

Country Report:

Analysis of International Investments in the Agricultural Sector of Thailand

**A Study prepared for Food and Agriculture Organization of
the United Nations**

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1. Introduction

The importance of international investment or foreign direct investment (FDI) as a factor in economic growth has long been recognized. A number of studies have been conducted on its role, determinants and many other related aspects in most developing countries. FDI has played a pivotal role in economic development in a number of host countries including Thailand. FDI in Thailand has grown rapidly with a clear shift in investment flows from import-substitution towards export-orientation and has mainly concentrated in manufacturing sector. There is not much evidence on the role and pattern of FDI in the agricultural sector.

In Thailand, empirical studies have largely concentrated on the role of FDI in manufacturing industry as the largest recipient of FDI since 1970. Although Thailand is an agriculture-based economy and there has long been foreign investment in agricultural production, the value of international investment in the agricultural sector is very small and number of studies investigating the role of FDI in this sector is limited (Netayarak, 2008; Sattaphon, 2006). It is therefore interesting to find out why the extent of FDI in agricultural sector has been small, how significance FDI has been to agricultural development in Thailand, and what has been government policies promoting FDI in this sector. Specifically, this report aims at fulfilling two main objectives. First is to analyze the extent, nature and impact of international investment in the agricultural sector. Second is to analyze the policies, legislation and institutions affecting the international investment.

This report is divided into six sections. First is the above introduction. The second section briefly reviews background of Thai agriculture and explains the definitions of FDI statistics

employed in this study. The third section describes policies, legislations and institutions affecting FDI in Thailand. It is divided into two sub-sections describing the overall policies and the investment promotion policies. Fourth is the analysis of FDI in Thai agriculture, with an emphasis on the extent and nature of FDI. This is also divided into two sub-sections in accordance with the two main sources of FDI data employed in this study; the first sub-section discusses the overall pattern of FDI using the Bank of Thailand (BOT) data and the second sub-section discusses the extent and nature of promoted FDI using the Board of Investment (BOI) data. Fifth is the analysis of the FDI impacts with an emphasis on the agricultural sector. Finally is the conclusion and policy recommendation.

2. Background of Thai Agriculture and FDI Data in Thailand

This section briefly reviews the changing structure of Thai agriculture, its role and development. It aims to provide basic understanding of the agricultural sector that is relevant to the analysis of trends and pattern of foreign direct investment (FDI) in this sector. Then the definitions of FDI are described. Clear understanding of the types and definitions of FDI is crucial for analyzing trends and patterns of FDI in the agricultural sector.

2.1 Overview of Agricultural Development in Thailand

Thailand has been an agriculture-based economy in which the agricultural sector has played a crucial role in overall economic development. The agricultural sector was the economy's "engine of growth" in the 1960s and 1970s.¹ Its leading role was superseded by the manufacturing sector in the 1980s. Since then the agricultural shares in overall GDP has declined, as shown in Table 1. During 1986 to 1996, there was a rapid expansion in the manufacturing sector drawing resources away from agriculture.

¹ The main driving force was attributable to expansion of the land frontier and heavy public investment in roads and irrigation (Poapongsakorn, 2006).

Agricultural growth dropped sharply during the period 1986 to 1990. The decline in agricultural growth was in line with structural change toward an industrialized economy as well as many external factors, particularly a worldwide depression in major agricultural product prices (Poapongsakorn, 2006). Average annual growth rates of the agricultural GDP is also the smallest compared with manufacturing and services (Table 2).

Table 1 Shares of GDP by economic sectors

Year	1960s	1970s	1980s	1990s	2000s
Agriculture	29.04%	24.52%	18.40%	11.75%	9.52%
Manufacturing	16.62%	20.81%	23.98%	30.89%	38.30%
Services	11.49%	11.99%	13.39%	10.81%	11.50%

Source: National Economic and Social Development Board

Table 2 Annual GDP growth rates by economic sectors

Year	1960s	1970s	1980s	1990s	2000s
Agriculture	6.67%	4.49%	4.27%	1.72%	1.68%
Manufacturing	10.78%	9.49%	8.77%	8.14%	5.35%
Services	7.96%	7.87%	7.04%	4.40%	4.39%
GDP All sectors	8.36%	6.92%	7.24%	5.28%	4.06%

Source: National Economic and Social Development Board

Despite the declining shares of agricultural GDP, the agricultural sector continues to contribute to overall economic development by being an important source of rural income and export earnings.² It also provides raw materials for agribusiness and ensures household food security. The secular decline of

² Thailand is a major net agricultural exporter, particularly for rice, rubber, cassava, sugar and poultry products (Warr, 2008). The majority of poor people in Thailand reside in rural areas and are directly involved in agricultural production (Warr, 2004).

agriculture relative to non-agricultural sectors has been commonly observed in an open economy experiencing rapid economic growth including Thailand (Johnston and Mellor, 1961, Coxhead and Plangpraphan, 1999).³ The labor force, land and capital requirements for infrastructure and for manufacturing and other expanding sectors have been drawn from agriculture over time. Nonetheless, Thai agriculture continues to contribute to economic growth through releasing resources to more productive sectors while maintaining output. In other words, despite the declining share for agriculture, the sector continues to contribute to overall economic growth using few resources. The Thai agricultural sector has never been stagnant and its dynamic role continues to form a basis for development in the Thai economy (Warr, 2009).

Table 3 Agriculture in Thai economy during 1970-2008

	GDP All sectors (m. Baht)	GDP Agriculture (m.Baht)	Agriculture share in GDP (% of GDP)	Composition of Agriculture				
				Crops	Livestock	Fisheries	Forestry	AgServices
				(% of Agriculture GDP)				
1970-1975	551,002	132,304	24.10	63.19	8.71	13.20	10.62	4.28
1976-1980	812,058	164,675	20.40	64.78	10.30	11.46	8.76	4.70
1981-1985	1,078,649	192,471	17.87	68.66	10.16	10.61	5.99	4.59
1986-1990	1,577,830	226,019	14.54	68.19	11.63	11.45	4.48	4.24
1991-1995	2,500,010	262,522	10.61	65.72	11.76	16.99	2.07	3.46
1996-2000	2,963,604	291,481	9.85	67.95	11.02	16.85	1.47	2.71

³ See Martin and Warr (1994), Siamwalla (1996), Coxhead and Plangpraphan (1999) for the explanation of agriculture's relative decline in Thailand.

2001-2008	3,749,009	353,150	9.49	69.16	11.28	16.21	1.04	2.17
1970-2008	1,998,945	238,586	15.05	66.90	10.69	13.99	4.77	3.63

Source: National Economic and Social Development Board (NESDB)

Table 4 Annual agricultural GDP growth rates by sub-sectors (%)

	Crops	Livestock	Fisheries	Forestry	Ag Services
1970s	3.98	5.84	-0.28	-0.28	5.24
1980s	3.42	4.34	6.15	-6.67	2.01
1990s	2.92	1.34	5.24	-6.44	-1.93
2000-2008	2.65	3.84	2.67	-2.01	-0.06
1970-2008	3.27	3.84	3.49	-3.95	1.39

Source: National Economic and Social Development Board (NESDB)

Note: GDP at 1988 fixed-price is measured as real value added.

Table 3 highlights the decreasing share of agricultural GDP in sub-periods together with its sub-sector composition. It is obvious that the contribution of agricultural GDP in overall GDP has been declining since 1970. The share of agricultural GDP at constant price (1988) accounts for 15.05 percent of total GDP over the period of 1970-2008. Despite the declining share of agricultural value added, the agricultural sector still manages to grow at an average growth rate of about 3 percent per year over the entire period of 1970-2008.

Within the agricultural sector, crop production has long occupied the largest share of total agricultural output, followed by fisheries, livestock, forestry and agricultural services, respectively (Table

3). However, in terms of the average annual growth rate, livestock GDP growth is largest during 1970-2008, followed by fisheries and crops (Table 4). The expansion in livestock is mostly attributed to the higher demand for poultry exports, particularly from European markets (Poapongsakorn, 2006). For other sectors, forestry and agricultural services are relatively insignificant especially forestry has negative annual growth rate.

Crop production has been dominated by staple crops such as rice, rubber, cassava, sugar cane, maize and kenaf. Nonetheless, there has been a changing production structure in Thai agriculture in tandem with the changing comparative advantage and changing demand pattern toward high value added and safe products. There has been a shift from traditional crops such as rice, maize and cassava to high value crops, particularly in horticulture (Poapongsakorn, 2006). Agricultural commodities and exports have also been diversified from major crops to processed agricultural products, such as frozen chicken, shrimp and canned pineapple and high value products such as coffee, pepper, cut flowers, orchids, fruits and vegetables (Table 5). While rice is still the dominant crop occupying the majority of land area and labour force, its export value ranked after rubber since the 1990s and after shrimp in 1991-1995 and 2001-2002.

Table 5 Major agricultural exports, 1970-2006 (unit: million Baht)

Commodity	1970s	1980s	1990s	2000-2006	1970-2006
Rice	8,759.90	26,843.3	52,944.5	86,164.2	38,141.1

Country Report: Analysis of International Investment in the Agricultural Sector of Thailand

		4	1	5	6
Rubber	5,880.71	19,682.51	68,723.59	205,081.12	58,898.26
Shrimp	1,103.23	9,048.19	47,520.20	78,295.54	28,313.32
Cassava products	6,298.27	19,185.80	19,247.12	31,400.47	17,351.70
Sugar and products	3,911.60	11,164.80	25,308.70	36,578.59	16,952.28
Poultry meat	355.67	3,231.44	12,083.70	12,806.99	7,476.51
Canned Pineapple	1,432.24	3,355.11	7,374.68	10,742.79	6,414.33
Cut flowers	245.42	440.91	869.46	2,204.67	888.99

Source: Office of Agricultural Economics (OAE)

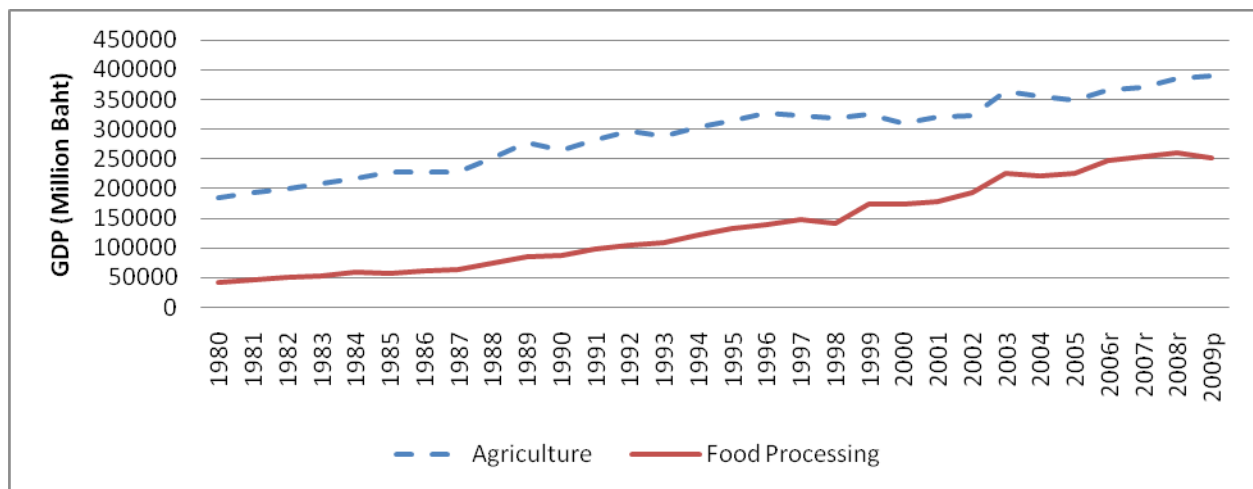
Notes: Numbers in the table are average values during sub-periods. Data for poultry meat and cut flowers (including orchids) are available from 1976.

Regarding the food-processing industry, this research uses the same definition of the food industry as that of the Thai Ministry of Industry, which defines “the food industry” in the national master plan for Thailand’s food industry as:

“Food industry means an industry that uses agricultural products such as plants, livestock and fisheries as main raw material in productions. The productions are based on technologies in order to get products for consumption uses or for other uses in further production processes. It is a method of preservation of agricultural products by primary manufacturing processes or intermediate manufacturing processes or final manufacturing processes.” (Thai Ministry of Industry, 2002)

Figure 1 illustrates a comparison of food processing and agricultural GDP during 1980-2009. Both show increasing trends and they move in parallel to one another. Agricultural GDPs are higher than those of food processing sector. For example, in 1980 agricultural GDP was 184,576 million baht and considerably increased to 390,362 million baht in 2009 while food processing GDP was 42,412 million baht and rose to 250,979 million baht in 2009. However, on average the food processing sector had greater growth rates than the agricultural sector (See Table 6).

Figure 1 Food processing and agricultural GDP, 1980-2009



Source: National Economic and Social Development Board (NESDB)
Notes: (r) revised and (p) preliminary

Food processing sector performed incredibly well in 1986-1990 achieving the highest rate of growth of 8.95 per cent while the agricultural sector's growth rate was only 3.17 per cent. After that period, growth rates of both sectors fell gradually overtime. During 2001-2009, the food processing maintained a moderate growth rate of 4.33 per cent while the agricultural sector slowly grew at 2.68 per cent. All in all, both sectors continued to be robust and remained one of Thailand's most competitive and major sectors. Next section will describe the role of the food industry as an important source of Thailand's export revenue and internationalization.

Country Report: Analysis of International Investment in the Agricultural Sector of Thailand

Table 6 Growth rates of food processing and agricultural sectors, 1981-2009

	Food Processing	Agriculture
1981-1985	6.52%	4.26%
1986-1990	8.95%	3.17%
1991-1995	8.50%	3.60%
1996-2000	5.97%	-0.20%
2001-2009	4.33%	2.68%

Source: National Economic and Social Development Board (NESDB)

A large proportion of Thailand’s food exports are processed foods, accounting for about 20 per cent of total food exports. As Table 7 indicates, in 2009, most processed food products faced a decline in growth rates due to global economic crisis (National Food Institute of Thailand, 2010a). However, their total export value remained high accounting for US\$ 4.05 billion. A year earlier, in 2008, Thailand’s major exports of processed food products totaled US\$ 4.44 billion in value, and grew at an annual rate of 30.39 per cent (Thai Food Processors’ Association, www.thaifood.org); comprising canned seafood (US\$2.46 billion), processed fruits and vegetables (US\$1.36 billion), ingredients and ready-to-eat food (US\$629 million). These categories grew at 37.59, 19.16 and 30.23 per cent respectively. Notably, canned seafood took a giant leap from 4.94 per cent of growth rate in 2007 to 37.59 per cent in 2008 followed by processed fruits and vegetables (6.45 per cent in 2007 and 19.16 per cent in 2008). These processed food exports comprise critical components of Thailand’s export structure. Moreover, higher value-adding products—like ready-to-eat food—are the fastest growing, even though they involve more complicated production processes than the others. This indicates competitive advantage of Thailand’s food processing industry in terms of its production capability and competitiveness.

Country Report: Analysis of International Investment in the Agricultural Sector of Thailand

Table 7 Thailand’s major processed food exports in 2007-2009

Product category	Value	Value	Value	Growth	Growth	Growth
	2007	2008	2009	rate (%)	rate (%)	rate (%)
	(Mil. US\$)	(Mil. US\$)	(Mil. US\$)	2007	2008	2009
Canned seafood	1,785	2,456	2,126	4.94%	37.59%	-13.44%
Processed fruits and vegetables (including fruit and vegetable juice)	1,138	1,356	1,227	6.45%	19.16%	-9.51%
Food ingredients and ready- to-eat food	483	629	700	32.33%	30.23%	11.29%
Grand Total	3,406	4,441	4,053	8.64%	30.39%	-8.74%

Source: Thai Food Processors’ Association, www.thaifood.org

Thailand has achieved a significant reputation in exporting processed food, especially in the following categories (National Food Institute of Thailand, <http://nfi.foodfromthailand.com>):

- 1) Processed tuna products (47 per cent) and shrimp (20 per cent of global market share)—world's largest exporter in 2008
- 2) Processed pineapple, including pineapple juice and concentrates (45 per cent of global market share)—world's largest exporter in 2008
- 3) Processed chicken products (25 per cent of global market share)—world's largest exporter in 2008

The significance of the food industry as one of the country's major export sectors has grown over time. In the 1970s, Thailand's food industry began to play a role in international trade, and the industry successfully achieved a 26 per cent export growth rates twice both in 1990 (National Food Institute of Thailand, <http://nfi.foodfromthailand.com>) and in 2008 (National Food Institute of Thailand, 2010b). In addition, the Ninth National Economic and Social Development Plan of Thailand (2002–2006) stressed the importance of Thailand's food industry by aiming to maintain Thailand's position as a major food producer and exporter (Thai National Economic and Social Development Board, www.nesdb.go.th). The sector is considered to reflect one of Thailand's competitive strengths, and is judged important in the national economic development strategy. It is identified as one of Thailand's globally competitive sectors (Thai Ministry of Industry, www.m-industry.go.th).

Thailand is one of the most important food exporters in Asia and the world. Among the world's food exporters, there are only two major Asian players: namely, China and Thailand. Thailand was one of the top fifteen largest world food exporters from 2000 to 2008 (World Trade Organization, www.wto.org). There are plenty of opportunities in global markets for Thai firms in the food

industry since global demand for their products is rising. The main cause of this growing demand is the fact that consumption patterns of food products are becoming internationalized through international migration, communication and tourism (Athukorala and Jayasuriya 2003). In addition, climate change and resultant shortages of food supplies around the globe are leading to higher demand for Thai food products unaffected by such changes. For example, Thai rice, fruit and vegetable products can be increasingly exported to world markets in larger amounts, yielding increased revenues to Thai exporters (National Food Institute of Thailand, 2008a).

Athukorala and Jayasuriya (2003) stated that supply side developments and increasing degrees of trade liberalization have facilitated the exchange of processed food globally. These developments can be encouraged through effective government policies. Athukorala and Sen (1998) stated that among all country-specific factors, *government policy* is the most significant determinant of processed food export success. For instance, bilateral trade policy could directly affect firms in the industry as tariffs on processed food are reduced. Developing-country exports come from low cost producers who try to exploit country-specific advantages. These products are sensitive to tariffs, such that developing-country firms may react to trade barriers by locating some of their activities in a foreign country, especially a neighbouring developing country (Lecraw 1977). Thailand is gearing toward trade and investment liberalization (through free trade agreements and international investment agreements) and also tries to attract higher level of FDI via its investment promotion programs as well as export-led industrialization policy. It is interesting to investigate the implications of these contemporary policies to international investment in the agricultural and food processing sectors of Thailand.

2.2 Foreign Direct Investment (FDI) Data in Thailand

There are two main sources of foreign direct investment (FDI) statistics in Thailand; the Bank of Thailand (BOT) and the Board of Investment (BOI). Both are employed in this report. The BOT's FDI statistics cover overall FDI flowing into the Thai economy while the BOI's FDI partially cover the FDI that receive BOI's promotion packages. It is important to note that not all FDI projects apply for BOI's promotion and the two data sources are compiled on a different basis.

FDI data collected by the Bank of Thailand follows the International Monetary Fund (IMF) Balance of Payments Manual, which is an international standard for collecting FDI statistics. The BOT's FDI statistics comprise three components; equity capital with at least 10% of foreign shareholding, loans from affiliates, and reinvested earnings (Bank of Thailand, 2010). Since the data definitions are in accordance with the international standard they are comparable among countries and widely used in the analysis of FDI. The BOT's statistics represent the entire streams of investment and often reported as net FDI flows. Net FDI flows are defined as FDI inflows minus FDI outflows.

Foreign direct investment data collected by BOI refer to projects with foreign capital of at least 10%. The BOI's FDI definition does not strictly comply with the IMF's direct investment standard therefore the data is often called foreign investment instead of foreign direct investment. The BOI's foreign investment data cover only projects applied for or received approval for BOI promotion. There are seven sectors under the BOI promotion; i) agriculture and agricultural products ii) mining, ceramics and basic metals iii) light industry iv) metal products, machinery and transport equipment v) electronic industry and electrical appliance vi) chemicals, paper and plastics vii) services and public utilities. This study focuses only the first sector.

Since the two sources of FDI data are compiled on a different basis they are not comparable. Nonetheless, both data sets complement each other. BOT's FDI data represent actual flows of FDI into Thailand while BOI's data indicate trends of FDI. The BOT's FDI depict the overall picture of FDI at an aggregate level while BOI's FDI allows us to investigate the role of foreign companies at a project level.

3. Policies, Legislations, Institutions Affecting FDI in Thai Agriculture

This section reviews macroeconomic and investment promotion policies affecting FDI in Thailand with an emphasis on the agricultural sector. It also discusses the role of policies, legislations and institutions influencing the investment pattern of multinational enterprises (MNEs) in Thailand.

Overview

The Industrial Revolution in Western countries took place in largely the nineteenth century. Since then, many researchers have studied the internationalization of MNEs from these countries. Developed country MNEs are main drivers of increased FDI in developing countries including Thailand. A number of core theoretical models of internationalization emerged including: the product life cycle model (Vernon 1966, 1979) and the investment development cycle model (Dunning 1986). Later, in the mid 1980s, our understanding of internationalization of developing-country MNEs from countries such as NICs (Singapore, Hong Kong, Taiwan, Korea); India; Brazil and Mexico has steadily grown (Wells 1983; Fong and Komaran 1985). The later literature documents the development of these firms' competitive advantages over time, including their ability to analyze foreign markets, and their networking capabilities (Dunning et al. 1998;

Pananond 2007). Furthermore, major country-specific factors, such as labor costs and developing countries' government policy, are also important for their firms and nations' outward and inward internationalization. These factors offer diverse comparative advantages that firms can capitalize on (Aggarwal and Agmon 1990; Peng 2000; Lee 2004; Sim 2006).

Research on the relationships and interplay between foreign firms and developing-country governments warrants more attention. Continuous adjustments in host governments' policies, rules and regulations on international investment are necessary, in particular in this globalization era, in order to respond to foreign firms' needs and rapid changing global environment. In the past, most work focused on the role of government as a regulator. Yet, government also plays an important role in facilitating and promoting international investment. Government tries its best to support foreign firms, through, for example, industrial and trade policies, because the increasing involvement of MNEs in international business positively affects nations' economic advancement (Porter 1990). These policy makers have recognized their important role in international competition and economic development. This paper employs Thailand as a case study for the analysis of developing country FDI policy in agricultural sector. Next section describes FDI barriers to entry, Thailand's investment policy climate including export-led industrialization policy; trade and investment liberalization policies; and the Board of Investment's policy. These relevant policies help generate sound and favorable investment environment for the aforementioned international firms.

3.1 Investment Barriers

3.1.1 High Transaction Costs

Thailand has evolved toward an open economy. This reflected in its declining tariff and non-tariff barriers over time. During 1960s and 1970s, import tariffs were set at high levels, especially for

those infant industries at the time (e.g. the automotive industry) when the import substitution policy was put in place to protect domestic industries (The Board of Investment of Thailand, www.boi.go.th). In the late 1990s, import duties on machinery and capital goods (61 categories) were removed for export oriented firms. Additionally, import taxes imposed on raw materials of exported products were exempted for both the Board of Investment of Thailand (BOI) and non-BOI promoted firms. Firms could obtain import tax refunds from Thailand's customs department.

High transaction costs still remain due to inefficient public services, ambiguous regulations and duplicate/complex administration processes amidst the liberalization of trade and investment in Thailand. The Asian financial crisis in 1997 was a wake-up call for Thailand's wide range of reforms including government transparency and economic reforms. Many Thai government agencies like the Thai export promotion department and the BOI launched their One-Stop-Service Centers in order to facilitate exporters and investors. To date, only some of these centers have proven to be efficient in providing services in a short period of time (i.e. visa and work permit approved within three hours as well as single window for submission of required customs/business permits and standard certification documents). Nevertheless, processing time in clarification and interpretation of the Harmonised System (HS) code, customs clearance and import tax refunds (maximum of 30 days with high possibility of delays) and value added tax refunds (15-90 days or more) is quite lengthy as a result of nontransparent rules and regulations as well as bureaucratic red tape. Last but not least, business permits, registrations and standard certificates involve many government agencies whose procedures and requirements are distinct to certain extent. This, in effect, requires a significant time spent and increases transaction costs which are one of factors influencing FDI inflows.

As a result of the discussed issues, many firms (both new and established ones) have to acquire more information on business permits and registrations, standard certification, product classification, customs and taxation procedures as well as relevant regulations, among other things. For example, a well known and established food processing firm (Company J) aiming to export its products to Australia would have to contact the Thai government agency, the Department of Export Promotion (DEP) for detailed information on the bilateral FTA between Thailand and Australia. At the time, that company did not yet gain any benefit from the FTA, since there was some confusion over the product categories entitled to enjoy lower tariffs:

“We check tariffs according to TAFTA. Tariffs should be reduced, but the interpretation of the customs department of each country for each product may not be the same as our country’s interpretation. There are also changes in the Harmonised System (HS) code digits. These may be reasons why we do not get the advantage of tariff reductions. Tariffs still remain at five per cent on our products. We plan to discuss the issue with Export Promotion Department on how to get tariff reductions at the other end.” (Personal interview, Manager—Export, Company J, December 2007)

World Bank (2008)’s report on Thailand investment climate assessment update is based on the analysis of 1,043 firms in manufacturing sectors which comprise automobile parts, food processing, furniture/wood, electronic parts, electrical appliances, garments, machinery, rubber/plastics, and textiles. These firms participated in the Thailand Productivity and Investment Climate Surveys (PICS) conducted in 2007. The report precisely describes difficulties that firms experience in doing business in Thailand. Complication and confusion over administration as well as procedures for getting business permits and standard certificates cost these firms both time and money:

“In establishing a food processing factory...firms must obtain permits from several agencies such as the Department of Industrial Works and local administrations...Obtaining certification of standards also requires contacting many agencies. This is a special concern for the food-processing industry because there are many ingredients in processed food that need to be certified by several agencies. An example is the standard certification of barbecue sticks. These sticks contain meat, seafood, and vegetables, which involves visiting up to four agencies for certification - the Department of Livestock Development (for meat), the Department of Fishery (for seafood), the Food and Drug Administration (for vegetables), the Department of Agriculture and the Ministry of Industry (if it is packaged in a can). Contacting multiple agencies takes time and the time taken for certification by each agency is different and uncertain... Tests carried out before standard certifications can be awarded is time consuming and costly.” (World Bank, 2008: 84)

In the nutshell, while the reductions in tariff, non-tariff barriers and taxes help induce FDI, Thailand still needs to simplify its taxation, customs and other public administration, procedures and regulation in order to gain its position as one of the region’s most attractive FDI recipient countries.

3.1.2 Political instability

Since 2006, Thailand faced severe political uncertainty issues. There was a military coup in 2006 and political unrest and violence in 2010. Changing governments and Prime Ministers (seven Prime Ministers during 2006-2010) mean a possible modification of existing policies. In the worst case, some economic policies may be discontinued. For example, In 2006, right after the coup, changes in capital mobility policy were made via stricter currency and capital controls (30 per cent reserve

requirement on capital inflows). In addition, the government at the time tried to amend the Foreign Business Act 1999 causing growing negative investors' sentiments for such action. As expected, uncertainties caused many foreign investors to delay their decisions or search for alternative investment destinations. This has continuously impacted FDI inflow negatively (see Section 4).

Current government headed by Prime Minister Abhisit Vejjajiva announced that there will be no change to the existing Foreign Business Act 1999. Foreign firms can own up to 49 per cent of shares in service sector while the percentage of ownership is greater in case of foreign firms investing in Thailand's manufacturing sector. With regard to land ownership, foreigners and foreign firms can purchase limited plot of land if and only if they can get approvals from the government (mostly in industrial estates). Clearly, amidst political turmoil and instability Thailand's FDI inflows are declining. The Thai government can remedy the situation through the creation of stable and favorable macroeconomic climate as well as the development of clear long term policies while solving a chronic political problems which it has no direct control over.

The relationship between political turmoils and FDI prevails in the case of Thailand's recent (during the 1st half of 2010) demonstration of the United Front for Democracy Against Dictatorship (UDD) which adversely influenced Japanese investors' decisions and confidence. The Japanese Chamber of Commerce (JCC) in Bangkok conducted a survey to gauge business sentiment among JCC member companies in Thailand. There were 375 out of 1,299 firms responded to the sent questionnaires (28.9 per cent response rate). It was reported that the majority of firms participating in the survey (accounting to approximately 67 per cent) recognized the UDD demonstration as a factor affecting their future investment in Thailand while 7 per cent of these firms increased their investment criteria in response to such political uncertainty (Japanese Chamber of Commerce,

2010). Remarkably, 99 per cent of firms believed that the political unrest could cause possible negative effects on the domestic economy. Therefore, the impact on Thailand's FDI inflows is probably greater in cases of market seeking Japanese firms (primarily focussing on selling their products in Thailand) than those firms using Thailand as their production bases for exported products.

3.1.3 Limited government support on research and development and human resource development programs

One of Thailand's weaknesses lies in research and development (R&D) as well as its human resource development (HRD). Public investments in these areas are in great need in order to enhance the attractiveness for FDI in the agricultural sector and also increase agricultural productivity which has been included as the key area for development since the 1st National Economic and Social Development plan. This emphasizes the vital roles and importance of agricultural sector as an engine for Thailand's economic growth. Agricultural products are exported to the world market, at the same time; they are raw materials and intermediate products for other industries including food processing. Thailand aims to be "the Kitchen of the world" and global food exporters. In order to achieve that, it has included the food processing industry as one major priority sector in the 9th national plan. Agricultural development (both through R&D and HRD) requires concerted efforts by various government agencies, for example, Ministry of Agriculture and Cooperatives and Ministry of Science and Technology.

In 1960s, the government policy predominantly focused on increasing agricultural productivity and diversifying production of major agricultural products that were in high demand in both domestic and international markets. Protection of epidemics and development of fine livestock breeds were promoted during this period. Forest and natural resource reservation was also the key

developmental goal aiming to achieve approximately 50 per cent of land. However, research and development in agricultural sector was limited to only some economic crops such as rice, rubber and corn. Additionally, regarding the fishery sub-sector, Thai government began to support research and training programs for fishermen to increase their capabilities for deeper-sea fisheries.

Later, the fourth National Economic and Social Development Plan (NESDP) reinforced the Thai government's effort on improving agricultural productivity and development by promoting advanced technologies, for example, fertilizer, pesticide, and agricultural machines but most of Thai agribusinesses and farmers still lacked technological capabilities to create their own state of the art technologies. As a result, most of these technologies were imported and adopted by Thai users in the agricultural sector. By doing so, it helped reduce cost of production and time consumption while increased output. During the same period (Mid-late 1970s) Thailand's Board of Investment (BOI) provided privileges to export-oriented manufacturers that employed capital intensive production according to its Investment Promotion Acts. This helped influence foreign investors to make investments in Thailand's agricultural sector including food processing as shown by positive figures for the first time (See Section 4 for details).

Agribusiness firms (both Thai and foreign) have played significant roles in the development of agricultural sector. They become innovators and dominant players since they have better access to sources of funds, technology and knowhow than farmers and other players in the value chain. Research and development required a large amount of long-term investment. Large firms are capable of mobilizing some funds either via domestic channels or joint ventures with foreign firms or internal capital supports from international headquarters. These generate benefits to agricultural development in crops, livestock, aquaculture, and plantations as well as food processing. In addition, these firms possess technological skills and capabilities which can increase the success probability of their research projects. They build

strong linkages with farmers via contract farming system allowing farmers to have access to new developed technologies and enhance their agricultural production skills.

Ministry of Science and Technology also plays an important role in increasing Thailand's agricultural competitiveness and improving agricultural performance. This is clearly demonstrated in, for example, one of its agencies' strategic plan, the National Science and Technology Development Agency (NSTDA)'s strategic plan (2007-2011) aiming to accomplish its mission by promoting research and development and implementing activities related to technological transfer, human resource development and developing science and technology infrastructure in order to achieve the main goal of the 10th national plan transforming Thailand toward a "knowledge based and creative economy". NSTDA of the Thai Ministry of Science and Technology ranks Food and Agricultural sector as one of its top priorities in line with the 9th national plan. A separate food and agriculture cluster is responsible for seed development, animal breeding technology, cost reduction and productivity enhancement technologies, improving production quality, food safety and risk assessment of seafood products.

Key indicators of successful transformation toward a "knowledge based and creative economy" are amount of investment in research and development as well as human resource development. Thailand's sustainable development depends on production capability which can be enhanced by utilizing technological capability. This can be promoted via research and development investment. NSTDA is a main engine driving improvements of industrial and agricultural sectors since it promotes new innovation and cooperation with partners. However, it's notable that Thailand's research and development budget remain unchanged at 0.5 per cent of GDP. The actual government spending on this is even less only about half since the fifth national plan (1982-1986) until the current national plan (2007-2011). Additionally, only 6 per cent of Ministry of

Agriculture and Cooperatives' spending is on research and development.

With regard to human resource development, the Thai government acknowledges the low quality and access to education among Thai people. Labor quality has been the key issues affecting levels of gross FDI inflow and economic growth. As a result, education policy and the development have been set as the government's priority and included in the 10th national plan. Knowledge labors accelerate the rates of technological absorption leading to higher productivity. At present, there is a mismatch between the skills offered by Thai labor and the skills needed by foreign firms. Approximately 40 per cent of manufacturing firms indicated that labor shortages and mismatches is a major hindrance to doing business in Thailand (World Bank, 2008). The newly developed education policies and systems have been put in place. The formation of strategic alliances between education and economic sectors can help solve the issue (close the skill mismatch gap) as well as generate research and knowledge suitable for sectoral development.

Singapore is a good example of successful human resource development program in the South East Asian region. Singapore's government has spent significant amount of its expenditure on education which helped build up knowledge and disseminate technology (Hobday, 1994). This may be the reason why Singapore is the most developed countries of this group attracting huge amount of FDI. Although this is not yet the case for Thailand, the Thai government has committed to achieve its long term human resource development goals through active education reform encompassing free high quality education policy. So far the current Thai government provides full support for a 15 year free basic education program. Students are entitled to tuition fees, textbooks, learning materials, school uniforms, as well as other pertinent educational activities (free of charge). Not only in terms of quantity, attention of the reform has also been paid on improving quality of education. However, the government has not

achieved much progress on this end due to insufficient infrastructure (e.g. ICT systems), coordination and centralization issues arising from various agencies (e.g. Ministry of Education, Ministry of Science and Technology and Ministry of Agriculture and Cooperatives) involved in the human resource development as well as research and development programs.

3.2 Investment Policy Climate

3.2.1 Macro-Level Policies

Export-led industrialization policy

Thailand is one of the most popular destinations in ASEAN (Association of South-East Asian Nations) in which foreign investors choose to locate their operations since it is among the fastest growing economies in the South East Asian region. Obviously, many countries and their respective firms would want to enjoy and take advantage of its high rates of growth. Thailand has performed an increasing economic growth remarkably since 1981, especially when it reached the two-digit growth rate in late 1980s. Thailand's economic growth maintained positively growing while the growth rate of Malaysia and Singapore became negative in 1985. However, after the 1997 Asian financial crisis Thailand and Malaysia experienced the lowest economic growth in 1998 at -10.5 and -7.4 respectively while Singapore's growth rate was -0.9 (Statistics Division of the United Nations, <http://unstats.un.org>). In 2000s, Thailand growth rate rebounded and reached 4.07 per cent amidst its political turmoil in 2006.

Thailand's development strategies have played important roles in accelerating economic growth. The Development of Thailand's industrialization policy began with the formulation and implementation of import substitution policy since 1958. The policy had been incorporated in Thailand's National Economic and Social Development Plan as well as the Thai Board of Investment's policy. The Thai government selected certain industries entitled for benefits of such a shelter policy based on

their direct linkages to domestic industries as well as usage of domestic raw materials and contribution to Thailand's aggregate foreign exchange saving. This was achieved via tariffs, import restrictions and preferential treatment including special taxation for investment in the priority sectors. In the 1970s, the Thai government started employing export promotion policy. However, import substitution measures were at the same time used as protection tools for intermediate and capital goods producers as well as exporters. This is supported by evidence from the food processing with a very high effective tariff rate in 1975 estimated at 65.8 per cent and a nominal tariff rate of 22.6 per cent (Urata and Yokota, 1994).

During 1980s-1990s, Thailand progressed toward a more opened and liberalized economy by implementing its openness policy. In the early 1980s, the use of import substitution industrialization tools was minimized as shown by a considerable decrease in tariff rates and other non-tariff barriers. Since 1987 (the sixth National Economic and Social Development Plan), the Thai government implemented a full scale export-led industrialization policy focusing more on technology intensive sectors. This includes preferential measures through taxation and the provision of low cost funds as well as the development of export processing zones. The success of the policy was marked by high economic growth rates since 1988 (13.29 per cent) until the mid-1990s (9.24 per cent). The changes made contributed to increased FDI much more than relying on the obsolete import-substitution policy resulting in an increase of Thailand's inward FDI to GDP ratio from 1.03 per cent in the 1970s to 3.38 per cent in the 1990s (See also Section 4). Additionally, Kohpaiboon (2003) found an empirical result of the increase in FDI generating higher economic growth in favor of an export promotion trade regime in the period of 1970-1999. This is not surprising since the nature of most FDI is export oriented. For example, Japanese MNEs and firms from the newly industrialized countries (NICs) like Singapore, Hong Kong, Korea and Taiwan established their subsidiaries in Thailand as production facility bases for manufacturing export products (Urata and Yokota, 1994). Clearly, appropriate and effective economic

development policy help create sound macroeconomic environment suitable for attracting FDI.

The economic implications of export-oriented policy for FDI growth of agricultural and food processing sectors succeeded in the 1980s and 1990s. In the past, agricultural sector was a leading export sector for Thailand with little support from FDI. It seemed that the sector also did not receive much benefit from import-substitution policy given its nature of operations (natural resources intensive). Later, export promotion policy partly expedited Thailand's agricultural and food processing export. Food product export was the largest among other manufacturing sectors until 1990 (Julian, 2001). Such an opened door policy also helped attract foreign investors and companies to invest and take advantages of low production and operating costs in these competitive sectors (see Section 4).

Crucial engines facilitating structural changes in Thailand were strong relationships and high cooperation among technocratic advisers, politicians, and industrial groups (Rock, 1995). The author also argued that Thai industrial policy has been well planned and consistent. In addition, Thailand successfully implemented investment-incentive policy (Drabble, 2000; see also Section 3.2.2). Building up a sound investment environment and the governments' initiatives and interventions are vital for economic and foreign investment growths. These government policies create advantages that can partially explain Thailand's internationalization success. These advantages are additional and complementary to conventional comparative advantages, such as low labor costs and other country-specific factors, which initially attract FDI.

Trade and Investment Liberalization

Thailand's government policy geared toward a higher degree of economic integration and trade liberalization. Thailand is a

member of trade organizations at both regional and global levels and is actively involved in the development of trade agreements at bilateral level. Apart from being a member of the Asia Pacific Economic Cooperation (APEC) forum and the World Trade Organization (WTO), Thailand aims to develop better bilateral trade and economic relationships with its trade partner countries. It is thought that these free trade measures and policies expedite trade in goods and international investment and generate a sound environment for firms involved in international business activities. These are in accordance with the goals of the Ninth National Economic and Social Development Plan of Thailand (2002–2006) in obtaining bargaining power in international trade and investment (Thai National Economic and Social Development Board, www.nesdb.go.th). The Thai government employs a bilateral FTA policy that partially helps them to achieve international trade and investment goals. In addition, the Tenth National Economic and Social Development Plan (2007-2011) continues focusing on a proactive trade strategy. These include seeking for new markets and enhancing competitiveness of Thai producers based on knowledge and abundant natural resources. Free labor mobility across countries through economic integration and liberalization is supported by the Thai government as a means to attract foreign workers, businessmen and investment.

The Thai government has undertaken free trade initiatives as a critical part of its overall international trade strategy. The policy began in 2001, following the example of Singapore, which was the first ASEAN (Association of South-East Asian Nations) country to implement a bilateral free-trade agreement regime. There are different stages of developments and success in each free trade agreement negotiation process. In Thailand, many active free trade negotiations have been in progress for some time, for example, Thailand–United States. Others are already in effect, for example, Thailand–Australia, Thailand–New Zealand, and Thailand–Japan (Thai Department of Trade Negotiation, Thai Ministry of Commerce, www.thaifta.com). Among these, Thailand’s first bilateral free-trade agreement with a developed

country, the Thailand–Australia Free Trade Agreement (TAFTA), was successfully agreed on 5 July 2004.

Apart from comprehensive FTAs, interim agreements, like the Early Harvest Schemes (EHSs) or the Early Harvest Programs (EHPs) have been reached. The interim trade agreements help to accelerate trade liberalization between the parties before bilateral FTAs are fully negotiated. In general, they comprise only one part of broader framework agreements. While the framework agreements cover trade in goods, services and investment embracing comprehensive economic cooperation, EHPs or EHSs focus on just one sector (mainly trade in goods). The interim trade agreements, like the Thailand–China EHP and the Thailand–India EHS, came into force in 2003 and 2004 respectively. At regional level, Thailand is a member country of the ASEAN Free Trade Area (AFTA) which became effective since 1993. Moreover, ASEAN established many bilateral agreements with countries such as Japan, China, India and Republic of Korea.

The development of free trade agreements between Thailand and its trading partners has brought about a wider market opening for trade in goods. Tariff reductions are considered to be high in all these bilateral agreements. JTEPA, for example, eliminates tariffs from 95 per cent of Thai goods. TAFTA and TNZCEP reduce tariffs for Thai products—including agricultural products, processed food, processed seafood and ready-to-eat food—by 83 per cent and 79 per cent respectively. Goods under the Thailand–China EHP are mainly fresh fruits and vegetables, while the Thailand–India EHS covers 84 items of agricultural and industrial products such as fruit and processed food products. Additionally, AFTA helps decrease tariffs by more than 60 per cent including the removal of non-tariff barriers. The aforementioned FTAs have some exception with regard to the implementation of tariff elimination of agricultural products on the sensitive list such as dairy products under TNZCEP stating that complete tariff elimination is extended until 2015. But these products are only a

small minority covering products that Thailand needs to enhance the competitiveness by lowering cost of production.

Thailand's food exports are, however, growing at a declining rate as shown by a negative growth rate of -3.1 per cent in 2009 (National Food Institute of Thailand, 2010b). This emphasizes the need to deepen current markets and, at the same time, expand into new markets. It is anticipated that the established FTAs will facilitate this process (National Food Institute of Thailand, <http://nfi.foodfromthailand.com>). The food industry is one of the key sectors in Thailand's free trade agreement strategy (Thai Department of Trade Negotiation, Ministry of Commerce, www.thaifta.com). As a result of successful negotiations, tariffs for some food products are subject to eliminations over time, while some others are immediately reduced to zero. This may well encourage international firms to take FTAs into account and to gain benefit from the favourable trade policy.

Clearly, the FTAs provide firms with competitive advantage (via tariff reduction) over those competitors whose governments have not yet liberalized their trade regime. Also, there is provision of technical assistance and close cooperation, especially in agricultural technology (i.e. under TAFTA, TNZCEP and AFTA). It is postulated here that this cooperation will enhance productivity and the quality of Thai agricultural products used as inputs in processed food production. In essence, the established FTAs offer many benefits from trade liberalization encompassing many things from wider business opportunities through larger and easier accessible markets than before to technological development. However, there is a question about the major beneficiaries from trade liberalization. Although, these FTA directly expand trade opportunity by widening market access for agricultural products and processed food products, the benefits to players such as agro-businesses, exporters, distributors and foreign investors outweigh the benefits to Thai farmers at large. So far, Thai farmer households' annual income from agriculture averages 3,821 US\$ in 2007 and increased slightly to 4,406 US\$ in 2009. Similarly, net agricultural income was 1,679 US\$ (per

year) in 2007 and 1,916 US\$ in 2009 (Office of Agricultural Economics, 2007, 2009). Most of them remain poor. Although the existing contract farming system helps integrate Thai farmers into the Agricultural and Food industry value chain, most of them still cannot move up the value chain with their limited knowledge and technological know-how.

With regard to investment liberalization, there are two main types of international investment agreements (IIAs) that are increasing in their importance and popularity, namely FTAs (as described earlier) and bilateral investment treaties. FTAs' role as a FDI driver should not be neglected since they help promote and liberalize investment across countries. Dunning et al. (1998) argued that the internationalization of firms might be partly due to globalization and regionalization of markets and the pursuit of value-adding activities. Buckley et al. (2001) argued that North American Free Trade Agreement (NAFTA) increased the possibility of non-member country firms' undertaking reorganization and rationalization. There would be higher foreign direct investment from European MNEs in the USA (Buckley et al. 2001). Rugman and Verbeke (1990) analyzed the impact of Europe 1992 on corporate strategy. They found that European firms would integrate related production and marketing activities across Europe. More generally, it seems that FTAs cause both insider firms (of countries party to the agreements) and outsider firms to increase investments.

While most interim agreements do not cover liberalization of investment or movement of people, the comprehensive bilateral agreements expedite investment by including investment promotion and liberalization provisions as part of investment chapters. This provides foreign firms with greater opportunities for investment in both service and non-service sectors in Thailand and vice versa. Liberalization in services and investment included in the FTAs is good for international firms in the food industry, since almost all value-adding activities are open to foreign investment. Higher levels of investment are encouraged by liberalization of the production and service sectors, as well as

facilitation of natural person mobility. With regard to movement of people, the most relevant feature is that Thailand agrees to facilitate temporary business entry for citizens from countries party to the bilateral FTAs since the bilateral FTAs covers a chapter on the movement of natural persons. In addition, simplified and transparent immigration formalities for business people are employed and encouraged. The deregulation of movement for people helps foreign firms to relocate their human resources when they invest in Thailand, for example, in sales and distribution offices, or in setting up factories. Further, investment cooperation on research and development and capacity building of priority sectors including agro-processing is incorporated into many FTAs such as the bilateral FTA between Thailand and New Zealand.

Another category of IIAs falls to the bilateral investment treaties (BITs). The significance of bilateral investment treaties (BITs) between Thailand and its partner countries is to protect and facilitate foreign investors as well as increase inflows of FDI (Neumayer and Spess, 2005; Kerner, 2009). Since the multilateral investment agreement has not established yet, the BITs are used as critical and universal tools to attract FDI. They gain popularity from their less complexity and narrower scope/coverage involving shorter time spent during development process than other types of international investment agreements (IIAs) like double taxation treaties and FTAs. These BITs in effect help promote and, at the same time, protect FDI via provisions of national treatment, contractual right protection and investor-state dispute settlement as well as the relaxation of minority ownership restriction.

Up until 1 June 2010, Thailand signed off 40 BITs in total according to reports submitted by Thailand to United Nations Conference on Trade and Development (www.unctad.org). The first BIT between Thailand and developed country (Germany) was reached in 1961 followed by Thailand-the Netherlands investment agreement concluded on the 6th June 1972 and Thailand and UK bilateral investment agreement signed on the 28th November 1978. There was a tremendous growth in terms of numbers of

Thailand's engagement in BITs. In the 1970s and 1980s, there were only 4 agreement signed. Later, 21 BITs were concluded during 2000-2010. These agreements have been reached with both developed countries (i.e. Germany, Switzerland, UK) and developing countries (i.e. China, NICs, Indonesia). To date Germany, China and Switzerland are among the most active countries engaging in the negotiation and development of BITs as shown by their numbers of signed BITs (www.unctad.org/iia). The Thai government realizes the importance of FDI on economic development resulting in a rapid expansion of BITs and a change of policy toward greater degree of investment liberalization after the Asian financial crisis in 1997.

Although Thailand is one of the most attractive FDI destinations, it has to compete with other countries in the same region and elsewhere for foreign capital. In particular, competition among developing countries is very stiff. Recent political unrest heightened concern about Thailand's competitiveness and its sound macro-environment. Foreign firms may have to think more than twice before making their decisions to invest by taking various variables into account, for example, market size, culture, legal systems, and political risks. Reduced level of political stability affects uncertainty level greatly. These firms have to monitor possible changes in rules and regulations, particularly with regard to ownership, expropriation and profit remittance.

The establishments of Thailand's bilateral investment treaties help build up confidence of foreign investors and reduce both political and commercial risks by providing protection against expropriation or nationalization for foreign investors. For instance, BIT between the Russian Federation and Thailand clearly stated that investments of investors from countries party to the agreement shall not be nationalized or transferred ownership to the state with some exceptions such as public welfare protection required government intervention. In addition, several BITs between Thailand and partner countries include the provision of "prompt, effective and adequate" compensation in case when expropriation occurs. This is in line with Thailand's Investment

Promotion Act B.E. 2520 (1977) stating that the Thai government will not transfer business ownership of promoted investors to the state. This reflects a high standard of Thai law in this aspect although the Investment Promotion Act B.E., 2520 (1977) only provide safeguard for investors whose projects received approvals from Thailand's Office of the Board of Investment.

In addition, these BITs grant foreign firms national treatment. In effect, foreign investors from different countries investing in Thailand will be treated equally without any discrimination or special preference toward any particular country. Foreign investors can sue the state when they received an unfair treatment. BITs also exempt foreign investors from minority ownership restriction and, as a result, encourage firms to make direct investment. Foreign investors may find it faster and easier to utilize the benefits of BITs since they do not need to get approval from BOI and can bypass all administration time and costs involved in the approval process. However, they still need to apply for industrial and commercial licenses as required by Thai rules and regulations during their establishment processes.

With regard to transfer of funds, many BITs between Thailand and partner countries guarantee "freedom of transfer" subject to domestic exchange regulations and practices which comply with international standard such as that of International Monetary Fund (IMF). However, most BITs do not include provisions on balance of payment safeguard, prudential measures and stability article. Nuannim and Kaewpornawan (2010) argued that Thailand should include these provisions in BITs to allow the state to implement emergency and appropriate measures to maintain financial system stability and to prevent any damages on balance of payment as well as public interest as a whole. These are very sensible especially when financial crises occur. Since some negative aspects of free transfer and openness may be more vulnerability of external shocks.

There were many external shocks i.e. increases in oil prices and financial crisis during the past two decades. An analysis of the Thai government's response to external shocks in short run helps

us to understand the importance and role of economic policy on growth. After the financial crisis emerging in the Southeast Asian region, Thailand dealt with this problem by following the IMF rescue plan and maintaining high capital mobility. Thai government tried to induce foreign capital by raising domestic interest rates. This would cause a reduction in domestic investment undoubtedly, while there were huge influxes of FDI into Thailand increased from 99,733 million Baht in 1996 to 284,938 million Baht in 1998. Even with such a boost, Thailand economic growth in 1998 was the lowest among South East Asian countries and continued growing the lower rate than that of Malaysia and Singapore during 1999-2000 (Statistics Division of the United Nations, <http://unstats.un.org>). Malaysia, in contrast, responded to the crisis occurred in 1997 by rejecting the rescue plan. Malaysia did implement a stricter capital control policy than Thailand, which led to the relative lower domestic interest rate comparing to that of Thailand in the same period (IMF, 2001). Malaysia successfully recovered within a year after the crisis. This may be concluded that ability of the governments to effectively formulate and implement policies when external shocks occur is crucial for continuous and sustainable economic stability. Additionally, the government should build a good balance between domestic and foreign investments since high fluctuations in FDI could cause macroeconomic turbulence. This should be taken into account and heavy reliance on FDI should be neglected.

3.2.2 Micro-Level Policies: BOI Policies

The Office of the Board of Investment was established on the 21st of July 1966, commonly known as Thailand Board of Investment (BOI). BOI is the core government agency responsible for promoting investments, both local and foreign, mainly in the manufacturing sector. Since 1966, the Board of Investment has played an important role in shaping Thailand's direct investment policies including the policies affecting FDI in the agricultural sector. Although there are several Thai agencies affecting investment policy climate, BOI is uniquely positioned to provide

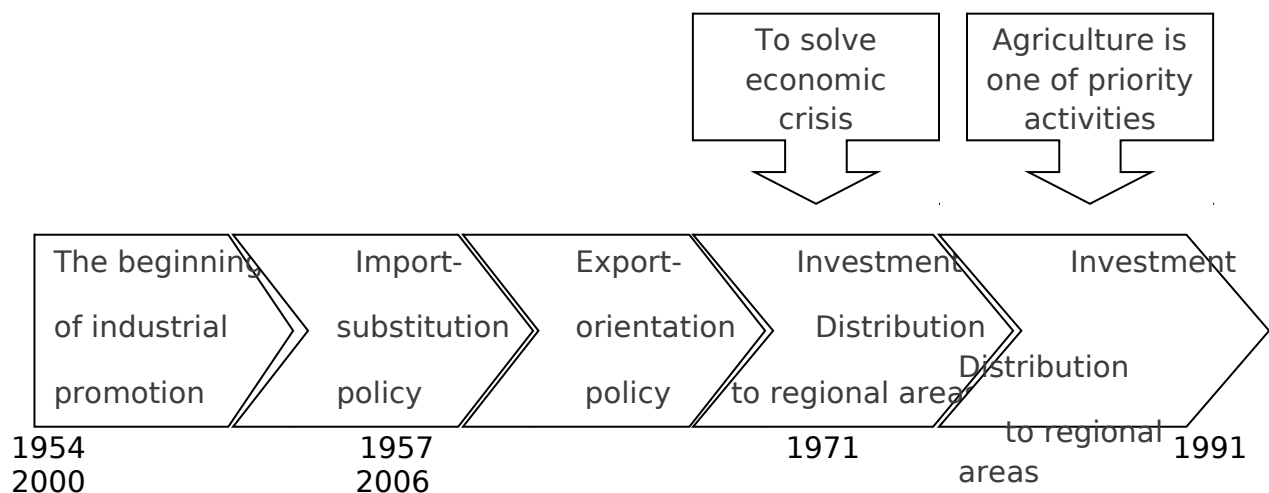
policy feedbacks from direct access to foreign and domestic enterprises.

To maintain favorable investment climate, BOI has adjusted its policies over time in accordance with economic conditions and the National Economic and Social Development Plans. BOI (2006) summarizes the investment promotion policies as shown in Figure 2. There are three main policies; import-substitution, export-orientation, and the dispersion of direct investment to regional areas.

- Investment policy to promote import-substitution took place during 1958-1971, which is in line with the first and the second national development plans. This policy aims at promoting firms to use local raw materials, developing infrastructure, and encouraging FDI in the form of joint-venture. The target industries during this policy include sugar, paper, automobile tires, and plywood.
- Investment policy to promote export-oriented industry began from 1972 to 1992 in accordance with the third to the sixth national development plans. This policy shifted emphasis towards promoting export-oriented activities as well as promoting small-scale and regional industries. An emphasis was given to agro-processing industry such as canned food, fertilizers, and food processing.
- Policy to disperse investment activities to regional areas has been emphasized since 1993 as stated in the seventh national development plan and continues to the present. To maintain the country's competitiveness and more balanced growth, increased emphasis has been placed on the dispersion of industrial activities to regional areas. Agro-industry has been set as one of the target industries serving as a basis for long-run industrial development and linkages. BOI has relaxed its conditions and offered more incentives in order to

encourage investors to improve their production efficiency and technology. For example, BOI encourages food-processing factories to adjust their operations up to international standards ensuring food safety (e.g., GMP, HACCP) and traceability.

Figure 2 Investment promotion policies



Source: Board of Investment (2006, p.45)

With regard to BOI promotional packages, there is no discrimination meaning that all approved projects receive the same privileges. Regarding the FDI, BOI policies aim to promote and attract foreign investment into the country, particularly in activities deemed beneficial to the economy, using tax and non-tax incentives. BOI's tax privileges aim at reducing costs of doing business in Thailand by granting exemptions on corporate income tax (for a maximum of eight years) and import tariffs on machinery, equipment and raw materials. Rights and benefits are varied with factory location.⁴ Promoted company is also allowed

⁴ See details in 'A Guide to The Board of Investment' including BOI's requirements for project approval, available at www.boi.go.th under BOI publications.

to own land under the approved project. These privileges are available to all investment projects, both local and foreign, approved by the BOI. In addition, the BOI provides necessary information and assistance to facilitate investors' businesses. For example, the office helps investors in obtaining official permits and documents required for conducting business, including visas, work permits and permanent residency permits. BOI also encourages industrial linkages between foreign firms and local supporting industries by bringing and matching those who want to find local business partners, subcontractors or specific raw materials.

The Board of Investment has granted promotional packages to investors or companies on a project-level basis. The promoted projects must comply with the BOI's criteria specified under the Investment Promotion Act B.E. 2520 (1977), which are transparent and at times updated in response to current economic and investment conditions. The BOI has classified activities eligible for promotion into seven groups or sectors. They comprise agriculture and agricultural products; mining, ceramics and basic metals; light industry; metal products, machinery and transport equipment; electronic industry and electrical appliance; chemicals, paper and plastics; services and public utilities.⁵

BOI has considered investment projects in the agriculture and agricultural products as priority activities. The priority activities are deemed important and beneficial for the Thai economy thereby granting maximum rights and benefits regardless of factory location. In general, an approved project is granted corporate income tax exemption subject to cap. That is, the tax break cannot exceed its project's investment value. This tax exemption limit is lifted for projects investing in the agriculture and agricultural products. There is also no limit on the machinery and equipment import duty exemptions.

⁵ List of eligible activities in the agriculture and agricultural products is shown in appendix.

The criteria of foreign shareholding for activities in agriculture and agricultural products are partly related to the Foreign Business Act B.E. 2542 (1999). Under List One of the Foreign Business Act, most of primary agriculture (including rice farming, farming or gardening, animal farming, forestry and wood fabrication from natural forest, fishery for marine animals in Thai waters and within Thailand specific economic zones, extraction of Thai herbs) is not permitted for foreigners to operate. Accordingly, for BOI-promoted projects in agriculture, animal husbandry and fisheries under List One of the Foreign Business Act, Thai nationals must hold shares totaling not less than 51 percent of the registered capital. Other activities, such as food processing and manufacturing of agricultural products, are free from this shareholding criterion.

4. Analysis of international investments into agricultural sector

The analysis of international investment in the agricultural sector of Thailand is divided into two sub-sections. First is the analysis of the overall international investment in the agricultural sector. The foreign investment data used in this analysis are mainly drawn from the Bank of Thailand (BOT). The second analysis focuses on the foreign investment promoted by the Board of Investment (BOI). Both BOT and BOI data have been commonly used to analyze international investment in Thailand.

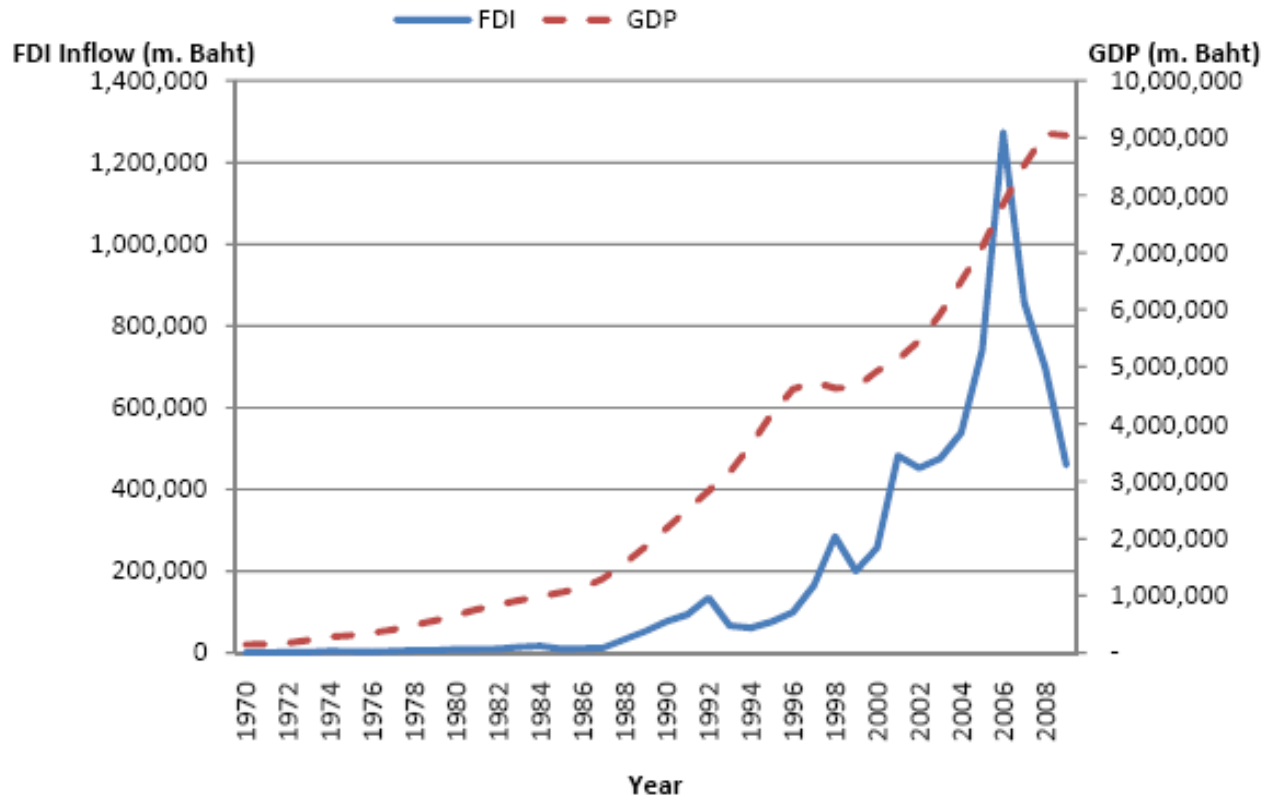
4.1 Overall FDI Analysis

Both GDP and total inflows of foreign direct investment portrayed a rising trend during 1997-2009 (See Figure 3). Although there are arguments over cause and effect issues between the two variables. It is obvious here that they move in the same direction. While GDP increased steadily over time, FDI fluctuated quite a little. In 1970, FDI was accounting to 1,014.10 million Baht (GDP,

148,279.76 million Baht). Later, FDI reached its peak of 1,274,046.54 million Baht in the year 2006 (GDP: 7,850,193 million Baht) and declined to 459,938.44 million Baht by the end of 2009 (GDP: 9,041,551 million Baht). This could be explained by the U.S. subprime and global economic crises. Domestic factor like Thailand's political crisis also plays an important role in inducing sharp falls of FDI inflows after 2006 onward. Although the fluctuation of FDI has not affected GDP that much in value, it is noticeable that GDP growth rates declined from 5.15 per cent in 2006 to 2.46 per cent in 2008 and the growth slowed to the lowest rate in a decade reaching its negative growth at -2.25 per cent in 2009 (Thai National Economic and Social Development Board, www.nesdb.go.th). We are of the view that macroeconomic and political stabilities at both global and local levels induce/influence FDI and vice versa. The analysis of FDI economic impacts on exports, output and employment of agricultural and food processing sectors will be discussed in Section 5 of this paper.

Figure 3 Thailand's FDI inflows and GDP during 1970-2009

Country Report: Analysis of International Investment in the Agricultural Sector of Thailand



Sources: Bank of Thailand and Thai National Economic and Social Development Board

During 1970-2009, FDI inflow is 192,710.32 million Baht on average (5,356.58 millions of U.S. dollars); amounting for 3.66 percent of GDP. It is noticeable that FDI to GDP ratios were very small (see Table 8) before 1986 when there was a development of economic policy progressing toward a more export oriented policy. Another observation, not surprisingly, the average FDI to GDP ratio of industrial sector is the highest (1.37 per cent), followed by FDI to GDP ratio of service sector (0.25 per cent). Agriculture FDI to GDP ratio is only 0.01 per cent. This is consistent with structural adjustments occurred in Thailand. It highlights the importance of effective shifting of resources away from agricultural sector, at the same time, shifting more toward increasingly attractive, strong and competitive industrial sector.

Table 8 Thailand's foreign direct investment to GDP ratio during 1970-2009

Year	FDI (Millions of Baht)	GDP (Millions of Baht)	FDI to GDP ratio (%)	FDI to GFCF ratio (%)
1970-1975	2307.10	214667.55	1.00	n/a
1976-1980	5794.68	494526.21	1.14	n/a
1981-1985	11992.18	913496.00	1.31	4.69
1986-1990	37229.02	1606730.20	2.08	6.19
1991-1995	86664.28	3263664.80	2.83	7.03
1996-2000	201367.36	4705981.60	4.27	17.53
2001-2009	664370.2885	7175115.11	8.72	35.98
1970-2009	192,710.32	3019650.88	3.66	n/a

Sources: Bank of Thailand and Thai National Economic and Social Development Board

Note: GFCF stands for Gross Fixed Capital Formation

In an early period (1970-1990), FDI inflow was quite low ranging from only 1-2.08 per cent of GDP and 4.69-6.19 per cent of total investment (Gross Fixed Capital Formation) during 1981-1990. This may be due to the fact that global FDI inflow was at its low level and Thailand had not developed much both economics and political terms. After the financial liberalization in 1990s, Thailand's FDI considerably increased from 2.83 per cent to 8.72 per cent of GDP in 2001-2009 and, at the same time, increased from 7.03 per cent to 35.98 per cent of Gross Fixed Capital Formation (See Table 8). Interestingly, FDI increased up to 50.97

percent in 1996-2000. This helps explain the possible effects of the Asian financial crisis in 1997 on FDI inflow data. It was reported that parent companies (MNEs) injected capital into their subsidiaries in Thailand coping with Thai Baht devaluation and serious liquidity problems (www.bot.or.th).

In the 1990s, countries that contributed greatly to Thailand's economy via FDI apart from US and EU are Japan (the most advanced internationalizing economies in the region) and Asia's newly industrialized countries (NICs) like Singapore, Hong Kong, Korea and Taiwan (See Table 9). This was caused by the appreciation of their currencies after the 1985 Plaza Accord. In addition, their MNEs had located their value adding activities in developing countries like Thailand where costs of operations and resources were low since the late 1970s. Most of Asian countries' international investment was in countries less developed than their home countries, typically with lower wage rates and less-sophisticated development (Lecraw 1992). After the Asian financial crisis in 1997, there were the recent surges in FDI inflows as shown by 2000s' figures. For instance, Japan FDI reached 4,303.07 million US\$ (more than seven times of the 1990s' value) while Singapore's FDI was 3,896.95 million US\$ (more than four times of the 1990s' value). Such influxes of FDI into Thailand were reactions of these countries' MNEs to take advantage of economic opportunities in making investments at cheaper costs (i.e. buying troubled local firms). Nevertheless, some were forced by the situation to inject more money into their own subsidiaries in difficult times.

Table 9 Inflows of foreign direct investment classified by country (million US\$)

	1970s	1980s	1990s	2000s
Japan	32.96	236.36	857.46	4,303.07
United States of America	44.74	108.07	601.01	1,874.62
EU 15 (a)	17.36	74.85	586.54	2,676.00
EU (b)	17.36	74.87	586.66	2,686.2

Country Report: Analysis of International Investment in the Agricultural Sector of Thailand

	1970s	1980s	1990s	2000s
				3
Belgium	0.32	2.37	17.33	99.70
Germany	2.99	13.92	102.52	477.98
France	1.49	4.84	121.62	204.43
United Kingdom	7.02	18.53	134.43	896.21
Netherlands	2.14	26.40	175.23	646.17
ASEAN 5 (c)	42.01	114.68	872.16	4,147.2 2
ASEAN (d)	42.14	115.29	875.10	4,157.0 7
Malaysia	0.85	2.44	12.76	169.94
Singapore	40.70	111.60	850.03	3,896.9 5
Hong Kong	22.32	103.36	544.98	612.77
Taiwan	0.22	36.54	160.71	170.04
Korea, South	0.41	2.48	22.00	101.04
Australia	0.72	3.34	41.45	121.88
Switzerland	2.85	13.55	70.25	341.83
Total	166.73	723.90	4,158.2 7	16,377. 43

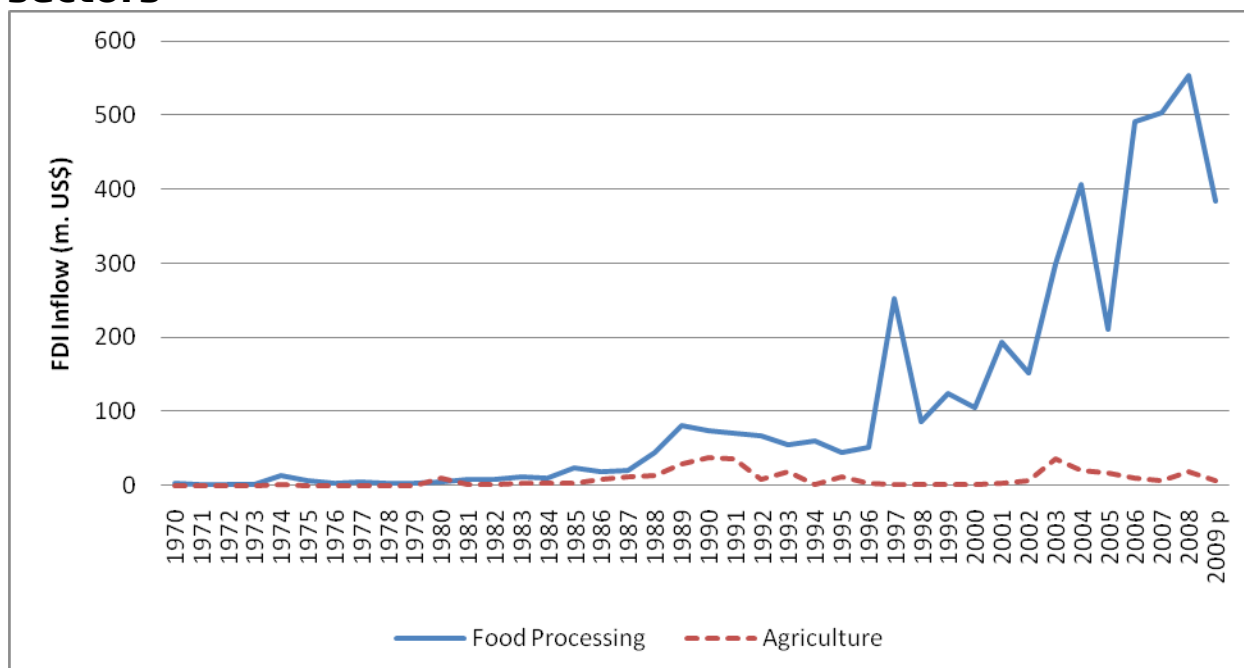
Source: Bank of Thailand database

Notes: (a) Prior to May 2004, EU comprises 15 countries: Austria, Belgium, Germany, Denmark, Spain, Finland, France, United Kingdom, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal and Sweden. (b) Since May 2004, EU comprises 25 countries including also Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Slovakia, Poland and Slovenia. Since Jan 2007, EU comprises 27 countries, including also Bulgaria and Romania. (c) Prior to 1999, ASEAN comprises 5 countries: Brunei Darussalam, Indonesia, Malaysia, Philippines and Singapore. (d) Since 1999, ASEAN comprises 9 countries including also Cambodia, Laos, Myanmar and Vietnam

Figure 4 exhibits FDI inflows of food processing and agricultural sectors during 1970 - 2009. On average FDI value of food processing is substantially higher than that of agricultural sectors, that is, 111.29 and 8.17 million US\$ respectively (Table 10). Food processing FDI rose significantly over the period starting from 4.045 million US\$ in 1970s to 329.954 millions in 2000s. On the contrary, FDI of agricultural sector evidently flew into Thailand in 1972 amounting for 0.245 million US\$. In 1980s, there was a big jump of agricultural FDI by 4,389 per cent of 1970s' amount. This

is consistent with the movement of AgriFDI to GDP ratios and AgriFDI share figures of the same period. However, both AgriFDI to GDP ratio and AgriFDI share of total FDI dropped continuously since 1990s onwards. This was caused by high risk of investment and limited business opportunities in comparison to other sectors (Netayarak, 2008).

Figure 4 FDI inflows into agricultural and food processing sectors



Source: Bank of Thailand

Note: (p) preliminary

Table 10 Comparison of FDI value, FDI to GDP ratio and FDI share between food processing and agricultural sectors

Year	FP FDI (m. US\$)	AgriFDI (m. US\$)	FP FDI to GDP ratio (%)	AgriFDI to GDP ratio (%)	FP share (%)	Agri share (%)
1970	0	0	0	0	0	0
1971	0	0	0	0	0	0
1972	0	0	0	0	0	0
1973	0	0	0	0	0	0
1974	10	0	0	0	0	0
1975	0	0	0	0	0	0
1976	0	0	0	0	0	0
1977	0	0	0	0	0	0
1978	0	0	0	0	0	0
1979	0	0	0	0	0	0
1980	0	0	0	0	0	0
1981	0	0	0	0	0	0
1982	0	0	0	0	0	0
1983	0	0	0	0	0	0
1984	0	0	0	0	0	0
1985	20	0	0	0	0	0
1986	20	0	0	0	0	0
1987	20	0	0	0	0	0
1988	40	0	0	0	0	0
1989	80	10	0	0	0	0
1990	80	30	0	0	0	0
1991	70	30	0	0	0	0
1992	60	10	0	0	0	0
1993	60	10	0	0	0	0
1994	60	0	0	0	0	0
1995	50	0	0	0	0	0
1996	50	0	0	0	0	0
1997	250	0	0	0	0	0
1998	100	0	0	0	0	0
1999	120	0	0	0	0	0
2000	100	0	0	0	0	0
2001	190	0	0	0	0	0
2002	150	0	0	0	0	0
2003	300	30	0	0	0	0
2004	400	20	0	0	0	0
2005	220	10	0	0	0	0
2006	490	10	0	0	0	0
2007	500	10	0	0	0	0
2008	550	20	0	0	0	0
2009 p	380	10	0	0	0	0

Country Report: Analysis of International Investment in the Agricultural Sector of Thailand

1970s	4.045	0.178	0.028	0.001	2.606	0.110
1980s	22.654	7.990	0.043	0.016	2.998	1.076
1990s	88.527	12.036	0.070	0.012	2.120	0.365
2000s	329.954	12.487	0.174	0.007	2.065	0.085
1970-2009	111.295	8.173	0.079	0.009	2.447	0.409

Sources: Bank of Thailand and Thai National Economic and Social Development Board

Furthermore, FDI inflow gaps between food processing and agricultural sector grew larger over time in terms of values, FDI to GDP ratio and FDI share. Both Figure 4 and Table 10 clearly illustrate this fact. Clearly, Thailand is doing quite well in attracting FDI in the food industry and will possibly achieve its goal as a major world food exporter and producer in the longer term. However, low FDI in agricultural sector is quite alarming since it is an indicator of the attractiveness and openness of the sector. Productivity and GDP growth of Thailand's agricultural sector could be enhanced through, among others, agricultural technologies and knowledge, market access and marketing capabilities from foreign partners. The agricultural sector is very critical as a part of the value chain producing inputs for the food processing industry. Ideally, the two sectors should prosper together. It would be hard to happen when a country's policy highly promotes and opens up a particular sector (i.e. the food industry) for MNEs to invest in while the other (i.e. agricultural sector) is quite restricted as shown by the Foreign Business Act B.E. 2542 (1999) not allowing foreign investors to make their investments in largely primary agricultural production. Another example, Thailand offers a great deal of export promotion incentives and privileges for the food industry while imposing export taxes on rice and other agricultural products⁶ until 1986

⁶ Taxation on these agricultural products has decreased over time. For example, export tax on rice was about 40 per cent in the 1960s and no taxation on rice since the mid-1980s.

for rice and until 1990 for rubber (Warr, 2008). Such a policy as it is the case for Thailand has resulted in large discrepancies in terms of FDI inflows and sector growth rates.

Table 11 Inflow of foreign direct investment in agricultural and food processing sectors of Thailand (million US\$)

Agri Sector	1987-89	1990s	2000s	FP Sector	1987-89	1990s	2000s
Japan	8.74	5.98	1.99	Japan	12.34	22.31	70.50
US	2.25	2.76	1.59	US	9.13	16.92	37.05
Malaysia	0.10	0.01	0.00	Malaysia	0.21	0.15	7.50
Singapore	0.45	0.33	0.06	Philippines	0.00	0.04	53.94
Hong Kong	0.56	0.06	5.49	Singapore	3.20	10.87	22.34
Taiwan	4.44	1.70	0.27	Hong Kong	3.27	4.74	9.93
China	0.05	0.05	0.01	Taiwan	3.90	9.09	4.40
Canada	0.05	0.63	0.02	Canada	0.03	0.03	1.28
Australia	0.16	0.02	0.04	Australia	0.10	0.60	3.00
UK	0.13	0.07	0.48	UK	0.93	15.07	19.89
Netherlands	0.30	0.10	0.59	Netherlands	4.93	0.99	12.87
Germany	0.12	0.01	0.47	France	1.23	0.11	2.58
France	0.00	0.03	0.02	Belgium	0.02	0.11	10.58
EU	0.55	0.24	1.58	EU	7.83	17.75	48.11

Source: Bank of Thailand database

Table 11 shows FDI inflows in both agricultural and food processing sectors by countries. Japan and U.S. invested in agricultural sector more than other countries from 1987-1999 on average. In 2000s, Hong Kong ranked 1st in its FDI totaling 5.49 million US\$. However, most of countries reported here have a tendency toward declining their investment in the agricultural sector of Thailand through time. This may be related to the

transparency and complexity of rules and regulations on land ownership as well as limitations on minority business ownership and poor administration on complicated taxation when compared to other sectors. Structural changes also help explain this phenomenon in Thailand as it is trying to boost up competitiveness in manufacturing and high value added sector by relocating both domestic and foreign resources from the primitive sector with the highest productivity to manufacturing and services sectors.⁷

Turning to FDI in food processing industry, Japan contributed the most to this sector since 1987 onwards. U.S. continued to hold its second rank (37.05 million US\$) but in the 2000s it was defeated by the Philippines (53.94 million US\$). Ohmae (1985) emphasized the significance of the “Triad” consisting of the US, Western Europe and Japan. Developed-country firms have high market shares in the Triad countries, which are strategically important to firms’ growth and success. Additionally, these MNEs, in particular, from the “Triad” become key players in developing countries including Thailand. The empirical evidence of this study supports this stylized fact, illustrating by growing FDI from Japan, US, European countries in food processing industry over time. Moreover, ASEAN countries such as Singapore’s and the Philippines’ figures indicate their significance in Thailand. These reflect resource and market seeking behavior of MNEs from the aforementioned investing countries. They may try to capitalize on their technological capabilities and take advantage of AFTA as well as favorable investment incentives provided by the Thai government.

Foreign direct investment are divided into two major forms, namely wholly owned subsidiaries and joint venture. Total foreign investment in manufacturing sector is accounting for 11.3 per cent of 23,677 firms included in the 1997 industrial census and 0.7 per cent of 457,968 firms included in the 2007 industrial census. Number of foreign investment in food processing sector is

⁷ Detailed discussion in Warr (2006) and Paopongsakorn (2006)

286 enterprises which is equal to 8.1 per cent of total foreign investment in 1996 and 0.2 per cent (217 enterprises) of total foreign investment in 2006 (See Table 12). Most foreign investors employ joint venture as a major mode of entry. Firms with less than and equal to 50 per cent of foreign ownership was 66.5 per cent in 1996 and 54.8 in 2006. The percentage of minority foreign ownership of firms in the food processing sector is even greater than the average (of overall industries) accounting to 78.3 percent in 1996 and 77.9 in 2006. Data collected on wholly owned subsidiaries is only available for the year 1996. It was reported that 422 firms or 15.8 per cent of total surveyed firms are 100 per cent foreign owned firms of which only 7.7 per cent falls to firms in the food industry.

Table 12 Foreign investment in the food processing sector classified by shareholders

	1996	Share in total	2006	Share in total
Total Foreign Investment (no. of establishments)	2,672		3,160	
> 50% Foreign (no. of establishments)	894	33.5	1,428	45.2
≤50% Foreign (no. of establishments)	1,778	66.5	1,732	54.8
Total Foreign Investment in food processing sector (no. of establishments)	286		217	
> 50% Foreign (no. of establishments)	62	21.7	48	22.1
≤50% Foreign (no. of establishments)	224	78.3	169	77.9

Source: Report Of the 1997 and 2007 Industrial Censuses, Whole Kingdom, Thailand's National Statistical Office, Office of the Prime Minister

4.2 BOI's Promoted Foreign Investment in the Agricultural Sector

Historical Development

Since the establishment of the Office of the Board of Investment on the 21st of July 1966, agriculture and agro-industry has been one of the eligible activities Thai government tries to induce more investment from both local and foreign companies. At the beginning there was no foreign investment in agriculture and agricultural products sector. Later in the mid-1970s, foreign investors had shown their interests in this sector and brought in technology to invest in food ingredients projects. The projects used local agricultural outputs such as palm, cassava, and rubber as raw materials and added value to their products (BOI, 2006). Since then, foreign investors' confidence has improved as shown by their continuous increased investments in this sector up to the present.

From the past up to the present, foreign investment in the agricultural sector promoted by the BOI, although has increased markedly, has a relatively small share in total foreign investment compared with other sectors. FDI in the agriculture and agricultural products has concentrated in export-oriented activities particularly in food processing and agro-industry. They have largely operated in the form of joint-venture. Major investing countries have come from Asia, notably Japan. More detailed discussion of the extent and nature of foreign investment in the agricultural sector are provided below.

Facts and Figures

Over the period of 1970-2006, the value of foreign investment in the agriculture and agricultural products is 291,901.7 million Baht; accounting for 5.3 percent of the total BOI's promoted foreign investment. The number of approved projects in this

sector is 1,625 projects, accounting for 11.4 percent of the total number of approved foreign projects. The proportion of numbers of agricultural projects (11.4 percent) is not that different from other sectors but its investment value is quite small (5.3 percent). Most of the projects are small-scaled with less than 50 million baht of investment. As a result, the sector's share in total foreign investment is relatively small, ranked the sixth out of seven BOI-promoted sectors (Table 13).

The value of foreign investment in the agriculture and agricultural products sector has generally increased overtime despite some fluctuations, as shown by the bar chart in Figure 5. Although the sector's share in total foreign investment is relatively small, the average annual growth rate of its real investment value during 1974-2009 was 69.57 percent. Similarly, the number of approved projects has also risen with a sharp peak in 1988 (as shown by the solid line in Figure 5) which is coincided with the overall FDI inflows and Thailand's economic boom (Warr, 2005). The average growth rate of the number of project was 30.71 percent per annum, much less than its investment value. Thai employment generated by these foreign investments also shared an upward trend with an average growth rate of 79.74 percent per annum. Note that there was no foreign investment in the agricultural sector prior to 1974⁸.

Table 13 Foreign investment approved by BOI classified by sectors, 1970-2009

Sector	No. of Projects	Share in Total (%)	Investment (mill Baht)	Share in Total (%)
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⁸ This is perhaps due to the agricultural sector during the early 1970s was not in an interest of FDI to apply for BOI's privileges.

Agriculture and Agricultural Products	1,625	11.4%	291,901.7	5.3%
Minerals and Ceramics	55	3.9%	516,657.5	9.4%
Light Industries/Textiles	2,015	14.1%	266,847.8	4.8%
Metal Products and Machinery	3,143	22.0%	897,721.4	16.3%
Electric and Electronic Products	3,096	21.7%	1,102,796.4	20.0%
Chemicals and Paper	2,049	14.4%	1,400,128.1	25.4%
Services	1,784	12.5%	1,031,745.0	18.7%
Total	14,270	100%	5,507,797.9	100%

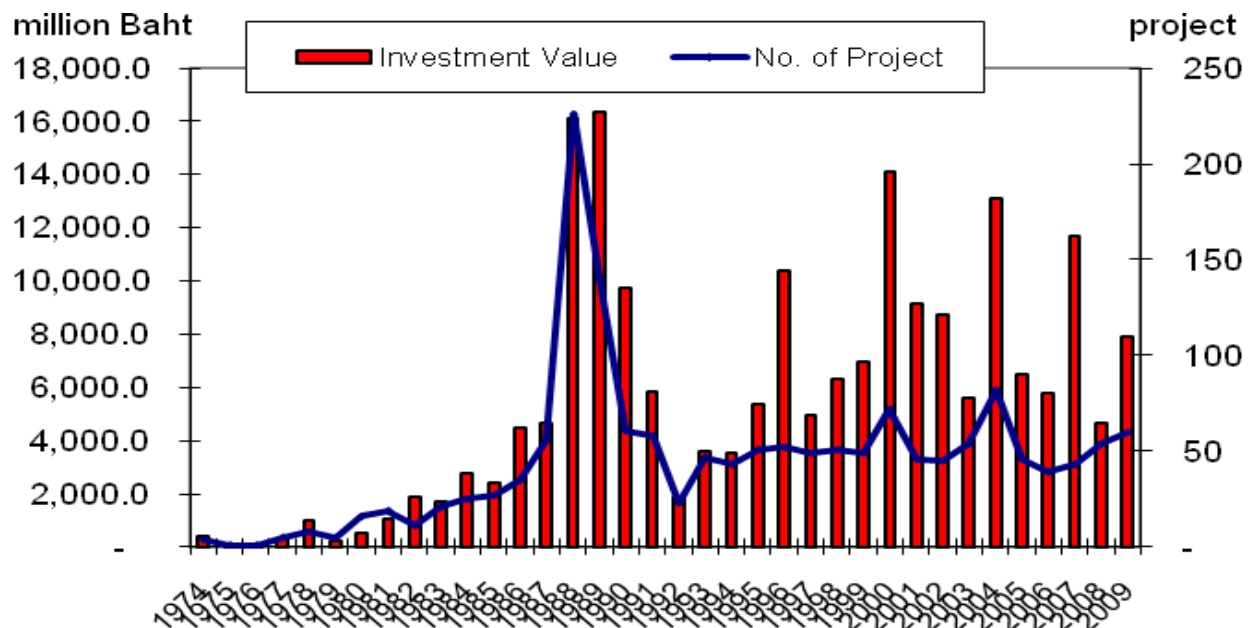
Source: International Affairs Bureau, BOI. Note: 1) Foreign Investment projects refer to projects with foreign capital of at least 10%. 2) Agriculture and agricultural products sector include eligible activities in primary production, food processing, manufacturing and services relating to agriculture and agricultural products.

When considering the foreign investment in agricultural sector as a percentage share of total foreign investment, Figure 6 shows that its share (both in terms of investment value and number of project) has declined markedly since 1975. During 1974-1976, the agricultural sector has dominated with more than 60 percentage share in total foreign investment. This is consistent with the agricultural growth period, 1960s-1970s, driven mainly by expansion of land frontier and heavy public investment in roads and irrigation (Poapongsakorn, 2006). After 1976, its share has fallen with significant drops during the early 1980s and continues to decline until the present. This is also in accordance with the period of agricultural decline, from 1980 to mid-1990s, categorized by Poapongsakorn (2006, p.5-18). In addition, the declining share of FDI is corresponding to the decreasing agricultural GDP relative to those of non-agricultural sectors.⁹ The

⁹ The relative decline of the agricultural sector has been explained by several studies, for example, Siamwalla, 1996; Martin and Warr, 1994; Coxhead and Plangraphan, 1999.

decline in agricultural growth was in line with structural change toward an industrialized economy as well as many external factors, particularly a worldwide depression in major agricultural product prices.

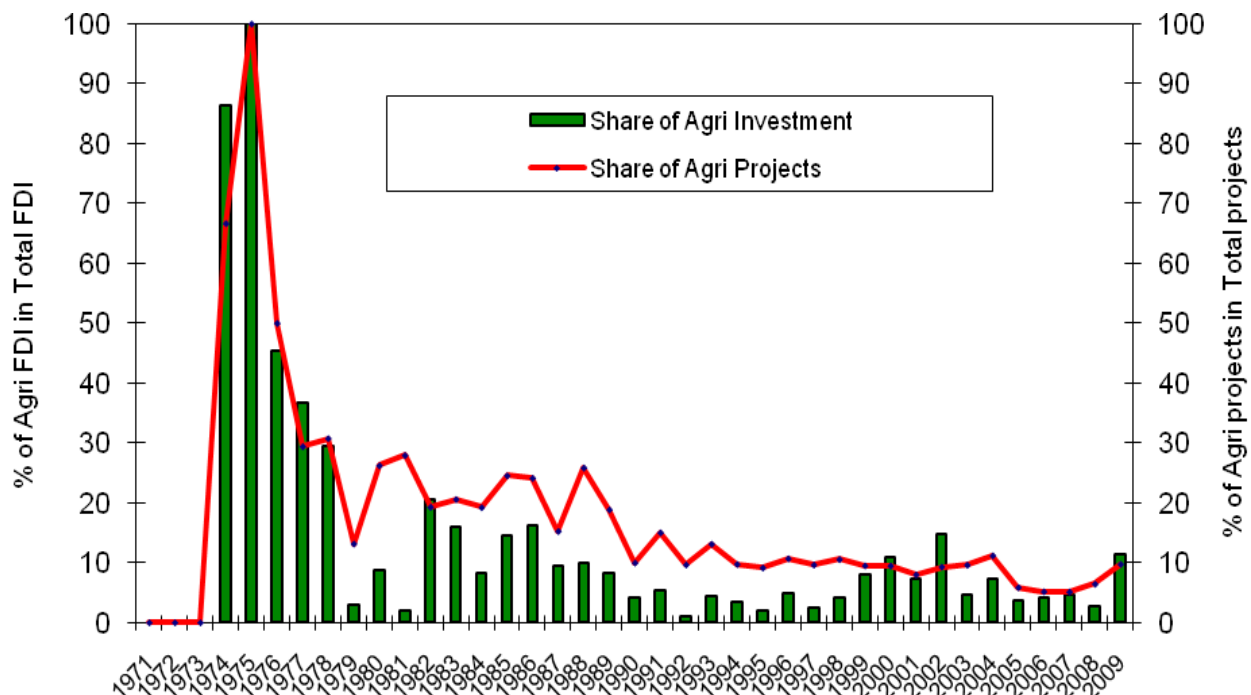
Figure 5 Foreign investment in the agriculture and agricultural products sector approved by BOI during 1970-2009



Source: International Affairs Bureau, BOI. Note: There is no investment in this sector prior to 1974. The investment value shown in this figure is in real terms, the nominal value was converted into real using GDP deflator. See the full data set in Appendix.

Figure 6 Shares of foreign investment in the agriculture and agricultural products in total foreign investment during 1970-2009

Country Report: Analysis of International Investment in the Agricultural Sector of Thailand



Source: International Affairs Bureau, BOI.

Characteristics of BOI's Promoted Foreign Investment

The majority of foreign investment promoted by the BOI is in the form of joint-venture between local Thai investors and foreign partners. Particularly for projects in agriculture, animal husbandry and fisheries under List One of the Foreign Business Act B.E. 2542 (1999), Thai nationals must hold shares totaling not less than 51 percent of the registered capital. As shown in Table 14, in term of number of projects the foreign investments in agriculture and agricultural products during 1970-2009 are joint-venture, accounting for about 82 percent while the rest is totally foreign owned projects, mostly in agro-processing activities that are not restricted by the law. In term of investment value, joint-venture projects account for 78 percent whereas wholly foreign owned projects account for 22 percent of the total foreign investment in this sector.

Table 14 Foreign investment in the agriculture and agricultural products sector approved by BOI classified by shareholders

	1970-2009	Share in total (%)
Total Foreign Investment (no. of projects) ¹⁾	1,625	
- 100% Foreign (no. of projects)	304	18.71
- Joint-Venture (no. of projects) ²⁾	1,321	81.29
Total Foreign Investment Value (Mil. Baht)	291,901.7	
- 100% Foreign (Mil. Baht)	64,785.9	22.19
- Joint-Venture (Mil. Baht)	227,115.8	77.81

Source: International Affairs Bureau, BOI. Note: 1) Foreign Investment projects refer to projects with foreign capital of at least 10%. 2) Joint-venture projects refer to joint projects between local Thai investors and foreign partners with foreign capital of at least 10%.

The majority of these foreign projects are export-oriented. More than 80 percent of their products are produced to serve export markets. Specifically, there are 1,064 projects out of 1,625 projects that produce for exports. This accounts for 65.5 percent of the total number of foreign approved projects in the agricultural sector. The total investment value of export-oriented projects is 169,045 million Baht, sharing 58 percent of the total foreign investment value in this sector. This is in line with the export-oriented industrial policy that Thailand has pursued since 1972. The majority of the export-oriented projects were concentrated in the manufacture of the natural rubber products, which are one of Thailand's top export products. Other activities that also attract a large number of export-oriented foreign investments include the manufacture or preservation of food or food ingredients, using modern technology. This is because rubber products and food processing are two major activities with large export opportunities. BOI promotional packages including an exemption of import tariffs on machinery and equipment is

perhaps deemed attractive to export-oriented rather than locally served projects.

Export-oriented foreign investment has generally increased through time, both in terms of number of projects and investment value (Table 15). During the 1970s the value of export-oriented foreign investment was still less than a half of total foreign investment. It has begun to dominate the overall foreign investment in this agricultural sector since the 1980s. Nonetheless, in terms of number of projects foreign investment during the 1970s was roughly the same and reached its peak in the 1980s in which Thailand had experienced industrial boom. This is partly attributed to the fact that Thailand had relatively cheap labors and raw materials at that time. Export-oriented companies had used Thailand as their production base of simple food processing and agricultural products.

Table 15 Export-oriented FDI in the agriculture and agricultural products sector

	1970s		1980s		1990s		2000s	
	No. of project	Investment (M.Baht)	No. of project	Investment (M.Baht)	No. of project	Investment (M.Baht)	No. of project	Investment (M.Baht)
Export-oriented	13	317.8	417	35,404.0	313	50,675.1	321	82,648.2
Others	11	775.9	159	15,316.1	171	31,368.3	220	75,396.3
Total	24	1,093.7	576	50,720.1	484	82,043.4	541	158,044.5

Source: International Affairs Bureau, BOI.

Note: Export-oriented foreign investment projects refer to projects which export their products of at least 80%.

With respect to major investing countries, Japan has been the largest investing country in the agricultural sector over the entire period, followed by the United States, Malaysia, Taiwan and People's Republic of China. These top five countries account for

63.5 percent of the total foreign investment value in this sector (Table 16). In term of number of project, Japan is also ranked number one followed by Taiwan, Malaysia, the United States and China. Their share in the total number of approved foreign projects in this sector is 68 percent. Besides these top five countries, other major investing countries include Singapore, Hong Kong, Netherlands, the United Kingdom, Australia, France, Germany, Canada and Luxembourg.¹⁰

Table 16 Top 5 investing countries in the agriculture and agricultural products

Country	No. of Projects	Investment Value (million Baht)	Rank of No. Projects	Rank of Investment
Japan	328	83,084.10	1	1
USA	159	29,390.90	4	2
Malaysia	218	28,529.00	3	3
Taiwan	300	23,638.80	2	4
PRC	98	20,820.80	5	5

Source: International Affairs Bureau, BOI.

Table 17 Promoted FDI classified by major investing countries, 1970-2009

(million Baht)

	1970s	1980s	1990s	2000s
Japan	12.4	664.1	2,220.0	10,158.2
Taiwan	6.1			1,970.5

¹⁰ See Appendix for the list of major investing countries in the agriculture and agricultural products.

Country Report: Analysis of International Investment in the Agricultural Sector of Thailand

		1,187.1	1,018.0	
Malaysia	-	309.0	1,752.0	2,059.4
U.S.	2.2	644.4	1,932.3	1,401.7
Netherland	-	351.4	1,174.8	184.1
Singapore	10.0	237.9	557.2	779.5
Hong Kong	-	658.9	154.9	589.5
Australia	-	224.9	749.7	107.3
PRC	1.2	344.3	309.2	322.5
Luxembourg	-	748.9	-	-
U.K.	7.3	155.9	195.3	281.2

Source: International Affairs Bureau, BOI.

Considering at sub-periods (Table 17), Japan, Singapore, the United Kingdom and Taiwan were major investors during the 1970s. In later sub-periods, Japan and Taiwan has still played dominant role while the U.K. and Singapore has invested relatively less compared with other countries. From the 1970s to 2000s, most countries had increased their investment in the agricultural and agricultural products sector. However, some countries have slowed down their investment during 2000-2009, for example, the U.S., the Netherland and Australia. This is in line with the declining trend of FDI in the agricultural sector.¹¹ It is worth noting that Japanese FDI has remarkably increased over time and Japan is not only the largest investor in this agricultural sector but also in other manufacturing sectors notably automotive and electronic products.

Decomposition of BOI's Promoted Foreign Investment

¹¹ With time and data constraints, this study does not investigate what are particular reasons for the decline in these countries' investment.

Disaggregating the agricultural sector's investment, BOI statistics (Table 18) reveal that foreign investment in the primary agricultural production (including crops, livestock, fisheries and forestry) accounts for only 8 percent of the sector's investment value whereas the share of food processing accounts for 36.4 percent. More than 50 percent of the foreign investment value is concentrated in the manufacturing of other agricultural products and agricultural services. In term of number of project, the primary agriculture accounts for about 10 percent and those of food processing and other agricultural products and services are about 35 percent and 55 percent, respectively.

The above findings suggest that international investments in the agricultural sector have concentrated in food processing and the manufacture of agricultural products. This is in line with the fact that Thailand has become industrialized with more emphasis on agro-industry and that BOI is the government agency that mainly promotes FDI in the manufacturing and service sectors. BOI-offered incentives and privileges may not be directly relevant to primary agriculture. In particular, primary agricultural production are under List One of the Foreign Business Act B.E. 2542 (1999), in which Thai nationals must hold shares totaling not less than 51 percent of the registered capital. This regulation more or less prevents foreign involvement in the agricultural sector. Moreover, the majority of FDI in this sector is export-oriented thereby investing in value-added agricultural products, using primary agricultural output as raw materials, to serve the world market.

Within the primary agriculture, crops occupy the largest share in terms of number of project, followed by fisheries, livestock and forestry. Nonetheless, in terms of investment value, livestock sub-sector accounts for the largest share of foreign investment,

followed by fisheries, crops, and forestry. This is because the majority of approved livestock projects are relatively large-scaled compared with crop projects that do not require as much investment. As shown in Table 18, the total value of foreign investment in livestock during 1970-2009 is 13,994 million Baht and those of fisheries, crops and forestry are 5,309.5 million Baht, 4,015.6 million Baht, and 245.5 million Baht, respectively.

Table 18 Foreign investment in the agriculture and agricultural products sector approved by BOI classified by sub-sectors during 1970-2009

Sub-sectors*	Total		Share in total (%)	
	No. of project	Investment value (million Baht)	No. of project	Investment value (million Baht)
Crops	61	4,015.6	3.75	1.38
Livestock	40	13,994.0	2.46	4.79
Fisheries	53	5,309.5	3.26	1.82
Forestry	3	245.5	0.18	0.08
Food processing	571	106,231.2	35.14	36.39
Non-food agricultural products	797	130,580.5	49.05	44.73
Others	100	31,525.4	6.16	10.81
Total	1,625	291,901.7	100.00	100.00

Source: Authors' calculation based on the data from the International Affairs Bureau, BOI. *Crops include activity 1.1 and 1.2, livestock includes activity 1.4 and 1.5.1, fisheries include activity 1.5.2 and 1.8, forestry is activity 1.24, food processing includes activity 1.11, and manufacture of agricultural products include activity 1, 1.3, 1.9, 1.10, 1.14-1.16, 1.20, 1.25. Others include post-harvesting and other supporting agricultural services, under activity 1.7, 1.13, 1.17-1.19, 1.21-1.23, 1.26-1.30. See appendix for the list of BOI eligible activities.

There has been a changing investment structure within the primary agricultural production activities, as shown in Table 19. During the early periods (1970-1979), crops were the major recipient of foreign investment. Livestock and fisheries received moderate investment while none for forestry. The crop projects that were approved in early days were fast grown tree cultivation and pineapple cultivation projects. In more recent years, investment has shifted to the production of hybrid corn seeds, mushroom, and hydroponic vegetables. This is in line with agricultural diversification. There has been a changing production structure in Thai agriculture in tandem with the changing comparative advantage and changing demand pattern toward high value added and safe products (Poapongsakorn et al., 2006). Since the 1980s, crops have received less investment while livestock and fisheries have gained more foreign investment. This is perhaps due to the growing export demands for poultry and fisheries. The amount of investment required in the crop sector is also relatively smaller than those of livestock and fisheries. There was no investment in the forestry plantation prior to 2004, which is consistent with the smallest role of forestry in Thai agricultural GDP and so there has been no foreign interest in this activity. The plantation projects approved from 2004 are in line with the public awareness over the extinction of forest and so it attracted foreign investment in this activity.

The livestock projects approved by the BOI comprise livestock breeding and husbandry, mainly in the swine and broiler chicken production. Fishery projects involve aquatic husbandry and deep sea fisheries, mainly in prawn aquaculture. Crop projects are under the BOI's eligible activities categorized as plant propagation and development and hydroponics cultivation. They are predominated by vegetables, fruits and field crops production. Foreign investment in forestry came mainly from a few forest

plantation projects (teakwood, sandalwood and argarwood). Approved projects in crops, livestock and fisheries have taken place since the mid-1970s while that of forestry has just begun in recent years (2004-2006).

The food processing sub-sector has received a relatively large number of the BOI approved foreign investment compared with the primary production. The promoted projects include a variety of food processing products such as rice crackers, noodles, fruit juices, canned seafood, frozen foods, dried fruits and vegetables, etc. The first and the oldest project in the BOI record were in this food processing sub-sector. It was the project producing chinese cake made from rice and flour, which was approved in 1974. This project to date has no longer received BOI tax privileges but it is still in the business located in Chonburi province. In recent years, a number of approved projects produce ready meals which are in line with the changing consumer demands for quick-and-easy lifestyle.

Other approved projects are the manufacture of agricultural products and supporting agricultural services, which include a large number of agro-industry products, post-harvesting activities and supporting services. For example, the manufacture of rubber products has received a number of foreign investments from past up to the present. The manufacture of oil or fat from plants or animals also attracts many foreign investments. Agricultural services mainly include grading and packaging of agricultural products, silo and crop drying, and cold-storage.

Table 19 Foreign investment in the agriculture and agricultural products sector approved by BOI classified by sub-sectors

Sub-sectors	1970s		1980s		1990s		2000s	
	No. of project	Investment (M.Baht)	No. of project	Investment (M.Baht)	No. of project	Investment (M.Baht)	No. of project	Investment (M.Baht)
Crops	2	433.0	1 8	728.4	2 2	1,2 98.0	19	1,5 56.2
Livestock	1	10.4	-	-	1 6	2,3 29.1	23	11, 654.5
Fisheries	2	36.0	3 5	2, 867.2	1 2	1,9 57.3	4	4 49.0
Forestry	-	-	-	-	-	-	3	45.5
Food-processing	6	137.0	17 8	20, 069.3	16 6	22, 909.3	2 21	63, 115.6
Agri Products	1 0	352.8	31 8	25, 468.6	24 2	43, 697.6	2 27	61, 061.5
Others	3	124.5	2 7	1, 586.6	2 6	9,8 52.1	44	19, 962.2

Source: Authors' calculation based on the data from the International Affairs Bureau, BOI.

5. Impacts of FDI in Thai Agriculture

5.1 Overview of FDI Impact

This section presents empirical evidence and discusses impacts of FDI on the food industry's employment, export, output and value added. Data used for the analysis are from the Thai National Statistical Office. Food industry is divided into four-digit International Standard Industrial Classification of All Economic Activities (ISIC) in order to see the detailed impact on its sub-sector. Data on some sub-sectors are not provided since there is no evidence of foreign ownership. In addition, the Thai National Statistical Office cannot publish data of firms in 1551 ISIC code (Distilling, rectifying and blending of spirits; ethyl-alcohol production from fermented materials) and 1553 ISIC code (Manufacture of malt liquors and malt) because of disclosure rules and regulations which is applicable when number of firms is less than three.

FDI and Employment

FDI impact on employment according to the 2007 industrial census was positive. Table 20 exhibits that 3,160 firms with foreign shareholders employed in total 983,778 employees (25.76 per cent of total employment) generating income of 142,426.05 million baht (33.05 per cent of total remuneration). Although firms with foreign ownership were only 0.7 per cent of all manufacturing sector, their aggregate impact on employment was one-fourth of total employment and one-third of total employees' income. FDI impact on Thailand's food industry also prevailed. There were 82,361 employees (13.34 per cent of total industry) employed by these foreign firms. These employees earned 9,605.15 million baht accounting for 15.67 per cent of total industry. It is noticeable that positive effect on employment share of the food industry is quite modest compared to the average figure of all manufacturing industries. This may be due to the fact that these foreign firms rely on the technology intensive production rather than labor intensive one.

Table 20 Summary of employment statistics for foreign manufacturing establishments in 2006 by category of industry, whole kingdom

Category of industry	Proportion of Foreign investment			Number of establishments	Number of employees	Remuneration (in Thousand Baht)
	< 10%	10 - 50%	> 50%			
All	126	1,606	1,428	3,160	983,778	142,426,046
1511) Production, processing and preservation of meat, fish, fruit, vegetables, oils and fats	2	5	1	8	5,698	725,127
1512) Processing and preserving of fish and fish products	5	24	8	37	19,648	1,975,935
1513) Processing of fruit and vegetables	1	16	8	25	16,069	1,592,735
1514) Manufacture of vegetable and animal oils and fats	3	6	1	10	1,919	259,314
1520) Manufacture of dairy products	.	18	1	19	607	68,492
1531) Manufacture of grain mill products	.	10	3	13	2,184	231,881
1532) Manufacture of starches and starch products	.	5	.	5	626	96,074

Country Report: Analysis of International Investment in the Agricultural Sector of Thailand

Category of industry	Proportion of Foreign investment			Number of establishments	Number of employees	Remuneration (in Thousand Baht)
	< 10%	10 - 50%	> 50%			
All	126	1,606	1,428	3,160	983,778	142,426,046
1533) Manufacture of prepared animal feeds	2	7	1	10	2,062	392,380
1541) Manufacture of bakery products	.	10	4	14	5,832	815,745
1542) Manufacture of sugar	1	3	.	4	1,685	121,490
1543) Manufacture of cocoa, chocolate and sugar confectionery	2	3	1	6	1,214	144,942
1544) Manufacture of macaroni, noodles, couscous and similar farinaceous products	1	5	5	11	4,800	738,224
1549) Manufacture of other food products	4	27	13	44	8,378	885,245
1551) Distilling, rectifying and blending of spirits;ethylalcohol production from fermented materials	.	2	.	2	D	D
1553) Manufacture of malt liquors and malt	.	.	1	1	D	D
1554) Manufacture of soft drinks; production of mineral waters	.	7	1	8	11,469	1,540,289
Total Food Industry	21	148	48	217	82,361	9,605,154

Note: D stands for nondisclosure

Source: Report Of the 2007 Industrial Census, Whole Kingdom, Thailand's National Statistical Office, Office of the Prime Minister

Among others, fish and fish products processing and preserving gained the highest employment share of foreign firms in the food industry (19,648 employees) followed by fruit and vegetables processing sector with 16,069 employees. Examples of sub-sector receiving the least benefit on employment were dairy products manufacturing (607 employees) and malt liquors and malt manufacturing sectors. Most of the foreign firms seem to invest a great deal in sub-sectors that Thailand offers them competitive advantages in terms of abundant and low cost of inputs. These firms can achieve their low cost targets by exploiting Thailand's resources and, at the same time, utilizing their internal strength and capabilities such as marketing and technological capabilities. Notably, some foreign firms choose to invest in sub-sectors that they have knowhow even though those sub-sectors are among Thailand's weakest sectors (technology wise). As illustrated in

Table 20, for instance, 19 firms invest in the dairy product manufacturing sub-sector. Since Thailand is neither a dairy product exporting country nor producing country, it would seem that these foreign firms invest in the sector in order to reap the benefits of a huge untapped domestic market. Despite the fact that positive employment gain is not much, the potential for technological transfer is great. This may help improve Thailand's food sector as a whole especially in the sub-sectors which it lacks expertise and knowhow through technological transfer processes between these foreign firms and Thai partners as well as relevant parties (i.e. workers and farmers).

FDI and Export

Majority of foreign firms (2,040 firms or 64.56 percent) set up businesses/plants in Thailand as production base for export. FDI contributed to approximately 56.44 per cent of total export value amounting to 1,398,794.83 million baht (See Table 21). This is a large proportion considering that it is derived from only 0.45 per cent of total establishments (both local and foreign firms). Approximately 24 per cent of these firms (758 out of 3,160 firms) exported more than 80 per cent of total output.

In 2006, export share of foreign firms in the food industry was about 21.84 per cent of total industry amounting to 62,612.79 million baht. Two most prominent sub-sectors were 1) Processing and preserving of fish and fish products; and 2) Manufacture of other food products accounting for export values of 17,916.85 and 17,438.38 million baht respectively. At the other end of the spectrum, up to 36.87 per cent of these foreign firms (80 firms in total) did not get involved in exporting their food products at all. Obviously, they mainly focused on domestic market. For instance, Dairy product manufacturing sector export value was only 2.85 million baht as most of final output was sold to customers in Thailand.

Table 21 Summary of statistics for foreign manufacturing establishments in 2006 by category of industry and export, whole kingdom

Category of industry	Percentage of export					Number of establishments	Value of export (in Thousand Baht)
	< 20%	20 - 49%	50 - 79%	>= 80%	No export		
All	597	348	337	758	1,120	3,160	1,398,794,826
1511) Production, processing and preservation of meat, fish, fruit, vegetables, oils and fats	2	1	.	.	5	8	477,792
1512) Processing and preserving of fish and fish products	.	3	3	25	6	37	17,916,849
1513) Processing of fruit and vegetables	1	1	4	17	2	25	8,374,353
1514) Manufacture of vegetable and animal oils and fats	2	4	1	1	2	10	2,045,029
1520) Manufacture of dairy products	.	.	.	1	18	19	2,847
1531) Manufacture of grain mill products	.	2	2	3	6	13	3,008,847
1532) Manufacture of starches and starch products	1	1	2	1	.	5	1,230,232
1533) Manufacture of prepared animal feeds	2	2	1	.	5	10	883,258
1541) Manufacture of bakery products	4	1	2	.	7	14	1,009,767
1542) Manufacture of sugar	.	1	1	1	1	4	2,494,992
1543) Manufacture of cocoa, chocolate and sugar confectionery	1	.	4	.	1	6	1,214,832
1544) Manufacture of macaroni, noodles, couscous and similar farinaceous products	4	.	.	6	1	11	3,307,047
1549) Manufacture of other food products	5	7	3	9	20	44	17,438,383
1551) Distilling, rectifying and blending of spirits; ethyl alcohol production from fermented materials	.	.	.	1	1	2	D
1553) Manufacture of malt liquors and malt	1	.	.	.	.	1	D
1554) Manufacture of soft drinks; production of mineral waters	1	.	2	.	5	8	2,014,765
Total Food Industry	24	23	25	65	80	217	62,612,792

Note: D stands for nondisclosure

Source: Report Of the 2007 Industrial Census, Whole Kingdom, Thailand's National Statistical Office, Office of the Prime Minister

Table 22 exhibits major importing countries of manufacturing and food products. The greatest numbers of foreign firms in Thailand totaling 644 firms (31.57 per cent) exported their products to Japan. USA, Singapore and European countries were also among the most popular/preferred export destinations of these firms. There were 257 (12.60 per cent), 242 (11.86 per cent) and 232 firms (11.37 per cent) respectively putting their efforts on the aforementioned target markets.

Main export markets for foreign firms in the food sector comprised similar countries to the manufacturing sector, except for China which ranked third in its importance by numbers of firms' choices of export markets followed by Singapore and European countries. This may be driven by the large size of the Chinese market, FTAs between Thailand and China as well as AFTA. Not surprisingly, these countries were also major sources of Thailand's FDI in agricultural and food processing sectors. Their respective foreign firms have strong business linkages and marketing channels in their homeland while exploiting low cost advantages and abundant resources of the host country. This is a typical combined characteristic of resource seeking and efficiency seeking FDI. As a result, we observe a great number of firms export final output back to their outward investor countries.

Table 22 Summary of statistics for foreign manufacturing establishments in 2006 by category of industry and importing country

Category of industry	Country							Value of export (in Thousand Baht)
	Korea and Taiwan	Japan	Singapore	China	USA	Country in Europe	Other	
All	108	644	242	71	257	232	486	1,398,794,826
1511) Production, processing and preservation of meat, fish, fruit, vegetables, oils and fats	.	3	.	.	.	.	.	477,792
1512) Processing and preserving of fish and fish products	1	7	.	2	11	3	7	17,916,849
1513) Processing of fruit and vegetables	1	14	.	2	4	.	2	8,374,353
1514) Manufacture of vegetable and animal oils and fats	2	2	1	.	1	.	2	2,045,029
1520) Manufacture of dairy products	1	.	.	.	.	.	.	2,847
1531) Manufacture of grain mill products	.	5	.	.	1	.	1	3,008,847
1532) Manufacture of starches and starch products	1	1	.	.	1	2	.	1,230,232
1533) Manufacture of prepared animal feeds	1	.	1	.	.	.	3	883,258
1541) Manufacture of bakery products	.	2	2	1	.	.	2	1,009,767
1542) Manufacture of sugar	.	2	.	.	.	1	.	2,494,992
1543) Manufacture of cocoa, chocolate and sugar confectionery	.	3	.	1	.	.	1	1,214,832
1544) Manufacture of macaroni, noodles, couscous and similar farinaceous products	.	7	.	1	1	1	.	3,307,047
1549) Manufacture of other food products	.	8	4	2	1	1	8	17,438,383
1551) Distilling, rectifying and blending of spirits; ethyl alcohol production from fermented materials	.	1	.	.	.	.	.	D
1553) Manufacture of malt liquors and malt	.	1	.	.	.	.	.	D
1554) Manufacture of soft drinks; production of mineral waters	.	.	.	.	.	.	3	2,014,765
Total Food Industry	7	56	8	9	20	8	29	62,612,792

Note: D stands for nondisclosure

Source: Report Of the 2007 Industrial Census, Whole Kingdom, Thailand's National Statistical Office, Office of the Prime Minister

FDI and output and value added

In 2006, output share of foreign firms in manufacturing sector was 43 per cent accounting for 3,140,965.11 million baht whereas foreign firms' contribution to manufacturing value added was 42.27 per cent or 743,405.62 million baht (Table 23). FDI impacts on output and value added was greater than its impacts on employment as shown by lower employment share of foreign firms (only 25.76 per cent). However, positive effect of FDI was greatest for Thailand's export with the highest foreign share of 56.44 per cent of total export value (See Section FDI and export and Table 21).

The same pattern of results repeats in case of FDI impacts on the food industry's output and value added. The degree of FDI positive impact seemed high on export with export share of foreign firms of 21.84 per cent in comparison. Foreign firms was responsible for producing 13.37 per cent of total output (150,889.52 million baht) while generating total food processing value added of 15.50 per cent of total industry (38,030.87 million baht). At sub-sector level, soft drinks and mineral waters manufacturing sector generated the highest output valued of 29,561.79 million baht but its value added was quite low amounting to only 6,140.82 million baht (Table 23). Motivation of foreign firms undertaking FDI in this sub-sector was to seek markets and to maintain access to local markets with promising economic growth like Thailand. This was supported by marginal export value of 2,014.77 million baht (See Tables 21 and 22) since most of outputs were produced for customers residing in Thailand. Interestingly, foreign manufacturers of other food products (1549 ISIC code)¹² did well in terms of both their output share and value added share accounting for 25,833.09 million baht (28.02 per cent of total sub-sector) and 12,621.83 million baht (41.79 per cent) respectively. These figures were higher than

¹² Manufacture of other food products not elsewhere classified such as manufacture of soups and broths; manufacture of spices, sauces and condiments; manufacture of foods for particular nutritional uses; manufacture of frozen meat, poultry dishes; manufacture of canned stews and vacuum-prepared meals; manufacture of herb infusions; manufacture of extracts and juices of meat, fish, crustaceans or molluscs.

those of the top export sub-sector such as processing and preserving of fish and fish products as shown by Table 23 below.

Table 23 Summary of statistics for foreign manufacturing establishments in 2006 by category of industry, whole kingdom

Category of industry	Proportion of share holding			Number of establishments	Value of gross output (Thousand Baht)	Value added (Thousand Baht)
	< 10%	10 - 50%	> 50%			
All	126	1,606	1,428	3,160	3,140,965,112	743,405,616
1511) Production, processing and preservation of meat, fish, fruit, vegetables, oils and fats	2	5	1	8	5,626,809	1,284,296
1512) Processing and preserving of fish and fish products	5	24	8	37	20,702,756	4,350,018
1513) Processing of fruit and vegetables	1	16	8	25	10,429,757	2,629,990
1514) Manufacture of vegetable and animal oils and fats	3	6	1	10	5,656,183	1,138,021
1520) Manufacture of dairy products	.	18	1	19	4,891,209	420,979
1531) Manufacture of grain mill products	.	10	3	13	6,690,278	1,091,310
1532) Manufacture of starches and starch products	.	5	.	5	2,533,554	356,086
1533) Manufacture of prepared animal feeds	2	7	1	10	11,406,366	2,275,074
1541) Manufacture of bakery products	.	10	4	14	11,211,888	2,349,441
1542) Manufacture of sugar	1	3	.	4	4,228,487	448,459
1543) Manufacture of cocoa, chocolate and sugar confectionery	2	3	1	6	2,577,492	389,512
1544) Manufacture of macaroni, noodles, couscous and similar farinaceous products	1	5	5	11	7,412,695	1,299,679
1549) Manufacture of other food products	4	27	13	44	25,833,086	12,621,833
1551) Distilling, rectifying and blending of spirits; ethyl alcohol production from fermented materials	.	2	.	2	D	D
1553) Manufacture of malt liquors and malt	.	.	1	1	D	D
1554) Manufacture of soft drinks; production of mineral waters	.	7	1	8	29,561,786	6,140,815
Total Food Industry	21	148	48	217	150,889,516	38,030,870

Note: D stands for nondisclosure

Source: Report Of the 2007 Industrial Census, Whole Kingdom, Thailand's National Statistical Office, Office of the Prime Minister

5.2 Contributions of BOI's Promoted FDI

The international investments through the BOI promotion have contributed to the Thai economy in several ways. The most obvious gains are in terms of employment generation and export earnings. In overall, foreign investment in this sector has generated a total of 369,514 jobs for Thai workers during 1970-2009. As shown in Table 24, the foreign projects have generally raised local employment over time despite a small reduction during the last decade. Over the entire period, the average annual growth rate of local employment is almost 80 percent per year, which is quite remarkable. The growth rate was particularly high comparing the 1970s to 1980s.

Table 24 Employment generated by foreign investment in the agriculture and agricultural products sector during 1970-2009

Year	Investment Value (Million Baht)	No. of Project (project)	Thai Employment (person)
1970s	1,093.7	24	6,306
1980s	50,720.1	576	111,396
1990s	82,043.4	484	130,554
2000s	158,044.5	541	121,258
Total	291,901.7	1,625	369,514

Source: International Affairs Bureau, BOI.

When considering at sub-sector level (Table 25), food processing activities have created the largest number of jobs for Thai workers, totaling of 173,220 persons which accounts for 47 percent of total number of job generated. This is mainly due to

the concentration of foreign investment in this sub-sector. The employment under the manufacture of agricultural products accounts for about 40 percent while that of primary agriculture (including crops, livestock, fisheries and forestry) accounts for 7.4 percent. The small share in the primary agriculture is consistent with the relatively small investment in these activities.

With regard to the primary agriculture, the employment generated by crops and livestock are similar despite the fact that the overall value of investment in the livestock sub-sector is much higher. This reflects the nature of livestock production that is less-labor intensive compared with crops. Foreign companies have generally employed modern technology as required by the BOI's regulations.

Table 25 Employment generated by foreign investment in the agriculture and agricultural products sector classified by sub-sectors during 1970-2009

Sub-sectors*	Thai employment (person)	Share in total (%)
Crops	10,624	2.88
Livestock	10,391	2.81
Fisheries	6,094	1.65
Forestry	314	0.08
Food processing	173,220	46.88
Agricultural products	146,528	39.65
Others	22,340	6.05
Total	369,514	100.00

Source: Authors' calculation based on the data from the International Affairs Bureau, BOI. *Crops include activity 1.1 and 1.2, livestock includes activity 1.4 and 1.5.1, fisheries include activity 1.5.2 and 1.8, forestry is activity 1.24, food processing includes activity 1.11, and manufacture of agricultural products include activity 1, 1.3, 1.9, 1.10, 1.14-1.16, 1.20, 1.25. Others include post-harvesting and other supporting agricultural services, under activity 1.7, 1.13, 1.17-1.19, 1.21-1.23, 1.26-1.30. See appendix for the list of BOI eligible activities.

Another obvious contribution is export earnings. As pointed out in section 4.2 (Table 15), the majority of foreign investment in the agricultural sector under the BOI scheme was export-oriented. More than 80 percent of their products were shifted abroad thereby boosting Thailand's agricultural exports. Expanding market size through export helps achieve the economies of scale that bring about real cost reductions thereby increasing productivity (Harberger, 1996). Exports also enhance market competition in the sense that export-oriented firms have to adjust to remain competitive in world markets by adopting new technology, marketing know-how and improving production efficiency. In the case of processed foods for exports, FDI has played a major role in the successes of these export industries (Netayarak, 2008). At macro level, these export gains help raise the country's GDP and hence productivity and living standard. Export-oriented FDI is also the dominant source of local employment since the 1980s up to the present, as shown in Table 26.

Regarding the impact of FDI on agricultural growth and productivity the empirical evidence is limited as the presence of FDI in the agricultural sector is small (Furtan and Holzman, 2004, Sattaphon, 2006). Sattaphon (2006) found evidence that Japanese FDI had a positive impact on stimulating the growth process in Thai agriculture but the effect was not large.

Table 26 Employment generated by export-oriented FDI in the agriculture and agricultural products sector (persons)

	1970 s	1980 s	1990 s	2000 s
Export-oriented	1,995	95,715	94,957	86,971
Others	4,311	15,681	35,597	34,287
Total	6,306	111,396	130,554	121,258

FDI and Technology Transfer

FDI has been widely recognized as an important channel bringing in capital, new technology and know-how that can enhance the technological capability of the host country firms. However, these benefits especially the technology transfer effect of FDI varied among empirical case studies. Kohpaiboon (2006) investigated linkages between FDI and technology spillover using Thai manufacturing as a case study, some of which include food products, beverages, rubber and wood products. He found that gains from FDI technology spillover is conditioned by the nature of the trade policy regime, meaning that to maximize gains from FDI technology spillover liberalizing investment policy has to go hand in hand with liberalizing the trade policy (Kohpaiboon, 2006). Although his study did not specifically measure the gains from FDI technology transfer it has important policy implication. The implication from his study is that agricultural trade policy in Thailand has to be liberalized to induce the type of FDI inflows that likely introduce technology spillover. According to Warr (2008), agricultural trade policy in Thailand is relatively liberal. This implies the relatively liberal agricultural trade policy has somewhat induced FDI with technology transfer. Since the extent of FDI in the Thai agricultural sector is quite small it is likely that the technology transfer impact is not large.

In Thailand, technology transfer to agriculture occurs mostly through non-FDI channels (Kohpaiboon, 2006). Private companies, particularly the Charoen Pokphand (CP) Group, have played an important role in transferring technology to farmers.¹³ However, Netayarak (2008) found evidence that FDI projects have brought about new knowledge and technologies which were diffused very well to Thai farmers, entrepreneurs and labors. In particular, the

¹³ The Charoen Pokphand (CP) has been instrumental in the research and development of broiler and shrimp cultivation, seed technology and a new variety of freshwater fish (Poapongsakorn, 2006, p.35).

Thai agro-industries have benefited greatly from the technology transfer during the past decades.

Moreover, Netayarak (2008) observed increasing trends of agricultural R&D and agricultural technology transfer during 1994-2005. Since the majority of FDI are in the form of joint venture and export-oriented, R&D funds were financed by parent companies or subsidiaries abroad (Netayarak, 2008). In particular, foreign partners played a major role in choosing processing techniques that suit foreign demand, notably in processed agricultural product like chicken, pineapples and tiger prawns. Foreign companies also brought in seeds and animal breeds that were adapted with local conditions and benefited Thai agriculture (Suphannachart and Warr, 2009).

6. Conclusion and Policy Recommendation

The extent of international investment or FDI in the agricultural sector of Thailand is relatively small compared with other sectors. The majority of FDI is in the food processing sector and takes the form of joint-venture producing mainly for export markets. The extent of FDI in primary agriculture is particularly small. This is perhaps due to a mix of several reasons, notably the rule of land ownership that restricts foreigners to own land, uncertainty in export markets due to controls and restrictions on primary agricultural exports, and the enforcement of Foreign Business Act that constrains the participation of foreign investors in primary agricultural production. There are larger investment opportunities in food processing and agro industry. Despite the small extent of FDI, evidence of both overall FDI inflows and BOI's promoted projects suggest the past investments have contributed to agricultural development and the overall economic expansion.

There are many benefits of FDI to Thai agricultural sector in terms of output, value added, export and employment expansions as well as technological transfer. All these lead to a more sustainable agricultural development. While the export-led industrialization policy generates more benefits to industrial sector than to agricultural sector, IIAs like FTAs and BITs including BOI investment promotion policy are good tools encouraging foreign investors to invest in the agricultural sector. However, the Thai government should effectively disseminate information and arrange in-depth consultation sessions with relevant parties including Thai firms and farmers prior to any changes or new development of policy. By doing so, it would help reduce short term shock and also prepare them for adjustment. There are large market and investment opportunities still to be tapped by Thai firms doing businesses in agricultural sector. Hence the importance of appropriate internationalization strategies and the development of internal company and human resource strengths to enable Thai firms, labors and farmers to capitalize on the increasing demand for food and to survive in a very tight competition for FDI in the world market.

The Thai government should try harder than before to facilitate FDI inflows and eliminate FDI's barriers to entry through deregulation and liberalization measures. This can be done by developing a greater number of international investment treaties such as FTAs. In terms of quality and coverage/scope of these IITs, the Thai government should concentrate on developing comprehensive BITs and FTAs by incorporating provisions of investment promotion, liberalization as well as protection in investment chapters. This would help position Thailand as an attractive international investment destination if its policy is gearing toward higher degree of openness and transparency. Public sector reform is in great need so as to increase transparency and reduce administration processing and approval time and costs. Well/Efficient and integrated management of agricultural, industrial, trade and investment policies should be supported since it helps reduce production and operation costs and increase profitability of investment in Thailand. Also, the

relevant Thai government agencies should collaborate in developing strategic, attractive and responsive investment promotion packages including grants to foreign investors' requirements (i.e. in terms of financial and human resource development), especially those prospective investors aiming to make investments in the agricultural sector.

While partnerships between foreign firms and Thai firms in the agricultural sector (most obvious in the food processing sector) are strong and increasing in numbers via joint ventures, linkages between MNEs and Thai farmers are expanding via contract farming arrangements. Such linkages should be maintained and established as agricultural production is a very important part of the value chain. Thai farmers often lack financial resources, skills and high agricultural technology. The agricultural productivity could be enhanced through the provision of training, new technological innovation and financial assistance. As it is now, most MNEs employ contract farming systems by supplying seeds, fertilizers and knowhow/new technology to farmers. Such relationships and cooperation should be broaden and strengthen via activities such as research and development. Therefore, the Thai government should develop a holistic policy to promote higher level of FDI in research and development as well as agricultural human resource development requiring concerted efforts by various government agencies, for example, BOI, Ministry of Agriculture and Cooperatives and Ministry of Science and Technology. Additionally, a better profit sharing system (e.g. profit and loss sharing loans) should be put in place to increase Thai farmers' income and improve their well-being. All these efforts generate benefits to agricultural development as a whole.

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Appendix

Appendix Table 1

(Millio

ns of Baht)

Year	FDI	FDI (Agri)	FDI (Food Processi	GDP	Gross Fixed Capital
1970	1,014	-	46	148,280	-
1971	1,028	-	28	154,468	-
1972	1,554	5	18	171,461	-
1973	2,172	5	36	224,340	-
1974	4,683	15	256	282,091	-
1975	3,391	2	142	307,366	-
1976	3,064	1	63	349,927	-
1977	4,286	2	89	406,659	-
1978	6,365	1	69	490,983	-
1979	6,000	5	64	562,580	-
1980	9,259	210	99	662,482	83,987
1981	9,342	8	173	760,356	12,821
1982	9,540	16	171	841,569	26,728
1983	13,944	55	257	920,989	62,138
1984	16,970	70	214	988,070	82,599
1985	10,166	80	643	56,496	86,999
1986	10,526	205	467	33,397	92,193
1987	12,536	293	513	99,913	59,269
1988	32,738	330	125	59,804	78,534
1989	53,079	721	065	56,992	42,876

Country Report: Analysis of International Investment in the Agricultural Sector of Thailand

Year	FDI	FDI (Agri)	FDI (Food Processi	GDP	Gross Fixed Capital
1990	77,266	967	1,894	2,183,545	81,764
1991	93,935	919	1,777	2,506,635	1,043,552
1992	135,028	201	1,686	2,830,914	1,111,283
1993	66,768	463	1,368	3,165,222	1,252,920
1994	61,599	18	1,522	3,629,341	1,450,219
1995	75,991	284	1,107	4,186,212	1,719,120
1996	99,733	84	1,295	4,611,041	1,892,923
1997	165,143	65	7,820	4,732,610	1,598,633
1998	284,938	27	3,578	4,626,447	1,035,447
1999	200,741	71	4,696	4,637,079	965,899
2000	256,282	34	4,288	4,922,731	1,079,993
2001	482,690	118	8,634	5,133,502	1,181,315
2002	452,335	265	6,539	5,450,643	1,243,188
2003	475,943	1,441	12,261	5,917,369	1,424,194
2004	538,893	836	16,360	6,489,476	1,681,824
2005	740,717	686	8,484	7,092,893	2,049,823
2006	1,274,047	387	18,571	7,844,939	2,203,967
2007	857,203	252	17,336	8,525,197	2,249,651
2008	697,567	606	18,432	9,080,466	2,492,332
2009 p	459,938	242	13,175	9,041,551	2,181,821

Appendix Table 2 Foreign Investment in the Agriculture and Agricultural Products Approved by BOI

Country Report: Analysis of International Investment in the Agricultural Sector of Thailand

Year	Investment Value (million Baht)	No. of Project (projects)	Thai Employment (persons)
1970	-	-	-
1971	-	-	-
1972	-	-	-
1973	-	-	-
1974	178.8	4	187
1975	14.0	1	35
1976	10.0	1	155
1977	161.5	5	2,068
1978	588.4	8	3,463
1979	141.0	5	398
1980	367.5	16	1,482
1981	830.7	19	1,577
1982	1,551.8	11	498
1983	1,480.9	21	1,143
1984	2,414.7	25	4,382
1985	2,139.0	27	5,081
1986	4,035.7	35	9,839
1987	4,424.8	56	8,222
1988	16,137.0	226	41,423
1989	17,338.0	140	37,749
1990	10,929.5	61	15,950
1991	6,927.2	58	21,269
1992	2,300.7	23	4,646
1993	4,618.7	47	14,167
1994	4,737.0	43	11,672
1995	7,630.8	51	11,692
1996	15,352.8	52	13,074
1997	7,648.6	49	11,176
1998	10,633.0	51	14,213
1999	11,265.1	49	12,695
2000	23,127.9	72	21,245
2001	15,273.4	46	16,874
2002	14,679.3	45	14,983
Year	Investment Value (million Baht)	No. of Project (projects)	Thai Employment (persons)
2003	9,540.1	54	7,417
2004	23,082.5	82	17,846
2005	11,929.6	46	9,134
2006	11,151.8	39	9,751

Country Report: Analysis of International Investment in the Agricultural Sector of Thailand

2007	23,414.8	43	8,328
2008	9,673.8	54	5,887
2009	16,171.3	60	9,793
Total	291,901.7	1,625	369,514.0

Source: International Affairs Bureau, BOI (As of July 22, 2010).

Note: Foreign investment projects refer to projects with foreign capital of at least 10%.

Appendix Table 3 FDI in the Agriculture and Agricultural Products Approved by BOI Classified By Shareholders

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Total Foreign Investment (no.of projects) ¹⁾	-	-	-	-	4	1	1	5	8	5
Total Foreign Investment Value (Mil. Baht)	-	-	-	-	178.8	14.0	10.0	161.5	588.4	141.0
- 100% Foreign (no.of projects)					-	-	-	1	3	3
- 100% Foreign (Mil. Baht)					-	-	-	41.0	465.2	56.5
- Joint-Venture (no.of projects) ²⁾					4	1	1	4	5	2
- Joint-Venture (Mil. Baht)					179	14	10	120.5	123.2	84.5
	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Total Foreign Investment (no.of projects) ¹⁾	16	19	11	21	25	27	35	56	226	140
Total Foreign Investment Value (Mil. Baht)	367.5	830.7	1,551.8	1,480.9	2,414.7	2,139.0	4,035.7	4,424.8	16,137.0	17,338.0
- 100% Foreign (no.of projects)	10	8	7	16	17	3	-	7	10	8
- 100% Foreign (Mil. Baht)	208.3	412.1	219.8	652.6	1,686.6	288.3	-	1,542.0	781.0	674.2
- Joint-Venture (no.of projects) ²⁾	6	11	4	5	8	24	35	49	216	132
- Joint-Venture (Mil. Baht)	159.2	418.6	1,332.0	828.3	728.1	1,850.7	4,035.7	2,882.8	15,356.0	16,663.8
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Total Foreign Investment (no.of projects) ¹⁾	61	58	23	47	43	51	52	49	51	49
Total Foreign Investment Value (Mil. Baht)	10,929.5	6,927.2	2,300.7	4,618.7	4,737.0	7,630.8	15,352.8	7,648.6	10,633.0	11,265.1
- 100% Foreign (no.of projects)	7	2	5	1	2	6	4	17	16	17
- 100% Foreign (Mil. Baht)	510.0	30.0	1,078.8	144.5	746.7	609.1	372.0	5,189.9	4,147.0	5,948.8
- Joint-Venture (no.of projects) ²⁾	54	56	18	46	41	45	48	32	35	32
- Joint-Venture (Mil. Baht)	10,419.5	6,897.2	1,221.9	4,474.2	3,990.3	7,021.7	14,980.8	2,458.7	6,486.0	5,316.3
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Total Foreign Investment (no.of projects) ¹⁾	72	46	45	54	82	46	39	43	54	60
Total Foreign Investment Value (Mil. Baht)	23,127.9	15,273.4	14,679.3	9,540.1	23,082.5	11,929.6	11,151.8	23,414.8	9,673.8	16,171.3
- 100% Foreign (no.of projects)	19	14	8	17	22	13	14	4	14	9
- 100% Foreign (Mil. Baht)	14,646.8	4,128.9	1,260.9	2,941.2	3,309.5	3,160.6	3,630.8	941.0	1,748.0	3,213.8
- Joint-Venture (no.of projects) ²⁾	53	32	37	37	60	33	25	39	40	51
- Joint-Venture (Mil. Baht)	8,481.1	11,144.5	13,418.4	6,598.9	19,773.0	8,769.0	7,521.0	22,473.8	7,925.8	12,957.5

Source: International Affairs Bureau, BOI (As of July 22, 2010). Note: 1) Foreign investment projects refer to projects with foreign capital of at least 10%. 2) Joint-venture projects refer to joint projects between local Thai investors and foreign partners with foreign capital of at least 10%.

Appendix Table 4 Export-oriented FDI in the Agriculture and Agricultural Products Approved by BOI, 1970-2009

Activities	No. of Projects	Investment Value (million Baht)	Thai Employment (person)
1	22	197.9	2,791
1.1	15	535.2	1,312
1.10	23	2,810.6	3,336
1.11	146	16,422.0	46,685
1.11.1	105	17,916.3	55,161
1.11.2	80	6,980.4	20,661
1.11.3	30	3,918.2	4,992
1.11.4	2	2,590.0	690
1.11.5	22	7,910.5	1,899
1.11.6	4	2,897.2	315
1.11.7	16	1,531.0	1,670
1.11.8	24	8,537.8	12,182
1.12	19	1,088.6	1,684
1.13	23	1,688.5	2,149
1.14	363	65,742.8	89,292
1.15	36	5,843.0	2,143
1.16	32	7,333.3	4,941
1.17	29	2,524.6	11,009
1.2	3	82.2	77
1.20	2	158.3	251
1.25	5	322.8	880
1.26	2	1,774.0	205
1.28	2	352.0	375
1.4	16	3,341.0	4,268
1.5.1	1	71.6	27
1.5.2	3	62.0	94
1.6	21	2,670.3	2,836
1.7	1	140.0	65
1.8	1	53.0	78
1.9	16	3,550.0	7,570
TOTAL	1,064	169,045.1	279,638

Source: International Affairs Bureau, BOI (As of July 22, 2010).

Note: Foreign investment projects refer to projects with foreign capital of at least 10%.

Appendix Table 5 List of BOI's promoted activities under the agriculture and agricultural products sector

Code	Name of promoted activities
1	Manufacture of incense stick, chopsticks, tooth stick
1.1	Plant propagation and development
1.10	Tanneries, leather finishing, or fur dressing
1.11	Manufacture or preservation of food or food ingredients, using modern technology (except drinking water and ice cream)
1.11.1	Manufacture or preservation of food or food made from animals
1.11.2	Manufacture or preservation of food or food ingredients made from plants, vegetables or fruits
1.11.3	Manufacture or preservation of food or food ingredients made from rice or cereal
1.11.4	Manufacture or preservation of products from raw milk
1.11.5	Manufacture or preservation of food ingredients
1.11.6	Manufacture or preservation of sweeteners except sugar
1.11.7	Manufacture or preservation of beverages from plants, vegetables or fruits (except alcoholic beverages)
1.11.8	Manufacture or preservation of ready-to-eat or semi-ready-to-eat food
1.11.9	Manufacture of candy, chocolate or gum
1.11.10	Manufacture of medical food
1.12	Manufacture of oil or fat from plants or animals
1.13	Grading, packaging and storage of plants, vegetables, fruits or flowers, using modern technology
1.14	Manufacture of natural rubber products
1.15	Manufacture of flour or starch, dextrin or modified starch
1.16	Manufacture of products from agricultural by-products or waste
1.17	Cold storage
1.18	Trading centers for agricultural products
1.19	Agro-industry processing zones
1.2	Hydroponics cultivation
1.20	Manufacture of products from herbs (except soap, shampoo, toothpaste and cosmetics)
1.21	Inspection, analysis and certifying of quality standards of agricultural products
1.22	Inspection, analysis of diseases of crops, livestock or aquatic animals
1.23	Inspection, analysis of soils or water for agriculture usage
1.24	Manufacture of alcohol or fuel from agricultural products
1.25	Manufacture of products made from rubber woods
1.26	Manufacture of alcohol or fuel from agricultural products
1.27	Farm Management
1.28	Production of food packages
1.29	Cold-storage transportation
1.30	Climate controlled silos
1.4	Livestock breeding
1.5.1	Livestock husbandry
1.5.2	Aquatic husbandry (except shrimp)

Draft FAO Report: Analysis of FDI in Thai Agriculture

1.6	Manufacture of animal feed or mixes for animal feed
1.7	Crop drying and silo facilities
1.8	Deep sea fisheries
1.9	Slaughtering

Note that BOI has revised the promoted activities in July 2009 (see 'A Guide to the Board of Investment' available at www.boi.go.th for the up-to-date list of activities). The above list is the old version in order to keep the whole data series consistent. The data also incorporate both old and new activities.

Appendix Table 6 Major investing countries in the agriculture and agricultural products

Country	No. of Projects	Investment Value (million Baht)
Japan	328	83,084.10
USA	159	29,390.90
Malaysia	218	28,529.00
Taiwan	300	23,638.80
PRC.	98	20,820.80
Singapore	95	19,827.50
Hong Kong	89	12,044.00
Netherlands	43	9,313.90
UK	59	8,776.10
Australia	47	6,804.90
France	23	2,891.80
Germany	24	2,769.50
Canada	20	1,214.90
Luxembourg	3	326.30

Source: International Affairs Bureau, BOI (As of July 22, 2010).

Note: Foreign investment projects refer to projects with foreign capital of at least 10%.