

Multi-Layer Distributions System of Agricultural Entrepreneurs in Hygienic Fruits & Vegetables: Current Situation

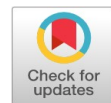
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Abstract: This paper aims to study the structure of the multi-layer distribution system of agricultural entrepreneurs in hygienic fruits and vegetables in Phrao, Chiang Mai. 400 middlemen who act as entrepreneurs in buying fruits and vegetables from the 1st source were the samplings collected data using questionnaires, and the additional five major entrepreneurs of hygienic fruits and vegetables were interviewed. The results from qualitative research show that the structure of the multi-layer distribution system of hygienic fruit & vegetable from farmers to end consumers divided into 2 types; Domestic and International channels. Moreover, the results show that most the entrepreneurs were females aged over 50 years old, secondary school education, more than 10 years of experience with an annual income of less than 500,000 Thai baht. The *t*-test confirmed that entrepreneurs characteristics such as gender, age, education, experience, income influenced the structure of the distribution channel in hygienic fruits and vegetables. This paper would have benefited from a more detailed description of the terms of the other area of factors of distribution channel and behaviour of stakeholder in network structure. However, this paper expects that the evidence presented in this study will inspire future efforts to collect more data and verify the strength of the results.

Keywords: Multi-layer distribution, Agricultural entrepreneur, Hygienic, Fruit, Vegetable, Chiangmai

Received: 02 May 2019 / Accepted: 11 July 2019 / Published: 27 August 2019



INTRODUCTION

Fruits and vegetables are important agricultural commodity of Thailand for both domestic consumption and export. The effort to develop the standard of fresh fruits and vegetables is vital for the recognition of the Thai agricultural produce and product in terms of quality and safety. Thus, Thailand's export of fresh, chilled, frozen, and dried hygienic fruit and vegetable is in the amount of 3-4 billion baht per year (Office of Agricultural Economics, Thailand, 2017). Chiangmai is the important agricultural area producing hygienic fruit and vegetable. When entrepreneurs are ready to distribute the products into the market, the appropriate distribution channel is necessary to be selected from many factors. To choose the right channel for the product and bring it to the target market at the right time with lower cost is important. One of the important systems is concerning with multi-layering distribution system. Such system has been applied in Thai markets for years. Multi-layer distribution had some advantages, almost all of locally produced fruits and vegetables could be better distributed to other communities, provinces and throughout regions. Due to some factors such as a limitation of financial capacity, farmers need help from local and individual distribution agents (Soviana & Puspa, 2012). Recognizing some problematical issues of the current multi-layer system and the importance to establish a hardier system, this paper aims to identify structure of the multi-layer distribution system for Thai fruit and vegetable in Chiangmai and try to find some possible alternative explanations for a more effective fruit-vegetable channel.

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LITERATURE REVIEW

Demographic factors of entrepreneur in fruits & vegetables vs. multi-layer distribution system

Demographic factors of entrepreneur in Fruits & Vegetables

The demographic factors that examine entrepreneur in the study comprise: age, gender, experience, education, and income. Demographic refers to society related economic factors. These factors relate to an influence one another (Kamarudin et al., 2018; Muthini, 2015; Srichum & Thechatakerng, 2017).

Age and gender

The effects of age on entrepreneurship are likely to change in response to economic incentives, which in turn will be affected by the age distribution of the population and other demographic effects. Nevertheless, demographic analysis has the advantage of identifying population trends that may affect individual decision making in the short and medium-term future (Spulber, 2013). Gender is known for all entrepreneurs in the survey. Men entrepreneurs execute better than woman entrepreneurs, though only when persistence of the firm is addressed (Bosma, van Praag, & de Wit, 2000). The participation rate of women in the labour force is generally lower than for men. In addition, women that are part of the labour force have a lower probability of being entrepreneur than the male part of the labor force (Verheul, Risseeuw, & Bartelse, 2001).

Education, income and experience

Human capital and entrepreneurship are generally found to be positively correlated: the education level of new venture founders (If an entrepreneur has experienced a high level of education; university or high-level vocational training) is positively related to venture performance (Bosma et al., 2000; Malinda, 2018; Srichum & Thechatakerng, 2017) and is positively related to be entrepreneur (Light & Gold, 2000; Matlay, 1999; Potasin & Thechatakerng, 2014). The level of human capital is often represented by the educational level of individuals. Income effect and support determine the level of structure choice of distribution channel. Income relates to the amount of money circulating in bank account and often the more money earn the better entrepreneurs have the right channel. Entrepreneur with higher levels of income can choose the right distribution channel which entrepreneur with lower levels of income does not completely operate by their own but adapt (Srichum & Thechatakerng, 2017). Experience is also significant in shaping success (Suharti & Pramono, 2016). Having experience in the same sector as the newly founded business increases of success in building profits and surviving (Srichum & Thechatakerng, 2017).

Multi-layer distribution channel system

Choosing distribution channel depends on the availability of good middlemen, traditional channel patterns, product characteristics, company finances, competitive strategies, and customer diffusion question (Srichum & Thechatakerng, 2017; Stern & El-Ansary, 1982). Channels networks could be more than one type of organization and it faces more choices in designing the channels for their products (McVey, 1960). Entrepreneurs can choose which channels to distribute products to their customers. Distribution channels can be physical stores, branded websites, marketplaces and direct mail. Each of these distribution channels represents a different way for a customer to buy from entrepreneurs, both direct or indirect way. Consumers can also buy indirectly, as when entrepreneurs provide another retailer, or third-party with goods to sell to customers. A multichannel distribution system then is when a merchant decides to strategically distribute their products to customers via multiple channels, such as directly through physical stores, an online marketplace or through another large retail chain (Hufford, 2016).

The approach of this study, the entrepreneurs has a variety of limitations as limited choice of types of middlemen, customers and locations of transaction areas. Besides, logistics the channel choice is a cost and financial decision (Lambert & Stock, 1981; Piyachat, 2017). Moreover, Liliean, Kotler, and Moorthy (1981) point out that the channel select decision is not only an economic decision but also on the control aspects of channels and their adaptability. For hygienic fruit and vegetable of entrepreneurs in Chiangmai,

there is still lack of clear view on distribution channel although the production has already started since last five decades ago. Determination of every entity in distribution channel is very important to identify the strengths and weaknesses in order to improve and ensure sufficient capacity channel of hygienic fruits and vegetables are reached. Thus, I propose that;

H 1. *Demographic characteristics of entrepreneurs like gender, age, education, income and experience have a positive and significant impact on distribution channel choice of structure*

From the above literature, demographic factors including age, gender, education, income and experience have been variously recognized as having an effect on entrepreneurs decision on the channel to target. These factors on entrepreneurs' marketing channels was empirically tested.

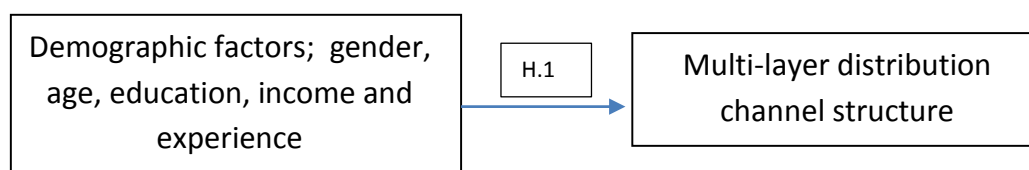


Figure 1. Conceptual framework

METHODOLOGY

To test **H1**, I have conducted an empirical study with 400 entrepreneurs who bought hygienic fruits and vegetables from the 1st source. In additional five major entrepreneurs of hygienic fruits and vegetables were interviewed. This group answered questions face to face relating to the structure of distribution channel. Besides, 400 samplings were asked about determinants of determining distribution channel and structure. This study focuses narrowly with entrepreneurs in Phroa city, Chiangmai.

Validity

Several validity issues were inherent within this paper. The first issue was I involved only entrepreneurs who bought hygienic fruits and vegetables from the 1st source in Phroa city. In addition, the study relied on the co-investigators personal contacts as an initial source for distribution channel in Phroa city. These may limited the generalizability of the findings.

Methods of data analysis and interpretation

Information from secondary data and primary data with interviewed targets have investigated in the study. In addition, target entrepreneurs were asked to answer via questionnaire.

After I completed collecting all the data from the target, then I analysed the data by classifying them through social statistic programme. After that, all information was interpreted in order to test our hypothesis.

RESULTS

Descriptive information of interviewed entrepreneurs

Demographic factors of 5 major entrepreneurs and multi-layer distribution channel

1. Demographic factors of Entrepreneurs - Age, Gender, education, income and experience: Most of them were men with more than 50 years of age. Furthermore, they have had High school of education, with earning money more than one million Thai baht per year. Besides, most of them were entrepreneurs, with more than 10 years of experience.

Table 1: SDemographic factors of 5 major entrepreneurs

Gender	Age		Education			Income/yr		Experience	
	>50	<50	Secondary	High school	University	>1mil	<1mil	>10yr	<10yr
Male	2	2	-	3	1	2	2	2	2
Female	1	-	1	-	-	1	-	1	-

2. Current multi-layer distribution channels of major entrepreneurs in Phroa city: There were 2 types of distribution channel for entrepreneurs in Phroa city. The first type was the distribution of fruit-vegetable from farmers to end-consumers of entrepreneurs in Phroa. The major entrepreneurs would have their own outlets, which would buy products from other small farmers with little productivity who are in the village. By the major entrepreneurs that distribute agricultural products, fruits and vegetables to consumers directly would distribute the products to sell the products in Prao main market, main market (Kad Muang Mai market) in Chiang Mai city and roadside as well, which some of the products sold would not meet the standard for export.

The second type of distribution channel in Phroa was the major entrepreneurs who distribute hygienic fruits and vegetables through middlemen. Most of the agricultural products sold in Thailand, normally are sold to local retailers and wholesalers or other province markets. The retailer and the wholesaler would come to buy products directly from local farms. As for the products that are sold abroad, the most of entrepreneurs who come to bid and buy the products are “locally export middlemen”.

Locally export middlemen will camera quality control of the products by themselves, then entrepreneurs can be reduced their cost and do not have to pay additional labor. When the locally export middlemen have finished collecting the products, the products will be delivered to sell to “the foreign contact broker”, “the local exporter” or “other provincial exporter” as a final destination in domestic collection. As for entrepreneurs with a large number of laborers, the products quality control will be screened and delivered to local exporters and other provincial exporters (see Figure 2).

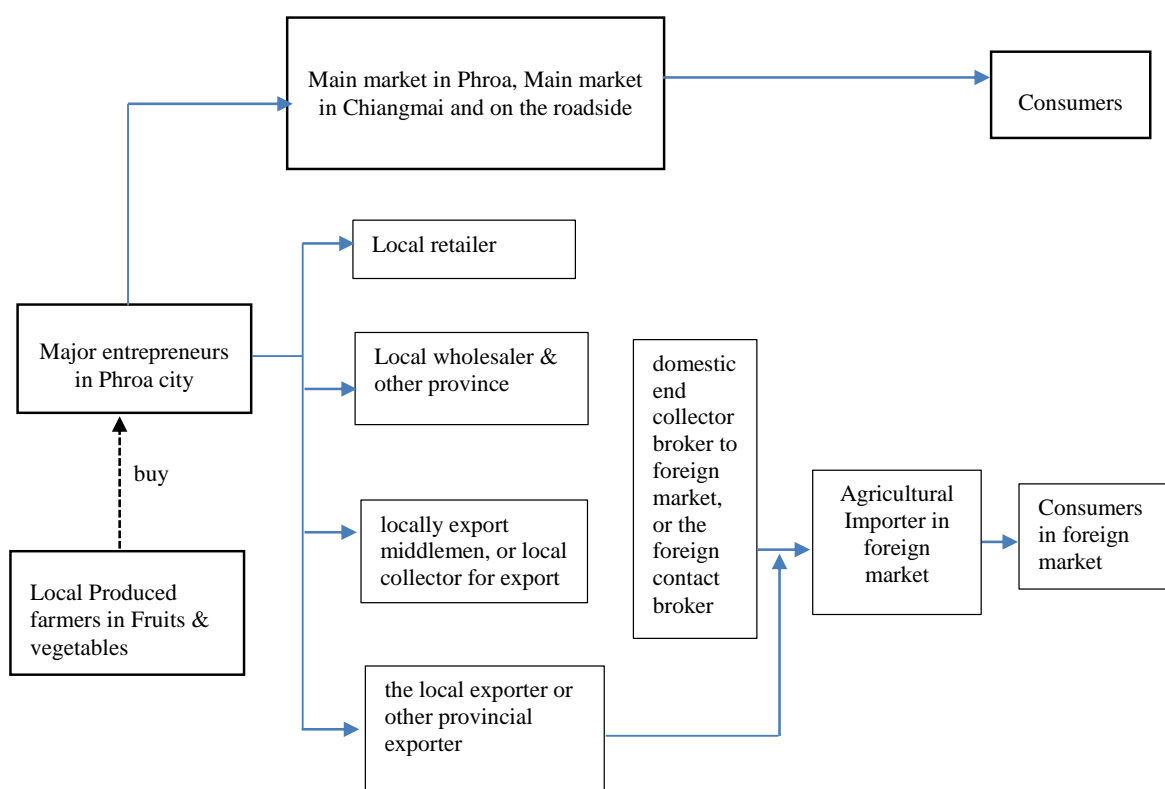


Figure 2. Multi-layer distribution channel of hygienic fruits & vegetables entrepreneurs in Phroa, Chiangmai

Descriptive information of survey entrepreneurs

Demographic factors of 400 entrepreneurs and layer of distribution channel

1. Demographic factors of Entrepreneurs - Age, Gender, education, income and experience: The participants were women (52.75%) with more than 50 years of age. This is consistent with the prediction of [Srichum and Thechatakerng \(2017\)](#) that women entrepreneur played the leading role in business. Furthermore, they have had secondary level of education, with income between 100,000-500,000 Thai baht per year (48%). Besides, most of them were entrepreneurs, with more than 10 years of experience. As, [Srichum and Thechatakerng \(2017\)](#) explained that having had experience in the same sector as the newly founded business increases the probabilities of success in making profits and in surviving.

Table 2: Demographic factors of entrepreneurs

Demographic Factors		Age		Education		Income/yr		Experience	
Gender	%	>50	41-50	Primary	Secondary	1 lac - 5 lac	>1 lac	<1-5yr	6-10yr
Male	47.25	26.25	12	12.75	25.25	48	7.5	39	15.25
Female	52.75	27.25	19.75	19.75	27.25				

2. Structure of multi-layer distribution channels in Phroa city: This part presents the structure of distribution channel which consist of distribution channel, channel to buy agricultural products, target group, length of distribution, place to sell products, product packaging, product transportation, criteria to select channel, keeping product method, source of price and market information.

- Distribution channels for hygienic fruits and vegetables: The results show that small entrepreneurs would distribute their products to retailers (45.06%), followed up with direct sales to consumers (32.06%), sold to wholesalers (such as main market in the other provinces) (10.82%), and sold through online networks (eg Line Facebook, Instagram, web e-mail and others) (3.21%).
- Channel to buy agricultural products: Channels for purchasing agricultural products, it is found that most small entrepreneurs bought hygienic fruits and vegetables from farmers (70%), followed by large sellers (26.50%) and bought from the cooperative groups or community enterprises (2%).
- Target group, length of distribution, and place to sell products: The main target customers are general retailers (40.80%), follow by direct consumers (38.20%), and wholesalers (20%) respectively. Furthermore, the most of respondents have had a length of selling in each cycle more than 4 months (50.80%), less than 2 months (26.80%) and 3 months (7.20%) respectively. Besides, entrepreneurs mainly bought their products from famers, while higher education level bought products from large sellers who distribute their hygienic fruits and vegetables at Phroa main markets and cooperative market (52.20%), followed by private establishments (such as fruit and vegetable packing houses) (34.50%), other provinces such as Si Mum Mueang Market and Thai Market (8.00%), and agricultural products shops & department stores , and via online networks (5.30%) respectively.

Table 3: Structure of distribution channel (I)

Description	%	Remarks
Distribution channels for hygienic fruits and vegetables		
- retailers	45.06	
- direct sales	32.06	Show only 4 rank from 7
- sold to wholesalers (such as main market in the other provinces)	10.82	
- online networks (e.g., Line Facebook, Instagram, web e-mail and others)	3.21	
Channel to buy agricultural products		
- farmers	70	Show 3 rank from 5

Table 3: Continued...

- large sellers	26.50	
- the cooperative groups or community enterprises	2	
Target group		
- general retailers	40.80	Show 3 rank from 5
- direct consumers	38.20	
- wholesalers	20	
Length of distribution		
- >4 months	50.80	Show 3 rank from 5
- < 2 months	26.80	
- 3 months	7.20	
Place to sell products		
- main markets and cooperative market	52.20	
- private establishments (e.g., fruit and vegetable packing houses)	34.50	
- other provinces such as Si Mum Mueang Market and Thai Market	8.00	
- agricultural products shops, department stores, and online networks	5.30	

- Product packaging, product transportation, and criteria to select channel: The results show that most of entrepreneurs packed hygienic fruits and vegetables by using wooden baskets (70.80%), followed by plastic bags (25.20%) and a carton box packing (4.00%). While, entrepreneurs preferred to transport their product by car (80%) and by motorbike (9.72%). Moreover, most of them considered the on time transportations (82.5%) and safety with standardized transportation system (9.75%).
- Product storage method, source of price and market information: Most of entrepreneurs stored hygienic fruits and vegetables in the baskets (83.00%), followed by laying on the floor (13.50%) and keeping in the temperature control room (by renting from a private company) (3.50%). Besides, most of them perceived the price information and marketing news from a group of local middlemen (91.48%), and they also perceived from government agencies, newspapers, radio, television, and internet (8.52%).

Table 4: Structure of distribution channel (II)

Description	%	Remarks
Product packaging		
- using wooden baskets	70.80	
- plastic bags	25.20	
- carton box packing	4.00	
Product transportation		
- car	80.00	Show 2 rank from 4
- motorbike	9.72	
criteria to select channel		
- on time	82.50	Show 2 rank from 5
- safety with standardized transportation system	9.75	
Product storage method		
- baskets	83.00	
- laying on the floor	13.50	
- keeping in the temperature control room (by renting from a private company)	3.50	
Source of price & market information		
- from a group of local middlemen	91.48	
- government agencies, newspapers, radio, television, and internet	8.52	

3. Determinants of distribution channel choice: Respondents paid attention to factors influence distribution channels of hygienic fruits and vegetables in a high level (3.69). When considering each item, it is found that the respondents gave the highest level of importance, such as selling prices of vegetables and fruits in each channel (4.12), followed by the profits received from selling products (4.09), term of payment (3.92), just in time in transportation (3.89), and trustworthy middleman (3.86), respectively.

Table 5: Determinants of distribution channel choice

Determinants of distribution channel choice	Mean
Selling prices of vegetables and fruits in each channel	4.12
The profits received from selling products	4.09
Term of payment	3.92
Just in time in transportation	3.89
Trustworthy middleman	3.86
Overall	3.69

Hypotheses

H1: Demographic of entrepreneurs like gender, age, education, income and experience have a positive and significant impact on distribution channel choice of structure

The impact of variables; gender, age, education, income and experience was analysed. The study perceives significant relationship between gender, age, education level, income and experience. F-test was used to analyse the variables. From demographic factors of entrepreneurs and distribution channel concept, I contrasted with mentioned variables, the study assumed that; gender, age, education, income and experience should affect to distribution channel structure.

The study shows H1 is accepted. Anova analysis illustrates that gender, age, education level, income and experience were significantly related to distribution channel choice of structure (.000, .000, .000, .001, .001) respectively. By gender did affect to distribution channel choice of structure in the area of target group choosing. By men preferred to distribute to local retailers or other provincial retailers, while women like to distribute directly to end consumers. Besides, age did affect to distribution channel choice of structure in the area of choosing transportation (.000), the results by LSD testing explained that entrepreneurs who have had more than 50 years of age preferred to choose just in time transportation, while <50 year of age like to focus in method of transportation and cost of transportation. Moreover, education level did affect to distribution channel, by entrepreneurs with secondary level of education preferred to buy products from farmers while higher education like to buy from large seller. Experience of entrepreneurs did affect distribution channel choice of structure in term of packaging. Entrepreneurs who have had experience for more than 10 years preferred to pack their products by using wooden baskets, while less than 10 years like to use plastic bags. Another factor that affect distribution channel choice was income. F-test confirmed that income did affect to place of distribution by entrepreneurs with higher income bought products from farmers, while less income bought products from large sellers.

Table 6: Results of hypothesis analysis

Hypothesis	Results
H1. Demographic characteristics of entrepreneurs like gender, age, education, income and experience have a positive and significant impact on distribution channel choice of structure	
- Gender; gender does affect to structure choice	Supported
- Age; age does affect to structure choice	Supported
- Education level; Higher education does affect to structure choice	Supported
- Experience; experience does affect to structure choice	Supported

DISCUSSION

Woman-entrepreneurs play an important role in businesses growth, which is consistent with the prediction from prior research (Potasin & Thechatakerng, 2014; Srichum & Thechatakerng, 2017)) that the role of woman in business was increasing rapidly in Thai firms. Educational level may contribute to entrepreneurial success in choosing distribution channel (Bosma et al., 2000). The finding supported this argument (Light & Gold, 2000; Matlay, 1999). Moreover, gender, age and education are thought to have a positive effect on the distribution channel choice of structure (Muthini, 2015). Moreover, having contact with other entrepreneurs in networks helps to create the idea of choosing the right structure of distribution channel (Aldrich & Zimmer, 1986).

CONCLUSION

The empirical accomplished in this paper find important evidence insights to determinants exploited by entrepreneurs, in the area demographic factors of entrepreneurs, as well as, determinants of distribution channels choice of structure. This paper discovers that the results of the study explained the necessary in paying greater attention to what demographic factors do affect to distribution channel choice of structure. The results state that most of distributors who acted as entrepreneurs is considered as results from distribution channel of structure.

FUTURE RESEARCH

The limitation has been found due mainly to the nature of the information. The information involving factors is limited in terms of the actual features of the selected factors. This paper would have benefited from a more detailed description of the terms of the other area of factors of distribution channel and behaviour of stake holder in network structure. However, this paper expects that the evidences presented in this study will inspire future efforts to collect more data and verify the strength of the results.

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