as damaging. This ranking of activities was based not only on employment grounds, where processing and adding value to raw materials was thought to generate better employment opportunities than just extraction or primary production of basic goods, but also for building up industries that would strengthen the economy and the national defense. Mercantilists advocated that government policy be directed to arranging the flow of commerce to conform to these beliefs. They sought a highly interventionist agenda, using taxes on trade to manipulate the balance of trade or commodity composition of trade in favor of the home country. But even if the logic of mercantilism was correct, this strategy could never work if all nations tried to follow it simultaneously. Not every country can have a balance of trade surplus, and not every country can export manufactured goods and import raw materials.

While there were anti-mercantilist economic writers during this period, few advocated complete free trade or set out systematic reasons for believing that free trade might be desirable. The big breakthrough came with Adam Smith's *An Inquiry into the Nature and Causes of the Wealth of Nations*, published in 1776. With this book, Smith fundamentally changed economic thinking about international trade. Smith argued that economic growth depended upon specialization and the division of labor.

Specialization helped promote greater productivity, that is, producing more goods from the same resources, which is essential for achieving higher standards of living. According to Smith, the division of labor was limited by the extent of the market; in other words, small markets would not be able to support a great deal of specialization, whereas larger markets could. (A small town usually has fewer specialty shops than a large city.) Therefore, international trade effectively increased the size of the market for any given country, allowed for more refined specialization, created an international division of labor, and thereby benefited all countries by increasing the world's productivity and output.

Even more than his discussion of the gains from trade, Smith is remembered for his incisive analysis of trade policy, where he details not just the benefits of free trade but the costs of government intervention. His favorable book, *The Wealth of Nations*, was a sustained and compelling attack on mercantilism. Smith argued that "the great object" of mercantilism was "to diminish as much as possible the importation of foreign goods for home consumption, and to increase as much as possible the exportation of the produce of domestic industry" (Smith, 1776). These goals were to be achieved through import restrictions (to reduce imports), on the one hand, and export subsidies (to increase exports). Smith argued against both actions.

Smith quickly dispensed with export subsidies, which are payments to domestic firms that enable them to reduce their price to foreign consumers. "We cannot force foreigners to buy their goods as we have done our own countrymen" (Smith, 1776). Smith wrote. "The next best expedient, it has been thought, therefore, is to pay them for buying. It is in this manner that the mercantile system proposes to enrich the whole country and to put money into all our pockets by means of the balance of trade" (Smith, 1776). Smith argued that if a certain trade was unprofitable for private merchants, it was unlikely that it would be profitable for the nation: (Smith, 1776)

> "The trades, it is to be observed, which are carried on by means of bounties (subsidies), are the only ones which can be carried on between two nations for any considerable time

> together, in such a manner as that one of them shall always and regularly lose, or sell its goods for less than it really costs to send them to market. But if the bounty did not repay to the merchant what he would otherwise lose upon the price of his goods, his own interest would soon oblige him to employ his stock in another way, or to find out a trade in which the price of the goods would replace to him, with the ordinary profit, the capital employment in sending them to market. The effect of bounties, like that of all the other expedients of the mercantile system, can only be to force the trade of a country into a channel much less advantageous than that in which it would naturally run of its own accord."

Turning to import restrictions, Smith argued that they would benefit certain domestic industries, but would also diminish competition and give those producers a monopoly in the home market, enabling them to charge higher prices. Monopolies also were prone to mismanagement and were likely to become inefficient. In explaining this, Smith set out his conception of the role of competition: (Smith, 1776)

> "Every individual is continually exerting himself to find to the most advantageous employment for whatever capital he can command. It is his own advantage, indeed, and not that of society, which he has in view. But the study of his own advantage naturally, or rather necessarily leads him to prefer that employment which is most advantageous to the society."
>
> "As every individual, therefore, endeavours as much as he can both to employ his capital in the support of domestic industry, and so to direct that industry that its produce may be of the greatest value; every individual necessarily labours to render the annual revenue of the society as great as he can."

Smith made a powerful case that government promotion of trade and government restriction of trade were unwise and harmful. He fundamentally changed the analysis of trade policy and essentially established the presumption that free trade was the best policy unless some other considerations overrode that presumption. Smith was writing at the time of the Enlightenment, and his writings in the economic sphere had as strong an impact as the writings of Voltaire and Hume in other realms of thought.

The case for free trade was reinforced by the classical economists writing in the first quarter of the nineteenth century. The theory of comparative advantage emerged during this period and strengthened our understanding of the nature of trade and its benefits. David Ricardo has received most of the credit for developing this important theory, although James Mill and Robert Torrens had similar ideas around the same time. The theory of comparative advantage suggests that a country export goods in which its relative cost advantage, and not their absolute cost advantage, is greatest in comparison to other countries. Suppose that the United States can produce both shirts and automobiles more efficiently than Mexico. But if it can produce shirts twice as efficiently as Mexico and can produce automobiles three times more efficiently than Mexico, the United States has an *absolute* productive advantage over Mexico in both goods but a *relative* advantage in producing automobiles. In this case, the United States might export automobiles in exchange for imports of shirts-even though it can produce shirts more efficiently than Mexico. The practical import of the doctrine is that a country may export a good even if a foreign country could produce it more efficiently if that is where its relative advantage lies; similarly, a country may import a good even if it could produce that good more efficiently than the country from which it is importing the good. From Mexico's standpoint, it lacks an absolute productive advantage in either commodity, but has a relative advantage in producing shirts (where its relative disadvantage is least). This trade is beneficial for both the United States and Mexico.

The comparative advantage proposition is incredibly counterintuitive: it states that a less developed country that lacks an absolute advantage in any good can still engage in mutually beneficial trade, and that an advanced country whose domestic

industries are more efficient than those in any other country can still benefit from trade even as some of its industries facing intense import competition.

As developed by Adam Smith and the classical economists, the theory of international trade is an enormously powerful one due to its generality. Just like trade between citizens within a nation's borders, international trade was an efficient mechanism for allocating resources and for increasing national welfare, regardless of the level of a country's economic development. Any impediments to trade would detract from the gains from trade and therefore harm the economy. Smith and the classical economists made a powerful case for liberalizing trade from government restrictions (such as import tariffs and quotas) and moving toward free trade.

BIOGRAPHY

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