Movement system and trade channels of Thai native beef response to AEC expansion

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ABSTRACT: This study aims to explore the situations of Thai native beef movement and trade channels to the AEC countries. In order to achieve the aim of this study, two major objectives were intensively studied: i) to explore the general situations of the Thai native beef trade and the capacity in crossed-border trade, and ii) to identify the potential factors influencing to the decision making in Thai native beef movement to AEC countries. This study employed statistical approaches to examine the tendency of collected data including used the logistic regression analysis to determine the relationships of influential factors discovered in this study. For the general situations of the Thai native beef trade, it was found that there are several barriers to limit the Thai native beef trade response to the AEC expansion, in particular the circumstances of the Thai native beef movement and trade channels to AEC countries. The influential factors were also evaluated to express the relationships between driving factors and their impacts. The results of these procedures lead to some guidelines essentially proposed to the government or authorized organizations to assist those small holder farmers and traders for the feasibility in crossed-border trade to AEC countries. Regarding the results of the study, it is anticipated that the proposed guidelines might spur the development of the movement system and trade channels to accommodate the AEC expansion and thereby deliver economic benefits to the livestock sector, particularly the Thai native beef traders, in Thailand and ASEAN countries.

Keywords: ASEAN Economic Community, Thai native beef, Movement System, Trade Channels

Introduction

ASEAN free trade agreement is already influencing ASEAN member countries (Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Vietnam, and Thailand) to become part of ASEAN economic community (AEC) by 2015. In doing so, there will be a single market and production base that focuses on the free flow of goods, services, investments, and skilled labor within the nations (Chia, 2013). These in turn is expected to promote several opportunities to expand their trade by exporting goods and services among the ASEAN member countries, thereby assisting those countries to be competent in the global trade. A study by Department of Livestock Development, DLD indicated that important dimensions of the change at the global level will influence the expansion of the livestock market among the ASEAN member countries and Thailand in particular (DLD, 2012). Since the majority of agrarian community in the country are engaged in livestock farming (Yanin Opaspattanakij, 2009). More than 80% of agricultural industries in Thailand focus on agricultural produce, while the rest relies on the processing of livestock produce and other primary manufacturing industries (DLD, 2013). Livestock sector plays an important role in the average Gross Domestic Product (GDP) of the country. It can be seen when comparing the GDP ratio of the livestock sector with the other agricultural sectors viz. It is obviously shown that the livestock sector grew 1.9% compared with

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crop and fishery sector which grew 1.5% and 1.8% respectively (Office of Agricultural Economics: OAE, 2014). The figures from 2015 indicate a possible growth of 2.5% in livestock sector due to the potential expansion trade over the AEC countries. Based on the records in Table 1, it was shown that the average beef consumption volume in Thailand was about 1.25 million thousand tons each year, while, the beef production had been decreasing gradually (from 1.17 million thousand tons in 2009 to 0.99 million thousand tons in 2013) (OAE, 2014). It was obviously shown that beef consumption in Thailand has still relied on the imported beef product which was larger volume than the exported beef product each year (from 2009-2013). Considering the distinctive growth rate of the imported beef, it had been increasing to 84.93% from 2009-2013, whereas the main beef suppliers were Australia and New Zealand (OAE, 2014).

Table 1 Production volume, export, import, the consumption of beef production in Thailand

List		2009	2010	2011	2012	2013	Growth rate (Percent)
Production	million	1.173	1.160	1.087	1.026	0.995	-4.52
	thousand tons (carcass weight)	198.9	167.08	161.4	147.8	143.29	-4.42
Export (thousand tons)		0.613	0.497	4.463	7.658	15.34	-7.34
Import (thousand tons)		2.016	2.978	7.626	10.81	22.89	84.93
Consumption	million	1.252	1.255	1.254	1.254	1.257	0.07
	Thousand tons (carcass weight)	180.2	180.72	180.5	180.5	181	0.07

Source: Office of Agricultural Economics, 2014

Thai government has tried to increase the volume of beef production, yet it has not approached to the expected volume for both domestic and external consumption yet. It was also found that there are some barriers in several parts of Thai native beef farming. For instance, the government just plays attention to small-holder farmers to develop standard and quality for livestock farming systems such as feed quality, selective breeding, and disease protection (OAE, 2014). On the other hand, the general nature of the Thai native beef movement and logistic are not studied and determined entirely. These barriers obstructed the Thai native beef traders to expand their business to the crossed-border trade with proximate countries (Information and Communication Technology Center, 2014). Additionally, there are very few studies available on the movement system and trade channels of Thai native beef response to the AEC expansion. For this reason, all influential factors to the Thai native beef cattle movement, such as logistics, crossed border market, and operations impedances need to be further explored explicitly (Trade Policy and Strategy Office, 2013).

Materials and methods

Literatures, government's reports and relevant documents were rigidly reviewed to develop the research problem. A study area was selected as a representative of a province in Thailand to study the situations of movements of Thai native beef to beef/cattle markets in both domestic and crossed-border market. Data collected from relevant stakeholders were analyzed statistically. The research design and techniques were described response to the objectives of the study.

Study area

This study considered some districts where their administrative boundaries adjacent to neighbor countries regarding the lists of AEC countries. Considering the topography of Thailand and the large numbers of Thai native beef farming, statistical data and the locations of all provinces over Thailand were explored according to these criteria. Eventually, it was shown that some districts in the Northeastern of Thailand. Therefore, the study area consists of some districts of Ubon Ratchathani, Sisaket, and Surin provinces, where typically have the crossed border trade with Cambodia, Laos, and Vietnam (Figure 1). These districts have the large highest number of Thai native beef farming. Therefore, these districts are potentially able to develop the Thai native beef trade with the mentioned AEC countries.

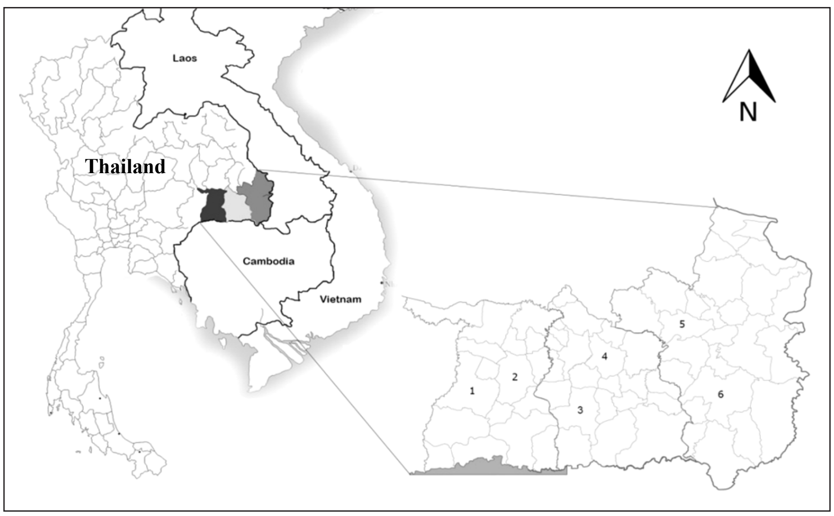

Figure 1 Map of northeast Thailand showing areas of study

Symbol: 1 = Mueang district, Surin province

2 = Sikhoraphum district, Surin province

3 = Khukhan district, Sisaket province

4 = Mueang district, Sisaket province

5 = Det Udom district, Ubon Ratchathani province

6 = Mueang district, Ubon Ratchathani province

Data collection and sampling procedure

This study employed purposive sampling to survey the influential factors from 93 Thai native beef traders over the study area from January to February 2015. Various situations of Thai native beef trading were reviewed from the literature, reports, and documents. The explored situations from the documentary analysis were used to develop a constructive questionnaire. This questionnaire was employed to collect the primary data from 93 Thai native beef traders.

Data analysis

This quantitative study implemented statistical analysis to analyze the collected data. Quantitative data were analyzed using statistical software, Stata 10. The data analysis consists of two major parts, descriptive statistic and inferential statistic which are described below in more details.

Descriptive statistics

The general situation of Thai native beef movement and trade channels was analyzed by using the descriptive statistics. Descriptive statistics were used to simplify the collected data from respondents. Therefore, the situation of Thai native beef movement and trade channels were simplified the comparisons and tendency of the collected data from all respondents.

Inferential statistics

The inferential statistics were used to make inferences from the collected data to more general conditions. Hypothesis was tested statistically to study the factors that affect Thai native beef movement and trade channels to the AEC countries by employing Fisher's exact test.

The hypothesis of this study is operation, market, and logistic factors are related to the decision to move Thai native beef and trade channels to the AEC countries.

Results

According to the analyzed data of this study, it can be summarized as two major parts; i) situations of Thai native beef movement and trade channels, ii) influential factors for decision making to move Thai native beef to AEC countries. Regarding the results of this study and discussion, some guidelines are proposed to support Thai native beef movement and trade expansion to AEC countries in the suggestion section. The results of the study are summarized in the following sections.

I. Situations of Thai native beef movement and trade channels

There are five significant factors involved with the Thai native beef movement such as places or persons to trade, movement methods, vehicles for beef movement, hiring labor for movement, and problems in moving, as shown in **Table 2.**

Table 2 Situation of Thai native beef movement

Situation of Thai native beef movement	Frequency	Percentage
Trading to		
Cattle market	84	**62.69**
Retailer	18	13.43
Wholesaler	14	10.45
Slaughterhouse	12	8.96
Others	6	4.48
Movement methods		
By themselves	15	12.20
Hired labor	7	5.69
Used their own truck	63	**51.22**
Hired truck	38	30.89
Vehicle types for Thai native beef movement		
4-wheel truck	52	**55.91**
6-wheel truck	35	37.63
10-wheel truck	3	3.23
Others	3	3.23
Ability to hire labor in moving processes (Average hiring labor employment rate = 300 Baht)		
No	63	**68.48**
Yes	29	31.52
Problems in Thai native beef movement		
Not worth the cost of moving due to few numbers of beef delivered to the cattle market each time	63	**19.50**
Rarely to find the Thai native beef farms	43	13.31
No available labor	24	7.43
Expensive labor cost	52	16.10
Expensive checkpoint fee	62	19.20
High transportation cost	34	10.53
Inconvenient transportation	10	3.10
Difficult to hire truck	12	3.72
Government office regulations	12	3.72
Others	11	3.41

As the results of the study, the Thai native beef owners (62.69%) mostly traded their beef to the cattle market. Only a little number of Thai native beef owners sold their beef to retailers, wholesalers, and slaughterhouses (13.43%, 10.45%, and 8.96%) respectively. Almost of the owners used their 4-wheel trucks for moving their beef to the destinations. Furthermore, there were only few beefs able to deliver by using their own truck each time. On the other hand, Thai native beef owners who need to hire trucks, in particular 6-wheel trucks and hire labors for moving the beef were likely to be the same (30.89%, 37.63%, and 31.52%) respectively. Additionally, almost half number of respondents expressed that there are few breeding farms which is rarely to find the breeding farms in proximate areas and high labor employment cost also the problems of the Thai native beef trades.

Regarding the explored results from the general situations of the study, there are some barriers essential to be overcome in the next step, which was proposed in the suggestion part in this study. It is clearly shown that the real requirements in delivering a lot of beef to destinations of Thai native beef owners shed the light on some opportunities in improving Thai native beef movement.

In term of the situations of Thai native beef trade channels, the collected data were analyzed statistically shown in **Table 3.** The Thai native beef trade channels were studied over five related topics such as trading places, trading patterns, payment method, trading trend, and barriers to achieve the Thai native beef trade channels as followed.

Table 3 Situations of Thai native beef trade channels

Situations of Thai native beef trade channels	Frequency	Percentage
Trading place		
Small-holder farmer's place	52	29.89
Farm	14	8.05
Cattle market	70	**40.23**
Co-operative	9	5.17
Livestock Office	3	1.72
Their own cattle	23	13.22
Others	3	1.72
Trading pattern		
Individual cattle bargaining	86	**92.47**
Estimate	6	6.45
Others	1	1.08
Payment method		
By cash	93	100.00
Trading trend		
Increasing	48	**52.17**
Decreasing	27	29.35
At the same level	17	18.48
Decreasing causes of Thai native beef trade channels		
Low number of cattle	20	**22.99**
Difficult to find buying place	11	12.64
Difficult to find trading place	12	13.79
Increasing cost	18	20.69
Uncertain price	15	17.24
High cost in some seasons	8	9.20
Others	3	3.45

It was found that almost a half number of respondents (40.23%) preferred selling their beef at the cattle markets. Some of the Thai native beef owners (29.89%) sold their beef at their farmlands. Most of them bargained for the selling price individually and paid by cash. This kind of trade is trendy increasing unless the barriers of trade channels will be eliminated. Considering the barriers of the Thai native beef trade channels, it can be concluded that insufficient number of beef and the expensive cost of the Thai native beef are major barriers of the Thai native beef trade channels.

Considering the Thai native beef trade channels to AEC countries in **Table 4**, it was found that only 16.13% of the Thai native beef traders would like to trade with the AEC countries. The trading destinations are Cambodia, Laos, Myanmar, and Vietnam. The barriers of crossed border trade with the mentioned AEC countries were the difficulty in moving process to trade in AEC countries, high checkpoint fee, insufficient number of beef to trade, high logistic cost and expense, and unknown management processes to move or bring the Thai native beef to trade with the AEC countries, shown in **Table 4**.

Table 4 Situation of Thai native beef trade to AEC countries

The situation of Thai native beef trade to AEC countries	Frequency	Percentage
Thai native beef trade to AEC countries		
Yes	15	16.13
No	78	83.87
The reason for not trading Thai native beef to AEC countries		
Difficulties to move	77	18.73
No information	45	10.95
Low number of cattle	56	13.63
Difficult to find buying places	41	9.98
Difficult to find trading place	22	5.35
Expensive check point fee	64	15.57
High logistic cost	53	12.90
Inconvenient transportation	30	7.30
Difficult to hire truck	19	4.62
Others	4	0.97

II. Influential factors for decision making to move Thai native beef to AEC countries

As a result of the study, it was found that only twenty four Thai native beef traders expected to move their Thai native beef and use the trade channels to AEC channels. It was also discovered that the influential factors consist of moving process factors, trading factors, and transportation factors, as listed in Table 5 as followed.

Table 5 Influential factors considered in moving the Thai native beef to trade in AEC countries

Influential factors	Decision made in moving Thai native beef to trade channels				Fisher's exact test p-value
	Expect to move n=24		Not expect to move n=69		
	Frequency	%	Frequency	%	
Moving process factors					
Difficulty in moving processes	21	**87.5**	61	**82.8**	0.478
No information of moving and trading	14	58.3	31	44.9	0.258
Trading factors					
Low number of beef	17	**70.8**	39	**56.5**	0.217
Difficult to find places selling Thai native beef	10	41.7	31	44.9	0.782
Difficult to find places purchasing Thai native beef	7	29.2	15	21.7	0.461
Transportation factors					
Expensive checkpoint fee	15	62.5	49	**71.0**	0.438
High transportation cost	21	**87.5**	32	46.4	<0.001
Inconvenient transportation	11	45.8	19	27.5	0.099
Difficult to hire truck	10	41.7	9	13.0	0.003

Considering the details collected from respondents, it can be summarized that almost of the Thai native beef traders who expected to move their beef to trade in AEC countries concerned about the difficulty in moving processes (87.5%), a low number of beef to trade (70.8%), and a high transportation cost (87.5%). Similarly, the Thai native beef traders who did not expect to move their beef to trade in AEC countries according to the concern in the difficulty in moving processes (82.8%), a low number of beef (56.5%), and the expensive checkpoint fee (71.0%).

Conclusion and suggestion

Regarding the general situations of Thai native beef trade and capacity in crossed-border trade associated with the first objective, there are some distinctive barriers in Thai native beef movement derive from the delivering processes. Thai native beef owners would be able to gain more profit if they could be able to sell more beefs at the cattle markets. While the unavailable labors and the delivery vehicles are also the problems to obstruct this business achievement so far. Therefore, it also has a small opportunities to trade in the AEC countries. This is additionally not possible to increase the volume of beef productions for domestic consumption in the country. Focusing on the second objective, it can be concluded that there are two influential factors, the difficulty in moving processes and a low number of beef, concerned by those Thai native beef traders.

Recently, the situation of Thai native beef movement appears in traditional way, as the Thai native beef traders and owners trade their Thai native beef in cattle markets, with almost disregard the crossed border trade to AEC countries. With the supports of Thai government and relevant organizations, Thai beef trade would be improved in several ways, such as delivery system, quantity, and breeding assistance. The next suggestion section contains some useful guidelines potential to overcome the mentioned barriers in effective ways. Following the guidelines of this study, it is possible to spur the crossed border trade of the Thai native beef to AEC countries. Furthermore, it was proved that the influential factors considered in moving the Thai native beef to trade in AEC countries are the transportation factor in term of transportation fee and the availability of vehicles in moving the Thai native beef to the crossed border trade channels (with the significant values less than 0.005).

As concluded, this study proposes some guidelines for developing the Thai native beef trade channels to the AEC countries, which are:

Guideline 1) To increase the quantity and quality of Thai native beef-the government or relevant authorized organizations may consider:

- Register all small-holder farmers for all further support and assistances
- Employ some technology to improve the Thai native beef breeding in order to increase the number and quality of the Thai native beef
- Regularly vaccinate the Thai native beef in responding areas to prevent the inflection and deceases

Guideline 2) To support the logistic system for both domestic and crossed border trades-the government or relevant authorized organizations may consider:

- Establish an export point in a cattle market to encourage the Thai native beef traders to proceed the movement processes to crossed border trade
- Establish some temporary cattle markets in the optimal distances between the Thai native beef traders and the cattle markets
- Provide some transportation enterprises to facilitate the movement process between small holder farmers and cattle markets
- Provide the logistic companies to facilitate the crossed border transportation to proximate AEC countries

Guideline 3) To provide the information and useful assistance of crossed border trade-the government or relevant authorized organizations may consider:

- Offer the training program to small-holder farmers about the Thai native beef trade channels to proximate AEC countries
- Collaborate with the universities and colleges to provide some useful information to the small holder farmers and the Thai native beef traders
- Consider decreasing checkpoint fee to encourage the Thai native beef traders in gathering and moving the Thai native beef to farther areas including the AEC countries

Considering the future works from this study, the researcher would suggest to study the sustainable ways to promote an organic agriculture of Thai native beef farming. Considering the organic agriculture is subject to add the distinctive value to Thai native beef of Thailand to compete with beef traders from other AEC countries. Based on a study of Suthipong (2012), it was proved that implementing the organic agriculture shows some outstanding results from examined meat of Thai native beef cattle of Thailand, which are low fatty acid and low cholesterol meat, and high Conjugated Linoleic Acid, CLA. These explored results from organic agricultural system should be promoted to beef traders in Thailand response to an increasing tendency of healthy food consumption over the world. Eventually, following the guidelines proposed in the suggestion section is the possible ways to develop Thai native beef trade channels to the AEC countries.

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