
EVALUATION OF CONSUMER PREFERENCE FOR VALUE ADDITION TO NATIVE CHICKEN MEAT AND EGG

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Abstract

Available native chicken products in the prevailing market is highly demanded by the consumers. However, value-added native chicken products are less available in the market. It is obvious that the value addition of a product leads the producers to increase their profit margin sustainably. Therefore, this study investigated the consumer preference on value addition to native chicken meat and egg. The responses of randomly selected hundred and sixty consumers who visited ten randomly selected meat shops and supermarkets were collected. A structured questionnaire was provided to each consumer to collect data. The collected data were analyzed using SPSS version 25 statistical package. The linear probability model was utilized for estimating factors impacting on consumer preference. The result revealed that more than 98% of consumers preferred value addition to native chicken products. The level of education and health consciousness of consumers, consumer perceived attributes of native chicken products available in the prevailing market and current market price of native chicken meat and egg significantly affected the consumer preference on value addition to native chicken products. The result implies that there is a potential market existing for value-added native chicken products in both rural and urban areas. Therefore, the value-added native chicken producers and other related institutions have to be more considerate to increase the preferred attributes of native chicken meat and egg through continuous research and development strategies. This research is the opportunity to present native chicken farmers to increase their contribution to the value addition and this study made a pathway to new entrepreneurs as well.

Keywords: Native Chicken, Meat, egg, Consumer Preference, Linear Probability Model

1. Introduction

Native Chicken (NC) products have greater potential in this country whilst, most of Sri Lankan consumers show a special preference towards NC products. NC products are highly demanded commodity in urban and peri-urban areas in Sri Lanka. NC producers assume that people wish to eat NC products for their better taste and high nutrient content in compare to exotic chicken products. Further, Parents are very fond of feeding these products to their children as they perceived that NC products are safer than exotic chicken products. Similarly, older people consume as NC meat contains low fat and cholesterol. Thus, NC product consumption is increasing among people who take into account nutrition and a healthy lifestyle. Apart from individual consumption NC products are considered premium and prestige food

among the society. For instance a large amount of NC meat are bought by premium restaurants and hotels to produce a high level of food like stews to attract their high valued local customers and tourist. However, the frequency of consumption by the individual customer is very low due to the less availability in the formal market (Mufeeth, 2018).

Native chicken is mostly reared by the rural community since it plays a major role in the rural economy because it acts as an income and nutritional source for rural society. Inputs for NC production is lower compare to broiler and layer production since NC is the dominant poultry production in the rural area of Sri Lanka (Gunarathne, et al., 1993; Abeykoon, et, al., 2014). Native chicken is allowed to scavenge around the homestead, during scavenging they pray insects and eat kitchen leftovers, green leaves and minerals, therefore, rural area farmers produce NC with low production cost. The NC products are sold in the rural and urban markets through a short value chain with only two or three actors. Major constraints to purchase NC products are less available in formal markets, and NC is available in the raw form without any value addition. The value addition of NC products is one of the best strategies to increase the profit margin of the actors involving in the value chain of NC products. As a result of this more farmers would engage in new technology to produce more NC products. Due to the growth of farmer involvement in this sector lead the related research institution to implement research and development activities to fulfill the demand in the economy (Mubarak, 2019). However, it is very important to evaluate the consumer preference for value-added NC products since the product is less available in the formal market chain. There are a few studies conducted to assess the consumer preference of NC products in Sri Lanka; Weerahewa (2004), Mufeeth (2018) investigated the consumer willingness to pay for raw and value-added NC products respectively where Mufeeth (2018) used contingent valuation approach. In addition, Abeykoon et al (2014) studied the willingness to pay by farmers for chicks of different types of indigenous chicken. Further Mufeeth, Korale, and Rathnasekara (2015) examined the factors influencing the commercialization of NC products. It shows that the detailed study on assessing consumer preference of adding value to NC products is lacking as it is an initial point to decide to add value to these products. Therefore, the present study examined the consumer preference to add value for NC products. The objectives of the research are to find the consumer's preference for value addition to NC product, as well as to examine the factors influence preferring value-added NC products.

2. Review of Literature

Assessing consumer preference is the first important aspect of the pre-product development evaluation process. Socio-economic characteristics influence crucially in the consumer decision making the process and consumer preference towards a product (Ishar Ali and Mubarak, 2017). Bett et al. (2013) and Mufeeth (2018) revealed that the amount of consumer willingness to pay for NC products was significantly influenced by socioeconomic factors like age, income, educational level, and employment status. Further, Goddard, et al. (2007) found the special socio-economic characteristics of consumers known as health-conscious of the consumer was significantly influenced the consumers' willingness to pay for NC eggs. Apart from individual characteristics household characteristics play an important role in consumer preference. Ndenga, Bett and Kabuaga (2017) found household characteristics

such as a number of family members in the family significant and negatively impact on the preference of consumers towards NC products. Bett et al. (2012) explained perceived variations in the consumption of NC meat was significantly impacted by substitute meat product known as exotic chicken meat. Further, the consumer perception of product attributes is a significant drivers for consumer preference towards a product. Taste, flavor, nutrient content of meat, colour of egg yolk and size of eggs were identified by Bett et al. (2013) as significant influential factors affected the consumer willingness to pay for NC products. Similarly, Font and Guerrero (2014) discovered that the consumer choice of meat was significantly affected by specific meat attributes. Visual appearance characteristics such as colour and firmly appearance show the intrinsic quality of meat and highly related to consumers' expectations and preferences towards meat (Verbeke et al., 2005; Banović et al., 2009). In the mouth, characteristics are the experienced characteristics of the meat. The taste was highly influential in preferring to purchase and willingness to pay more (Bello & Dopico, 2000; Lusk et al., 2001; Banović et al., 2009). Meat flavor is very complex, mainly raw meat has only a bloody taste and very little aroma (Donald, 1998) consequently meat is thematically processed during the process volatile compounds produced from lipid solubilizing and water-soluble components produce flavor to the meat. Many of the consumers prefer this flavor (Furnols et al., 2006; O'Quinn et al., 2012).

The prevailing market condition is the key determinant in consumer preference for a product. Price is an important extrinsic quality cue related to the preference of consumers towards a product, but though it has a positive effect on expected quality (Mubarak, 2019). The preference of a consumer will vary with the current market price and market place of a product (Asfaw, Gebrewahd, & Menghestu, 2016). Further, the price of substitutional products has a negative relationship with consumer preference. Goddard et al. (2007) found that the price of exotic chicken meat and egg showed a reciprocal relationship with consumer preference towards NC meat and egg. Influential factors related to consumer, household, socio-economic and prevailing market factors identified through extracted literature summarized as conceptual framework illustrated below in Fig. 1.

3. Methodology

Random utility framework is an appropriate theoretical model for binary discrete response variable (Hanemann, 1984). The random utility model can be used to assess

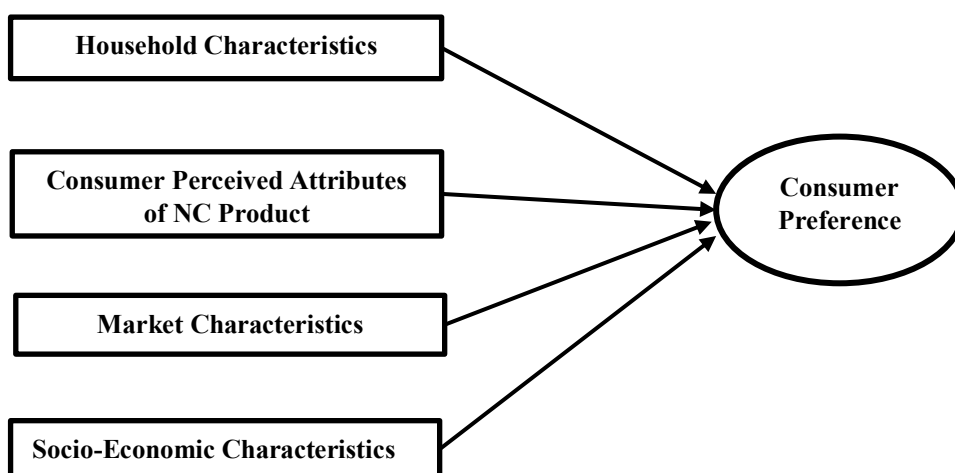


Figure 1: Conceptual Frame Work

consumer's decisions to purchase for products. The assumption is that consumer utility is given by:

$$U = f(I, X, A, Q) \quad (1)$$

I - Consumer's income level.

X – Consumer characteristics

A - Product attribute as well as consumer characteristics

Q - Perceived quality of products available in current market.

There are factors which influence the utility of consumer, cannot be measured and controlled, consumer's utility can, therefore, be expressed in terms of unobservable and an error term. The consumer's decision to pay an amount K in terms of utility is then represented as p:

$$U(Q_0, X, S, I) + \varepsilon_0 \leq U(Q_1, X, S, I-K) + \varepsilon_1 \quad (2)$$

Where ε_0 and ε_1 are random error terms assumed to be independent, $N(0, \sigma^2)$ distributed. This can be expressed in a probability framework as:

$$P(Y=1|X) = \beta_0 + \beta_1 X_1 + \dots + \beta_k X_k \quad (3)$$

This says that the probability of prefer to buy value-added NC product is expressed $P(x) = P(Y=1|x)$, is a linear function of X_j . Where the X_j is the explanatory variable. Since equation (3) is the multiple linear regression model with a binary dependent variable, the model expresses the Linear Probability Model (LPM) (Wooldridge, 2013). The LPM model was used to estimate the equation. The independent variables, shown in Table 01 were used in this model. STATA version 13 was used to analyze the data.

The study had been taken place in the coastal region of the Ampara District in Sri Lanka where NC markets exist predominantly. Then the responses of randomly selected hundred and sixty consumers who visited ten randomly selected meat shops and supermarkets were collected through the structured questionnaire during the period of June 2019. Each respondent was asked whether they would prefer to add value for NC meat and egg. The Value-addition to NC meat was elaborated as purely slaughtered, cleaned dressed and well packed with certified meat. Similarly, Value-added NC egg was meant that cleaned, well packed and health certified eggs. The collected data were analyzed with SPSS 25 statistical software. The independent sample t-test was conducted to check the significant differences between urban and rural consumers as well as the male and female in preferring value addition to NC products. Further, the Linear Probability Model (LPM) was used to estimate the significant determinant factors in preferring value addition.

4. Results and discussion

Survey results indicate that the average age of the respondent was 30 years and. Fifty-six percentage and 38% of consumers had the tertiary level and college level of education respectively and about 55% of respondents were found to be married in the sample. The

average size of the household was four members with one to two children (age below fifteen years old) per household and 73% of respondents were employed with Rs. 40,000.00 to Rs. 50,000.00 per month as average household income level.

Most of the respondents (98%) preferred to add value to NC meat whereas only 5% of respondents did not prefer adding value to NC egg expressed in Fig. 2. Consumer perception of the attributes of presently available NC products significantly ($p < 0.05$) affected the consumer preference (Table 1) such that, the taste of NC meat, the colour of egg yolk and colour of eggshell. Thus, if a consumer perceived that NC meat is more taste, contain more nutrient and had better colour in compare to exotic chicken meat then the consumer prefer value addition to NC meat. Similarly, if a consumer perceived NC egg contained more nutrient, more yellowish egg yolk colour and more reddish eggshell derive the consumer to prefer value addition to the NC products. Therefore, the perception of attributes of the NC product motivates the consumers to prefer more towards value-added NC products. The previous study conducted by Weerahewa (2004) in the western belt of Sri Lanka revealed that since the NC meat is dark in colour more nutritious, tastier consumers prefer this meat over the exotic chicken meat further reveals that darker eggshell in colour is preferred more compared to the lighter eggshell.

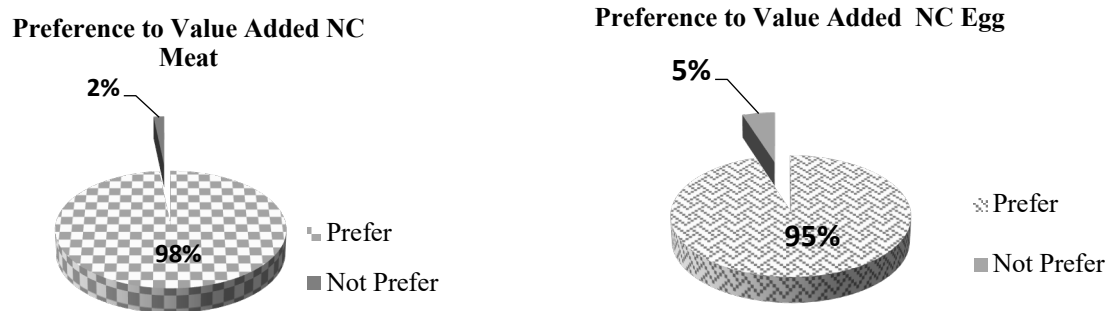


Figure 2: Consumer Preference for Native Chicken Products

Urban and rural consumer preferences were not significantly different for adding value to NC meat and eggs. Ninety-eight percent of consumers live in urban areas preferred value addition to NC products (Fig. 3). Since urban consumers are most conscious about their health, therefore, they prefer value addition to this products. Nevertheless, the NC products are available in raw form in the current market system and available products have not ensured the safety for consuming. Most interestingly, all consumers in the rural region prefer value addition to NC products (Fig. 3). It reveals that now the rural consumers are also becoming more health-conscious in consuming meat and eggs. However the present NC market system in the rural region of Sri Lanka is an in-formal market system, and NC meat is available in the raw form

(live bird). Therefore consumers need to slaughter them and clean the carcass before cook (Weerahewa, 2004).

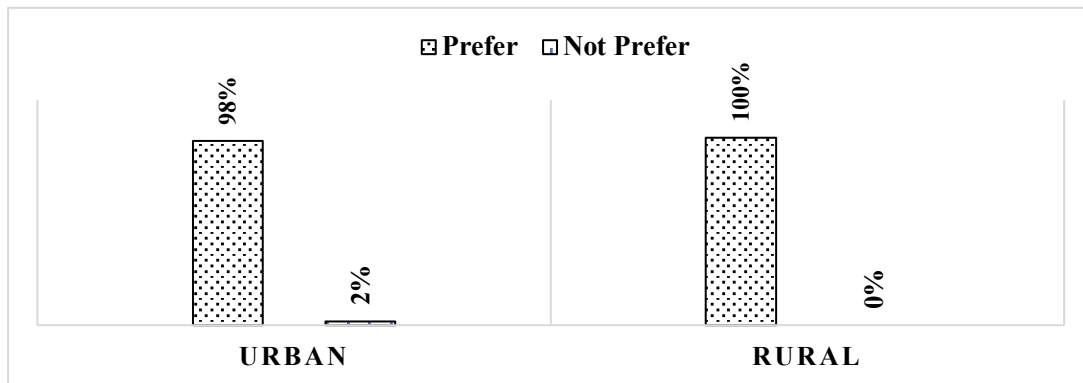


Figure 3: Rural and Urban Area Consumer Preference for Adding Value to Native Chicken Products

Similarly, No significant differences were observed between male and female consumers in value addition to NC products. The preferences of both genders are presented in fig. 4. Only two percent of male consumers did not prefer to add value because they are highly adapted to the present market system of NC products moreover they conscious about the price as value addition causes a rise in the price of a product. Whereas 2% of male consumers were less care about their own health.

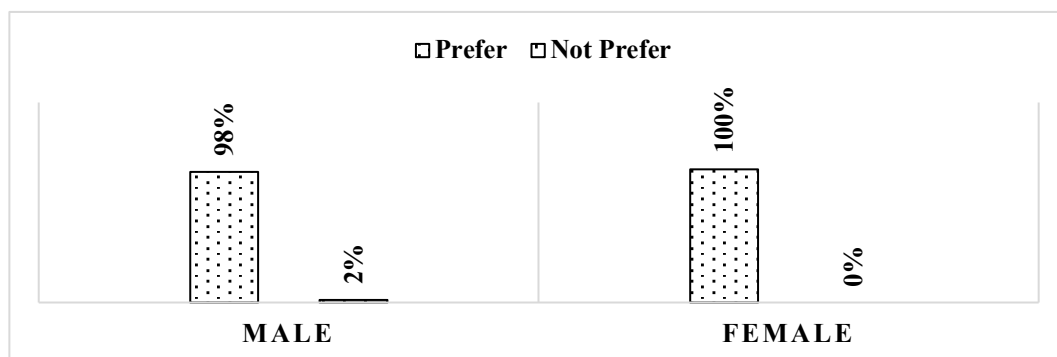


Figure 4: Male and Female Consumer Preference for Adding Value to Native Chicken Products

These results reveal that regardless of the area where ever the consumers live (urban or rural) the value-added NC products are being preferred by both male and female consumers. The result reveals that there is a potential market for value-added NC meat and egg in Ampara district Sri Lanka. However, product awareness and knowledge should be provided through an advertisement before launching the product. Most importantly, the product price should be revised several times because the consumers are more sensitive to the price even though they highly prefer value-added NC products.

Table 1: Linear Probability Model Result

| Variables | Coefficient | Coefficient |
|--|-------------------|-------------------|
| | NC - Meat | NC – Egg |
| Area | -0.011 (0.042) | 0.001 (0.001) |
| Age | 0.002 (0.002) | 0.001 (0.001) |
| Gender | -0.001 (0.052) | 0.001 (0.001) |
| Education Level | 0.086 (0.029)*** | 0.091 (0.031)*** |
| Marital Status | 0.022 (0.051) | 0.000 (0.002) |
| Number of Children Age Below 15 years | -0.006 (0.020) | -0.001 (0.001) |
| Number of Family Members | -0.003 (0.012) | 0.002 (0.001) |
| Household Income | -0.013 (0.015) | 0.003 (0.001) |
| Substitute Meat Consumption | -0.012 (0.007) | 0.001 (0.001) |
| Health Consciousness | 0.032 (0.012)*** | 0.012 (0.020) |
| Average Price of Substitute Meats | 0.0001 (0.001) | - |
| Average Price of Substitute Eggs | - | 0.014 (0.018) |
| Current Market Price (meat/egg) | -0.0011 (0.001)** | - 0.003 (0.001)** |
| Consumer Perceived – Taste | 0.106 (0.058)* | 0.202 (0.034)*** |
| Consumer Perceived – Reddish meat colour | 0.002 (0.114) | - |
| Consumer Perceived – High nutrient content | 0.081 (0.008)** | 0.021 (0.002)** |
| Consumer Perceived – Yellowish egg yolk colour | - | 1.001 (0.002)*** |
| Consumer Perceived – Reddish egg shell colour | - | 1.001 (0.003)*** |
| Constant | 0.655 (0.178) | -0.997 (0.005) |

*** 1 %, **5% * 10% level of significance

The result of the Linear Probability Model (LPM) regression is presented in Table 1. The level of education of consumers significantly had a positive impact on the preference of value addition to NC meat and eggs. The result shows that an increase in one level of education (Tertiary level to graduate level) increased the probability of preferring value addition to NC meat 8.6% and to NC egg 9.1%. Because of the educated consumers more conscious about health where NC products are considered as organic meat and egg by consumers (Bett et al., 2013). The statement is again supported by the present study thus, the consumer health consciousness positively had significant ($p < 0.01$) impact on preference on value addition to NC meat. Therefore, value-added NC producers could target the group who are in a higher level of education and be at a higher level of professionals with more conscious of their health.

Conversely one of the market variables known as the current market price showed a significant ($p < 0.05$) negative relationship with the preference of value addition. Further elaborating that the 1% increment in the current market price of NC products caused 0.1% and 0.3% reduction in the probability of preference of value addition. The result disclosed that the consumers of NC products are sensitive to price. Most impotently the average price of substitute products did not affect the preference significantly. Consumer perception about NC products available in the present market system significantly influenced the preference. The consumer perception of the taste ($p < 0.1$), nutrient content ($p < 0.05$) of current NC meat

available in the present market significantly had a positive impact on the preference of value addition. Similarly, the consumer perception of taste ($p < 0.01$), nutrient content ($p < 0.05$), yellowish egg yolk colour ($p < 0.01$), reddish eggshell colour ($p < 0.01$) of NC eggs sold in the present market had significant positive influence on preference of value addition. For instance, if a consumer perceived that the nutrient content of NC meat and eggs comprise higher nutrient content compared to corresponding the substitute products available in the prevailing market increased the probability of preferring value-added NC meat by 8.1% and NC egg by 2.1%. Consumer perception factors are very important in making marketing decisions about value-added NC products. The present study has given crucial clues to the producers who are willing to add value to the NC products.

5. Conclusion and Recommendations

This study evaluated the consumer preference for adding value to NC products and estimated the factors affecting the preference for adding value to NC products. The study found that there was a potential market for value-added NC products in rural and urban areas since the consumer preference for adding value to NC meat and egg was extremely high. The level of education and health consideration of the consumer were the socio-economic characteristics that significantly influenced the preference of value addition. The current price of the NC products negatively influenced the preference. Furthermore, the consumer perceptions of the attributes of NC products positively influence the consumer preference towards value addition to NC products. However, these will not be particular factors that determine in every context. The marketers or producers of value-added NC meat and eggs need to find out the best combination of determinants that influence the preference of purchasing and consuming NC products after launching the products to the market.

The study recommends that the value-added NC producers and livestock research and development department in Sri Lanka need to consider feeds and additive research to increase the preferred attribute of these products. Because the product attributes were significant determinants in this study. The marketer of value-added NC products has to aware of consumers about special attributes through advertisement. Further, they can target high professionals and educated people more since they had more preference to value addition for NC meat and egg. The study limited to only the coastal belt of the Ampara district where only a religion (Muslims) is predominant therefore, the response of another two main religion peoples is lacking. The study needs to be extended by including another religion consumers to get a better understanding of consumer preference on this issue.

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