Modelling the Factors Effecting Purchasing of Organic Condiments by Rural Consumers: Evidence from the Experiment of Organically Produced Chili

M. M. Mufeeth

Department of Biosystems Technology, South Eastern University of Sri Lanka.Email:mufeeth.mohammathu@seu.ac.lk

Kaldeen Mubarak

Department of Marketing Management, South Eastern University of Sri Lanka. Email:kmmubarak@seu.aclk

Abstract

This article investigated the best fitting model for studying the rural consumer preference towards buying organically produced condiments as well as examine the role of product, personal perception related, economic and socio-demographic factors in predicting attitude and purchase intention of rural consumer. A conceptual model was developed and evaluated by modeling structural equations on a sample of 324. The results showed that the full specified model (model 3) was the best fitting model among selected models. Further, the attitude of the rural consumer was explained by product, personal related and economic factors as well as level of education, household income. Attitude partially mediated the effect of product characteristics, personal perception and own price of the organic condiments. Attitude assumes a more central role in fully mediating the effect of product characteristic and own price on intention to purchase organic condiments. Study implies that the organic condiments industry can promote the product to rural consumers that the organically produced condiments are tastier, more nutritious, healthy and safer to consume.

Keywords: Rural consumer, Organic Product, Consumer Preference, Rural, Modelling

I. Introduction

Organic farming practices are becoming gradually popular in agricultural systems across the world. Organic farming basically relies on biological, natural and cultural techniques for controlling pest with minimal use of off-farm inputs rather than completely depends on chemical pesticides, weedicide, and fertilizers. Further, the organic production system, which mainly excludes the use of synthetically manufactured fertilizers, pesticides, growth regulators in crop cultivations and feed additives for animals. In other words, the system focuses on using crop rotation, residues, compost, legumes, green manure, agricultural waste and biological pest control steps to increase land fertility, plant nutrient supply and insect management, weed control and disease.

The global demand for organic products is increasing by 15%-20% per annum. Despite huge market possibilities worldwide since the organic farming sector sees itself producing a variety of certified organic produce. According to a 2008 Sri Lankan Nature Forum report, the cumulative land occupied under organic farming is 25,335 ha. Certified organic agricultural lands are 19,191 ha in Sri Lanka and there are a growing interest and demand for producing organically grown food products for export. According to UNESCAP, Sri Lanka is one of Asia's most important organic producers. However, the domestic market for

organic vegetablesand condiments are confined to the urban market. The analysis of the demand for organic food studies was mostly conducted in the urban region of a country (Narine, Ganpat, &Seepersad, 2015; Piyasiri&Ariyawardana, 2002). Further, the preference of organic vegetables and condimentswere studied in urban regions as well (Christensen, Denver, &Bøye Olsen, 2019; Cranfield, Deaton, &Shellikeri, 2009; Yiridoe, Bonti-Ankomah, & Martin, 2005). In this context, the researchers must consider the rural consumers because the conclusions from these studies lead to bias decisions towards only urban consumers and it would give less precise marketing strategies to increase the market share of organic products from whole communities. Hence, the present study examined the factors affecting rural consumers' attitudes and intention on organic condiments purchasing as the condiments produced in the conventional method affects human health adversely. The uniqueness of the present study lies in model rural consumer's decision-making processes and in doing so add to a small but significant field of research exploring rural consumers.

II.   Review of literature

The consumer's attitude and intention to purchase organic vegetables is influenced by related factors to the product, personal perception, economic and socio-demographic factors (Michaelidou & Hassan, 2010). Where consumer attitude was an important influential factor in the purchasing decision of a consumer (Mubarak, 2019). The organic products consist of unique attributes compared to conventional alternatives such that nutritious, sensory characteristics and certification (value) was significantly influenced the attitudes of organic consumers. Mariola et al. (2017) investigated the impact of organic product attributes on consumer choice. A study found that the taste, nutritious nature of food and health certification were the significant factor in

choosing organic vegetables. Simultaneously the individual perception about the organic products studied in several studies. Authors found that health consciousness, food safety and environmentally friendly had strong relationships with the attitudes and intense to purchase organically produced products (Schleenbecker & Hamm, 2013; Shafie & Rennie, 2012). Certified labeled organic products were highly preferred compared to non-labeled products (Fotopoulos & Chryssochoidis, 2001).

Economic factors have been identified as key determinants that change the attitudes to make the intention to purchase organic products(Yiridoe, Bonti-Ankomah, & Martin, 2005). Gan et al. (2014) concluded that the income of a household had a significant positive relationship with an attitude of organic food consumers. Further,the own price of the organic product and the price of non-organic products were identified as significant factors in the consumer decision-making process(Mufeeth & Thariq, 2019). In general, the social and demographic variablesaffect organic product purchasing (Yue & Cindy, 2009).The level of education had a positive relationship with the intention to purchase organic vegetables(Mufeeth, 2018). Ricciuto, Tarasuk, and Yatchew(2006) found the significant effect of gender, occupation and education on consumer intention to purchase organic meat. It was found that the family size was theimportant drivers in deciding to purchase organic products(Krystallis & Chryssohoidis, 2005). According to the factor defined by derived literature, outlined as a conceptual framework shown below in fig. 01
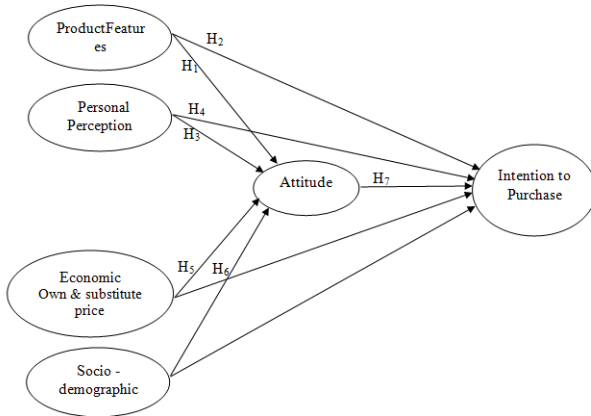
Figure 1: Conceptual Model

Intention to purchase organic vegetables influenced by the attitude of the consumer, socio-demographic, economic factors of consumer, personal perception about the organic vegetable and product features of organic vegetables. Meanwhile, similar factors affect the attitude toward the intention to purchase organic vegetables. The hypothesis developed from past literature for this study are given below;

H_1: Product features positively affects attitude towards purchase of organically produced condiments

H_2: Attitude fully mediates the effect of product features on the intention to purchase organic condiments.

H_3: Personal perception of organic vegetables positively affects attitude towards the purchase of organically produced condiments.

H_4: Attitude at least partially mediates the effect of personal perception on the intention to purchase organic condiments.

$H_5(a)$: Own price of organic condiments negatively affects attitudes towards the purchase of organic condiments.

$H_5(b)$: Substitute price of organic condiments (the price of inorganic condiments) positively affects attitudes towards the purchase of organic condiments.

H_6 (a): Attitude at least partially mediates the effect of own price on the intention to purchase organic condiments.

H_6 (b): Attitude at least partially mediates the effect of substitute price on the intention to purchase organic condiments.

H_7: Attitude positively affects purchase intention toward organic condiments.

III. Methodology

Sample and measures

Data were collected from a stratified sample of 324 rural consumers from the Ampara district in Sri Lanka using a self-completion questionnaire.Ampara district consists of 17 divisional secretariats with several villages. Ampara district includes 76.4% of rural areas (Department of Census and Statistics, 2018). Rural consumers, therefore there is a large and significant segment of the population that is to be understood. The self-completion questionnaire was administered in randomly selected ten divisional secretariatsaround the district. The firstorganically produced chili was provided to randomly selected consumers from randomly selected villages in Ampara district. Consumers were requested to use the chili as condiments for their meals and soon after the consumption. Second, theresponse of attitudes and intention to purchase organically produced condiments were measured. Subsequently, the other organic product characteristics, personal characteristics, economic and socio-demographic data of rural consumers were collected.

The survey instrument was based on prior literature with measures of attitude and intention developed on the basis of Ajzen(1991).These variables were measured using the 7-point Likert scale, the intention to purchase organic condiments was measured using 0 to 6 scale, and accordingly, the higher value indicated stronger

purchase intention. Where +3 to -3 scale was used to measure the attitude towards organic condiments purchase. All other variables related to product features and personal perception of organically produced condiments indicated in Table 2were measured via a +3 to -3 scale.

Analysis method

Collecteddata were analyzed in STATA version 15. As a first step, data were undertaken to Cronbach alpha (CA) and Average Variance Extracted (AVE) tests to check the data reliability and validity. Finally, discriminant validity was assessed using the (Fornell&Larcker, 1981) to determine whether the squared correlation between each pair of the construct was lower than either of the AVEs for the pair of the construct.

Our conceptual model was analyzed using Structural Equation Modeling (SEM). This is the extended version of the multiple regression model. The method simultaneously estimates a set of regression equations, where these equations are separate but interdependent(Cuttance & Russell, 2009).Three different models were run in this study; fully mediated (model 1), predictor variables (PV) effect dependent variable (DV) (model 2) and fully specified model (model 3). The study used Comparative Fit Index (CFI), RootMean-Square Error of Approximation (RMSEA), Tucker–Lewis (non-normed) Index (TLI), Akaike Information Criterion (AIC) and chi-squared ratio was used to measure the model fitness.The procedure outlined by Baron & Kenny(1986) and Holmbeck(1997) was used to test the mediating relationships between dependent and predictor variables. These scholars outlined the three models to be analyzed and four criteria to be fulfilled for partial or complete mediation. Therefore, to determine whether the construct attitude mediates the relationship between the precedents (product features, personal perception, economic and socio-demographic variables) and the intention must be satisfied with the following. (1) The predictor variables significantly impact the dependent construct (intention) in the expected direction. (2) The predictor variables significantly impact the mediator (attitude) in theexpected direction. (3) The mediator (attitude) significantly impacts the dependent construct (intention) in the expected direction.

To further validate the results of the mediation analysis,the bootstrapping technique was employed to test the significance of the indirect effects. This bootstrapping procedure was done in accordance withShrout and Bolger (2002) procedure.According to the Shrout and Bolger (2002), if the 95% confidence interval (CI) for the estimation of the indirect effect includes none, then there is no proof of mediation. Lower and upper boundaries for the estimates were calculated for all models with 1000 bootstrap samples.

IV. Results and Discussion

Sample characteristics

The sample comprised 77.5% male with a dependent under 16 years old children household at 64 percent and with more than 90 percent of the sample was employed, 96% of sample purchased food and condiments for their household consumption. About 43 percent and 34 percent of the sample had a secondary and graduate level of educational qualification. The sample age range between 20 and 65 above and 88% of the sample was married. Table 1 provides details of the sample characteristics and Table 2 provides descriptive statistics for the measures obtained.

Table 1: Sample characteristics (n = 324)

Characteristics	Percentages	Characteristics	Percentages
Gender		Level of Education	
Male	77.5	Primary	1.2
Age		Secondary	21.0
20 – 24	5.9	Tertiary	43.4
25 – 34	8.6	Graduate	34.4
35 – 44	40.8	Household (HH) Income (Rs)	
45 – 54	26.4	Below 25,000.00	5.4
55 – 64	17.3	25,000.00 – 35,000.00	16.7
65 $^{+}$	1.0	35,000.00 – 45,000.00	27.6
Employment		45,000.00 – 55,000.00	30.7
Full time	67.9	55,000.00 – 65,000.00	12.6
Part time	24.8	Above 65,000.00	7.0
Unemployed	4.6	Dependents under 16 at home	
Retired	2.7	Yes	63.8
Marital status		Main purchase of food for household	
Married	87.9	Yes	95.6
Unmarried	7.6		
Divorced	4.5		

Table 2: Descriptive statistics

Variable	Mean (SD)	Variable	Mean (SD)
Product characteristic	**2.27 (1.24)**	**Personal Characteristic**	**1.27 (0.57)**
Nutrition content	3.52 (2.46)	Food safety concern	0.97 (1.13)
Taste	1.96 (1.48)	Environmental concern	1.38 (1.56)
Prefer organic and health certification	1.87 (2.04)	Health consciousness	1.79 (1.19)
Economic Characteristic			
Own price (Price of organic Condiments) (Rs/kg)	504.00 (68.32)	**Attitude (MV)**	4.54 (1.74)
Substitute price (Price of inorganic condiments) (Rs/kg)	175.34 (24.69)	**Intension to purchase (DV)**	4.64 (2.28)

All the predictor variable characteristics scales were measured in 7- point Likert scale accept economic characteristics. MV = Mediator Variable; DV = Dependent Variable

Reliability and validity

Table 3 provides the Cronbach alpha (CA) andaverage variance extracted (AVE) results. The alpha value fromthe CA test for all variables was above the recommended level of 0.7 (Hair, 2011). The values imply that the measures were not unidimensional and the internal consistency of the measures is ensured. As regards construct reliability, the AVE for all constructs wasgenerally acceptable with values above 0.48. Although values over 0.5 are the usual thumb rule and reliability values over 0.7 are appropriate well. This refers to all pairs of constructs in the

model and thus provides evidence of discriminating validity between the constructs.

Variable	Number of items	Alpha	Construct reliability	AVE
Intention to purchase organic condiments	2	0.84	0.88	0.89
Attitude towards organic condiments	2	0.91	0.97	0.91
Product characteristic	3	0.79	0.82	0.89
Personal	3	0.82	0.85	0.92

14157

characteristic

Model analysis results

The results of the analyzed three models reveal that overall model fitness for consumer acceptance to purchase organic condiments were good. According to the chi-square difference tests, model 3 was the best fitting model in determining rural consumer acceptance to consume organic condiments and thus is the appropriate model for interpretations. The analysis found that product characteristics had a significant positive impact on attitudes (supporting H_1) not on the intention and was fully mediated (supporting H_2) as product characteristics in Model 2 hadan impact on intention.

Personal characteristics positively impacted the attitude significantly therefore the H_3 was supported. The strength of the relationship's personal characteristics andthe intention was reduced when the attitude was added to the model (comparison of Beta weights in Models 2 and 3). Then this gives support to $H_3$and H_4. Own price did not impact attitude in Model 3 whereas significantly impacted attitude negatively in Model1 which supports H_5 (a). However, price negatively affected, attitude partially mediates the effect on intervention to purchase. Considering the price of substitute condiments known as inorganic condiments did not influence attitude and intention to purchase.

The influence of socio-economic variables was limited and inconsistentalong with the models. The present study found that consumers' level of education and household income level showeda significant positive impact on attitude towards buying organic condiments. Low correlations were observed between socio-demographic variables and product characteristics and personal characteristics. Thus,the impact of

socio-economic factors was minimal on the same two factors.

As for the coefficient of determination R^2 to put it another way, the explanatory power of the variables in the models was observed high in model 3 the value discloses that the 73 percent of the variance in intention to purchase organic condiments were explained by the dependent variables in the model 3. This study fulfilled the gap of the study done by Michaelidou and Hassan(2010) in which the R^2 value was relatively smaller and researchers interpreted the reason for lower value was the important factors such as taste, sensory and taste were not added in the model.

Table 3: Analysis Results

Model	χ^2	GFI	CFI	TLI	RMSEA	AIC
Model 1	332.60	0.88	0.95	0.94	0.057	538.60
Model 2	260.84	0.90	0.95	0.94	0.055	445.78
Model 3	308.14	0.91	0.96	0.95	0.052	521.17

	Model 1: Fully mediated	Model 2: PV affects DV	Model 3: Fully specified model
Product Characteristics → Attitude	0.48 (0.36)***		0.45 (0.35)***
Personal characteristics → Attitude	0.46 (0.34)***		0.49 (0.37)***
Own price → Attitude	-2.38 (-2.13)*		-1.23 (-1.04)
Substitute price → Attitude	0.59 (1.72)		0.19 (0.09)
Gender → Attitude	0.28 (0.67)		0.27 (0.08)
Age → Attitude	3.14 (1.23)		-0.05 (-0.04)
Employment → Attitude	1.24 (1.01)**		0.29 (0.59)

14158

Marital status → Attitude	0.27 (0.10)		0.54 (0.07)
Level of education → Attitude	1.45 (1.07)*		1.26 (1.21)***
HH income → Attitude	2.35 (1.99)**		0.24 (0.15)*
Dependents in HH → Attitude	-0.18 (-0.06)		-0.67 (-0.17)
Main purchase of food → Attitude	0.28 (0.09)		0.25 (0.09)
Product Characteristics → Intention		0.48 (0.32)**	0.07 (0.05)
Personal characteristics → Intention		0.58 (0.38)***	0.49 (0.34)**
Own price → Intention		-1.28. (1.22)**	-0.25 (-0.16)**
Substitute price → Intention		0.09 (0.06)	0.10 (0.07)
Gender → Intention	0.08 (0.02)	0.06 (0.03)	-0.05 (-0.01)
Age → Intention	0.09 (0.82)	0.05 (0.14)	0.03 (0.02)
Employment → Intention	0.48 (0.11)	0.57 (0.24)	0.67 (0.49) **
Marital status → Intention	0.97 (0.52)	0.17 (0.02)	0.19 (0.10)
Level of education → Intention	0.38 (0.22)**	0.58 (0.07)	1.54 (1.38)**
HH income → Intention	0.50 (0.17)	0.35 (0.16)**	0.29 (0.09)
Dependents in HH → Intention	-0.45 (0.07)	0.24 (0.07)	0.30 (0.09)
Main purchase of food → Intention	0.22 (0.05)	0.27 (0.08)	0.11 (0.03)
Attitude → Intention	0.81 (0.58)***		0.79 (0.61)**
R^2	0.54	0.47	0.73

PV = Predictor variable; DV = Dependent variable;* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

The results of the bootstrap sampling analysis reported that in model 3, the indirect effects of product characteristic (B = 0.31, CI: 0.14, .48), personal characteristic(B = 0.28, CI: 0.16, .47) and own price of organic condiments (B = -1.09, CI: -0.17, -0.05) on intention were significantly different from zero and it concludes the constructs of the variables were mediated by attitude.These findings offer additional evidence for the mediation impact hypothesis.

V. Conclusion and Recommendation

Model 3 is the best fitting model in studying consumer behavior towards organic products among selected three models. Overall comparison among three models reveals that the product characteristic, personal characteristic and the price of organic condimentswere the influential factors on intention and attitude towards organic condiments purchase in three models. Considering socio-demographic factor the level of education and household income impacted both intention and attitude.

The explanatory power in Model 3 is higher in comparison to the other two models. Increase the power of the model in explaining variations the other important variables need to be added. And the study provides evidence to show the mediation effect of attitude on the intention to purchase organic condiments. Asa recommendation of this researchisthe organic condiments enterprise and retailers should consider improving the product knowledge of rural consumers that the organic condiments are more tasty and nutritious through the advertisement and product promotions. Further,the condiments package with organic and other safety-approved logos would further change the attitude towards buying organic condiments. The present study reveals that making awareness of rural consumer that consuming organic condiments is healthy, safety and the produce in

14159

an environmentally friendly manner lead to convincing their intention to purchase organic condiments more.

VI. References

[1] Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, *50*(2), 179–211. https://doi.org/10.1016/0749-5978(91)90020-T

[2] Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*(6), 1173–1182. https://doi.org/10.1037/0022-3514.51.6.1173

[3] Cuttance, P., & Russell, E. (2009). An overview of structural equation modeling. In *Stuctural Modelling by Examples* (pp. 9–24). New York: Cambridge University Press.

[4] Department of Census and Statistics. (2018). Statistical Abstract - Chapter I: Area and climate. Retrieved December 12, 2019, from Department of Census and Statistics website: http://www.statistics.gov.lk/Abstract2014/Pages/chap1.htm

[5] Fotopoulos, C., & Chryssochoidis, G. (2001). Factors Affecting the Decision to Purchase Organic Food. *Journal of Euromarketing*, *9*(3), 45–66. https://doi.org/10.1300/J037v09n03_03

[6] Gan, C., Zhiyou, C., Tran, M. C., Cohen, D. A., & Xiangxiang, W. (2014). *Consumer attitudes toward the Purchase of Organic Products in China* (No. 15).

[7] Hair, J. F. (2011). Multivariate Data Analysis: An Overview. In *International Encyclopedia of Statistical Science* (pp. 904–907). https://doi.org/10.1007/978-3-642-04898-2_395

[8] Holmbeck, G. . (1997). Toward terminological, conceptual, and statistical clarity in the study of mediators and moderators: examples from the child-clinical and pediatric psychology literatures. *Ournal of Consulting and Clinical Psychology*, *65*(4), 599–610. https://doi.org/10.1037//0022-006x.65.4.599

[9] Krystallis, A., & Chryssohoidis, G. (2005). Consumers' willingness to pay for organic food. *British Food Journal*, *107*(5), 320–343. https://doi.org/10.1108/00070700510596901

[10] Mariola, G.-B., Młgorzata, Grzywińska-Rąpca Ireneusz, Ż., & Piotr, B. (2017). Organic Food Attributes Determing Consumer Choice. *European Research Studies Journal*, *20*(2), 164–176.

[11] Michaelidou, N., & Hassan, L. M. (2010). Modeling the factors affecting rural consumers' purchase of organic and free-range produce: A case study of consumers' from the Island of Arran in Scotland, UK. *Food Policy*, *35*(2), 130–139. https://doi.org/10.1016/j.foodpol.2009.10.001

[12] Mubarak, K. (2019). Factors influencing the purchase of Agro-Chemicals: From the perspective of Sri Lankan farmers. *International Journal of Recent Technology and Engineering (IJRTE)*, *8*(4), 1–9. https://doi.org/10.35940/ijrte.

[13] Mufeeth, M. M. (2018). Consumer Preference of Value Added Indigenous Chicken Product : Contingent Valuation Approach. *International Journal of Innovative Science and Research Technology*, *3*(2), 103–111.

[14] Mufeeth, M. M., & Thariq, M. G. M. (2019). Evaluation of consumer preference for value addition to native chicken meat and egg. *SEUSL Journal of Marketing*, *4*(1), 2019.

[15] Ricciuto, L., Tarasuk, V., & Yatchew, A. (2006). Socio-demographic influences on food purchasing among Canadian households. *European Journal of Clinical Nutrition*, *60*(6), 778–790. https://doi.org/10.1038/sj.ejcn.1602382

[16] Schleenbecker, R., & Hamm, U. (2013). Consumers' perception of organic product characteristics. A review. *Appetite*, *71*(2), 420–429. https://doi.org/10.1016/j.appet.2013.08.020

[17] Shafie, F. A., & Rennie, D. (2012). Consumer

Perceptions Towards Organic Food. *Procedia - Social and Behavioral Sciences*, *49*(1), 360–367. https://doi.org/10.1016/j.sbspro.2012.07.034

[18] Shrout, P. E., & Bolger, N. (2002). Mediation in experimental and nonexperimental studies: New procedures and recommendations. *Psychological Methods*, *7*(4), 422–445. https://doi.org/10.1037/1082-989X.7.4.422

[19] Yiridoe, E. K., Bonti-Ankomah, S., & Martin, R. C. (2005). Comparison of consumer perceptions and preference toward organic versus conventionally produced foods: A review and update of the literature. *Renewable Agriculture and Food Systems*, *20*(4), 193–205. https://doi.org/10.1079/RAF2005113

[20] Yue, C., & Cindy, T. (2009). Organic or local? Investigating consumer preference for fresh produce using a choice experiment with real economic incentives. *HORTSCIENCE*, *44*(2), 366–371. https://doi.org/https://doi.org/10.21273/HORTSCI.44.2.366