Factor Affecting Elderly Consumer Buying Attitude on Thailand OTOP Product

Suwattanarwong Phanphet, Narong Sukprasert, Ratanaree Suttipong, Athiwat Wangmai, Wichai Chattinnawat

Abstract*: *One Tambon One Product (OTOP) is a local entrepreneurship stimulus program designed by Thailand and has been initiated since 2001. This OTOP program aims to support locally made, marketed products of each of Thailand's 7,255 tambons (sub-district). This product has been inspired from One Village One Product (OVOP) program of Japan and has been successfully used as economic enabler to the local enterprenures. This research aims to expand the OTOP product into the elderly consumer segment which is presently becoming the greater proportion. This research conducted extensive and systematic focus group and survey on elderly consumers and used the ordinal logistic regression analysis to identify the factors which will be used as design quality and concepts for designing and marketing the five major groups of OTOP products. The overall summary indicates that out of the 1,275 elderly, only 427 (43%) are currently prefer and have strong attitude to buy the existing OTOP product. The odds ratio were used as measure of buying opportunities. The results of analysis indicate that gender and occupation of elderly greatly affect the odd ratio and used to define the product concepts. We also found that female under 70 years old have stronger chances to buy the OTOP product comparing with male. Based on the analysis, the age of consumer seems to have stronger relationship with the buying opportunity than the gender. Hence the age of the consumer that is less than 70 years are the vital factor when designing the OTOP productd.

Keywords*: *OTOP, Logistic Regression, Consumer Factor.

I. INTRODUCTION

The Thailand One Tambon One Product (OTOP) program initiated since 2001 has been used as the key strategy of the Thai government to help local "grass roots" level becoming entreprenuer generating incomes for locals. This OTOP program has successfully contributed to the local economy enhancement. This government-led initiative model has been adopted from the Japanese One Village One Product (OVOP) success model. This OTOP program has been proven to provide local communities with opportunity to market local product and thus creating local employment[1].

The concept of OTOP program is to stimulate local members to efficiently utilize their local resourecs to create globally accepted products that reflect pride in the local culture. The OTOP products are created and developed from the resources in the community. Several community-based enterprises have utilized, i.e., home-grown or naturally abundant agricultural materials within the community to develop the product that embrace value of the locals and the community. With supports form the Community Development Department Ministry of Interior, several product developement programs have been initiated to improve both quality and value of the product. This helps enhancing community development to utilize agriculture capitals for local business management such as cooperatives and shifting the community business to industrial business (Denpaiboon and Amatasawatdee, 2012). For example, several OTOP handicraft products now have been dramatically improved and can be exported into larger, export-focused market. The OTOP product value creation program leads to local commuinty capital in self-reliance creativity and also supports the local skilled labor and human resource development[2].

This OTOP program influences the rural development and generate strong pillar for Thailand sustainable development. Ministry of industry, Community Development Department Ministry of Interior, Department of International Trade Promotion, Ministry of Commerce has collaborated to set plan to increase the transaction value for OTOP products equipped with several business channels and centers. For example, the Thaitrade.com, Thailand official B2B E-Marketplace has been developed to support OTOP for export performances. This mechanism helps exporter to find and match business partners between premium OTOP entrepreneurs and Thai exporters. It is forecasted to generate more than 50 partnership matching with million baht worth of transaction. This marketing channel expansion allows OTOP entrepreneurs and SMEs to gain benefits from domestic and international purchase orders. The customer perception and quality of OTOP product are also important factors for the Government to develop policy for supporting the OTOP product value for larger market.

The value of the OTOP product is now being gauranteed and certified through the five star grading products championship system. This system allows the government to assess the status and possibly marketing position of all the existing OTOP products. Hence government intervention programs can be developed to continually increase and shifting all the OTOP upto the highest 5

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star level. Eventhough this system helps OTOP producers to assess their performance status, the championship award may not provides howdifferent groups of consumers perceive on the same product. This grading system thus cannot gaurantee if the true product value meets the consumer needs especially for the new market. Thai government needs to assess the perceived quality or attitue of the consumer on the OTOP product. This can provide valuable information and guideline for OTOP product development on what consumer factors affecting buying decision for different groups of the OTOP product. This will lead to design information of the OTOP statregy and policy. Futhermore, the expansion of the OTOP to larger market group is needed especially the growing market of elderly in Thailand.

Hence, this research aims to propose model that explains the relationship between consumer demographical factors and their attitiudes of buying the OTOP product. This research helps increasing business market opportunities of all OTOP product group for the elderly consumers in Thailand. This research starts from defining and outlining the potential elderly groups and assess their attitudes and needs. The large focus group of 1,275 elderly consumers from three provinces were conducted and their attitidues toward buying the OTOP product were assessed. The next section explains the literature and methodology used. Section 3 presents the analysis results and details of the statistical analysis and the model building. The last section provides summary and discussion for the research.

II. LITERATURE REVIEW

To define the improvement of OTOP sale and export performance, past researches has been conducted to understand what drivers or variables that relate directly to the OTOP sale and expeort performances in different markets and contexts[3], [4]. General finding concluded that the sale and export performance can be closely related to the characteristics of the enterprise such as size, age, and its entrepreneurship [5]–[9].

Different structural models have also been proposed which again depend heavily on environment and contexts. Among the key conclusions, common factors that can contribute to a firm's export performance are organizational characteristics, capabilities, management, and strategy [10], [11]. However those finding can only suggest structural relationships between factors. In addition, the survey conducted on Thai SMEs export marketing performance shows that there are product characteristics becomes the major factors that influences the sale performances [12]. The product characteristics especially the product flexibility must also meets the need of the market. This finding suggests that for OTOP product to be accepted in new market such as elderly consumer, the cultural specificity and uniqueness of the OTOP product must be designed to meet the attitude of the consumers.

There are different attitudes of consumer toward the OTOP product. Among those, the perceived quality, reason-to-buy, differentiate/position, price premium, channel member, interest, and brand extensions are common perceptions of consumers [13]. Consumers also consider quality awareness [14] and quality of the product [15]. Hence in this research we are interested in understanding what factors that correlate with the perception of the OTOP product and hence the buying opportunity.

The statistical model development on OTOP consumer behaviors are limited. Many research that aim to enhance the sale and value of the OPTOP are mostly focused how to improve OTOP product. Moreover all the studies are mostly product-based focuses such as wood handicraft [16], [17], proceesed food [18] without considering wider range or group of OTOP products. Even though the results can be used to improve OTOP value, those finding are still limited to specific product and cannot relate to the buying attitide of the consumer.

There are strong needs of Thai governemnt to study and understand the perception of consumer on the OTOP product. Many reports have been given in terms of indicators or factors contributing to the sucess of the OTOP business management without considering the consumer inputs or attitude on the product. For example, Tuamsuk et al. (2013) investigated and identified the knowledge management factors that affect the success of the five-star OTOP businesses in Thailand whereas Thammasang and Poonikom [19] aimed to select the important set of indicators that associated with the knowledge management of OTOP. Most authors reported only the success factors in the knowledge management of business without studying the buying opportunity of the market. Thus current research may not sufficiently provide information on drivers or factor affecting the buying behavior for the OTOP product. Hence this research presents statistical analysis model based on extensive focus group study on elderly consumers and used the ordinal logistic regression analysis to identify the factors which will be used as design measure and marketing concepts for all five major groups of the OTOP products. The odds ratio were used as measure of buying opportunities

III. METHOD

The Thai product of OTOP are currently divied into 5 main groups of (i) Food, (ii) clothes, apparels, and accessories, (iii) Beverages, (iv) Herbal products, and (v) Utensils, Decorative items and Souvenirs. These five groups were defined as five alternatives for Thai government to improve the OTOP product development. Since the purpose of this research is to improve the sale opportunity in the new market of elderly group, this research considered all 5 groups or categories of the OTOP product. This research methodology starts from identifying the preferences and attitude of elderly consumers on those 5 groups. The unit analysis is defined as product group instead of individual product. The data collection was derived based on the extensive focus group consisting of 1,275 elderly from 3 provinces in northern Thailand which are Chiang Mai, Lumphun and Lampang. The respondents consist of 552 and 723 of elderly males and females repectively. The respondents were asked to evaluate the need and preference in buying each group of product using three nominl preference scales of [Interested to buy], [Neutral], [Not interested].

The nominal logistic regression technique was used to develop the statistical analysis model and to identify the factors that relate with the preference and attitude of the

respondents. Since the success of buying may depend on different consumer demographic characteristics, this research defines a set of explanatory factors drawn from literature and used to develop the statistical model.Then the statisitcal model building and validation were conducted and reported. Figure 1 depicts the overall steps of the research.

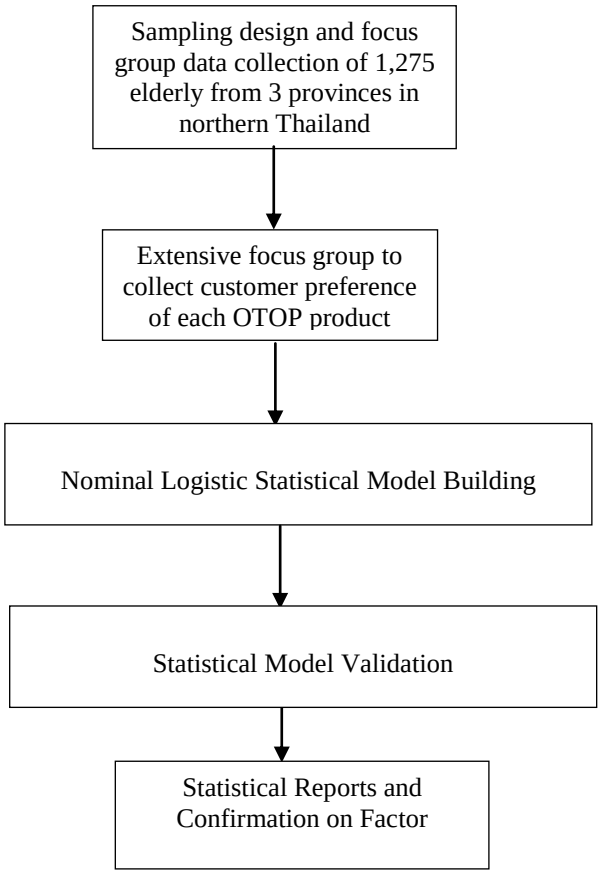

Fig. 1. Research Methodology

This research employs the nominal logistic regresion of the following form with K – 1=2 logit functions for a model with K =3 response categories of [1=Not Interested to buy], [2=Neutral], [3=Interested (reference event)]. The logit function is defined in Eqn (1) as

$$g_k(\boldsymbol{x}) = \ln\left(\frac{\pi_k(\boldsymbol{x})}{\pi_K(\boldsymbol{x})}\right) = \theta_k + \boldsymbol{x}'\boldsymbol{b}_k \quad (1)$$

where $g_k(x)$ represents logit link function

θ_k is the constant associated with the k^{th} distinct response category

x_k is the vector of predictor variables

b_k is the vector of coefficients associated with the k^{th} logit function

Log-likelihood was used as measure of fits and optimal values of those estimated parameters b1, b2 of our 3 response categories (reference = 3).

The demographic variables of respondents defined as explanatory variables includes the factors gender (Male, Female), age (60-65, 66-70, >70), location, occupation, and health as the covariate. The statistical model with full combinations of those factors or categorical predictors were defined as the full model and contains as many different possible factor/covariate patterns. The event probability can be denoted, i.e., as π. For this research with three response categories of 1, 2, and 3 (reference=3), the conditional probabilities can be written as

$$P(y = 1 \mid \boldsymbol{x}) = \frac{e^{\boldsymbol{x}'\boldsymbol{b}_1}}{1 + e^{\boldsymbol{x}'\boldsymbol{b}_1} + e^{\boldsymbol{x}'\boldsymbol{b}_2}}$$

$$P(y = 2 \mid \boldsymbol{x}) = \frac{e^{\boldsymbol{x}'\boldsymbol{b}_2}}{1 + e^{\boldsymbol{x}'\boldsymbol{b}_1} + e^{\boldsymbol{x}'\boldsymbol{b}_2}} \quad (2)$$

$$P(y = 3 \mid \boldsymbol{x}) = \frac{1}{1 + e^{\boldsymbol{x}'\boldsymbol{b}_1} + e^{\boldsymbol{x}'\boldsymbol{b}_2}}$$

where the event probability is $\pi_k(\mathbf{x}) = P(y = k \mid x)$ for k = *1, 2, 3.*

To interpret the relationship between a predictor and response, this research defines the differences in buying opportunity in terms of the odds ratio (θ). The values of the odd ratio was then used as the indicator whether that consumer factor are affecting the buying opportunity or indicating association with consumer preference.

$$\theta = \frac{\frac{P(Y = k \mid x = a)}{P(Y = 3 \mid x = a)}}{\frac{P(Y = k \mid x = b)}{P(Y = 3 \mid x = b)}} \quad (3)$$

IV. RESULTS AND DISCUSSION

Currently paralleled reseach shows that the Utensils, Decorative items and Souvenirs

group received highest buying preferences from elderly cunsumer segment followed by Beverage, Cloth and apparel. The final model of the analysis was done and presented in **Table 1**. There is a strong evidence at 90% confidence indicating that the gender and age are significant factor in determining the buying preference and opportunity of the OTOP prodcut. The overall summary indicates that out of the 1,275 elderly, only 427 (43%) are currently prefer and have strong attitude to buy the existing OTOP product. We also found that female under 70 years old have stronger chances to buy the OTOP product comparing with male. Based on the analysis, the age of consumer seems to have stronger relationship with the buying opportunity than the gender. Hence the age of the consumer that is less than 70 years are the vital factor when designing the OTOP product.

Table 1. Final Model Logistic Regression Fitting of Elderly Preferencees

Response Information

Variable	Value	Count	
Buying attitude	Interested	427 (43%)	(Reference Event)
	Neutral	341 (34.34%)	
	Not interested	225(22.66%)	
	Total	993	

Logistic Regression Table

					Odds	95% CI	
Predictor	Coef	SE Coef	Z	*P*	Ratio	Lower	Upper
Logit 1: (Not interested/Interested)							
Constant	0.875357	0.186365	4.70	*0.000*			
Gender=Female	-0.816736	0.150263	-5.44	*0.000*	0.44	0.33	0.59
Age 60 - 70	-0.820373	0.187421	-4.38	*0.000*	0.44	0.30	0.64
Logit 2: (Neutral/Interested)							
Constant	-0.0821629	0.219829	-0.37	*0.709*			
Gender=Female	-0.354791	0.168481	-2.11	*0.035*	0.70	0.50	0.98
60 - 70	-0.414262	0.217675	-1.90	*0.057*	0.66	0.43	1.01

Goodness-of-Fit Tests

Method	Chi-Square	DF	P
Pearson	1.76867	2	0.413
Deviance	1.79122	2	0.408

This research also test whether the estimated parameters are different among different occupations and health conditions of the elderly. There is no strong evident suggesting any significant differences in the odd ratio when accounted by those two covariates. Hence the design factor should be leaned toward female elderly with less than 70 years old for all OTOP product group. The analysis revelas that the model validation can be justified based on the chi-square goodness of fit test result.

V. CONCLUSION

The statistical analysis reveals that the age and gender of elderly consumer market are vital factors in designing the OTOP. These two factors if incorporated during the OTOP product design stage will help increase opportunity for gaining higher sales in the new elderly market for all five OTOP product categories. The statistical analysis of this large focus group reveals that the female elderly have stronger attitude in buying more OTOP product than male elderly consumer. Since the product development for those high potential OTOP group will be supported by Thai Government, the policy maker need to also consider these two factors when initiating any new product development program. This results of analysis can help expanding the economy and impact of the OTOP existing program. The product development policy need to be emphasized on this finding factors which will drive the business toward success.

The effectiveness of the OTOP product deveopment policy deployment also depends on the business management of the entrepreneurs. Thus the results of this research can be used to position the right group of OTOP product and develop strategic action plan for product and process development of northern Thailand OTOP development program. This proposed concept helps Thai govenrment to effectively exercise OTOP program policy mobility and evolution.

This reliability of the proposed methodology depends on the consistency and the selection of the responsdent focus group. This reseach defined and selected elderly groups using combined systematic sampling approach by considering community as sampling unit. The results of statistical analysis and model validation can be statistically accepted. This study may lead to alternative positioning the product in the elderly market.

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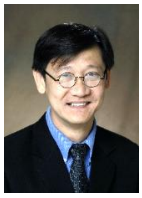

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