MNEs and the Global Integration of Thailand's Processed Food Exports: A Firm-Level Study

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ABSTRACT

This paper presents the findings of a firm-level case study examining the role of multinational enterprises (MNEs) in processed food exports from Thailand. The discussion covers both FDI (foreign direct investment) and non-FDI channels of MNE involvement in the export of four major items, namely, canned pineapple, canned tuna, processed chicken, and processed shrimp. The findings suggest that MNEs play a vital role in the expansion of processed food exports from Thailand. MNE involvement begins with the establishment of joint ventures with Thai firms (FDI channel). Then, other local firms engage in export-oriented production and enhance their competitiveness through technology spillover. As the industry gains maturity, links with MNE buyers begin to play a far more important role than the FDI channel. The highly liberal trade and investment policy regime of Thailand, as well as the absorptive capability of local firms and the presence of the Thai MNE, CP group, are important elements of the enabling environment that allows these Thai exporting firms to gain maximum benefits from MNE involvement. The Thai experience demonstrates that the conventional approach of focusing on FDI as the sole link between MNEs and domestic manufacturing tends to overlook the significant role of MNEs in the export performance of the host countries' diffused-technology industries such as food processing.

INTRODUCTION

Over the past three decades, the rapid expansion of global demand for processed foods has opened up lucrative export opportunities for agricultural-resource-rich developing countries. However, only a limited number of developing countries have been successful in exploiting these market opportunities. Thailand is one of such countries. A number of previous studies have alluded to the role played by multinational enterprises (MNEs) as a key factor behind this export success. However, to our knowledge, no previous attempt has been made to examine and systematically analyze the nature and extent of the MNEs' contribution to this phenomenon.

The purpose of this study is to fill this gap through case studies of firms engaged in the export of four major processed food items, namely, canned pineapple, canned tuna, processed chicken, and processed shrimp (henceforth referred to as PF4). The study covers both foreign direct investment (FDI) and non-FDI channels of MNE involvement. The analysis is based on information gathered by interviewing the senior managers of a sample of firms (selected using 'purposive' sampling techniques), and the senior officials of the Thai Processed Food Association.

Mainly because of limited data, previous studies of the role of MNEs in the export performance of developing host countries have generally (if not solely) focused on MNE involvement that takes place through foreign investment. In other words, these studies have examined the export performance of local firms with capital participation by MNEs (that is, joint-ventures or fully-owned subsidiaries of MNEs). However, in reality, MNEs can significantly influence the export performance of purely local firms through various other channels (or what we will refer to as 'non-FDI' channels)

such as technology licensing, subcontracting, and providing markets. These channels are particularly important in influencing the export performance of diffused-technology industries such as food processing and their role can be systematically studied only though firm-level studies.

This paper begins with the discussion of the analytical framework illustrating the channels of MNE involvement. It then presents the research methodology employed in obtaining the sample and tackled the development path of PF4 industries in Thailand focusing in particular on the policy environment, the export performance of these industries, and the pattern of MNE involvement. The findings on the role of MNEs in the global integration of Thai processed foods is also presented. The probes the importance of FDI and non-FDI links in meeting international food safety standards is probed. An inter-product comparison and conclusion are in the final section. .

ANALYTICAL FRAMEWORK

MNEs play a crucial role in export-led industrialization in host countries by providing access to advanced technology, marketing and managerial know-how, and marketing channels (Sjöholm 1997; Borensztein et al. 1998; Lipsey 2000; Vernon 2000). In general, there are two broad ways MNEs can involve themselves in host countries: through FDI and non-FDI channels.

FDI Channel

The FDI is the outcome of a firm's decision to diversify all or some operational activities across countries. Through FDI, MNEs have the potential to generate considerable impact on host countries' economies such as injecting additional capital funds, influencing the performance of locally-owned firms, creating linkages to upstream and downstream industries, bringing in superior technology, etc. In particular, FDI could generate a positive impact on the productivity of locally non-affiliated firms through technology spillover. This is due to the nature of investment abroad. MNE affiliates are always associated with advanced technology which is instrumental in helping them successfully compete with existing or potential competing indigenous firms which are familiar with local markets. Due to the fact that technology is partially a public good, MNE affiliates are unlikely to fully internalize all benefits from associated technology. Hence, it could create positive externalities to locally non-affiliated firms, thereby raising technological capability. Such externalities are referred to as technology spillover, which is often argued to be the most desirable effect of all gains from FDI.

There are at least three channels through which FDI spillovers can occur, namely the demonstration effect, linkage effect, and labor mobility:

(1) Demonstration Effect. The presence of foreign firms can have a demonstration effect that allows local firms to become familiar with superior technologies, as well as the marketing and managerial practices used by foreign affiliates. For instance, local firms might not know about certain technologies and production processes until these become available in the domestic economy, due to the entry of foreign firms. Thus, spillover can take place in the form of imitating the foreign subsidiaries' technology. Apart from enhancing the demonstration effect, the presence of foreign affiliates can exert pressure on local firms exhibiting technical or allocation inefficiencies to adopt more efficient methods. This allows local firms to survive or even compete with foreign firms.

(2) Linkage Effects. Where foreign firms maintain operational links with upstream and downstream industries in host countries, the linked indigenous firms have the possibility of gaining technological benefits. The former is referred to as backward linkage, and the latter as forward linkage. By backward linkage, foreign investors establish an inter-firm relationship with local suppliers and create a demand for inputs from local suppliers in upstream industries. When these local firms are engaged to supply certain raw materials the high quality, reliability and speed of delivery that MNE affiliates demand, force them to enhance productivity. This is likely to generate additional economic activity and income, and transfer technological and management skills to the host country. Similarly, forward linkage effects are created when one industry uses another industry's output as its inputs. Every activity that does not by

its nature cater exclusively to final demand will induce attempts to utilize its outputs as inputs in other industries.

(3) Labor Mobility. Foreign affiliates generally play a more active role than local firms in educating and training local labor. Through this training and subsequent work experience, workers become familiar with the foreign affiliates' technologies and production methods. Technology spillover through this channel occurs when employees of foreign affiliates move on to local employers or set up their own business, using knowledge learned during their previous employment.

Non-FDI Channels

MNEs can exert considerable influence on local enterprises in host countries in various ways other than through establishing local affiliates. Such involvement is referred to as non-FDI channels. This mode of MNE involvement has become increasingly important in labor-intensive, diffused-technology industries such as clothing, footwear, toys, and food processing (Oman 1984, 1989; Dunning 1993, pp. 91–94; Hobday 1995; Nabeshima 2004). There are three major non-FDI channels, namely technology licensing, subcontracting, and buyer modes.

(1) Technology Licensing. This channel of MNE involvement refers to a circumstance where a host country enterprise (licensee) directly contacts technology owners who are likely to be MNEs, in order to gain rights of access to one or a set of technologies or know-how in return for value. The value may take a variety of forms: an initial lump-sum fee, a percentage of sales, royalties, etc. In exchange, the licensee gains access either to 'know-how' that is secret unpatented technology, or trademarks, copyrights or patents, or a combination of these for a specified or unspecified duration. Sometimes, under the licensing contract, the licensee receives training from the technology owner. In practice, technology licensing can take several forms such as technological assistance agreements, franchising, management contracts, or patent licensing. All of these vary according to the degree of inter-firm participation.

(2) International Subcontracting. The international subcontracting channel normally involves a 'principal' contractor based in an industrialized country—often an MNE or trading company, occasionally an importer or wholesaler— who places orders with subcontractors in a developing country to produce components or assemble finished products with the inputs it provides. The principal normally sells the final product, sometimes in its home market, sometimes in a third-country market. One crucial aspect of the international subcontracting channel is that the finished product is made to the precise specification of particular buyers. Thus, to obtain a finished product, intensive inter-firm cooperation is needed (Hobday 1995, 2000). In this way, MNEs can considerably influence the business operations and technological capabilities of host country subcontractors.

(3) MNE Buyers. These are large trading companies (either retailing or wholesaling), and large supermarkets in developed countries, which 'travel' in search of potential suppliers in developing countries to manufacture tailor-made goods. The relationship between MNE buyers and local suppliers resembles general arm's length transactions in that these buyers and local suppliers contact each other to negotiate the terms of their commercial contracts (e.g., price, quantity, quality, delivery, payments, etc.). Indeed, their relationship goes far beyond the negotiation and fulfillment of orders. MNE buyers not only bring in commercial orders but also help local suppliers to penetrate international markets successfully, especially developed country markets where final goods must fulfill several quality requirements set by the final consumers. There is a wide range of these required quality aspects, including input specifications and quality, product design, and labeling and packaging (Keesing 1983, p. 339; Rhee et al. 1984, p. 61). Through this mode of involvement, host country suppliers receive considerable benefits.

Note that although the mechanisms for international subcontracting and hosting MNE buyers seem to be similar, a key feature that differentiates them is that the latter is not necessarily based on an explicit contract as in the former.

Table 1 provides a summary of channels, through which MNEs can be involved in host economies. The degree of involvement in host economies varies across channels. Technology licensing seems to involve the least degree of MNE participation in the host economies whereas FDI seems to be the highest form of MNE involvement. International subcontracting and MNE buyers are in the middle ground. However, the degree of involvement does not necessarily reflect the extent of gains from MNE involvement. The benefits bestowed by MNE involvement through the FDI linkage might be fewer than those made through international subcontracting or MNE buyer channels.

Table 1. Channels of MNE involvement.

FDI Channel	
1.	1. Demonstration effect
2.	2. Labor mobility
3.	3. Backward linkages
4.	4. Forward linkages
Non-FDI Channels	
1.	1. Technology licensing
2.	2. International subcontracting
3.	3. MNE buyer

Source: See text.

RESEARCH METHODOLOGY

This study uses purposive rather than probability sampling techniques. As defined by Patton (1990), the latter refers to the method that obtains samples by random selection amongst all units of the population and permits confident generalization for a larger population, while in the former method, samples are purposively chosen from information-rich cases for in-¬depth analysis related to the central issues under study. In this paper, the main objective is to qualitatively examine the behavior of particular groups of firms, i.e., MNEs and local manufacturers interacting with one another within and/or across industries with a great emphasis on export success. This cannot be achieved by probability sampling that uses a variety of sample characteristics to draw quantitative inference. Firms which have not been involved with MNEs and those whose products are sold in limited niche markets might not be relevant to an examination of the issues involved.

This study's sample is limited to exporting firms only. The firms were selected on the basis of various firm characteristics, namely, firm size, product type, and export destination, to guard against any systematic bias selection. The resulting sample consisted of 16 firms consisting of three firms engaged in the production of canned pineapple, four in canned tuna, five in frozen chicken, and four firms in frozen shrimp. These 16 firms accounted for around 60% of the industry's total export value during the period 2000–2002.

A flexible interview guide was used which allowed the respondents to relate their experience in their own words and based on their own sequence of the topics asked. The main advantage of this approach is that it minimizes the likelihood of missing important aspects of the story. The main disadvantage is that some respondents whose experience may be limited to a particular interest cannot always be asked all of the questions in the interview guide (Morawetz 1981). Second-round interviews with different interviewees could mitigate this disadvantage in several cases.

The interview guide begins by establishing the general company profile, i.e., size, ownership, production process, product destination, product covers, etc. This is followed by a series of opening probes into the process of acquiring technological capability. This starts with their general perception of industry development, followed by their opinions about the contributions of FDI and non-FDI channels to their technological capability, especially their export capability. Then questions follow concerning their sources of knowledge and the factors contributing to their export success. Finally, general questions concerning current problems, the role of government, and future prospects for the industry are addressed.

Before the firm-level case study began, the interview guide was pretested on several firms between December 2002 and January 2003. Feedback from firm interviews during the pretesting period was used to improve the final version of the interview questions. The final interviews were conducted from December 2003 to February 2004. They mostly took place at the firms' headquarters located in Bangkok. The top-level managerial staff in these Thai enterprises was interviewed. The

interview period varied in length from 30 minutes to one and a half hours. The author conducted all interviews.

PROCESSED FOOD INDUSTRY OF THAILAND

Policy Environment

Trade and investment policies related to the products (PF4) examined in this study are relatively open. Almost all commercial transactions in PF4s are operated by the private sector, with a few exceptions where regional trade is conducted on a state-to-state basis (Jaffee and Gorden 1993, p. 45). Foreign investment policy has been highly liberal for the past four decades. There are no restrictions on foreign ownership share in MNE affiliates involved in PF4 industries (and other export-oriented industries). PF4 industries are listed in the export¬-oriented promoted activities of the Thai Board of Investments (BOI) where foreign ownership restrictions (less than 49%) do not apply.

Concerning trade policy, tariffs on finished PF4 products are high but this has had no effect on consumption patterns over time (Table 2). Similar to major primary exports such as rice and cassava, the presence of high tariff rates on these PF4 products seems to be redundant because Thailand has been the world's major exporter of these products (see below). Furthermore, there has not been a large domestic demand for PF4 products since local consumers prefer fresh over canned or frozen products. Hence, the presence of PF4 tariffs has not been able to effectively encourage enterprises to shift their resources toward the highly protected domestic market.

The canned pineapple and processed shrimp industries are reliant on locally¬produced primary products. Hence, the existing tariff on these raw materials seems to be redundant. By contrast, the production of canned tuna relies heavily on imports of raw fish. In 2002, while the scheduled tariff rates were extremely high at 60%, the applied tariff rate was only 30% (Table 1). Taking into account the presence of various tax rebate schemes for export-oriented industries, the incidence of applied tariffs would be far lower. The only exceptional case is in the processed chicken industry where inputs are subject to high levels of trade protection. In particular, chicken feed ingredients, i.e., soybean, minced fish, and maize, have been subjected to both tariff and non-tariff measures. Three of these ingredients account for around 70% of the total cost of chicken meat. The high protection on these inputs has adversely affected the industry's international competitiveness (Suphachalasai et al. 1999).

Quality and factory inspection is another area, which the government regulates. Such measures are generally enforced, but are sometimes specifically requested by importing countries. In addition, the Thai government has been actively involved in R&D activities, especially at the farm level. While there are no actual figures measuring the contribution of these activities to private sector competitiveness, they are unlikely to create any adverse effect on the industry's international competitiveness.

Performance of the PF4 Industries

Over the past three decades, the processed food industry has become increasingly important to the Thai economy as a major exporter. Table 3 illustrates the export performance of the processed food industry during the period 1970–2003. The

Table 2. Statutory and applied tariff rates (percent) of the PF4s, 2002.

	Scheduled tariff rates	Applied rates
Canned pineapple (HS2008.20)	60	30
Canned tuna (HS1604)	60	30
Raw fish (HS0302)	60	5
Processed chicken (HS0207)	60	30
Processed shrimp (HS1605)	60	20
Agricultural products (average HS 01–24)	44.7	23.5

Source: Ministry of Finance.

Table 3. Thai processed food and PF4 exports, 1970–2003.

	1970–5	1976–80	1981–5	1986–90	1991–5	1996–2000	2001–3
Processed foods ($million)	237	781	1,414	3,108	6,495	7,615	8,257
Processed food composition (percent)							
(1) PF4s[1]	24.6	30.8	31.1	38.9	45.3	37.4	41.0
Canned pineapple	2.9	6.8	6.8	5.6	4.5	3.1	3.0
Canned tuna	3.6	1.9	2.7	4.2	5.4	5.2	5.0
Processed chicken	0.1	2.2	3.9	6.8	6.4	5.3	7.0
Processed shrimp	18.0	19.8	17.6	22.3	29.0	23.8	26.0
(2) Other processed foods[2]	75.4	69.2	68.9	61.1	54.7	62.6	59.2
Comparative aspects (percent)							
(3) Share of processed foods to agricultural products[3]	22.5	27.4	33.4	47.7	60.3	61.8	67.0
(4) Share of processed foods to manufacturing products[4]	131.0	82.6	66.8	35.1	23.1	17.7	14.0
(5) Share of processed foods to total exports	15.0	16.0	19.5	19.3	16.2	12.9	12.0
(6) Share of PF4 to agricultural products	6.0	8.0	10.0	19.0	27.0	23.0	27.0
(7) Share of PF4 to manufacturing products	32.0	25.0	21.0	14.0	10.0	7.0	6.0
(8) Share of PF4 to total exports	4.0	5.0	6.0	8.0	7.0	5.0	5.0

Notes:

1 PF4s refer to four major export items of processed foods, i.e. canned pineapple, canned tuna, processed chicken, and processed shrimp.

2 Other processed foods cover dairy products, flour and cereals, other preserved fruits, fresh fruits and vegetables, preserved vegetables, sugar and molasses, coffee extracts, cocoa, and chocolates, preserved animal feeds, margarine and food preparations, beverages (alcoholic and non¬alcoholic), tobacco products, animal oils and vegetable oils.

3 Agricultural exports are the sum of SITC 0, 1, and 4 minus 27 and 28.

4 Manufacturing exports are the sum of SITC 5 to 8 minus SITC 68.

Sources: Author's computations based on UN trade data (SITC version 1) contained in the International Economic Data Base of the Australian National University for 1970–2000. Data for 2001–2003 are from the World Trade Atlas database.

export value of processed foods began exhibiting rapid growth from the mid-1970s, increasing from $237 million over the period 1970–75 to $3,108 million and $7,615 million, respectively, over the periods 1986–90 and 1996–2000. From 2001 to 2003, the export value reached $8,257 million. The annual growth rate was 18 percent during the period 1970–2003. Compared with agricultural products, the growth performance of processed food has been outstanding. As a result, the export share of processed foods in agricultural exports increased dramatically over the past three decades. Nevertheless, this rapid growth of processed food exports lags behind that of labor-intensive manufacturing, such as garments, electrical appliances, electronics, jewelry and gems, etc. The latter's export value began to take off around the mid-1980s, with growth rates much faster than those of traditional export products and processed foods (Table 3).

The share of PF4s in processed food exports increased from 24% in the period 1970–75 to over 45% by 2003. Processed shrimp accounted for 64% of total PF4 exports during the period 1990–2003, followed by processed chicken (15.1%), canned tuna (12.6%) and canned pineapple (8.6%) (Table 3).

In terms of export value, Thailand has gained prominence in world markets in these processed food products (Table 4). During the period 1999–2001, Thailand was the world's largest exporter of canned pineapple (43% of world exports), canned tuna (31%), and processed shrimp (16%). In the case of processed chicken, the export value for Thailand accounted for 5.7%. However, the major role of France, the Netherlands, Hong Kong and Switzerland in the world export of processed chicken is most likely due to the re-export phenomenon. Their high export values were associated with greater values of chicken

Table 4. World market shares (percent) of selected countries in the PF4s, 1999–2001.

	Canned Pineapple[1]			Canned Tuna[2]	
Rank	Country	Share	Rank	Country	Share
1	Thailand	43.1	1	Thailand	30.6
2	Philippines	15.5	2	Spain	13.1
3	Indonesia	12.2	3	Cote d' Ivoire	6.8
4	Kenya	5.9	4	Ecuador	6.5
5	The Netherlands	3.7	5	Seychelles	6.1
	sum	80.5		sum	63.0
	Processed Chicken[1]			Processed Shrimp[2]	
Rank	Country	Share	Rank	Country	Share
1	United States	21.6	1	Thailand	16.3
2	Brazil	12.7	2	Indonesia	10.7
3	France*	13.3	3	India	10.3
4	The Netherlands*	10.5	4	Vietnam	8.0
5	China, PRC	6.8	5	Mexico	5.5
6	Thailand	5.7	6	Argentina	3.0
7	China, HongKong*	6.2	7	China	3.3
8	Switzerland*	2.6	8	Ecuador	4.8
9	Denmark	2.1	9	Bangladesh	3.3
	sum	81.5		sum	65.4

Notes:

* Refers to countries that exhibited very high import values of frozen chicken. Their import values were even higher than their corresponding export values. Also, see footnote 8 for more detail.

Sources:

[1] Food and Agriculture Organization (FAO), Fishery Yearbook Statistics, 2001.

[2] Food and Agriculture Organization (FAO), Commodities Yearbook Statistics, 2001.

meat imports. Excluding these countries, Thailand was the world's fourth largest exporter. The rapid growth of processed food exports from Thailand has been underpinned by an impressive record of meeting international food safety standards. In an analysis of the incidence of import detention in the US on food safety grounds based on border control records of the US Food and Drug Administration, during the period from May 2001 to April 2004, Thailand had a detention rate of '$2.6 exports per detention' compared to the developing country average of '$1.2 million exports per detention' (Athukorala and Kohpaiboon 2005).

MNE Involvement in Thailand's PF4 Industries

Measured by FDI inflow, the foreign presence in the processed food industry seems small, compared with other industries. FDI inflows to the food and sugar industries were steady during the period 1970–85, at around $6 million annually (Table 5). From then on, a considerable increase in FDI inflows took place. The annual average of FDI inflows increased to $59 million and $124 million, respectively, during the first and second half of the 1990s. In 2003, the value of FDI inflows was $123 million. The growth of FDI inflows is still relatively small, compared with some other industries, especially the electronics and electrical appliances industries. Thus, the share of capital inflow into the food and sugar industries as a share of the total industrial sector dropped from 14% in the period 1970–75 to 5% in the period 1996–2000, further dwindling to 3% for the period 2001–03.

The production technology for the PF4s is mainly involved with sterilization or freezing. It is rather simple, well-developed, and generally available for arm's length purchase. Consequently, there is less motivation for local firms to link up with MNEs through the FDI channel in order to access advanced production technology. Instead, the more pervasive belief is that penetrating the global market is reliant on accessing knowledge of international marketing. Hence, local firms tend to acquire such knowledge from MNEs through non-FDI channels. As argued by Kohpaiboon (2005), during the period 1986–98, the foreign equity share of PF4 firms was 30.7 percent for the export-oriented BOI-promoted projects, well below the average of export-oriented industries at 62.4 percent. The low level of foreign equity shares therefore suggests the heavier presence of MNE involvement through non-FDI channels.

ROLE OF MNES IN THE GLOBAL INTEGRATION OF THAILAND'S PROCESSED FOOD EXPORTS

Canned Pineapple

MNEs played a vital role in introducing pineapple plantations into Thailand and in linking

Table 5. Annual inflows of FDI in the processed food industry, 1970–2003.

	Value ($million)	Share of Manufacturing (percent)
1970–75	4	14.0
1976–80	4	8.9
1981–85	12	9.4
1986–90	47	7.0
1991–95	59	6.1
1996–2000	124	5.0
2001	114	2.9
2002p	38	1.9
2003p	123	6.2

Notes: p = preliminary data

Data on FDI inflows into the processed food are from the food and sugar industries. Source: Bank of Thailand, online-database available at www.bot.or.th.

up local firms with the global market. The entry of Dole Co. Ltd. (a US affiliate) and Thai Pineapple Canning (a Taiwanese direct investor) during the early 1970s provided a business opportunity for would-be exporters. This motivated many local firms to commence the production of canned pineapple.

Furthermore, these foreign firms showed local firms how to operate a commercial pineapple plantation designed to produce fruit for canning, and what processing facilities they needed to install. There are significant differences between producing pineapples for the direct-consumer market and for canning factories. First, pineapples for direct consumption are intended to be larger than those for canning. The difference in desired size of harvested products results in different seed densities in the cultivated areas. In addition, the fruit processing operation requires that pineapples grown for canning need to have a higher degree of acid than those for direct consumption in order to extend the product's shelf life. Hence, this results in differences in pineapple seed types as well as fertilizer formula. Local enterprises also have to install an automatic peeling and coring machine called a Ginaca, as these procedures cannot be done manually. The high acid content of the pineapple also makes the canning and sterilization process more difficult than for other canned fruits. In fact, one factory manager (Sample No.1) volunteered the information that the incorrect canning of high-acid fruits like pineapple could lead to can explosion. In another firm (Sample No.2), the company owner admitted to gaining knowledge on how to run the canned pineapple business from working in MNE affiliates.

Since tacit knowledge was required in the early stage of this business operation, many local enterprises used the labor mobility channel, which is complementary to the demonstration effect of FDI. These local firms hired high-profile workers (e.g., the technical heads) from MNE-affiliated companies to assimilate the knowledge. All firm representatives interviewed pointed out the relative importance of the labor mobility channel in the early stage of business operations. In particular, one pineapple processor (Sample No.1) hired Taiwanese technicians from a foreign company to assist in the startup period. They helped the company in a wide range of activities from raw material preparation, establishing the flows of inputs and outputs in the factory, to setting up the canning facility and sterilization process. These technicians were also hired by other local firms later on.

In addition to playing an important role in the preparation of raw materials and on the production process, non-FDI channels are also of greater importance than FDI when it comes to opening new marketing channels. There is no evidence of technology licensing/international subcontracting arrangements in the canned pineapple industry. The production technology involved, e.g. sterilization and canning, is fairly mature and widely known. Local firms can access machines and/or other production facilities through general arm's length purchase (i.e., through importation or the purchase of locally produced machines). The most crucial skill local firms lack is international marketing knowledge. The global market structure for canned pineapple is to some extent an oligopoly, dominated by MNEs (Rohrbach et al. 2003: p. 4). Global market penetration must be associated with well-established brands. As revealed by one international marketing manager (Sample No.3), these well-established brands might differ from market to market. Even though any exporter can pay for the right to use these brands, they must have a good understanding of the global market in order to use the right brand for the right market. In addition, exporters must obtain purchasing orders around the world that are large enough to utilize their production capacity economically. With their extensive international marketing networks, MNEs are likely to be in a better position to acquire this knowledge than individual firms. It is very difficult for individual enterprises, especially from a developing country, to launch their own brands in the global market. The general sentiment expressed by the respondents interviewed suggests that it would be time-intensive and very expensive to launch a locally-owned brand internationally. Moreover, the likelihood of successfully exporting canned pineapple under a Thai-owned brand would be very low (according to Samples No.1 and 3). For local non-affiliated firms, therefore, the link with MNE buyers is still crucial to penetrate the global market successfully.

Nevertheless, all interviewed firm representatives seem to believe that apart from marketing channels, the contribution of these buyers is limited. MNE

buyers merely bring in orders and assign brands for local firms at given prices. As long as local firms can comply with their price requirements, they place orders. The limited contribution of MNE buyers would also be a result of the nature of the product. Canned pineapple is subject to a limited degree of product differentiation—namely slices, chunks, or crushed (solid pack) pineapple—and these product specifications are also internationally standardized; therefore, MNE buyers have not been important in influencing the design and style of such products. Global success depends heavily on price competitiveness. In addition, the technological contribution from MNE buyers is negligible. There has not been any dramatic change in production technology. As gleaned from the interviews and the literature (see Rohrbach et al., 2004: pp. 2–3), the Ginaca, which was introduced in 1925, is still used in factories. Besides, pineapple canning does not involve a transformation from raw to cooked food so the risk of contamination is low. Food safety issues therefore are not a great concern. This explains why there has not been a significant contribution from MNE buyers in helping local firms deal with food safety regulations, as is the case with other processed food items (see below).

The success of Thailand's canned pineapple exports since the early 1980s highlights how capable local enterprises have been in enhancing technology and exploiting market opportunity with the help of MNEs. Note that despite MNE dominance in global trade and production, Thailand is one of the few countries where local enterprises are significantly involved in global production and trade (Rohrbach et al. 2003, p.4). This is because the entry of MNE affiliates has tapped into the country's comparative advantage, as manifested in the local enterprises' absorptive capability to observe, learn, and adapt what they have learned. Thailand has extensive experience in agricultural production and export. When the export opportunity arrived, Thai enterprises effectively relied on this existing comparative advantage.

In addition, the skill of Thai workers in food transformation processes played an important role in perfecting the pineapple production process. After harvested pineapples are peeled and cored, workers need to separate high quality pineapple (which is of a yellow-gold color) from low quality ones (of a yellow-white color) before the sterilization and canning process. All interviewed respondents identified labor skill as the advantage Thailand has over other competing countries. Workers learn very quickly how to grade pineapple chunks and can do it very efficiently. Finally, Thai enterprises are also involved in intensive R&D activities to improve the efficiency of farm production and maintain their international competitiveness. Global competition in the export business encourages all economic agents to seek technological innovation to improve efficiency and to survive. Most R&D activities are related to farm production and factory management. For example, the interviewee in Sample No.3 claimed a strategy to enhance competitiveness by making use of pineapple waste from the canning process, i.e. fruit skins and pineapple cores being used to produce sugar and cattle feed (Rohrbach et al., 2003) as the result of a Thai enterprise R&D effort. Such a strategy has been widely adopted by other firms, including foreign affiliates.

Canned Tuna

The role of MNE involvement in the canned tuna industry is, to some extent, similar to that in the canned pineapple industry. First, the MNE affiliate creates significant demonstration effects to introduce a new business opportunity to local entrepreneurs. After that MNEs, through non-FDI buyer channels, play a vital role in assisting local firms to gain a foothold in world markets. As related by one interviewee (Sample No.4), there was a tiny domestic demand for canned tuna during the 1970s. In contrast, the demand for this product elsewhere in the world was huge, especially in developed countries. Local firms in the early 1970s did not realize such business opportunity existed until the entry of foreign affiliates. In 1973, the Australian affiliate producing under the brand SAFCO became the first canned tuna processor in Thailand; a few years later, several companies—now the current leading exporters of canned tuna—were subsequently established.

In contrast with canned pineapple, the labor mobility channel as a conduit of technology transfer seems to be less important in the canned tuna industry. No interviewed firm pointed out its importance. This is because there is not as much tacit knowledge required in the early stage of business operation as in the canned pineapple industry. The

production process is internationally standardized and easily accessed through general arm's length purchase. The key factor in determining price competitiveness is labor skill, which is acquired through a 'learning-by-doing' process. For example, after eviscerating the tuna, workers have to sort the fish carefully by size in order to ensure minimum losses during the pre-cooking stage (US Department of Labor 2004). This skill is more likely to be acquired over a period of time.

After the entry of MNE affiliates, local firms tend to benefit more from MNE involvement through non-FDI channels. There are at least three areas where local firms can benefit from the MNE buyer channel. Firstly, to penetrate the global market successfully, locally non-affiliated firms need to be linked to MNE buyers. As in the market for canned pineapple, there are well-established brands of canned tuna in the global market. Local firms who want to penetrate international markets are unlikely to use their own brand. For example, that Thai Union Frozen, the leading local company, chose to purchase the well-established US brand (i.e., Chicken of the Sea) instead of developing its own company brand, is proof of how hard it is to launch a local brand internationally. Hence, local firms export their products through MNE buyers under these well-established brands such as Chicken of the Sea, SAFCO, Bumble Bees, and StarKist.

Secondly, since the production process involves transforming raw food into cooked food, locally-owned firms really need an understanding of how to comply with the complicated food safety regulations of importing countries. This is one area where MNE buyers have proven themselves useful because, given their extensive international marketing networks and wide experience in international trade, they are better at understanding and complying with these regulations. Before local firms export their first shipment, representatives from these MNEs buyers conduct a factory visit and provide useful advice to ensure that these firms comply with all the food safety regulations. One firm's quality control manager (Sample No.5), who had long-term experience as a government authority in inspecting and approving food processing factories, revealed that such advice was very helpful. MNE buyers mainly emphasize sanitary concerns in the production process. This applies to larger firms as well. However, once a locally-owned firm manages to export successfully, MNE buyers visit the factory less frequently.

Finally, MNEs buyers also help local firms to overcome export obstacles. Sometimes, each importing country imposes its own food safety and border inspection regulations. This causes difficulties for exporting firms which have to cope with various sets of requirements and regulations across countries. These regulations also occasionally change at short notice. The marketing manager of a medium-size exporting firm (Sample No. 4) cited their experience wherein one European country required all canned tuna exporters to comply with a test that measured net weight after draining water off the tuna for 15 minutes. This departed from the usual practice of around 2 minutes draining time. As a result, their exported canned tuna failed to make the grade. Eventually, this obstacle was easily overcome with the assistance of the company's MNE buyer counterpart. On the other hand, one firm's quality control manager (Sample No.5) revealed an interesting observation that there are some foreign buyers who behave very differently from MNE buyers. For instance, most buyers from the Middle East mainly emphasize low price with less concern for quality. Such buyers are unlikely to be of technological benefit to local firms.

The long period of the country's export success can also be attributed to the high absorptive capability and R&D investment, including labor training by Thai enterprises. Thailand has comparative advantage in the canned tuna industry. The cost competitiveness heavily relies on labor skills involved in the production process. This has allowed local firms to easily learn and benefit from MNE involvement. Many leading Thai firms learned how to run their canned tuna business in the global market from MNE buyers, who they referred to during the interview as their 'strategic partners' (Sample No.6). With their entrepreneurial skill, many of them took the advanced step of investing abroad by buying their own well-established brands. Nowadays, many local firms have become actively involved in outward direct investment in canned tuna in other developing countries like China, Vietnam, and American Samoa (based on the interviews; and Pananond 2004).

In addition, Thai firms in the canned tuna industry actively strengthen their own

competitiveness by providing labor training and being alert to innovation in order to survive global competition. Sample No.7 revealed that their company has actively undertaken several activities to improve their labor efficiency and strengthen their international competitiveness. In addition, in order to maintain longer term industry competitiveness, several local firms (Samples No.6 and 7) have began exploring the market opportunity for cooked tuna in a new type of package, i.e., the retort pouch.

Processed Chicken

Although important, the role of MNE involvement in processed chicken is quite different from canned pineapple and tuna. There is no evidence that the entry of MNE affiliates in the processed chicken industry has generated a demonstration effect to entice local enterprises into the business. Instead, MNEs which have been involved in the upstream industries (i.e., chicken hatcheries, broilers, and feeds) have induced attempts to upgrade chicken farms and export chicken meat. In other words, there is technology spillover through forward linkages. Farming chickens for domestic consumption was not new in Thailand but mostly not at the commercial plantation level. Chicken farmers used locally bred chicks. The modern chicken farming began in the early 1970s with the establishment of the Arbor Acres Farm Inc., representing a joint venture between the US company, International Basic Economy Corporation (IBEC), and a local firm, the Chareon Pokphand Group (CP Group). This joint venture brought in advanced technology in chicken breeding, thus enhancing the quality of chicks.

The CP group had entered the animal feed industry in the late 1960s. Following the joint venture with IBEC, the CP group embarked on the full integration of chicken meat production so that the group ultimately provided all inputs (day-old chicks, animal feed, medicines, credit, services), as well as the processing and marketing of the chicken meat outputs (Goss et al. 2000). At the same time, the group began to organize a system of contract farming to encourage small and medium farmers to operate modern chicken farms. This eventually enhanced the production efficiency of poultry industries, putting Thailand in an advantageous position to access chicken meat at competitive prices (Gronski 1994, p.11, cited in Goss et al. 2000; Akira 1989, p.270). Hence, the combination of technology spillover through forward linkages, and the pioneering efforts of the CP group modernized the production of chicken meat in Thailand.

In helping to access the needed knowledge on international marketing in this product, the MNE buyer channel is far more important than the FDI channel. This is because most processed chicken products are preserved by freezing (pasteurization) rather than sterilization. This preservation process does not kill all types of bacteria, but merely prevents their multiplying. Exporters must comply with more complicated food safety regulations to ensure the level of hygienic quality than those needed for sterilized foods. The first processed chicken exporter interviewed (Sample No.8) highlighted the contribution of MNE buyers to the company's export success. The company was enticed into the processed chicken export business by Japanese buyers. These buyers helped the company to prepare its production facilities for the sale of processed chickens in Japan. The production facilities requested of export firms were far different from those producing for the domestic market during the early 1970s. While details were not specifically revealed during the interview, the most difficult requirements concerned the slaughterhouse and sanitary management in the factory. With assistance from MNE buyers, the company has successfully exported processed chicken to Japan. The long-term relationship between the company and the buyers has been maintained and was still active at the time of the interview. The relationship between export success and MNE buyers' channel was also recognized by the other respondent-firms, including the CP group, which formed its international marketing channels with the help of Mitsui & Co of Japan (Akira 1989, p.270).

Apart from providing assistance in complying with food safety regulations, MNE buyers perform a crucial role by helping local enterprises successfully adapt to changes in regulations in importing countries. Similar to the case of canned tuna, regulation changes occasionally occur in importing countries and can adversely impact on sales and interrupt export flows. The experience shared by Sample No.9 illustrates the relative importance of MNE buyers. Without clear reference as to date,

the company concerned revealed that the EU had introduced a new tariff schedule discriminating between unprocessed and processed frozen chicken, with the former subject to higher tariff rates than the latter. This had the potential to affect Thai exporters adversely, mainly those exporting unprocessed chicken breasts to the EU. The MNE buyers assisted local firms in evading the new tariff discrimination by advising them to add salt to the frozen chicken, so that it would be classified as a processed product and subject to the lower tariff rates. In the Japanese market, there is a high degree of product differentiation starting from simple portion cuts like chicken breasts and drumsticks, to ready-to-cook/ready-to eat products (e.g., marinated, roasted chicken with herbs, inner fillets, steamed and diced chicken, and roasted chicken with soy sauce). Japanese MNE buyers have been involved with the development of new products. Most of these new products are of a higher quality. Moving into a higher position on the quality ladder is not automatic, especially where ready-to-cook/ready-to-eat products are concerned. Local entrepreneurs must acquire knowledge of how to produce these products, not only at a competitive price, but also with a flavor and appearance acceptable to consumers in the importing countries. This takes some effort because the Thais and Japanese do not necessarily enjoy the same flavors. All interviewed firm representatives in both the processed chicken and shrimp industries (Sample Nos.8–10 and 12–14) whose product destination is Japan were in agreement on this issue.

To help ensure that the product matches the market's tastes, Japanese buyers bring in guideline recipes and work with local suppliers to formulate practical recipes that specify the ingredients to be used. Sometimes, slight departures from the recipes are possible to save on production costs and/or to adjust to the manufacturing environment. With the assistance of Japanese buyers, many Thai exporters have successfully concocted various types of ready-to-eat and/or ready-to-cook food for the Japanese market.

For the EU market, which is the second largest export destination of Thai processed chicken, product differentiation is less complicated and mainly involves simple further processing, i.e. into cutlets, or by steaming. This kind of assistance from MNE buyers is less important than it is for the Japanese market. In this case, price competitiveness of the final products becomes far more important.

Apart from the contribution of MNE involvement, absorptive capability, the great entrepreneurship of the CP group, and the R&D investment of local firms, there are other factors that have contributed to Thailand's export success. As discussed earlier, the CP group aggressively and efficiently relied on the presence of MNE affiliates in the upstream industry, thereby widely benefiting chicken farmers countrywide. Over and above the CP group's contribution, the essential factors for success in the processed chicken industry are agricultural skills (to raise chickens) and labor skills (to slaughter, dismember and slice them)—two areas where Thailand has comparative advantage. In addition, for the ready-to-eat/ready-to-cook products, labor skill is crucial to the manufacturing process. Thus, the absorptive capability of local enterprises is likely to be high in this industry.

Local firms frequently invest in their own R&D to strengthen their competitiveness. At the farm level, the CP group and other leading chicken growers (e.g., Betago and Saha Farm) have successively conducted R&D activities to improve farm efficiency. At the processing level, local firms which manufacture ready-to-eat/ready-to-cook products must establish their own R&D teams to work with MNE buyers and to turn 'guidelines' into 'practical' recipes. R&D teams must then work out how to manufacture these recipes at very competitive prices. The faster this can be done, the more efficient will be the firm's performance. This helps Thai firms to maintain their leading position in the global market.

Processed Shrimp

To some extent, the role of MNEs in the processed shrimp industry is similar to that in the processed chicken industry. The Japanese joint venture and the CP group played a crucial role in developing intensive shrimp farms in Thailand. In other words, there is technology spillover through forward linkages.

From 1960 to the mid–1980s, Thailand's exports mainly relied on ocean catch. Nevertheless, this source of raw materials was rather limited and subject to high uncertainty, and was clearly constrained by the limited size of the catchment

area. During the late 1970s, ocean catch became even more limited as a result of the finalization of the Law of the Sea Treaty (Goss et al. 2000). On the other hand, the demand for shrimp in developed countries enjoyed record highs, making it the most sought-after item of international trade in fisheries from 1985 onward (Goss et al. 2000). This stimulated Thai enterprises to ride the crest of the rising demand in processed shrimp exports. Led by the CP group, Thailand introduced intensive shrimp farming. Using this method, farmers cultivate shrimp larvae within an inland, prepared pond, in which feeding and the quality of water are controlled. This significantly improved the yield of shrimp farms, expanded raw material availability, and lowered their prices, eventually making exporting a possibility.

During the mid–1980s, Thailand lacked the technology required to run intensive shrimp farms, such as the breeding technology for shrimp larvae, feeds, and farm practices. To gain access to this breeding technology, the CP group tied up with a Mitsubishi corporation and the joint venture was called CP Aquaculture (Goss et al. 2000; Akira 1989, p.270). In the initial period, Mitsubishi, which knew what kind of advanced technology was needed and where to search for and acquire it, hired Taiwanese technicians to assimilate breeding know-how. The latter were chosen because it was in Taiwan that intensive shrimp farming was first developed and applied until the industry collapsed in the late 1980s.

After accessing the initial technological requirements for production, the CP group undertook full vertical integration as it did in the processed chicken industry. Under this full vertical integration structure, any R&D outcomes from the CP group's laboratories can easily spread to local shrimp farmers. There was consensus among all the respondent-firms that the R&D activities by the CP group played a significant role in maintaining international competitiveness at the farm level.

MNE buyers seem to be more important than MNE affiliates in the expansion of shrimp exports. All interviewed firm representatives agreed that FDI inflows in processed shrimp exports were negligible. In contrast, the general impression from the firm interviews suggests that the MNE buyers' channel is crucial to providing international marketing knowledge and contributing to current export success, especially where the market destination is Japan. As with processed chicken, Japanese MNE buyers also provided a marketing channel for local suppliers because of the complicated internal trade system and the dominant role of Japanese MNEs (see above).

During the interview, each firm revealed its own experience of various kinds of assistance from MNE buyers. The MNE buyer for the company in Sample No.14 was closely involved with its production process. The buyer's representative would visit the company every month and go through even minor matters in the production process. MNE buyers brought in recipe guides for the exporting firms, as in the case of processed chicken. They worked together with the company to achieve appropriate flavors and appearances (packaging, colors, sizes) at competitive prices. In addition, MNE buyers introduced new products. The company in Sample No.16 expressed the same view about the role of MNE buyers although they had also received different kinds of assistance from the company in Sample No. 14. Since the former's export destination is the US, where the degree of product differentiation is less, compared to the Japanese market, the nature of assistance received from the buyer is in overcoming any potential export obstacles. Even though the company is small (its export value is less than $5 million), it has never been on the US food and drug administration (FDA) detention list in the past thirty years because of its close cooperation with its buyer. For example, the buyer had informed the company of the US requirement that exporting firms had to attain ISO certification; so that it provided a longer preparation period, and the buyer even introduced this local firm to some qualified ISO auditors. It seems difficult for firms, especially local small and medium firms from developing countries, to undertake this requirement within a short period of time. For example, firms must search for an appropriate auditor, and take the time to secure an ISO certification. Early information from the MNE buyer helped this company to avoid any potential export obstacles.

Another company (Sample No.12) also indicated the extensive involvement of an MNE buyer's representative in their operation. Based on their experience, they realized that local firms would need the most help from their MNE buyers in

international marketing channels. They argued that, as far as the production process was concerned, local firms were in better position to source raw materials and manufacture final goods at a competitive price. What they lack would be the knowledge regarding what products should be sold and what flavors and appearances are acceptable to consumers in importing countries. They maintained that if the company just produced whatever appealed to Thais and launched it abroad, especially in the Japanese market, it was unlikely to be successful. MNE buyers would be in a better position to understand their consumers' demands.

All of these firm-specific experiences highlighted the need to be linked with MNE buyers in order to penetrate the global market successfully and maintain their long-term international competitiveness. It is important to note that all the companies involved in the above samples have had long-term relationships of 20–30 years with these MNE buyers. Nevertheless, there are other foreign buyers who emphasize low price. Most of these foreign buyers are small and medium trading companies. Their orders are mainly for shrimps that have undergone simple processing, e.g., frozen headless and peeled shrimps, boiled shrimps, and shrimp cocktail. Most of these products are supplied to the US rather than the Japanese market. Such foreign buyers are unlikely to contribute any significant technological benefit to Thai exporters.

As is true in the processed chicken industry, important factors like absorptive capability, labor skill, and R&D investment of local firms all played a vital role in enhancing the MNEs' contribution. The CP group considerably enhanced the benefits from the presence of MNE affiliates in the upstream industry. The success of the processed shrimp industry became possible because Thailand had comparative advantage in terms of the required agricultural skills to farm shrimps and the labor skills to peel and cook them. Thus, the absorptive capability of local enterprises is likely to be high in this industry. Similar to the case of processed chicken exporters, local firms in shrimp processing also invested in their own R&D to strengthen their competitiveness both at the farm and processing levels. Local shrimp farms as well as shrimp processors have successively conducted R&D activities to boost their production efficiency.

INTERNATIONAL FOOD SAFETY STANDARDS AND PROCESSED FOOD EXPORTS

The implications of food safety or sanitary and phytosanitary (SPS) standard for export performance were a key focus of interviews with all firms. The respondents were unanimous in their identification of the ability to meet SPS standards as a key determinant of their export success. Apparently, based on their long record of successful export performance, the Thai processed food exporters seem to have learnt how to live with international standards, which are becoming increasingly stringent. All firm representatives interviewed agreed with the view that they were operating in a highly competitive market where active response (rather than passive reaction) to product specifications/quality requested by the buyer was the key to success.

Technical and market know-how gained through the interaction with MNE buyers were generally identified as a key factor in their ability to meet quality and food safety standards. Respondents of joint venture firms (Sample numbers 7, 8, 10, 12, 14, and 15) attested to the role played by their MNE investment partners in helping them to enter international market networks, meet SPS standards, and acquire up-to-date technology and marketing know-how. The respondent of Firm No. 13, a 100% Japanese-owned firm, cited with pride their firm's stellar track record of meeting food safety standards. The information gathered through the interview does not permit a clear separation of the role played by FDI and non-FDI links in meeting SPS standards because all firms (including those with FDI participation, with the sole exception of Firm No 13) rely significantly on MNE buyers.

Managers of firms exporting to Japan emphasized the importance of their links with Japanese trading companies (in particular Mitsui, which is the largest supermarket owner in Japan) in penetrating the Japanese market and meeting SPS standards.

Interestingly, none of the firms exporting to Japan complained about difficulties involved in meeting Japanese SPS standards. Presumably this may be because almost all exports to Japan are handled by Japanese trading companies, which monitor the production process closely from the

time the order is placed until the products are shipped. All chicken-meat exporting firms rely heavily on the service provided by Japanese food scientists.

There was unanimity among respondents that the EU is becoming a more and more 'difficult' market, as far as SPS standards are concerned. As the Chairman of the Processed Food Association put it, the emphasis of EUs' policy of monitoring food safety has moved well beyond 'farm to table' to 'farm to toilet'. Some firms also expressed concern about difficulties arising from frequent changes in EU regulation.

CONCLUSIONS

MNE involvement has been a key factor in the export success of the PF4 industries in Thailand. MNE involvement has taken place through both FDI and non-FDI channels, especially the MNE buyers' channel. The contribution of MNE involvement is different in the case of each PF4 product (Table 6). Our firm-level survey yielded several key findings.

First, for all PF4 products, MNE involvement played a vital role in the industrialization process. MNE involvement began with establishing affiliates (FDI channel), which generated considerable technology spillovers and enticed local firms to undertake the manufacturing process.

Second, in the canned pineapple industry, where there was tacit knowledge involved in the initial period of business operation, the labor mobility channel of FDI was needed to complement its demonstration effect. With other PF4 products, there was no evidence of the significance of the labor mobility channel.

Third, MNE buyer linkages play a far more

Table 6. Summary of contributions of MNE involvement in the Thai processed food industry.

	FDI Involvement				MNE Buyers Link		
	Demonstration Effect	Labor Mobility	Backward Linkages	Forward Linkages	Marketing Channel	Compliance with Food Safety Regulations	Development of New Products
Canned pineapple	The entry of MNEs showed the potential for export opportunities	Factory technicians	None	None	Brands	None	None
Canned tuna	The MNEs presence enticed local local firms to this industry	None	None	None	Brands	-Helpful in the early stage of business operations - Assistance to overcome unusual practices	Little
Processed chicken	None	None	None	Hatchery industries	Important for Japanese market	Highly significant	Highly significant
Processed shrimp	None	None	None	Hatchery industries	Important for Japanese market	Highly significant	Highly significant

Source: Based on data gathered by the author for this study.

important role than the FDI channel in contributing to international marketing knowledge and export success. International marketing here could be broken down into three main areas, namely, marketing channel, compliance with regulations in importing countries, and development of new products. Where the marketing channel was concerned, MNE buyers assisted local enterprises in penetrating the global market successfully. The need to be linked with MNE buyers varied depending on the product. In addition, MNE buyers wielded a crucial role in assisting local firms to comply with the food safety regulations and overcome any potential export obstacles, especially products whose production process is involved with transforming raw to cooked foods. The last area where MNE buyers contributed to international marketing knowledge was in introducing new products. Note that this role of MNE buyers is likely to be relevant only for the Japanese market where there is a high degree of product differentiation.

Fourth, for all PF4 products, Thai enterprises seemed to have a high absorptive capability to learn and maximize benefits from MNE involvement because the country's open trade policy regime caused MNE involvement to take place in areas where Thailand had the comparative advantage, i.e., in terms of possessing the agricultural skills needed for large-scale cultivation, and the labor skills required in processing foods. In addition, this regime has allowed the global competitive pressure to encourage all economic agents to seek technological innovation so as to improve efficiency, as well as to survive.

Fifth, both FDI and non-FDI forms of MNE involvement, in particular the latter, have been a key factor in Thai exporters' superior performance in meeting SPS standards.

Finally, in the export success of the processed chicken and shrimp industries, the CP group—the Thai MNE which belongs to the "Fortune 500"—was an important element of the enabling environment; with its solid business history and strong entrepreneurial skills, it helped the industry reap maximum benefits from the MNEs' presence. It played a pivotal role in harnessing MNE involvement in the upstream industries. Besides, the active involvement of the CP group in R&D activities at the farm level significantly contributed to strengthening competitiveness and improving quality through the use of better inputs.

The key policy implication from this paper's findings highlights the equally important role of non-FDI channels. The conventional approach of focusing on FDI as the sole link between MNEs and domestic manufacturing tends to overlook an important part of the entire picture that depicts the role of MNEs in the industrialization process.

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Appendix summary of the firm characteristics and key interview findings.
(A) The Processed Food Industry

Sample No.	Firm size	Ownership	Years of Operation	Export value (million baht)	Remarks
Canned Pineapple					
1	Medium	Thai majority and public company	10–20	≤ 1,000	1. The firm mentioned that the incorrect canning of high-acid fruit like pineapple could lead to can explosion. 2. It received technology spillover through labor mobility channel (i.e., its workers gained experience from MNE affiliates). 3. It expressed difficulties in launching Thai-owned brands internationally
2	Medium	Thai-owned company	10–20	≤ 1,000	The company's owner used to work for, and gained knowledge from MNE affiliates.
3	Large	Thai majority and public company	≥ 20	≥ 1,000	1. The firm pointed out that the existence of well-established brands in the global market and linkages with MNE buyers are needed for international market penetration. 2. It also cited difficulties in launching Thai-owned brands internationally.
Canned Tuna					
4	Medium	Thai-owned company	≥ 20	2,000–2,500	The firm revealed the experience of an unusual practice at a border inspection in Europe and acknowledged receiving assistance from MNE buyer.
5	Small	Thai-owned company	≤ 5	100	1. The firm gained substantial benefits from the MNE's factory visit. 2. It mentioned the different behaviors of MNE vs. non-MNE buyers (Middle East).
6	Large	Thai-owned company	≥ 20	≥ 2,500	1. The company gained international marketing knowledge from MNE buyers 2. It has commenced 'retort pouch' packaging 3. It is also a processed shrimp producer.
7	Large	Thai majority and public company	≥ 20	≥ 5,000	1. The firm is actively training factory workers to enhance production efficiency. 2. It has began 'retort pouch' packaging.
Processed Chicken					
8	Large	Thai-owned company	≥ 20	≥ 2,500	The firm received assistance from Japanese MNE buyers for their first export shipment, especially in the slaughterhouse.
9	Medium	Thai majority and public company	≥ 20	1,000	1. The company received information about a new tariff schedule discriminating between unprocessed and processed frozen chicken. 2. It received assistance in the development of new products.
10	Large	Thai majority and public company	≥ 20	≥ 2,500	The firm received assistance in the development of new products.
11	Large	Thai majority and public company	≥ 20	≥ 2,500	The company is also a major processed shrimp producer.

Appendix (contd.)

Sample No.	Firm size	Ownership	Years of Operation	Export value (million baht)	Remarks
Processed Shrimp					
12.	Medium	Thai majority and public company	≥ 20	≥ 4,000	The firm maintained that the area where local firms need help from their MNE buyers is in international marketing, specifically as to what products should be sold and what flavors and appearances are acceptable to consumers in importing countries.
13.	Medium	Japanese-owned company	≤15	2,000–2,500	The firm mentioned its ability to fulfill SPS standards.
14.	Medium	Thai majority and public company	≥ 20	≥ 4,000	1. The company experienced monthly visits from Japanese MNE buyers 2. It cited a particular example of assistance in the development of new products.
15.	Medium	Thai majority and public company	≥ 20	≥ 4,000	The firm revealed the characteristics of small and medium firms of Taiwanese direct investors in processed shrimp exports.
16	Small	Thai-owned company	≥ 20	100	1. The firm has never been on the US FDA detention lists. 2. The buyer introduced this firm to some qualified ISO auditors.