International Journal of Agricultural Technology 2016 Vol. 12(7.2):1785-1795
Available online http://www.ijat-aatsea.com
ISSN 1686-9141

Determinants of the Certified Thai Community Product Standard of Small and Micro Community Enterprise Groups in Samut Sakhon Province, Thailand

Chalida Lerdkasemphol[1*], Panya Mankeb[1], Suneeporn Suwanmaneepong[1] and Prapaporn Chulilung[2]

[1]Faculty of Agricultural Technology, King Mongkut's Institute of Technology Ladkrabang, Bangkok, 10520, Thailand
[2] College of Innovative Management, Valaya Alongkorn Rajabhat University under the Royal Patronage, Pathum Thani, 13180, Thailand

Chalida L., M. Panya, S. Suneeporn and C. Prapaporn (2016) Determinants of the Certified Thai Community Product Standard of Small and Micro Community Enterprise Groups in Samut Sakhon Province, Thailand. International Journal of Agricultural Technology 12(7.2): 1785-1795.

Since the Thai economic crisis in 1997, Small and Micro Community Enterprises (SMCE) have been regarded as one of the main engines to sustain economic growth of Thailand. The Thai community product standard (TCPS) has arranged to control the quality of community products. Products that met the TCPS can ensure their safety for users and the environment, as well as the acceptability of related practices by consumers in domestic and international markets. This paper was conducted to investigate factors affecting of the certified TCPS of SMCE groups in Samut Sakhon province, Thailand. Structure interview was used to collect data from 28 leaders of SMCE groups registered with the Office of Secretary of Promoting Local Enterprise Committee in Samut Sakhon. The participants were divided into two groups: 14 certified and 14 non-certified TCPS. Descriptive statistics was used to explain the socio-economic background between non-certified and certified SMCE groups. t-test was applied to investigate the significance of the differences between the two groups. Binary backward stepwise logistic regression was employed to predict factors enhancing the certified TCPS. The results revealed that the variable factors significantly affecting the certified TCPS of SMCEs were the production, group members, and government policy. The finding suggested that government agencies should support SMCEs to launch new varieties of their products and provide practical training opportunities for SMCE members.

Keywords: Small and Micro Community Enterprise (SMCE), Thai community product standard, factors affecting

[*] ***Corresponding Author:** Chalida Lerdkasemphol; **E-mail:** chalida.lerdksp@hotmail.com

Introduction

Since the Thai economic crisis in 1997, community enterprises have been regarded as one of the key-driven for sustainable economic growth of Thailand. The community enterprise is a significant sub-sector within the wider social enterprise sector. It involves community business activities in both manufacturing and service. (Chotithammaporn *et al.*, 2015). Accordingly, Small and Micro Community Enterprise (SMCE) of Thailand have been advocated by Thai governments for more than a decade. The beginning was the use of the Community Enterprise Promotion Act B.E. 2548 (2005) to strengthen the economy of communities and to promote people in communities by using their knowledge corresponding to local surrounded environment. Many countries have been successfully promoting local products so far, for example, One Town One Product (OTOP) in the Philippines and China (Taiwan), and One Village One Product (OVOP) in Japan (Chantuk and Chadcham, 2014). SMCEs play an important role in Thai societies in many aspects for example, the gathering of people in communities, decreasing an external support, advocating local wisdom, being a mechanism to create a sustainability of community in terms of sufficiency economy. The communities would have abilities to be a strong community, to be autonomous, to be ready to promote their own community, and to be the tool of a micro level to build both economic and social cores (Petprasert and Wongkul, 2007).

Generally, the operating processes of SMCEs were simple because the low investment and lack of a product development to be sufficient to meet customers' requirements. Therefore, Thai Industrial Standards Institute, founded by Thai Community Product Standard (TCPS), should promote the quality and safety of the local product standard to create confidence towards customers. Furthermore, products certified by TCPS are credited by customers because they were investigated certified and detected from government officers. Moreover, this was the connection of local products to customers in both in Thailand and other countries, and this was also considered as cultural preservation and local wisdom promotion.

In 2014, the GPP of Samut Sakhon province was ranked in the 5th of Thailand accounting for 335,603 million Thai Baht (THB) (GPP, 2016). SMCEs in this region produced goods and services, and organized many community business activities in associate with the natural network, the culture of a rural community life, nature, generosity, mutual assistance in the field of knowledge and technology. As such, the government agency intended to

support and promote the knowledge and materials, inputs, services, and capitals to SMCEs (Khon-Ngam 2007; Poungprayong and Chantaranamchoo, 2013).

However, at the present, there are 145 groups of SMCEs registered with the Office of Secretary of Promoting Local Enterprise Committee in Samut Sakhon, and only 14 groups (9.66 %) received the certificate of TCPS, which was quite low. Meanwhile, certified products can represent a good income generation opportunity for small farmers in developing countries (FAO, 2011), as well as in Thailand. Moreover, product certification factors emerged as one of the most important determinants of SMCEs' success (Ruengdet and Wongsurawat, 2010). Therefore, this research aimed to investigate factors affecting the certified TCPS of SMCE groups in Samut Sakhon province, Thailand. The results of the study are useful for related institutes to determine a plan or a policy to help, advocate, and support SMCEs to have sustainability and ability to develop products to receive acceptance from consumers in both domestic and international markets.

Objectives of this study were to investigate factors affecting the certified TCPS of SMCE groups in Samut Sakhon province, Thailand.

Materials and methods

The study area

The study was conducted in Samut Sakhon province, the central region of Thailand, located on a latitude of 13°32'50"N and longitude of 100°16'25"E. Samut Sakhon is on the mount of Tha Chin River, a distributary of the Choa Phraya River, to the gulf of Thailand. Only two kilometers distant from the sea and 36 kilometers from Bangkok-- the capital city of Thailand. Samut Sakhon is at a moderate sea level height at 1.00-2.00 meters, covering a total area of 872 square kilometers, divided into 3 districts: Muang Samut Sakhon, Krathum Baen, and Ban Phaeo. The northern part connects to Nakhon Pathom province. While, the west area is adjacent to Ratchaburi and Samut Songkram province; the east side connects to Bangkok, and the southern side is next to the gulf of Thailand (Wikipedia, 2016). (Fig.1).

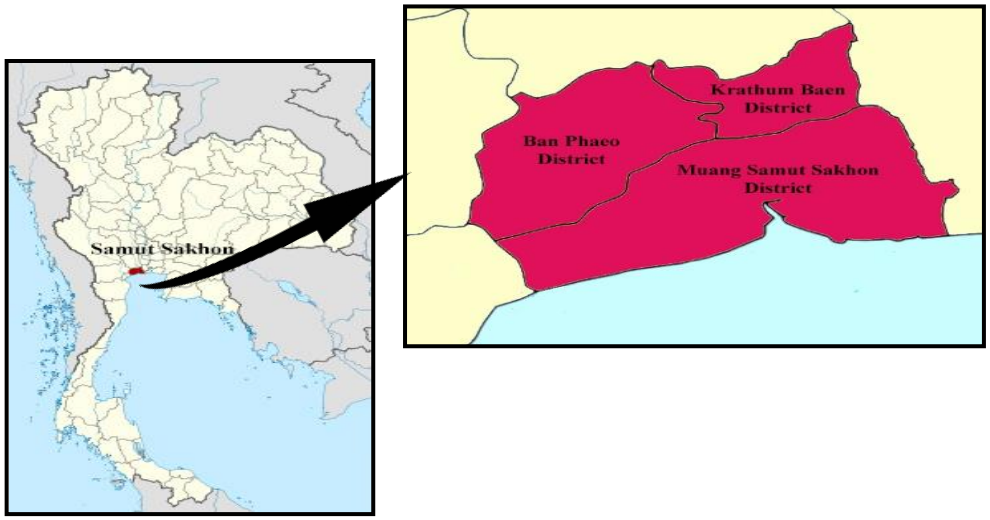

Fig. 1 Map of the study area, Samut Sakhon, Thailand (Wikipedia, 2016).

Population and Sampling Procedure

The population of this study was 145 SMCE groups in Samut Sakhon province registered with the Office of Secretary of Promoting Local Enterprise Committee in Samut Sakhon. Only 14 SMCE groups were certified by TCPS, accounting for 9.66 % of the total provincial SMCEs. The sample size of 28 SMCE groups was selected for this research by purposive sampling divided into two groups: with 14 certified, and other 14 non-certified TCPS. The non-certified group was selected in a radius of 10 kilometers from the certified TCPS group.

Data Collection and Analysis

Structured interview schedule was employed to collect data from respondents through face to face interview by the author. The leader of SMCE groups was interviewed as a key informant. The data were analyzed using descriptive statistics such as frequency, percentage, mean, and standard deviation to explain the socio-economic background between non-certified and certified TCPS of SMCE groups. Regarding hypothesis testing, the t-test was applied to examine the significance of the differences between the two groups. Binary backward stepwise logistic regression was used to predict factors enhancing the certified TCPS.

The binary logistic regression model is displayed as follows:

$$P_Y = \frac{e^{b_0+b_1X_1+b_2X_2+b_3X_3+\cdots+b_9X_9}}{1+e^{b_0+b_1X_1+b_2X_2+b_3X_3+\cdots+b_9X_9}} \quad (1)$$

The whole function is called the logistic distribution function. It is estimated by maximum likelihood (MLE) techniques. The advantage of this function is it can guarantee that the probability ranges from 0 to 1 as the regression equation predicts values from negative infinity to positive infinity (Cameron and Trivedi, 2005). It is also called log-odd as we can write logistic function as follow:

$$\text{Logit } (p) = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \cdots + \beta_9X_9 \quad (2)$$

This fits the model;

$$\text{Ln}\left(\frac{p}{1-p}\right) = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \cdots + \beta_9X_9 \quad (3)$$

Where;
Y = Certified TCPS status (1 if the SMCEs was certified TCPS and 0 if not)
p = Probability of the certified TCPS
β_0 = Intercept term
β_k = Estimated regression coefficients
X_1 = Fund
X_2 = Management
X_3 = Marketing
X_4 = Production
X_5 = Leader
X_6 = Group members
X_7 = Government policy
X_8 = Supporting by government and private sector
X_9 = Collaboration with the network

Results and Discussions

Socio-economic background of SMCE groups

Table 1 shows that most of the SMCE groups were processing and food products, and herbal products, which were 42.86%, and 17.86%, respectively. Considering certified and non-certified TCPS group found that most certified

TCPS group were an herbal product (35.71%), while more than half of non-certified TCPS group were the processing and food products (57.15%).

Table 2 demonstrates that nearly half of certified TCPS of SMCE group were herbal product (non-food), this is followed by appliance/ decoration at 46.67%, and 26.67%, respectively.

Table 3 presents the comparison of socioeconomic factors between the non-certified and certified TCPS of SMCE groups. The result revealed that the average operating fund was 47,485.50 THB. The average income of group was 62,400 THB/ month. The average group member was 15.57 people. The average operating time was 8.79 years, and the average number of products was 5.14. According to the t-test comparison between certified and non-certified TCPS groups, the results exhibited that the certified TCPS group possessed statistically significant higher in income of group, operating time, and the number of product than the non-certified counterpart indicating that these factors affecting the receiving of TCPS certification of SMCE groups in Samut Sakhon province. Whereas the operating fund and group member did not have significant difference between certified and non-certified TCPS groups.

Table 1 Types of SMCE groups.

	Non-certified		Certified		Total	
Types	Frequency	%	Frequency	%	Frequency	%
Cloth/ hand woven	1	7.14	-	-	1	3.57
Artificial flower	1	7.14	1	7.14	2	7.14
Souvenir	1	7.14	1	7.14	2	7.14
Herbal product	-	-	5	35.71	5	17.86
Jewelry/ gems	1	7.14	-	-	1	3.57
Wood work/ furniture	-	-	1	7.14	1	3.57
Leather	-	-	1	7.14	1	3.57
Production inputs	1	7.14	-	-	1	3.57
Processing and food product	8	57.15	4	28.58	12	42.86
Beverage	-	-	1	7.14	1	3.57
Pipe of wastewater treatment	1	7.14	-	-	1	3.57
Total	14	100	14	100	28	100

Table 2 Type of TCPS of SMCE groups.

Type	Frequency	%
Food	5	16.67
Beverage	1	3.33
Clothes	2	6.67
Appliance/ decoration	8	26.67
Herbal products (non food)	14	46.67
Total	30	100

Table 3 Comparison of socio-economic factors between the non-certified and certified TCPS of SMCE groups.

Socio-economic	Non-certified (N = 14)		Certified (N = 14)		t-test
	Mean	S.D.	Mean	S.D.	
Operating fund (Mean = 47,485.50 THB)	6,571	6,308.89	88,400	147,962.95	2.068^{ns}
Income of group (Mean= 62,400 THB/ month)	36,200	37,849.71	88,600	85,433.48	2.098*
Group member (Mean= 15.57 people)	14.57	8.72	16.57	10.25	0.556^{ns}
Operating time (Mean= 8.79 years)	7.07	3.71	10.50	1.29	3.267**
Number of product (Mean= 5.14 products)	3.57	1.79	6.71	4.21	2.569*

Key: ns = not significant, * significant at level 0.05, ** significant at level 0.01

The importance level of factors towards certified TCPS

Table 4 presents the level of parameters affecting certified TCPS of SMCEs. The results showed that the non-certified TCPS group had the parameters influencing certified TCPS at the high level ($\bar{X}$ = 3.78). When considered each perspective, the factor affecting being certified by TCPS at the highest level was group members ($\bar{X}$ = 4.51). There were six additional factors affecting certified TCPS at a high level including: leader ($\bar{X}$ = 4.44), management ($\bar{X}$ = 4.29), fund ($\bar{X}$ = 4.23), production ($\bar{X}$ = 4.22), supporting by government and private sector ($\bar{X}$ = 3.74), marketing ($\bar{X}$ = 3.63), respectively. The other factors affected at only moderate level were collaboration with the network ($\bar{X}$ = 3.34), and government policy ($\bar{X}$ = 2.94), respectively.

In certified TCPS group, the results showed that the certified TCPS group has parameters influencing at the high level ($\bar{X}$ = 4.30). When considered each perspective, there were six perspectives affecting certified TCPS at the highest level including: fund ($\bar{X}$ = 4.77), production ($\bar{X}$ = 4.77), management ($\bar{X}$ = 4.73), leader ($\bar{X}$ = 4.66), marketing ($\bar{X}$ = 4.64), group members ($\bar{X}$ = 4.51), respectively. The others additional perspectives affecting certified TCPS at high level were the government policy ($\bar{X}$ = 4.44), and supporting by government and private sector ($\bar{X}$ = 4.31), respectively, while the collaboration with the network was at moderate level ($\bar{X}$ = 2.98).

Table 4. The importance level of factors towards certified TCPS.

Items	Non-certified (N = 14)				Certified (N = 14)			
	$\bar{X}$	SD	Meaning	Rank	$\bar{X}$	SD	Meaning	Rank
Internal factors								
Fund	4.23	0.888	high	4	4.77	0.378	highest	1
Management	4.29	0.673	high	3	4.73	0.431	highest	2
Marketing	3.63	0.951	high	6	4.64	0.424	highest	4
Production	4.22	0.786	high	5	4.77	0.281	highest	1
Leader	4.44	0.496	high	2	4.66	0.447	highest	3
Group members	4.51	0.668	highest	1	4.61	0.453	highest	5
Total	4.22	0.743	high	-	4.69	0.402	highest	-
External factors								
Government policy	2.94	1.491	moderate	3	4.44	0.937	high	1
Supporting by government and private sector	3.74	1.079	high	1	4.31	0.835	high	2
Collaboration with the network	3.34	1.567	moderate	2	2.98	1.501	moderate	3
Total	3.34	1.379	moderate	-	3.91	1.091	high	-
Grand mean	3.78	1.061	high	-	4.30	0.747	high	-

Table 5 exhibits the result of t-test analysis to compare internal and external factors between non-certified and certified TCPS groups. The results revealed that the fund, production, marketing and government policy were statistically significant. The marketing and government policy were 0.01 statistically significant difference, and the fund and production were 0.05 statistically significant difference.

Table 5. Comparison of internal and external factors between the non-certified and certified TCPS of SMCE groups.

Factors	Non-certified (N = 14)		Certified (N = 14)		t-test
	Mean	S.D.	Mean	S.D.	
Internal Factors					
Fund	4.23	0.888	4.77	0.378	2.122*
Management	4.29	0.673	4.73	0.431	2.004^{ns}
Marketing	3.63	0.951	4.64	0.424	3.624**
Production	4.22	0.786	4.77	0.281	2.463*
Leader	4.44	0.496	4.66	0.447	1.236^{ns}
Group members	4.51	0.668	4.61	0.453	0.463^{ns}
External Factors					
Government policy	2.94	1.491	4.44	0.937	3.186**
Supporting by government and private sector	3.74	1.079	4.31	0.835	1.539^{ns}
Collaboration with the network	3.34	1.567	2.98	1.501	0.616^{ns}

Key: ns = not significant, * significant at level 0.05, ** significant at level 0.01

Determinants of the certified TCPS of SMCE groups

Table 6 illustrates binary backward stepwise logistic regression analysis results. The study revealed that, out of nine variables, only three variables significantly affected the certified TCPS, namely production, group members, and government policy. The accuracy of model was close to 63.7% (Cox & Snell R^2) and 47.8% (Negelkerke R^2), respectively. The accuracy of the logistic regression model in both non-certified and certified TCPS groups was 85.7%. The variables that presented positive coefficient were production [Exp(B) = 348.612] and government policy [Exp(B) = 3.220] indicating that increasing of these variables can raise opportunity to receive certified TCPS. That is to say, a good plan production, for instance, can increase the number of certified TCPS product at 348 times. This finding was consistent with the study of Laoweerakun (2011) on the organic jasmine rice production that well-plan production had a positive effect on the certified standard. Likewise, the policy to promote a new product affected the certified TCPS three times. This result was consistent with the finding of Mbugua *et al*,. (2014) studying the performance of small and micro enterprises in Kenya, and also consistent with Onmak (2010) studying on the success of community business in Thailand. The results showed that government policy variable affected getting the certified standard. Whereas the variable presenting negative coefficients was group members [Exp(B) = 0.025]. Meaning that if the group members are decreased, it may increases the possibility to receive the certified TCPS. This might be due to the small number of group members. The reduction in a member can increase the opportunity of all members to participate in training, study tour, or to receive a support which was in the line with the finding of Bernard *et al.* (2010) and Joyce *et al.* (2012).

Table 6 Binary backward stepwise logistic regression results of factors affecting the certified TCPS of SMCE groups.

Variable	B	S.E.	Wald	Exp(B)
Production	5.854	3.123	3.513	348.612*
Group members	-3.686	2.110	3.052	0.025*
Government policy	1.170	0.513	5.196	3.220**
Constant	-14.450	9.183	2.476	0.00
Prediction accuracy (%)			85.7	
-2Log-likelihood			20.626	
Cox and Snell R^2			0.478	
Nagelkerke R^2			0.637	
Chi-square			9.182	
Significant (p-value)			0.240	

Key: * significant at level 0.05, ** significant at level 0.01

Conclusions

Small and Micro Community Enterprises (SMCE) in Samut Sakhon province, Thailand is a key driven of sustainable economic growth. The proportion of certified SMCEs' products was still low, accounting for only 9.66 % of the entire provincial SMCEs' products. The results of this study shed light on that certified TCPS of SMCE group had an average income of the group (88,600 THB/ month) which was higher than the non-certified TCPS group (36,200 THB/ month) at 2.44 times. The t-test comparison between certified and non-certified TCPS groups exhibited that the certified TCPS group possessed statistically significant higher in the income of the group, operating time, and the number of products than those in non-certified TCPS. In addition, the investigation of factors affecting the certified TCPS of SMCE groups in Samut Sakhon province, Thailand indicated that the income of the group, operating times, and the number of products of the certified TCPS group were significantly higher than non-certified TCPS group indicating that these factors affected opportunity to receive TCPS certification of SMCEs in Samut Sakhon province. The binary backward stepwise logistic regression result revealed that variable factors significantly affected the certified TCPS of SMCEs were the production, group members, and government policy. The production and government policy were positively relative, whereas the group member was negative. The finding suggested that government agencies should support SMCEs to launch new varieties of their products and provided opportunities to SMCE members to participate in practical training.

Acknowledgement

The author would like to express my sincere appreciation to leaders of SMCE groups in Samut Sakhon Province, Thailand for their good collaboration.

References

Bernard, M., Hellin, J., Nyikal, R. and Mburu J. (2010). Determinants for use of certifies maize seed and the relative importance of transaction costs. 3rd African Association of Agricultural Economists (AAAE) and 48th Agricultural Economists Association of South Africa (AEASA) Conference, Cape Town, South Africa.

Cameron, A.C. and Trivedi P.K. (2005). Supplement to micro econometrics: method and applications. New York: Cambridge university press.

Chantuk, T. and Chadcham, S. (2014). A development on evaluation criteria of quality management in community enterprises. Journal of politics, administration and law, 6(1): 99-129.

Chotithammaporn, W., Sannok, R., Mekhum, W., Rungsrisawat, S., Poonpetpun, P. and Wongleedee, K. (2015). The Development of Physical Distribution Center in Marketing

of Small and Micro Community Enterprise (SMCE) Product in Bangkontee, Samut Songkram. 11th International Strategic Management Conference 2015. Procedia-Social and Behavioural Science 207 (2015): 121-124.

FAO. (2011). Enhancing farmer's access to markets of certified products: A comparative analysis using a business model approach. Agricultural management, marketing and finance working document no. 28.

GPP. (2016). Gross provincial product at current market prices by industrial origin, Samut Sakhon province: 2005-2014. Available on the www.service,nso.go.th/nso/web /statseries/ tables/27400_Samut_Sakhon/E11116-48-57.xls. Accessed on September, 2016.

Joyce, M., Victor, K., John, C. and Robert, M.M. (2012). Factor affecting the implementation of product quality standards among small and medium enterprises (SMEs) based in Nairobi Kenya. Prime Journal of Business Administration and Management (BAM), 2 (10): 726-735.

Khon-ngam, W. (2007). The Study of analysis the development of Small and Micro Community Enterprise Network in Samut Songkram. Samut Songkram Provincial Agricultural Extension Office.

Laoweerakun, P. (2011). Factors affecting farmer's organic jasmine rice production that passed organic standards in Ubon Ratchathani province. Thesis of M.S. Chiang Mai University, Thailand, Department of Agricultural Economics and Agricultural Extension.

Mbugua, S.K., Agnes, N. and Ondabu I.T. (2014). Factors affecting the performance of small and micro enterprises in Limuru Town Market of Kiambu County, Kenya. International Journal of Scientific and Research Publications, 4 (12): 1-20.

Onmak. A. (2010). The factor that is influential build the success of community business: Sueakok product business, Phaeng Sub-district, Kosumpisai District, Mahasarakham Province. Thesis of M.S. Rajabhat Mahasarakham University, Thailand, Department of Business Administration.

Petprasert, N. and Wongkul, P. (2007). The community enterprise: The instrument of fundamental economic. Bangkok: Edison Press.

Poungprayong, K. and Chantaranamchoo, N. (2013). The Development Approach of Small and Micro Community Enterprise Processing and Product Group Samut Songkram Province. Silpakorn Educational Research Journal, 5 (1): 108-120.

Ruengdet, K. and Wongsurawat, W. (2010). Characteristics of Successful Small and Micro Community Enterprise in Rural Thailand. The Journal of Agricultural Education and Extension, 16 (4): 385-397.

Wikipedia. (2016). Samut Sakhon province. Available on the https://en. wikipedia.org /wiki/ Samut_Sakhon_Province. Accessed on September, 2016.