

# TDRI

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*Recent study shows that while Thailand's poultry industry may have found a way to cope with the aftermath of avian influenza outbreaks in 2004, many small farm holders were left with no option but to leave the poultry business. See related article on page 3.*

# Structural Changes in Thailand's Poultry Sector: Avian Influenza and Its Aftermath

Viroj NaRanong\*

## 1. INTRODUCTION

Over the past two decades, the poultry sector in Thailand has undergone considerable structural change – moving toward greater industrialization and increased vertical integration. Until 2004, the main driver was technology, especially the introduction of evaporative-cooling for poultry housing, which can save labor costs and substantially increase the growth and survival rates of poultry. One engine of the fast growth of the industry was contract farming, an arrangement which gives large integrators more flexibility in adjusting their volume of production to changes in both domestic and export demand, and which provides the contractors with contracts that are relatively lower risk and provide better returns than most other conventional agricultural activities.

During the last half decade, however, Thailand's poultry industry has been moving away from contract farming toward vertical integration in order to ensure compliance with European importers' more stringent requirements for food safety and animal welfare. The most significant and decisive driver, however, has been highly pathogenic avian influenza (HPAI), outbreaks of which have resulted in frozen broiler meat from Thailand being banned by most importers since 2004. The ban affected Thailand's broiler exports substantially in the first few years. However, most of the large companies have been able to switch their production toward precooked products.

This paper focuses on structural changes in Thailand's poultry sector, mainly resulting from the HPAI outbreaks in 2004 and thereafter. The subsequent section considers the future of Thailand's poultry industry. The last section deals with the social implications of these structural changes, especially the impacts on smallholders.

## THE HPAI OUTBREAKS

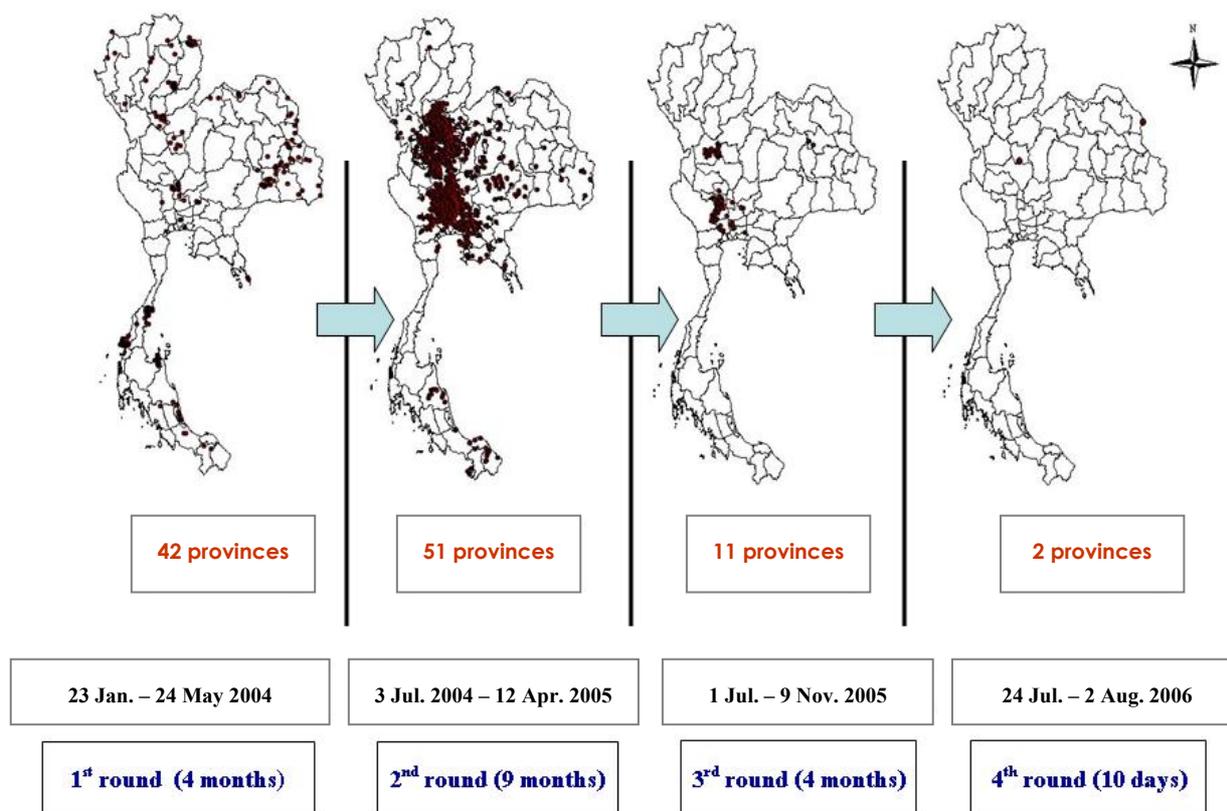
Since January 2004, Thailand and other Southeast Asian countries have experienced outbreaks of

H5N1 HPAI in poultry. Thailand was hit by four rounds of avian influenza (AI) between 2004 and 2006 (Figure 1) and another small round in early 2007. Since the first outbreak in January 2004, at least 25 people contacted the disease and 17 deaths have been reported (as of September 2007). Thailand rapidly applied control measures, including the killing of as many as 63 million chickens in 2004 (Table 1), disinfection, quarantine, control of animal movements and thorough surveillance (dubbed "The X-ray Campaign" in Thailand). Checkpoints and disinfectant stations along the roads leading to slaughterhouses have been increased, and officials from the Department of Livestock Development (DLD) have been stationed at production centers to monitor the industry. A list of measures used in 2006 is shown in Box 1. Although HPAI control was chaotic at first, many have considered it to have been a successful undertaking. The fourth and fifth outbreaks involved only sporadic events which, in some cases, had nothing to do with the broiler or layer industry.

The "success" of the HPAI control efforts in Thailand has, however, been accompanied by substantial costs. Besides the mass killing of poultry (65 million birds in 2004 alone – which incurred costs of more than 1 billion baht of public-money as compensation to the owners affected), some measures have affected smallholders adversely. Right after the first outbreak was formally admitted, the responsible minister and the DLD made numerous public announcements that, henceforward chickens should be raised only in closed farms. In addition, many contract farms were also required by the integrators to upgrade their poultry housing to closed (evaporative-type) houses if they wanted to remain a contractor. Many contractors – already hit hard by the epidemic – decided to call it quits (or switch to other businesses) rather than invest further in a business with such apparently bleak prospects. In retrospect, their decision may have been justified given that, even among contractors who already had evaporative-type farms, many have suffered from the rationing and rotation schemes that some integrators employed after the outbreak.

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**Figure 1 The HPAI Outbreaks in Thailand: 2004 to 2006**



Source: Department of Livestock Development.

### Box 1 List of Thailand Department of Livestock Development's Avian Influenza Policy Measures Imposed in 2006

According to the DLD, the overall disease control measures implemented in 2006 were as follows:

- Destruction of animals in affected premises with 75 percent compensation (393,430 birds destroyed);
- Disposal of carcasses and eggs, and infected/risky materials (e.g., litter, feed and egg flats);
- Disinfection of affected premises, all infected/contaminated materials and other risky materials;
- Quarantine and movement control;
- Nationwide active clinical surveillance and notification for implementing disease control once a case is suspected according to the current AI case definition;
- Intensive surveillance (known in Thailand as "The X-ray Campaign") for three rounds in all at-risk areas during the periods 1–28 February, 1 June – 31 July, and 11–30 September 2006 (145,978 samples collected);
- Routine sampling prior to movement (a total of 522,072 cloacal swabs were collected between January and October 2006);
- Poultry restocking in the affected areas not carried out until 90 days after the completion of disinfection;
- Ongoing long-term campaign of biosafety improvement;
- Restructuring of free-grazing duck production to a housed system, registration and flock identification for 7,333,987 birds of 3,109 owners;
- Registration of fighting rings/arenas (2,400 holdings were listed);
- Identification of fighting cocks (248,877 birds belonging to 107,163 owners were registered); and
- No AI vaccination allowed.

Source: USDA (2007).

**Table 1 Number of Poultry Killed to Curb Highly Pathogenic Avian Influenza in Thailand**

Year	Number of birds killed
2004	63,000,000
2005	450,000
2006	320,000

Source: Thai Broiler Processing Exporters Association.

Thus far, there has been no systematic study to determine the impacts of the various measures on different groups of stakeholders. Our in-depth interviews with a few independent veterinarians and small farm holders have indicated a consensus belief that the DLD measures that have had the strongest negative impacts on small farms are the pressure to upgrade to closed housing, and some quarantine and movement control measures. Ironically, the first measure, while being clearly announced to the public, was not backed by corresponding changes in the relevant rules and regulations. For example, the official poultry farm standards still allow both open and closed housing. In practice, however, the DLD officials exercised their quarantine and movement control measures to block chicken raising in open farms. The quarantine and movement control measures were implemented under the umbrella of the Animal Epidemic Act B.E. 2499 (1956) (promulgated in 1959 and revised in 1999), which gives quarantine and movement control powers to the DLD authorities in the case of epidemics.

Vaccination has been one of the most controversial issues for the poultry industry in the past few years. The DLD has continued to ban AI vaccination since 2004. Its standpoint has been strongly supported by the then number-one broiler exporter (Sahafarm Company). Another large multinational corporation, CP – which probably uses (and may have successfully developed) AI vaccine in its operations in China and/or Vietnam – has during the past few years proposed the use of vaccination. Although the DLD has been firm in its decision, there have been strong rumours that AI vaccine has been used in many layer farms, because the losses of those farms would be more substantial if the birds were to catch HPAI.

Since the first outbreak, Thailand's two largest export markets for chicken products, Japan and the European Union, have banned imports of frozen/fresh poultry from Thailand. Initially, this ban affected the industry adversely, as at the time frozen/fresh products accounted for two-thirds of the total exports. The Thai Broiler Processing Exporters Association claimed that the total loss suffered by the poultry industry as a result of the HPAI outbreak in 2004 was almost 100 billion baht (US\$3 billion) (see Table 2). To help poultry farmers whose birds were culled, the government provided significant compensation<sup>1</sup> and set aside a hardship fund of 5 billion baht. The fund was used to provide soft loans at low interest rates to affected

farmers who wanted to start new businesses. In addition, Thailand's broiler exporters took many, mostly biosecurity-related, measures to protect the industry. Contract farms were required, by both the DLD and their patrons, to upgrade their poultry housing to the closed system. Those who were unable or unwilling to comply were left with no option but to leave the poultry business.

**Table 2 Estimated Loss of the Poultry Industry from Highly Pathogenic Avian Influenza in 2004**

	Loss (millions of baht)
Hatchery farms	4,420
Feed mills	12,430
Broiler farms	27,950
Slaughterhouses	28,400
Export	23,700
Total	96,900

Source: Thai Broiler Processing Exporters Association.

## 2. THE FUTURE TREND OF THAILAND'S POULTRY SECTOR

The HPAI outbreaks have been the most important factor shaping Thailand's poultry sector in the past few years. The outbreaks have also hit smallholders very hard, resulting in many leaving the industry altogether. However, as strong and devastating as it has been, HPAI is unlikely to determine the future of Thailand's poultry industry. This is because structural change is almost complete and is unlikely to be reversible. (See more details in Viroj, forthcoming.)

The Thai broiler industry will continue to move toward higher levels of industrialization and more vertical integration – most large integrated firms will include food processing as a part of their operation. Further industrialization and vertical integration will make it easier for the poultry industry to comply with the foreign importers' food safety and animal welfare requirements.

The trend toward further processing of poultry (cooked and semi-cooked products) – now included as part of the operation of many integrated firms – may increase employment in the poultry sector. However, additional employment in the integrators' farms will be very limited, as many are now fully automated. Moreover, any new employment will be created at the expense of smallholders whose room to operate as self-employed broiler farmers will be increasingly curtailed.

As the sector returns to "normal" business, its future will be shaped mainly by basic drivers, such as feed supply and demand. Another significant trend may be that movement toward replacing chemical protection (antibiotics, antiseptics, or even vaccination) with biosecurity and compartmentalization will shift the industry further toward integrated industrialization.

## 2.1 Feed Supply and Demand

The supply of raw materials for poultry production, particularly grain and protein, has become a key issue determining the growth – and possibly the competitive strength – and future of the industry. The Thai Feed Mill Association estimates that a total of 3.52 million tons of maize and 1.63 million tons of soybean were used to feed broiler and layer chickens in 2007 (Table 3). The amount required would be much more in the future should the industry grow back to the pre-HPAI level of production – which would be easily attainable. Shortage of local feed ingredients has made the industry reliant in part on imported feeds. In addition to the feed costs, some agricultural products are under tariff quota protection. For example, while the import duty on soybean meal in quota is a mere 4 percent, the “out of quota” import duty is prohibitively high – at 119 percent. Although the tariff quota has been lifted, all importers are required to buy domestic soybean proportionately to their purchase of imported soybean at a guaranteed price, which is usually higher than the imported price.

As many agricultural product exporting countries, including Thailand, have been promoting biofuel production, a large proportion of grain (such as maize) and tuber (such as cassava), as well as sugarcane production, has been diverted toward the production of gasohol and bio-diesel – pushing the prices of animal feeds significantly upward. Table 4 shows that the price of maize has increased significantly, and the price of soybean has also tended to rise. Although the impact of

rising feed prices on the competitiveness of Thailand’s poultry sector is unclear – as this worldwide phenomenon could also affect competitors – it is very plausible that the growth rate of the sector will not be as strong as in the past.

## 2.2 Biosecurity and Compartmentalization

An important driver of vertical integration among poultry firms has been their decision to solve major safety problems, such as those related to banned antibiotics residuals and HPAI, by using biosecurity measures. In the past, the industry relied more on chemical solutions such as vaccination, antibiotics and antiseptics, which are costly and at times leave undesirable or unacceptable residuals in the products. After the HPAI outbreaks, it was also clear that vaccination would not be acceptable to the major importers of Thai poultry products, which often require even more stringent standards than those set by the World Organisation for Animal Health (OIE). The industry’s only option was, therefore, to employ biosecurity measures.

As the chicken breeds currently being raised in Thailand are highly susceptible to HPAI, the objective has been raised them in a closed system – an environment that minimizes outside contact and contamination. Most integrated broiler farms have by now introduced closed housing. Moreover, to ensure higher levels of safety, the industry, with guidance from the DLD and OIE, has moved toward a more stringent form of control – compartmentalization.

**Table 3 Estimates of Poultry Production and Feed Use in Thailand, 2007**

Product	Production (millions of birds)	Feed use (tons)	Share (%)	
			Soybean	Maize
Broilers	811.72	3,214,411	30	62
Parent stock of broilers	10.04	506,016	25	60
Young hens	30.63	663,650	25	60
Layers	37.05	1,482,000	25	55
Parent stock of layers	0.52	20,800	25	60

Source: Thai Feed Mill Association.

**Table 4 Feed Prices in Thailand, 1997-2006**

Year	Maize (baht/kg)	Soybean meal (baht/kg)	
		Domestic	Import
1997	4.77	10.81	10.65
1998	5.02	11.25	10.50
1999	4.67	9.65	7.47
2000	4.80	9.98	9.21
2001	4.37	10.94	10.70
2002	4.68	10.47	10.16
2003	4.94	11.96	11.07
2004	5.70	13.77	14.61
2005	5.50	12.02	11.92
2006	6.18	11.03	10.53

Source: Thai Feed Mill Association.

If anything, compartmentalization means more integrated, and hence larger, operations. In theory, it is possible that many (or a few) companies could share facilities within a compartment. However, as all the leading integrators already own all types of facility, it is unlikely that any would be willing to share with a competitor. Nonetheless, it is plausible that some leading integrators may provide space or services to smaller companies.

On July 13, 2006, the DLD signed an agreement with 24 major broiler and duck companies to establish 92 compartments which will cover 1,276 farms (1,250 broiler farms and 26 duck farms) and a total of 120.6 million birds per batch. The target was that by the end of 2006 at least 1,000 farms would be compartmentalized. By the end of 2006, the number of farms that had applied for compartmentalization certification had increased to 1,877 broiler farms (from 18 companies) and 899 duck farms (from 2 companies) in 40 provinces.

### 3. IMPLICATIONS FOR SMALLHOLDERS

Rapid industrialization and increasingly stringent trade requirements imposed by importing countries during the past decade have led to a significant increase in the in-house production of broilers and layers by many integrated companies. Once these developments were under way, the future of small poultry farms became doubtful.

For many smallholders, however, the end came much earlier than most would have expected. Most of them were hit – directly or indirectly – by the HPAI outbreaks that started in 2004. Some farms that were able to avoid the initial impact were nonetheless affected adversely by the later structural adjustment.

#### 3.1 Smallholders and the HPAI Outbreaks

In order to see how structural adjustment has affected farms of various sizes – including smallholders – the Thailand Development Research Institute (TDRI) conducted a telephone survey of broiler and layer farms that had been selected as a sample in a previous study involving TDRI, the International Food Policy Research Institute (IFPRI) and the Food and Agriculture Organization of the United Nations (FAO) in late 2002 and early 2003.

Among the broiler farms, after repeated tries, we were able to contact about half (49 percent) of the sample of 170 from the previous study. Among the respondents, 71 percent continued to operate their broiler farms (see Table 5). Over half were operating on the same scale as they did in 2003, with about 7 percent having expanded, and another 7 percent having decreased, their farm size. Among the 29 percent who had discontinued their broiler farms, six (out of 24) switched to another type of poultry farm (duck or layer) and two rented their broiler farms out, presumably to other broiler operators. As such, the great majority of the

**Table 5 What the Broiler Farmers from the 2003 Sample Do in 2007: Telephone Survey Results**

Activities in 2007	Number of farms	Proportion of respondents (%)	Proportion of 2003 sample (%)	Size				
				S	ML	MH	L	n.a.
Continue to operate the broiler farm	59	71.1	34.7	24	20	8	5	2
Raise more broilers than in 2003	6	7.2	3.5	1	1	2	1	0
Raise same number of broilers as in 2003	47	56.6	27.6	23	18	5	4	2
Raise fewer broilers than in 2003	6	7.2	3.5	0	1	1	0	0
Stopped operating the broiler farm	24	28.9	14.1	10	6	2	4	2
Switched to other poultry farming								
- Duck farm	5	6.0	2.9	2	1	1	0	1
- Layer farm	1	1.2	0.6	1	0	0	0	0
Switched to other livestock farming								
- Pig farm	2	2.4	1.2	0	2	0	0	0
- Cattle farm	1	1.2	0.6	1	0	0	0	0
- Fish farm	1	1.2	0.6	0	1	0	0	0
Rent the farm out (still as a broiler farm)	2	2.4	1.2	2*	0	0	0	0
Switched to other crops	7	8.4	4.1	1	2	1	3	0
Switched to retail business	2	2.4	1.2	2	0	0	0	0
New occupation not specified	3	3.6	1.8	1**	0	0	1	1
Total number of respondents	83	100.0	48.8	34	26	10	9	4
Unable to contact via telephone	86	n.a.	50.6					
Number of observations in 2003 (170 farms)	170		100.0					

Notes: Small (S) = 1–5,000; Medium-low (ML) = 5,001–10,000; Medium-high (MH) = 10,001–20,000; Large (L) > 20,000.

\* includes a case of deceased farm owner and another case of a farmer who became a factory worker.

\*\* includes a case that discontinued before the HPAI outbreak.

Source: Telephone survey by TDRI, March 2007.

farms are still in the poultry business. Among the minority who left the poultry business, four are still in the livestock business, seven have switched to crop farming, and only a few have moved out of agriculture (into retail business). It should be noted that large broiler farms in our samples appeared to have been more affected, as about half of them (four out of nine) have left the poultry industry altogether.

It is plausible that, among the half of the old sample that we were unable to contact, a greater percentage may have left the poultry business or even left the area altogether. However, too strong an inference should not be drawn regarding this section of the sample, as the major cause of the low response rate is that the vast majority of the telephone numbers in our record (about 85 percent) are mobile phone numbers. In the past few years, it was not unusual for the average Thai to have changed his or her mobile phone numbers/providers as a result of fierce competition among the mobile phone service providers.

In the case of the layer farms, we were slightly less successful in reaching our old sample; we managed to contact only 40 percent of our 2003 study sample (see Table 6). About two-thirds of the respondents continue in the layer business. However, most farms reportedly have fewer layers than in 2003, especially among the smaller farms. As in the case of the broiler farm sample,

most respondents who have discontinued their layer business switched to another type of livestock-keeping or agriculture.

Even though most respondents are still in the poultry business, this does not mean that they have not been affected by HPAI and the government measures that have been implemented in the wake of the outbreaks. Several farmers who moved to non-broiler activities indicated that after substantial losses resulting from the HPAI outbreaks they were unable to comply with the demands of the DLD or their patron companies for further investment in upgrading their farms.

### 3.2 The Future for Smallholders

Even before the HPAI outbreak in 2004, the future of smallholders in the poultry sector looked bleak. When TDRI took part in two international comparison studies sponsored by FAO and IFPRI between 2001 and 2004, the definitions (categorizations) that our team employed were larger than those used by other research teams doing studies in other Asian countries (see Tables 5, 6 and 7). Even given this categorization, we found that the smallholders' competitiveness (e.g., in terms of feed-conversion ratio and the egg yield) was problematic, both for producers of broilers and layers.

**Table 6 What the Layer Farmers from the 2003 Study Were Doing in 2007: Results of a Telephone Survey**

Activities in 2007	Number of farms	Proportion of respondents (%)	Proportion of 2003 sample (%)	Size			
				S	ML	MH	L
Continue to operate the layer farm	26	66.7	26.8	2	6	5	13
- Raise more chickens than in 2003	5	12.8	5.2	0	0	0	5
- Raise the same number of chickens as in 2003	6	15.4	6.2	0	2	2	2
- Raise fewer chickens than in 2003	15	38.5	15.5	2	4	3	6
Switched to other activities	13	33.3	13.4	4	5	3	1
- Egg retailer	3	7.7	3.1	2	0	0	1
- Fish farm	4	10.3	4.1	0	2	2	0
- Pig farm	2	5.1	2.1	0	1	1	0
- Other agriculture	3	7.7	3.1	2	1	0	0
- Non-agriculture	1	2.6	1.0	0	1	0	0
Total number of respondents	39	100.0	40.2	6	11	8	14
Unable to contact via telephone	58	n.a.	59.8				
Number of observations in 2003	97	n.a.	100.0				

Notes: Small (S) = 1–5,000; Medium-low (ML) = 5,001–10,000; Medium-high (MH) = 10,001–20,000; Large (L) >20,000.

Source: Telephone survey by TDRI, March 2007.

**Table 7 Mean Relative Profit Efficiency of Broiler and Layer Farms, by Farm Size, 2002–2003**

Farm size (number of birds) N = 170	Proportion of maximum profit efficiency (%)			
	Small <=5,000 N = 74	Medium-low 5,000–10,000 N = 51	Medium-high 10,001–20,000 N = 27	Large >20,000 N = 18
Broilers (contract farms)	49	71	88	87
Farm size (number of birds) N = 97	Small <=10,000		Medium >10,000–50,000	Large >50,000
Layers	52		55	61

Sources: Broilers – author's re-estimation based on TDRI data (see more details in Nipon et al., 2003); layers – Nipon et al. (2003).

Table 7 shows the results from stochastic frontier estimation based on the farm survey of TDRI in 2002/2003. The results suggest that small broiler farms (with fewer than 5,000 and between 5,000 and 10,000 birds per batch) are much less efficient than larger farms (with more than 10,000 birds per batch). A similar pattern was found – although less pronounced – in the case of layer farms. In view of the above-described advantages of large companies/integrators and the growing trend toward vertical integration, the results shown in Table 7 come as no surprise.

If anything, the gap between large and small producers tends to grow wider over time. Some of the advantages that smallholders had in the past, such as having lower investment costs in chicken housing and sometimes getting higher prices for chicken manure or using it more productively to feed fish stock in ponds beneath the chicken houses, have ceased to operate, as the DLD has “requested” that they turn to closed evaporative-cooled type housing to counter the HPAI epidemic. During the past few years of HPAI outbreaks, such requests/regulations have been imposed strictly on smaller farms, even though many of these farms intend only to serve the domestic market. Practices such as open farming and farming over fish ponds have been deemed “risky” and are forbidden in most areas. In many areas, chicken manure has become a liability rather than the valuable asset it once was.

Many smallholders (and larger farmers) who used to have a contractual arrangement (usually known as “contract farming”) with large integrators were required to upgrade their poultry housing after the outbreaks. Some were unable to comply and had to stop being contractors. For those who were able to comply, many were contracted only on a rotating basis, as the demand for broilers in both foreign and domestic markets has not yet returned to the pre-HPAI level. Some were offered a duck contract instead of a broiler contract by their original patron. Compared with a typical broiler contract, a duck contract is generally less lucrative, partly because of the longer raising period, worse feed conversion ratio and smaller number of birds per batch. However, most contractors who were offered a duck contract accepted it because otherwise they would have had to leave their chicken housing unused. Many even considered themselves “lucky” because there were many former contractors who were not offered any contracts at all. Faced with these problems, some farm owners remodelled their chicken housing to raise pigs. Other switched to raising other livestock or pursued a non-livestock livelihood.

The above examples indicate that many smallholders have made their own adjustments during the years since the first HPAI outbreak in 2004. A significant number of small farmers (probably more than half of the producers of small broilers) have managed to keep their poultry business, even during this difficult time. Some also shifted temporarily to other livestock

businesses, hoping to return to poultry farming at some point in the future. A smaller number of farmers have left the broiler and layer sectors voluntarily. It is likely that the adjustments will continue, albeit at a slow pace.

Although it is clear that many smallholders are losing their battle to stay in the poultry industry, it would be wrong to underestimate their capacity to adjust. Many have successfully done so over the past few years by switching to the raising of other livestock, pursuing other agricultural activities, or even moving out of the agricultural sector<sup>2</sup> – in most cases with little or no assistance from the government or other organizations.

#### 4. CONCLUDING REMARKS

In order to assess structural changes in the wake of HPAI outbreaks, a sample of poultry farmers first surveyed in 2002/2003 was re-surveyed. The results indicate that the great majority of these farmers have managed to stay in the poultry business. However, many contractors are only contracted on a rotating basis as a result of the decreased demand for broilers. Some farmers are offered a duck contract, which is generally less lucrative than typical broiler contracts in the past.

Even before the HPAI outbreak, the future of smallholders in the poultry sector looked bleak. After the outbreak they have been forced by the Thai government to upgrade their poultry housing to a closed system, which requires substantial additional investment. Because of many stringent HPAI-combating regulations, some of their prior advantages, such as getting higher prices for chicken manure or using it to feed fish stock in ponds beneath the chicken houses, no longer exist. While the industry may have found a way to cope with the HPAI via biosecurity and compartmentalization, many smallholders appear to be left out and continue quietly to make their exit from poultry production.

#### ENDNOTES

- <sup>1</sup> During the first outbreaks, the government provided full compensation (at market value for healthy chickens) for the animals destroyed. Since the second round of outbreaks (July 2004), however, the compensation has been reduced to 75 percent of the market value in order to curb moral hazard problems.
- <sup>2</sup> As many broiler farmers have switched to non-broiler pursuits in the past few years, it would also be wrong to conclude, as some analysts have without a good study or survey, that the broiler industry has something like 30 percent idle/surplus capacity that could be reused immediately should the demand return. Although it is likely that some surplus/idle capacity does exist, it is not a trivial job to determine the actual size of the surplus capacity.

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# The Utilization of Free Trade Agreement Preferences: The Case of Thai Agricultural Exports\*

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Recently, free trade agreements (FTAs) have dominated the trade policy of Thailand. The country has concluded eight FTAs and is currently engaged in more than 10 FTA negotiations.<sup>1</sup> These FTAs allow or will allow Thai exporting firms to gain advantage over competitors through FTA preferences. An important question concerns the extent to which the firms use FTA preferences. Some existing studies (TDRI 2006 and 2008) find that, in many tariff lines, a number of Thai businesses do not fully utilize the tariff preferences provided by the existing FTAs. Specifically, TDRI (2006 and 2008) find that preference utilization rates are quite low in many tariff lines. However, those studies focus on the industrial sector only. In this paper, we assess to what extent agricultural exporting businesses use tariff preferences under four selected FTAs already in effect, namely ASEAN FTA (AFTA), ASEAN-China FTA (ACFTA), Thailand-Australia FTA (TAFTA), and the early harvest scheme between Thailand and India.<sup>2</sup>

In spite of a declining trend in its contribution to the overall economy, Thailand's agricultural sector remains an important component of the economy as the sector generates significant trade value and tremendous levels of employment. In 2007 the agricultural sector employed about 43 percent of the total number of persons employed, and in 2006 the value of agricultural exports accounted for 16.3 percent of the total export value. Thailand exported agricultural products worth US\$ 3.4 billion or 16.9 percent of the total exports to Japan in 2006. Agricultural exports to the United States ranked second with a 15.6 percent share, followed by those to China (11.8%), Malaysia (6.8%), the United Kingdom (2.9%), Republic of Korea (2.9%) and Hong Kong (2.2%). Among the major export markets, Vietnam, Cambodia, and China grew the fastest at rates

of 99.5, 46.8 and 37.2 percent respectively during the period 2003-2006. In view of the importance of the agricultural sector and rising demand for agricultural products in the FTA partners' markets, there is a need for a systematic analysis of utilization rates of the agricultural sector under the existing FTAs. Identifying the causes of the low utilization rate is crucial to enable policy makers to help Thai agricultural exporters adjust to new opportunities and reap more benefits from the FTAs.

The structure of the paper is as follows: following the introduction, section 2 briefly reviews important aspects of the four FTAs. The third section shows the utilization of preferences for Thailand's agricultural and related products. Section 4 identifies key reasons why Thai businesses fail to benefit from the FTAs. The last section concludes the paper and provides a set of policy recommendations.

## BRIEF OVERVIEW OF THE FTAS

In this section, we briefly review the four selected FTAs on four important aspects: product coverage, tariff margins, rules of origin, and non-tariff barriers.

### Product Coverage

Figure 1 shows the coverage of agricultural products (HS codes 01-24 and 4001) in the FTAs. The product coverage of AFTA, ACFTA, and TAFTA are quite comprehensive, as more than 90 percent of the 6-digit tariff lines are included in the FTAs. However, in the case of AFTA and TAFTA, the majority of products

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in inclusive lists receive zero tariff margin (preferential tariffs from FTAs equal MFN tariffs), and thus the FTAs should not affect the export volume of those products. Despite broad coverage in ACFTA, that FTA has little impact on Thai agricultural exports because the majority of high-volume products exported from Thailand are contained in sensitive/highly sensitive lists. The early harvest scheme between Thailand and India offers negligible coverage, as only 1.5 percent of the 6-digit tariff lines (11 items) are included in that agreement.

### Tariff Margins

Tariff margins (the difference between MFN tariffs and preferential tariffs) comprise one of the important determinants of the utilization of FTA preferences. The higher the tariff margins, the larger is the extent to which exporting firms gain advantage over foreign competitors. Figure 2 shows the weighted-average MFN and FTA tariff rates for eligible agricultural products with tariff margins (using trade value as a weight). The tariff margins of agricultural products in AFTA, ACFTA, and TIFTA are substantial. The weighted-average tariff margin of TIFTA is more than 23 percent, while those of AFTA and ACFTA are 15.53 and 13.04 percent, respectively. Even though the weighted-average tariff margin of TAFTA is relatively small at 5.00 percent, TAFTA grants significant advantage to Thai exporting firms.

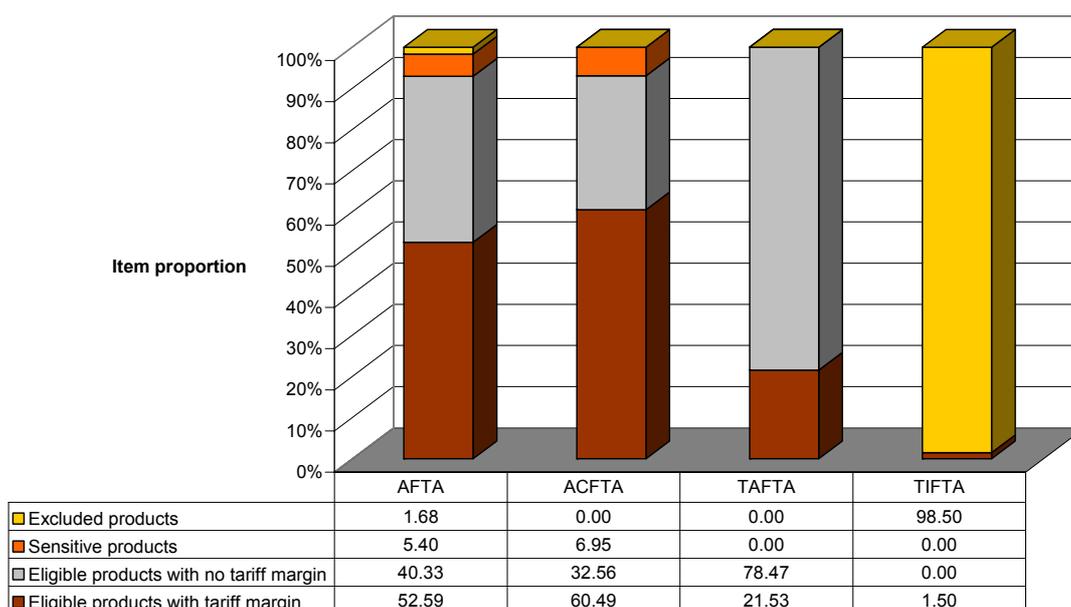
### Rules of Origin

Although an FTA might have broad product coverage and offer significant tariff margins, firms could

fail to utilize FTA preferences owing to the difficulties and costs involved in complying with the rules of origin. The rules of origin could vary across FTAs. The rules of origin can be divided into three broad categories: wholly obtained (WO), value content (VC), and change of tariff classification (CTC). Under the WO requirement, the originating product must be wholly obtained in the country. Under VC, the originating product must have a certain percentage of local content based on the value added. For CTC, the originating product must be transformed from a product in one tariff classification to a product in another tariff classification, according to criteria specified in the FTA concerned, for example CTC at 2, 4, or 6 digits of HS code.

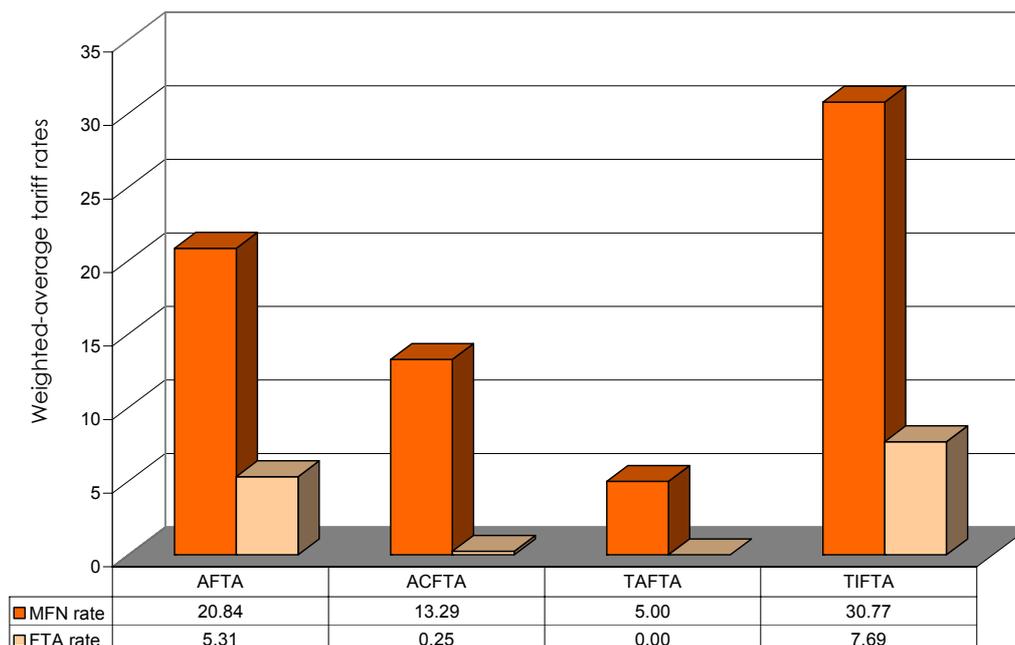
In general, the rules of origin in AFTA are considered more flexible compared with the rules in the other FTAs. Recently, in compliance with AFTA's rules of origin for some tariff lines, businesses could choose to satisfy either a regional value content (RVC) of at least 40 percent of its f.o.b. price or product-specific rules such as CTC at 2 or 4 digits of HS code. AFTA allows for full accumulation, that is, when calculating RVC, a business can sum up raw and intermediate inputs imported from any of the ASEAN members, provided that those inputs are certified as goods that originated in the source country. In addition, AFTA allows for partial accumulation. Under partial accumulation, even if product "A" does not qualify as an originating good, its cost can be summed up in calculating the RVC of product "B" which uses product "A" as an input, provided that the RVC of product "A" is not less than 20 percent of its f.o.b. price. Finally, AFTA adopts the *de minimis* principle to ease the CTC requirement. This principle is useful for businesses when not all of their

**Figure 1 Product Coverage of the Agricultural Products in Selected Free Trade Agreements by Percentage of 6-Digit Tariff Lines in 2006**



Source: Taratorn, Tassanee, and Nuttawut (2008).

**Figure 2 Weighted-average Tariff Rates for Eligible Agricultural Products with Tariff Margin in Various Free Trade Agreements in 2006**



Source: Taratorn, Tassanee, and Nuttawut (2008).

raw materials have undergone substantial transformation. It is still possible to claim preferential treatment for products, provided that those raw materials account for no more than a specified percentage of the product.

The three other FTAs have relatively more stringent rules of origin. ACFTA allows for full accumulation and allows businesses to choose between RVC and CTC for some tariff lines. However, ACFTA does not allow for partial accumulation and the *de minimis* principle. In TAFTA, there is no option to choose between VC and CTC. It is required that most of the products undergo a change in tariff classification, while some products are subjected to the wholly obtained requirement. TIFTA prohibits accumulation. Moreover, the *de minimis* principle cannot be applied under TAFTA and TIFTA.

### Non-tariff Barriers

The existence of non-tariff barriers could prevent businesses from using FTA preferences, even if the FTA coverage is broad and the tariff margins and rules of origin are generous. FTAs regularly include a provision stipulating the elimination of non-tariff barriers. ASEAN has made significant progress in developing a database of non-tariff measures (NTMs) adopted by each member country. Based on their transparency and discrimination, measures are grouped into various colored boxes. The measures grouped within the red box are apparent barriers to trade that need to be abolished. Unclear measures that need further clarification by the adopting country are placed within the amber box. A work

program with clear timelines was set up in order to effectively accelerate the elimination of the measures in the red box. According to the roadmap for the program, the ASEAN-6 countries (except for the Philippines) are expected to eliminate completely NTMs classified in their red boxes before the end of 2010. For the Philippines, the deadline is before the end of 2012, and for CLMV<sup>3</sup> within 2015.

ACFTA stipulates that the parties shall identify for elimination non-tariff barriers other than quantitative restrictions. However, given that there is no specific timeframe, there is no strong evidence yet concerning the elimination of non-tariff barriers. Moreover, at the Sixth Consultations between the ASEAN Economic Ministers and the Minister of Commerce of the People's Republic of China held in August 2007, all member countries agreed to begin addressing the issue of non-tariff barriers by exchanging information on the non-tariff measures applied by each party.

TAFTA contains provisions to ensure that the parties will (a) not introduce or maintain any measures that have proven to be non-tariff barriers, and (b) resolve any related issues. There has been cooperation on sanitary and phytosanitary measures (SPS) issues aimed at improving understanding of each country's measures and regulatory systems, and working together to improve efficiencies in quarantine operations and associated regulatory processes. Nonetheless, TAFTA itself provides a special safeguard measure (SSG), under which the import of certain sensitive products from a party would no longer benefit from the preferential zero tariff rate if the volume of the import exceeds a

particular level specified for that year. Therefore, it is somewhat controversial whether or not this type of measure constitutes a new barrier.

With regard to the early harvest scheme between Thailand and India, there is still no provision on a commitment to eliminate NTMs. It requires only that the parties shall endeavor to refrain from using non-tariff measures that adversely affect the trade in early harvest products. The parties thus are seeking to negotiate the issue under the full agreement.

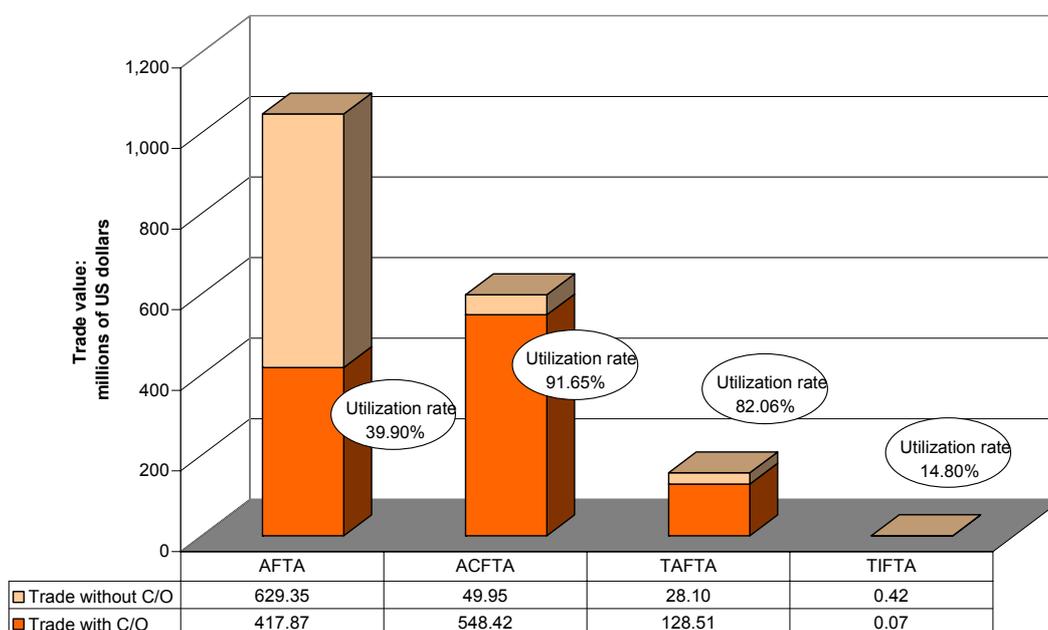
### UTILIZATION OF PREFERENCES FOR THAILAND'S AGRICULTURAL AND RELATED PRODUCTS

In this section, we calculate the preference utilization rate in order to show the extent to which Thai exporting firms in the agricultural sector utilize FTA preferences. The preference utilization rate is defined as the proportion between the value of exports that exporters claim for preferential tariff treatment and the total value of exports eligible for the preferential tariff under the relevant agreement. The numerator can be formed by aggregating the value appearing on each requested certificate of origin (C/O) issued by the Ministry of Commerce's Department of Foreign Trade.<sup>4</sup> The denominator can be obtained from the database collected by the International Trade Centre. Note that it is possible that C/Os might not always be used to claim the preferential tariff treatment available on the import side. Thus, it is possible that the calculated utilization rates could be overestimated, as the rate can exceed 100 percent.

Figure 3 shows the overall utilization rates under the selected FTAs in 2006. The overall utilization rate under ACFTA is very high (91.65%) corresponding to the large tariff margin. Although TAFTA provides a relatively small tariff margin, the utilization rate is high (82.02%). Even though the tariff margin provided by AFTA is almost 16 percent, its utilization rate is surprisingly low (39.90%). Similarly, the tariff margin under TIFTA is very high, but its utilization rate is only 14.80 percent. Therefore, in making comparisons across the FTAs, the relationship between the overall utilization rate and the overall tariff margins seems to be unclear.

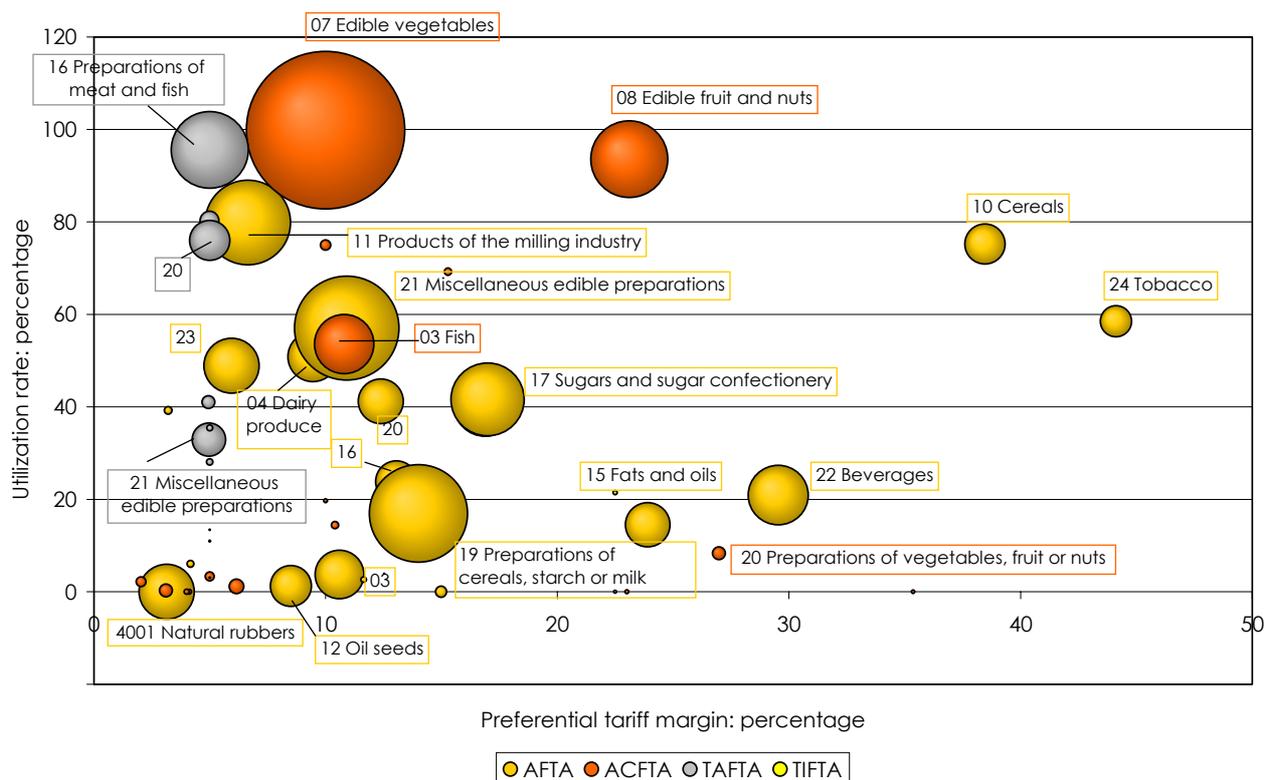
At the sectoral level, Figure 4 shows roughly the relationship between the margins of preference and preference utilization rates in the selected FTAs. The result is rather mixed. A counterintuitive and unexpected relationship exists between tariff margins and preference utilization rates in certain sectors and FTAs, that is, a large tariff margin might not necessarily lead to a high utilization rate and vice versa. For example, in AFTA, reasonably high utilization rates for cereals (HS 10) and, to a smaller extent, tobacco (HS 24) are associated with large tariff margins, while a high utilization rate for products of the milling industry (HS 11) is achieved with much smaller margins of preference. In TAFTA, the small tariff margins are associated with high utilization rates for preparations of meat and fish (HS 16) and of vegetables, fruit or nuts (HS 20), but with much lower utilization rates for miscellaneous edible preparations (HS 21). This is because the small tariff margins might implicitly incorporate impacts of other sector-specific factors that could influence the utilization rates. In other words, there might be other factors driving this result.

**Figure 3 Overall Preference Utilization of Thailand's Agricultural Exporters under Selected Free Trade Agreements in 2006**



Source: Taratorn, Tassanee, and Nuttawut (2008).

**Figure 4 Sector-wise Preference Utilization of Thailand’s Agricultural Exporters under Selected Free Trade Agreements in 2006**



Notes: - Bubble size reflects the total trade of each sector in US dollars.  
 - Exports to India in 2006 were much less than those to other countries; as a result, their representative bubbles cannot be seen. The corresponding preferential tariff margins for HS 08, 10, and 16 are 22.50, 75.00, and 22.50, respectively. Meanwhile, the corresponding preference utilization rates are 21.46, 100, and 0 percent, respectively.

Source: Taratorn, Tassanee, and Nuttawut (2008).

**KEY REASONS FOR LOW UTILIZATION RATES**

To determine why the utilization rates are low for some products, first, we identified the top 20 lowest utilization rate products (6-digit HS code) in each of the selected FTAs. In this paper, a low utilization rate is defined as one that is lower than 25 percent. Then, we surveyed 71 exporters of relevant products and interviewed selected pertinent firms and the Thai Frozen Foods Association in order to determine the major causes of the low utilization rates for their exported products. As revealed by the survey and interviews, the causes of the low preference utilization of the agricultural products of interest are an insufficiently attractive margin of preference, a lack of information on preferential tariff treatment, difficulties in providing the necessary documentation, and the passivity of the exporters. However, many potential causes, such as strict rules of origin, the complexity of the administrative procedures, the unduly long time of the process involved, and the cost of each C/O issue, are not relevant to the low utilization rates. Table 1 shows the causes of the low utilization rates by product.

An insufficiently attractive tariff margin is clearly one of the main reasons why the businesses failed to use

the FTA preferences. However, as suggested by the analysis in the previous section, an attractive tariff margin is a necessary but not a sufficient condition for the businesses to use the FTA preferences. As reflected in Table 1, when a sufficiently attractive tariff margin is provided, it is possible that some exporters still could not use the FTA preferences if they faced other problems, such as a lack of information on preferential tariff treatment, difficulties in providing the necessary documentation, and the passivity of the exporters or counterpart importers.

A lack of information is the prevailing reason accounting for the low utilization rates in all the products of interest. As revealed by the interviews, there are two particular problems in this regard. First, the exporters do not even know whether their goods are eligible for FTA preferences; the text of the agreement concerned is too difficult for them to understand. In addition, the tariff concession schedule is dynamic and subject to change over time. The exporters might not know when their products have been transferred from the sensitive list to the inclusion list. Second, the exporters acknowledging their eligibility did not know how to make use of the FTA preferences.

**Table 1 Causes Leading to the Low Preference Utilization of the Top Agricultural Products Exported to Each Free Trade Agreement Partner**

HS	Description	Market	Export value (millions of US dollars)	Preference utilization rate (%)	Causes of low preference utilization **			
					Insufficiently attractive margin of preference	Lack of information on preferential tariff treatment	Difficulties in providing the necessary documentation	Passivity of exporters
400110	Natural rubber latex	ASEAN	730.39	0.05	✓			
100630	Semi-milled/wholly milled rice	ASEAN	278.64	0.07	✓			
170199	Cane/beet sugar & chemically pure sucrose in solid form	ASEAN	191.46	0.25	✓			
400121	Natural rubber (excl. latex) in smoked sheets	ASEAN	163.81	0.00	✓			
400129	Natural rubber other than latex/smoked sheets/technically specified natural rubber	ASEAN	156.59	3.98	✓			
190190	Malt extract	ASEAN	115.46	10.47		✓		✓
230990	Preparations of a kind used in animal feed other than dog/cat food	ASEAN	99.62	20.21	✓			
170111	Raw cane sugar in solid form	ASEAN	89.81	0.00	✓			
220290	Non-alcoholic beverages other than water	ASEAN	86.91	20.77		✓		✓
100640	Broken rice	ASEAN	50.63	0.03	✓			
220300	Beer made from malt	ASEAN	37.20	9.79		✓		✓
151620	Vegetable fats & oils and fractions thereof	ASEAN	31.90	6.00		✓		✓
120799	Oil seeds & oleaginous fruits	ASEAN	31.78	0.07		✓		✓
030613	Frozen shrimp & prawns*	China	14.00	33.05		✓		✓
210690	Other food preparations*	Australia	17.37	34.25		✓	✓	✓
200899	Prepared/preserved edible parts of plants*	Australia	4.92	29.73		✓	✓	✓
081090	Other fresh fruit	India	0.31	21.51		✓		✓
160413	Prepared/preserved sardines	India	0.15	0.00		✓		✓

Notes: \* Evidently, the utilization of preferences by businesses exporting frozen shrimp and prawns (HS 030613) to China and other food preparations (HS 210690) and prepared/preserved edible parts of plants to Australia are not in the low utilization category as defined for this study. Nonetheless, it is worthwhile including them in the scope of the study since their preference utilization is relatively small compared with that of the other products exported to the specified market.

\*\* For each product, the conclusion that the margin of preference is or is not insufficiently attractive is based on analysis of secondary data. When the margin is likely not to be the cause of the low preference utilization, the research team circulated questionnaires and conducted specific interviews to identify all the other causes.

Source: Taratorn, Tassanee, and Nuttawut (2008).

While large businesses are generally aware of the opportunities offered under the preferential schemes, many small and medium-sized enterprises (SMEs), especially those located in rural areas, face difficulties in searching for the necessary information. Some SMEs also claimed that they were not well-informed about the FTA provisions. In an effort to build such awareness, the Department of Commerce and private associations have been conducting workshops and seminars to educate exporters about the exploitation of such preferences. Nonetheless, many respondents criticize the Thai government for insufficiently promoting the FTA preferences and failing to distribute information regarding their provisions among businesses in the agricultural sector, instead paying more attention to the industrial sector. Private associations have also been ineffective in providing relevant information to their members. In addition, a number of businesses have not registered as a member of any private association. Thus, such businesses have more limited access, or no access, to the necessary information.

Certain exporters have failed to make use of the available preferences owing to their inability to provide the required documentation. They have faced difficulties in adopting the accounting procedures needed to demonstrate compliance with the FTA requirements. There is also evidence that certain trading companies have found difficulties in requesting the C/O from the manufacturers.

Finally, there are many exporting firms that know how to make use of the preferences but decided not to use them, unless there is a request to do so from their importers. It is possible that the counterpart importers are ignorant of the FTA preferences and therefore do not request C/O documents from the exporters. This type of situation could occur under some conditions as follows:

- The market is of little commercial value; thus, the exporters do not bother making use of the preferences. This issue was raised by businesses exporting frozen shrimp and prawns (HS 030613) to China and those exporting items under the categories other fresh fruits (HS 081090) and prepared/preserved sardines (HS 160413) to India. Their claim was supported by the fact that the export shares of each product to the relevant market are 1.33, 0.31, and 0.23 percent of total export volume, respectively.
- The nature of doing business relies on trust or long-term personal connections between exporters and importers rather than price competition. The importer trusts and always buys goods from the same exporter regardless of the price. Thus, they do not bother putting in the extra effort required to make use of the preferences. Such personal relationships could be found in the ASEAN countries and China.

## CONCLUSION AND POLICY RECOMMENDATIONS

This paper examines to what extent exporters in the agricultural sector utilize the preferences offered by the ASEAN FTA (AFTA), ASEAN-China FTA (ACFTA), Thailand-Australia FTA (TAFTA), and the early harvest scheme between Thailand and India. We find that the overall utilization rate under ACFTA is very high (91.65%) corresponding to the large tariff margin. Although TAFTA provides a relatively small tariff margin, the utilization rate is high (82.02%). Even though AFTA offers an almost 16 percent tariff margin, its utilization rate is surprisingly low at 39.90 percent. Similarly, the tariff margin under TIFTA is very high, but its utilization rate is only 14.80 percent. Therefore, in comparing FTAs, the relationship between the overall utilization rate and the overall tariff margins seems to be unclear.

At the sectoral level, the result shows a counterintuitive and unexpected relationship between tariff margins and preference utilization rates in certain sectors and FTAs, that is, a large tariff margin might not necessarily lead to a high utilization rate and vice versa. This is because our simple analysis might implicitly incorporate the impacts of other sector-specific factors that could influence the utilization rates. In other words, there might be other factors driving the result, such as barriers to the utilization of the FTA preferences.

As revealed by the surveys and interviews with firms and the business association, there are four major causes of the low utilization rate of the agricultural products: an insufficiently attractive margin of preference, a lack of information on preferential tariff treatment, difficulties in providing the necessary documentation, and the passivity of exporters. In view of these findings, we recommend the following policies as they would help exporters reap more benefits from FTAs.

1. The government should put more effort into disseminating information related to the FTAs among SMEs, especially those located in rural areas and not members of any business association. The government should work more closely with business associations to promote widely the distribution of information to the businesses concerned. The relevant government agency should also provide guidebooks and information on best practices in order to help businesses better understand the FTAs.
2. The government should negotiate with the FTA partners in order to accelerate tariff reduction.
3. The government should prepare for further liberalization in order to exchange concessions with FTA partners by developing a

roadmap toward further liberalization. In addition, the government needs to get all stakeholders involved in the planning of the roadmap.

4. The government should continuously monitor preference utilization under the existing FTAs. The perspectives of businesses with regard to making use of preferences should be explored either through surveys or direct interviews. The information obtained from the surveys and interviews would be helpful to the government in identifying problems and finding proper solutions.

## ENDNOTES

- <sup>1</sup> The concluded agreements that have already been implemented include the Association of Southeast Asian Nations (ASEAN) FTA (AFTA), ASEAN-China FTA (ACFTA), Thailand-Australia FTA (TAFTA), Thailand-New Zealand Closer Economic Partnership (CEP) (TNZCEP), and the early harvest scheme between Thailand and India. The agreements that have been concluded but not yet implemented include ASEAN-Japan CEP (AJCEP) and ASEAN-Republic of Korea FTA (AKFTA). The agreements that are still being negotiated are, for example, Thailand-United States of America FTA (TUSFTA), Thailand-Peru FTA, Thailand-European Free Trade Association (EFTA) member countries FTA, Bay of Bengal Initiative for Multi-sectoral Technical and Economic Cooperation (BIMSTEC), ASEAN-India FTA, ASEAN-Australia-New Zealand Closer Economic Relations (CER), ASEAN+3 and ASEAN+6 initiatives.
- <sup>2</sup> AFTA has been in effect since 1993. After the implementation of the early harvest scheme between Thailand and China in 2001, the comprehensive ACFTA went into effect in 2005. TAFTA has also been in effect since 2005. The early harvest scheme between Thailand and India, which is referred to in the paper as TIFTA, has been in effect since 2004.
- <sup>3</sup> CLMV = Cambodia, Lao People's Democratic Republic, Myanmar and Vietnam.

- <sup>4</sup> In order to utilize FTA preferences under all existing FTAs, except the Thailand-New Zealand CEP, it is necessary to submit the certificate of origin issued by the Department of Foreign Trade.

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