



The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

No endorsement of AgEcon Search or its fundraising activities by the author(s) of the following work or their employer(s) is intended or implied.

CONSUMERS' AWARENESS, PERCEPTION AND INTEREST IN LABELLING OF PROCESSED FOODS IN GHANA: A CASE OF 'SOBOLO'

Fred Nimoh¹, Gifty Opoku-Agyeman², Alexander Annor Frimpong³
Kwame Nkrumah University of Science and Technology, Address, City, Ghana
Correspondence email : alexanderfrimpong4@gmail.com

Abstract: Food labels contain much information that helps consumers to make decisions based on the details which are of much importance to them. The study assessed awareness, perception and factors that influence consumers' interest in labelling of sobolo in the Kumasi Metropolis of Ashanti region, Ghana. Systematic random sampling was used to select 300 respondents from five randomly selected sub-metros and data were collected using a semi structured questionnaire. Descriptive statistics such as frequencies, tables and percentages were used to summarize the socio-economic characteristics of respondents. Perception index was used to assess the perception statements on the product labelling and the Logistic Regression Model was used to analyze the factors that significantly influence consumers' interest in labelling of sobolo. Results of the study showed that majority (97.3%) of respondents were not aware of labelled sobolo but 67% was interested, though with low awareness. The estimated perception index (2.8) showed that consumers had positive perception about labelling of sobolo. Among the socio-economic characteristics; age, education, household income and household size and respondents' perception on health and safety aspects of sobolo were found to significantly influence interest in labelling of sobolo. In conclusion, the study found that, consumers would prefer different information on labels and thus their interests are significantly influenced by different factors. It is recommended that efforts should be made to promote the awareness, education and interest in labelling of food products to enhance production, consumption and sustainability of the food industry.

Keywords: Food labelling, Sobolo, Awareness, Perception, Ghana
JEL Code: Q13

INTRODUCTION

Globally, food safety has become a major issue of public concern due to outbreak of diseases in food consumption which has reduced consumers' confidence in consumption foods away-from-home, for which Ghana is not an exception. Thus, there is the need to reassure public faith in food and food-related information as it has important consequences on both consumers' welfare and the overall effectiveness and efficiency of the food supply chain (Beecham, 2000). Consumers are developing more interested in the inherent characteristics of food as their demand increases but they keep basing their choices on traditional food purchase drivers such as price, freshness and wholesomeness; nevertheless they are increasingly demanding information about aspects related to health and safety, environment, conservation, animal welfare and social responsibility (Arthur, 2005).

Food labelling is the display of information about a product on its container, packaging or the product itself. Food label has now become a popular policy tool (Héroux,

1988) and marketers as well as manufacturers spend considerable time and substantial amount of money on packaging products in a manner that will attract consumer attention and enhance the product consumption. Labelling a product offers the opportunity to protect the product, promote the product and to provide additional value and differentiation. Firms now spend more money and time on packaging more than advertisement because packaging is mostly the utmost distinguishing and unique marketing element (Dickson, 1994). For several types of consumers and industrial products, the type and extent of information that must be imparted by a label is governed by the relevant safety and shipping laws. Although labelling is becoming more popular in Ghana, the concept of labeling is still found unfamiliar to many Ghanaian consumers. The demand for food safety information has been considered important in human nutrition because some food items are adulterated and have harmful consequences to human health (Akgungor et al., 1997), and by implication, labelling as part of marketing function, helps to inform consumers on the quality and

create consumer perception for consumption or otherwise of a product. Food labels help consumers to make safer choice when making a purchasing decision for a product and reducing risk of diseases and other health-related problems. According to Caswell and Padberg (1992), food labels are the possible answers to the imperfect information dilemma in food safety.

Different consumer characteristics may also have some effect on their willingness to pay for quality labelled food product and thus provides the opportunity for studying the importance of food labelling from consumers perspective. Additionally, sometimes due to ineffectiveness of governing agencies ensuring the quality and right information to enforce, consumers may be confused in the kind of labels and the information to trust in (Osei Mensah et al., 2012). Over the years, interest in issues of health and environment has eloped among consumers and their impacts have increased consumers perception, awareness and their everyday consumption choices worldwide. Food labels among the different sources of information available to consumers support them in making choices connected to their preferences such as the ingredients in a food product, how it is processed, nutritional content, its storage and expiration duration (Banterle et al., 2013). Kwakwa (2013), also stated that knowing what consumers want, what they want to buy, prepare and consume food, what features are important to them and what characteristics they are willing to pay for, can provide valuable insights into meeting consumer expectations and growing a food business.

In Ghana, food labeling misinformation and recent food borne diseases has led to 420,000 per year out-patient cases with an annual death rate estimated at 65,000 costing a total of 69 million US dollars to the economy (Ghana News Agency, 2010). On the other hand, consumers' growing interest in food related information and their perceptions of food labels are of low familiarity in developing countries, including Ghana. There is however limited information on consumers' awareness and use of labels on pre-packaged foods (Aryee, 2013) and this may be due to the lack of interest or lack of knowledge of the benefits of such information. Per the ideology of people, they may not even have the urge to read labels to 'fish out' the information they need to know. In trying to understand consumers' information needs, the management of information provision emerges as a particular challenge for at least two reasons: first, because there are so many potential attributes to provide information about, and second, because consumers are not all alike (Golan et al., 2001). Moreover, which kind of information that consumers may be willing to have on these labels to help them make optimal decisions is a concern mostly to suppliers whilst an excess of claims on food packaging can lead to a situation overloading consumers with information (Wansink et al., 2006). This overloading may present a source of noise for consumers, and it may prevent them from making optimal decisions (Banterle et al., 2013). Considering time as a factor, people may be unwilling to waste time reading food labels, though the most

important element of interest might be to spend time to read the expiration of food products. Time-related issues may also serve as a deterrent to consumers in steadily reading all information available on food product labels (Nayga, 2000; Drichoutis et al., 2005). It is therefore important for suppliers to know the important information needs of consumers and their willingness to read them.

In Ghana, most local food products, particular local drinks are not labelled. One of such popular food drinks is *sobolo*, a locally produced drink made out of the flowers of the Roselle plant, a variety of Hibiscus with a little addition of ginger and sweeteners. The production and the sale of *sobolo* has served as a major source of income to a lot of people, especially during the Covid-19 crisis where there was an increase in its demand. According to Yeboah-Awudzi (2016), *sobolo* has a lot of nutritional and health benefits, and it is made up of nutrients like, protein, carbohydrate, calcium, Iron, antioxidants and many more. It was further stated that *sobolo* helps to regulate blood sugar levels, lowers cholesterol levels in the body, eases digestion and due to the antioxidants, helps to cure flu/cold.

In this with the foregoing, this study seeks to examine consumers' awareness and perception as well as the factors influencing their interest in the labelling of *sobolo* in the Kumasi Metropolis of the Ashanti region of Ghana. This will provide relevant information to producers of food products and other relevant stakeholders on food-related information that is relevant and of interest to consumers to help better strategize for production and consumption of food products for the sustainability of the food industry.

METHODOLOGY

Study Area

The study was conducted in the Kumasi Metropolis of the Ashanti Region of Ghana. The Ghana2010 population and housing census puts the population of the Metropolis at 1,730,249, representing 36.2 percent of the total Ashanti regional population (4,780,380) which makes it one of the most populous and rapidly growing Metropolis in Ghana. The Metropolis is divided into nine sub-metros: Kwadaso, Nhyiaeso, Subin, Asokwa, Oforikrom, Manhyia, Old Tafo, Suame and Bantama (Ghana Statistical Service, 2012). The Metropolis shares boundaries with Kwabre East and Afigya Kwabre Districts to the north, Atwima Kwanwoma and Atwima Nwabiagya Districts to the west, Asokore Mampong and Ejisu-Juaben Municipality to the east and Bosomtwe District to the south.

Kumasi was selected as the study area because it is completely urbanized and cosmopolite. The location has a mutually beneficial relationship between its neighbours all over the country and beyond. The area is conducive for food production and thus ensures food security, provides market for diverse products to all consumers and also create avenue for entrepreneurship and job opportunities. This partly explains why Kumasi has become a converging point for brisk commercial activities. In addition to this, the

Metropolis provides services at various levels in the fields of healthcare, education, inter-city transport, financial services and wholesale and retail trade among others, to residents from the adjoining districts and beyond.

Study Population, Sampling Procedure and Data Collection

The target population of the study was all consumers in Kumasi. Respondents were selected using multistage sampling technique. The Kumasi Metropolis was purposively selected out of the 30 metropolises in Ashanti Region. Kumasi was selected because it is completely urbanized and cosmopolite. At the second stage, five sub-metros out of the nine were selected at random, namely; Bantama, Oforikrom, Subin, Asokwa and Suame. Two suburbs were again selected from each of the five-sub metros by random sampling summing up to ten suburbs. Using the systematic random sampling methods, 300 respondents were interviewed with 30 from each of the 10 suburbs, namely: Bantama, Bohyen, Dakodwom, Adum, Oforikrom, Asafo, Ahodwo, Maakro, Suame and Ayeduase.

Data for the study were collected from both primary and secondary sources. Primary data on the socioeconomic status of the respondents, their perception and concern about labelling were collected by face-to-face interviews with structured questionnaire. The survey questionnaire comprised of both close and open-ended questions facilitated communication and easy data collection from the respondents.

Conceptual Framework

The basic assumption of random utility theory (RUT) is based on the premise that individuals act rationally, selecting the alternative that yields then highest utility. Consequently, the probability of selecting a given alternative will be higher if the utility provided by such alternative is the highest among the different choices. Choices made between alternatives will be a function of the probability that the utility associated with a particular option is higher than those for other alternatives (Hensher et al., 2005). According to RUT, utility of a choice is comprised of a deterministic component and error component, which is independent of the deterministic part and follows a predetermined distribution. This error component implies that prediction cannot be made with certainty. $U_{ij} = U_i(X_{ij})$, where X_{ij} is the vector of attributes relative to alternative j and to the decision maker. It is acknowledged that consumers may take decisions that do not maximize their utility. According to Tiffin et al., 2006, this behavior may result from errors in perception resulting from lack of information on product attributes or discounting inability or market failures such as price structure that do not reveal the real cost of the production to the society or limitation in the set of products available to the customer.

Data Analysis

Descriptive Statistics such as frequency tables, percentages and means were used to analyze the socioeconomic characteristics of the consumers. In

analyzing the Perception of consumer about labelling of *sobolo*, the five-point likert scale (Strongly Agree (1), Agree (2), Neutral (3), Disagree (4) and Strongly Disagree (5)) with attributes which were categorized into three (3) main perception statements, that is, the product, the benefit and the price was used. The perception formula is given as;

$$\frac{\{(fx1 * 1) + (fx2 * 2) + (fx3 * 3) + (fx4 * 4) + (fx5 * 5)\}}{X}$$

Where $fx1$ to $fx5$ represents the respondents for each category and X is the total number of respondents.

$$\frac{m1 + m2 + m3}{M}$$

Whereby $m1$ to $m3$ represents the three perception statements and M is the number of perception statements.

Empirical Model Specifications and Measurements

The Logit Regression Model was also used to analyze the factors that influence consumers' interest in labelling of *sobolo*. The log it is estimated using maximum likelihood estimation as it results in large-sample properties of consistency and asymptotic normality of the parameter estimates. The dependent variable is a binary choice, thus, having interest and non-interest in labelling whilst the independent variables include the various socioeconomic and perception factors. The logit regression model is specified as;

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots \beta_n X_n + u_i$$

Table 1. Description of variables and a-priori expectations

Variables	Variable Meaning	Description and Type of Measure	Expected Signs
Dependent Variable			
ConsInlabelling	Consumers Interest in labeling	Yes= 1, No=0	
Independent Variable			
Gender	Gender of consumers	Female=1, Male=0	+ / -
Age	Age of consumers	Years	+
MSta	Marital status	Married=1 Otherwise=0	- / +
Emp_S	Employment status	Employed=1 Otherwise=0	+
Edu	Educational status	Educated=1 Otherwise=0	+
Hd_size	Household size	Number	-
Hd_income	Household Income	Cedis	+
Health	Perception of health	Yes=1, No=0	+
Safety	Perception of safety	Yes=1, No=0	+
Nutri	Perception of nutrition	Yes=1, No=0	+

Where Y is the dependent variable, representing consumers' interest in labelling of *sobolo*, β stands for estimated factors explaining the participatory variables respectively, Xi is a vector of respondents' characteristics relevant in explaining their demand for and willingness to pay for a product with a label while ui represents the error term.

RESULTS AND DISCUSSION

Consumers' Awareness of Food Labels

All the respondents in this study area were aware of general food labels as it can be seen from Table 1. This was because a large percentage of the participants in this study were highly educated; they had basic education and beyond. Loureiro et al. (2006) explained that highly educated consumers are more likely to read scientific and academic articles and are more likely to be exposed to health and nutrition-related news sources and thus increasing their awareness of diet and health issues. Similarly, a number of studies observed that a greater part of their participants was aware of food labels and also observed that a greater proportion of their participants had high education (Washi, 2012). For instance, Schupp et al. (1998) found that majority of their study participants (52.2%) were aware of nutrition labels and most of them had higher education. Washi (2012) also observed that a large number of participants (89.5%) showed a general awareness for food label information including nutrition label information and 69.5% of their study participants were university graduates.

Table 2: Awareness and Interest in Labelling of Sobolo

		Frequency (300)	Percentage (100%)
Awareness of labelling	Yes	300	100
	No		
Interest in labelling	Yes	237	79
	No	63	21
Seen labelled 'sobolo'	Yes	8	2.7
	No	292	97.3
Interest in labelling of 'sobolo'	Yes	207	69
	No	93	31

Source: Field Survey, 2016

Moreover, a majority (79%) of the respondents were more interested in the labelling of food products, thus implying that labelled products help consumers to make the right decisions when purchasing food products and as a result prevents them from buying food products that can be harmful to their health. Also, food labels provide information about a product, and such information, among others, usually include amount of calories, sugars, carbohydrates, vitamin content which offer valuable information for maintaining a healthy lifestyle. Washi (2012) further reported that consumers were probably more concerned about the risks involved in consuming expired food products.

From Table 2, the study found few (2.7%) of the respondents had ever seen labelled *sobolo*. This is because, most of the respondents interviewed in our study said that it is difficult to see a labelled *sobolo* drink on the market. However, majority (69%) of the respondents were interested in the labelling of *sobolo*. The respondents were very much concerned about labelling and preferred a labelled product, since it will provide the necessary information like the nutrition content, expiration date, location and among others on the product. They mentioned that it could help them to make the right purchasing decisions and also be more conscious about their health. The remaining 31% that were not interested in the labelling of *sobolo* due to the following reasons; they stated that most information on labels in general are misleading and not true, some also said they hardly read labels whilst others purported that it was costly and such cost would be transferred to the consumers.

Components that Consumers would prefer on Labels

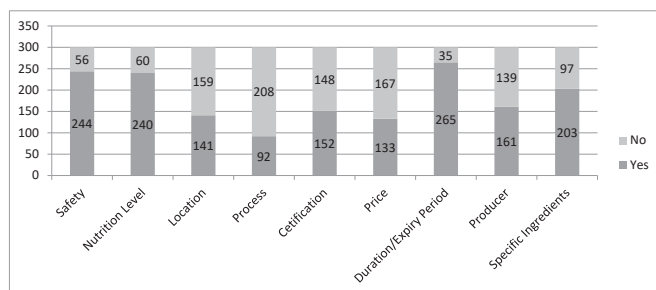
From Figure 1, the components on labels that consumers would mostly preferred were identified as Duration/expiry period (88.3%), Safety of the product (81.3%), Nutritional level (80.0%) and Specific ingredients in the product (66.7%). However, the respondents were less concerned about the process of production of the product (30.7%). This confirms the study of Grunert (2005) that, safety is an integral part of quality attribute which determines purchase intentions and choice among consumers. The study observed that consumers have varied preferences in the components of food label information and majority of respondents would prefer information on duration, Safety, Nutrition and Ingredients. Similar to Washi (2012), consumers are more interested in duration that is expiration date followed by production date, because of the risk associated with expired food consumption.

Moreover, a study by Jacob et al. (2010), also observed that the most important label information used by consumers are expiration date followed by list of ingredients and then nutrition, and in terms of duration, consumers prioritize their search for longest life span product and expiration date. A further study by Grunert (2005), also confirms safety as an integral part of quality attribute which determines purchase intentions and choice among consumers. Duration as basic interest of label information may be concluded that, all things being equal, if consumers get satisfied with product duration, then safety, nutrition and other label information may satisfy them too. This is similar to a study by Aryee (2013), which posited that participants are less concerned about nutritional content of prepackaged foods however, they purchase once they are satisfied with the expiry date.

Consumers Perception on Labelled Sobolo

Perception Index was computed to understand the overview of consumers' perception regarding the attributes of labelled *sobolo*. From Table 3, an index of 2.2 indicated that most of the consumers were interested in the labeling of *sobolo*. With a mean index of 2.2 consumers interviewed,

Figure 1: Components consumers would prefer on sobolo labels



agree that labeling has an effect on purchasing. From the study consumers agreed (1.8) that there is easy access to *sobolo*. The positive perception about this statement is because of the nearness of production or sales point to consumers. Likewise French et al., found low-fat labelling in vending machines to influence sales only when the labelling was provided in tandem with an educational poster. These results suggest that modest promotional efforts may prompt consumers to give nutritional information greater consideration in the food selection process.

Most of the consumers agreed (2.1) that labeled *sobolo* has a health benefit. The positive perception can be attributed to the fact that *sobolo* has its raw material mostly been herbs relative to other drinks. The natural herbs for making *sobolo* is not harmful to the body and therefore consumers are now avoiding the consumption of the other drinks which most of the time are made from synthetic raw materials. Consumers are now conscious of their health due to the negative effect of synthetic raw consumption to the body.

On the other hand, an index of 2.0 showed that consumers agree that labeling can improve the safety with respect to the use of *sobolo*, also agree (2.3) that *sobolo* possess a quality they need. Moreover, consumers agreed (2.5) that

labeling can reduce any side effect when used. The mean perception index for benefit statement was 2.34 which implies that consumers have a positive perception towards the benefit statements related to labeled *sobolo*. Again, the mean perception for benefit is greater than that of the product perception indicating that consumers have more positive perception on benefit aspects of labeled *sobolo* than its product aspect. Hence, safety is to be considered as an integral part of quality, and it contributes to determining purchase intentions and choice (Grunert, 2005). Consumers seem to want information to help them achieve a balanced diet, to avoid certain ingredients that have proved not to agree with them, or to know the origin and environmental, ethical and technological conditions under which the food was produced. Among the motivations for demanding all this information, safety concerns was prominent.

Again, an index of 3.4 indicated that consumers disagree that labeled *sobolo* is expensive to buy. People are now concern about the price to which they exchange for value. The contentment of consumers in Ghana with the standard or quality of packaging of most food and beverage products made-in Ghana could therefore be interpreted as an expression of a Ghanaian cultural instinct or tendency towards food and beverage packaging. The stranglehold of plastic sachets and bottles on the Ghanaian market is attributable to the affordability of the ultimate prepackaged product to consumer whiles being less costly and more convenient to the producer as compared to other packaging technologies or designs. The mean perception index of 3.85 for price statements shows that consumers generally have a negative perception towards the price statement on labeled *sobolo*. Surprisingly, under the price perception index, labelled *sobolo* was found to be a normal good rather than being a Giffen or ostentatious goods. The study also

Table 3: Perception Index

PRODUCT STATEMENT	Strongly Agree (1)	Agree (2)	Neutral (3)	Disagree (4)	Strongly Disagree (5)	Mean
Consumers interested labelled sobolo	120(40)	80(26.7)	38(12.7)	45(15.0)	17(5.7)	2.2
Labelling has an effect on purchasing	82(29.7)	131 (43)	36(12.0)	43(14.3)	8 (2.7)	2.2
There is easy access to sobolo	112(37.3)	153(51.0)	14(4.7)	18(6.0)	3(1.0)	1.8
Concern about labelling and age	59(19.7)	85(28.3)	91(30.3)	45(15.0)	20(6.7)	2.6
Product Perception Index						2.2
BENEFIT STATEMENT						
Labelling of sobolo has a health benefit	89(29.7)	137(45.7)	33(11.0)	30(10.0)	11(3.7)	2.1
Labelled sobolo can improve the safety	93(31.0)	140(46.7)	35(11.7)	26(8.7)	6(2.0)	2.0
Sobolo possess a quality I need	51(7.0)	134(44.7)	84(28.0)	25(8.3)	6(2.0)	2.3
Labelling can reduce any side effects	48(16.0)	48(16.0)	52(17.3)	57(19.0)	10(3.0)	2.5
Export opportunity with sobolo	63(21.0)	65(21.7)	93(31.0)	41(13.7)	38(12.7)	2.8
Benefit Perception Index						2.34
PRICE STATEMENT						
Labelled sobolo is expensive to buy	9(3.0)	82(28.3)	51(17.0)	99(33.0)	59(19.7)	3.4
Labelled sobolo is normally patronized by high income earners	10(3.3)	12(4.0)	22(7.3)	85(28.3)	171(57.0)	4.3
Price Perception Index						3.85
OVERALL MEAN PERCEPTION INDEX						2.8

Figures in brackets are percentage Source: Field survey, 2016

posits that although consumers are highly confident with labeled *sobolo*, their preventive behaviour of reading labels guarantee them a purchase of safer products when paying a higher price.

Descriptive Statistics for the Empirical Model

This section compares the mean differences of interested and non-interested consumers, which is shown of labelling *sobolo* used in the empirical model. There were notable differences observed between interested and non-interested consumers of food labels (Table 4). In comparing means of interested and non-interested consumers of the various variables, for gender, household size and household income, interested consumers had higher means than non-interested consumers, though not significant. This can be explained that, more consumers attest that gender, household size and household income can influence their interest in labelling of *sobolo* which may be the opposite for non-interested consumers. However, factors of non-interested consumers such as age, marital status and employment status, had higher mean than interested consumers, though not statistically significant as well. Educational level, the perceptions of safety, nutrition and health were the significant (at 1%) differing factors between interested and non-interested respondents.

The significant differences can be explained that most consumers attest to the fact that one’s educational background, safety and the need to live a healthy food product free from food borne diseases are major factors that can influence their interest in labelling of *sobolo*.

knowledge and educational background as factors that affect consumers’ interest in labelling (Grunert, 2006; Guthrie et al., 1995); Aryee, 2013). It can be seen from Table 5 that age, the perception of health and safety have significant effect on interest in labelling of *sobolo* at 1% followed by educational status and household income at 5% and household size at 10%. Age variable had a negative coefficient but was statistically significant at 1%. This explains that younger consumers are more interested in the labelling which implies that as one grows older, the lesser their interest in labelled *sobolo*. This empirical observation from this study also agrees with Reid et al., (1996); Loureiro et al., (2006), who observed negative relation with age and interest in labelling and further found that that younger adults were more likely to use labels than older individuals due to their low understanding and low concern about labelling. Similar to Gould and Lin (1994), they also concluded that the younger generation may be interested in labels due to exposure to improved technology and available health information which encourage them to use label information. This finding however disagreed with Aryee (2013), Drichoutis et al., (2005) and Lin and Lee (2003) who concluded that old individuals use labels information more because of health constraints and restricted diets.

Household size had a positive coefficient and statistically significant at 10%. This means that household affects interest in labelling of ‘*sobolo*’ and thus the higher a consumers’ household size the higher their interest in the labelling from the study. Though other studies such as Berning et al. (2009) and Govindasamy and Italia (1999) disagree that larger households show less interest in labelling may be because they have heavy burden expenditures for their needs, thus may concentrate on price for economic reasons and grow tired of labels. In contrast, this result supports the findings by Guthrie et al., (1995); Nayga, (1996); Schupp et al., (1998); and Wiles et al., (2009) which observed larger households of four or more as likely to use labels in food purchases compared to smaller households of one or two people and individuals who live alone. They further argue that larger households spend extra time and effort searching for labelled information because it has an influence not on their dietary intake alone but that of other household members as well.

Households’ income had a positive coefficient and statistically significant at 5%. This shows that higher income households are more interested in the use of label information than low household income earners. This is explained by Loureiro et al. (2006); Drichoutis et al. (2005) and Nayga (1996) in their studies as that higher income earners may be more responsible for their health which may be mainly due to high educational status and thus lower income earners are sensitive to price and for economic reasons would be more concerned about cost of the goods purchased than the quality and its nutritional benefits unlike a study Schupp et al. (1998) which disagrees with this observation.

Education had a positive coefficient and statistically significant at 5%. Thus, this indicates that, all things being equal, consumers with higher educational background are more interested in labelling. Education is observed in several

Table 4: Descriptive statistics associated with the empirical model

Variables	Interest	No Interest	Mean Differences	Sig.
	Mean	Mean		
Gender	0.5411	0.4731	0.06245	0.679
Age	33.3816	38.8602	-5.47857	0.12
Marital status	0.4251	0.4731	-0.04800	0.219
Occupation	0.7440	0.7957	-0.05174	0.45
Education	2.9903	2.4409	0.54948	0.000***
Household size	2.2222	2.1505	0.07168	0.129
Household Income	906.3768	824.3548	82.02197	0.397
Perception on health	0.8501	0.5376	0.31261	0.000***
Perception on safety	0.8696	0.5699	0.29967	0.000***
Perception on nutrition	0.6473	0.5484	0.09896	0.010***

Significant at 1%=***, 5%=**, and 10%=*
Source: Field Survey, 2016

Factors that Affect Consumers’ Interest in Labelling of Sobolo

Number of observations used for identifying the factors that affect consumers’ interest in labelling of *sobolo* were 300 and A Pseudo R2 of 0.1786 shows that the independent variables accounts for 17.86% of the variance in the dependent variable with a Wald chi2 (10) of 50.16 Earlier studies have found age, gender, income, awareness, health and safety

Table 5: Determinants of consumers' interest in labelling of sobolo

Variables	Coefficient	Standard error	Z-values	dy/dx	P-value
Gender	0.2408	0.2849	0.85	0.0401	0.398
Age	-0.0365***	0.0130	-2.81	-0.0060	0.005
Household size	0.3022*	0.1831	1.65	0.0503	0.099
Household income	0.0005**	0.0002	2.04	0.0007	0.042
Marital Status	-0.1061	0.3431	-0.31	-0.0176	0.757
Education	1.3005**	0.6226	2.09	0.2167	0.037
Employment Status	0.0998	0.4052	0.25	0.0166	0.805
Perception of health	1.2322***	0.3833	3.40	0.2061	0.001
Perception of safety	1.0264***	0.3833	2.68	0.01710	0.007
Perception of nutrition	0.1256	0.3032	0.41	0.029	0.679
Constant	-2.0320	0.9270	-2.19		0.028
Wald chi2(10), 50.16; Prob > chi2, 0.0000; Pseudo R2, 0.1786; Number of obs, 300					

Significant at : 1%***, 5%***, and 10%*

Source: Field survey, 2016

studies as an important significant factor amongst the lots that affects interest in labelling. From this study, this observation may be due to the positive increase in consumers' knowledge, ideas and will-power which is transferred to and evident in their life experiences. Thus, in relation to this study consumers with higher educational status may probably be more interested in labelled food products because of their intense capability to read and understand labelling information than those with lesser education as observed by Govindasamy and Italia (1999); Kumar and Pandit (2008) and Nayga et al. (1996). Likewise, Schupp et al. (1998) posited that respondents with higher education were more aware of and use labelling information than respondents who had lower education. Though, other studies have shown no significant relation between labelling and educational level (Angulo et al., 2005).

Perception statements on health and safety had positive coefficients and statistically significant at 1%. Due to the recent outbreaks of food borne diseases, consumers are more concerned about their health in relation to the quality and safety of products consumed. From this study, consumers may not be concerned about nutrition if they perceive what they consume as healthy and safe. According to Verbeke (2005) and Angulo et al. (2005), experience in recent cases such as genetically modified foods, food irradiation, and even functional foods, demonstrates that perceived safety can drop dramatically when new information is provided even without medical or scientific evidence.

Nevertheless, Angulo et al., (2005) in his study argue found that, Spanish consumers perceive food safety as a minimum responsibility producer have and do claim that producers should guarantee safety without consumers being obliged to pay a premium for it or being a burden for consumers.

CONCLUSION

The study found that all the respondents interviewed were aware of food products but awareness and evidence of labelled *sobolo* was found to be low (2.7). However, majority (69%) of the respondents were very much interested in the

labelling of *sobolo*. The study also revealed that duration, safety, nutritional contents and list of ingredients were the most important information consumers would prefer on labelled *sobolo*. Prominent among some of the reasons are to know the manufacturing and expiration date and also the nutritional and safety benefit. Respondents had a relatively positive attitude towards labeling *sobolo* per the perception index. The implication of this result is that consumers generally have positive perceptions regarding labeled *sobolo* in terms of price, benefit and product. It was also found that consumers are more conscious of their health and therefore, are more willing to purchase the labeled *sobolo*. It is again concluded that, consumers' perceptions on health and safety have a positive impact on their concern about labelling of *sobolo*.

The empirical study shows that consumers' interest in labelling of *sobolo* is influenced by their socio-economic characteristics such as age, education, household size and household income and perceptions of health and safety. Thus, this study concludes that consumers are different from one another which means that they base on different factors to choose different information needs that suit them.

RECOMMENDATION

Efforts should be made to enhance awareness and interest in labelling of food products as well as how to interpret them to consumers; among the lower educated and the aged by encouraging them through public education to look out for information on foods, especially prepackaged foods they purchase. Interpersonal interaction during social gatherings can also be used to enhance awareness about nutrition labels. Professional groups such as hairdressers association, dressmakers association, and artisan groups could be targeted to enhance awareness among the lower educated.

More emphasis should be placed on the attributes of the labelled *sobolo*, particularly regarding the health, nutritional content and safety of the product since consumers' rate these

attributes to be very important when purchasing the product. Again, the labelled *sobolo* must be promoted by creating awareness to consumers. Students at the tertiary level should be targeted for the labelled *sobolo* since people with higher educational level were more willing to pay a premium for the product. Consumers with all levels of income should be also targeted since consumers with various income tended to be interested in labelled *sobolo*. Promoting the benefits of labels through public education can motivate consumers to often use nutrition label information when purchasing prepackaged foods. Consumers should also be encouraged to check all labelling information when shopping. Producers should label their food products in order to boost consumers' confidence in food safety. Producers can also target their labelled products to the youth and the middle aged since from the study they had the major interest in the labelling of *sobolo*. Promotional strategies can also be adopted to help influence consumers purchasing interest in the labelling.

REFERENCES

- Akgungor, S., Abay, C. and Miran, B., (1997). "Marketing of organically grown agricultural products in Turkey: Status and prospects". Agricultural Production and Nutrition: Proceedings of an International Conference, Boston, MA. March 19-21, 1997.
- Arthur, H. F. (2005). Insects of stored products. *Crop Science*, 45(3):1177-1179.
- Aryee, A. G., (2013). Awareness and Use of Nutritional Labels on Pre-packaged Foods Among Consumers in Accra. Master's Thesis. University of Ghana.
- Angulo, A. M., Gil, J. M., and Tamburo, L. (2005), Food safety and consumers' willingness to pay for labelled beef in Spain. *Journal of Food Products Marketing*, 11(3): 89-105.
- Banterle, A. and Stranieri, S. (2008) "Information, Labelling, and Vertical Coordination: An Analysis of the Italian Meat Supply Networks", *Agribusiness*, 24(3): 320-331
- Beecham, L. (2000), Food Standards Agency will be open and independent. *British Medical Journal*, 320 (7238): 826-827.
- Berning, J.P., Chouinard, H.H, Manning, K.C., McCluskey, J.J. and Sprott, D.E. (2010).
- Identifying Consumer Preferences for Nutrition Information on Grocery Store Shelf Labels. *Food Policy*, 35(5): 429-436
- Caswell J. A. and Padberg, D. I. (1992) Towards a More Comprehensive Theory of Food Labels: *American Journal of Agricultural Economics*, 74:460-468
- Dickson, P. R. (1994) "Marketing Management", Forth Worth (TX): The Dryden Press.
- Drichoutis, A. C., Lazaridis, P. and Nayga, R. M. (2005). Nutrition knowledge and Consumer use of nutritional food labels. *European Review of Agricultural Economics*, 32(1): 93-118.
- Ghana News Agency (2010) Producing unsafe food is unwise. Available at <http://www.ghanaweb.com>
- Ghana Statistical Service (2012): 2010 Population & Housing Census – Summary Report of Final Results. Accra.
- Gould, B. W. and Lin, H.C. (1994). Nutrition Information and Household Dietary Fat Intake. *Journal of Agricultural and Resource Economics*, 19:349-65.
- Govindasamy, R. and Italia, J. (1999). Evaluating Consumer Usage of Nutritional Labeling: The Influence of Socio-Economic Characteristics. *Journal of Nutritional Education*. 4:370- 375.
- Grunert, K.G. (2005). Food Quality and Safety: Consumers Perception and Demand. *European Review of Agricultural Economics*, 32(3):369-391.
- Grunert, K. G., Hartving-Larsen, H., Madsen, T.K. and Baadsgaard, A. (2006). Market orientation in food and agriculture. Boston: Kluwer.
- Guthrie, J. F., Fox, J. J., Cleveland, L. E. and Welsh, S. (1995). Who Uses Nutritional Labelling, and What Effect Does Label Use Have on Diet Quality? *Journal of Nutrition Education*, 27(4): 163-172.
- Héroux, L., Laroche, M. and McGown, K. L. (1988) "Consumer Product Label Information Processing: An Experiment Involving Time Pressure and Distraction", *Journal of Economic Psychology*, 4: 263-272.
- Jacob, C., Mathiasen, L. and Powell, D. (2010). Designing effective messages for microbial food safety hazards. *Food Control*. 21:1-6
- Kumar, S. and Pandit, A. (2008). Food Labels: Assessing Awareness and Usage Level of Indian Consumer and Influences on Food Buying Behavior. IIML WPS 2008-09/15
- Kwakwa Sampson (2013). Consumers' Preference and Willingness to Pay for Locally Produced Rice. Master's thesis. Kwame Nkrumah University of Science and Technology.
- Lin, C.T.J., Lee, J.Y. and, S.T. (2004). Do Dietary Intakes Affect Search For Nutrient Information on Food Labels? *Social Science and Medicine*, 59(9): 1955-1967.
- Loureiro, M.L, Gracia, A., and Nayga, Jr. R.M. (2006). Do Consumers Value Nutritional Labels? *European Review of Agricultural Economics*, 33(2): 249-268.
- Nayga, R. M., Jr. (1996). Determinants of Consumers' Use of

Nutritional Information on Food Packages. *Journal of Agricultural and Applied Economics*, 28(2): 303-312.

Nayga, R. M. Jr (2000). Nutrition Knowledge, Gender, and Food Label Use. *Journal of Consumer Affairs*, 34(1): 97-112.

Osei Mensah J. Lawer Dede Rose and Aidoo, R. (2012) "Consumers Use and Understanding of Food Label Information and Effect on their Purchasing Decision in Ghana; a

Case Study of Kumasi Metropolis", *Asian Journal of Agriculture and Rural Development*, 2(3): 351-365

Reid, D.J., Conrad, S.A. and Hendricks, S.M. (1996). Tracking Nutrition Trends, 1989-1994: An Update on Canadians 'attitudes, Knowledge and Reported Actions. *Canadian Journal of Public Health*, 87: 113-118

Schupp, A., Gillespie, J., and Reed, D. (1998). Consumer Awareness and Use of Nutrition Labels on Packaged Fresh Meats: A Pilot Study. *Journal of Food Distribution Research*, 29(2), 24-30.

Verbeke, W. (2005). Consumer acceptance of functional foods: socio-demographic, cognitive and attitudinal determinants. *Food Quality and Preference*, 16: 45-57.

Wansink, B., Ittersum, V. and Painter J.E (2006). How diet and Health Labels Influence Taste and Satiation. *Journal of Food Science*, 69(9): 340-346

Washi, S. (2012). Awareness of Food Labelling Among Consumers in Groceries in Al-Ain, United Arab Emirates. *International Journal of Marketing Studies*, 4(1): 38

Wiles, N.L., Paterson, M. and Meaker, J.L. (2009). What Factors Determine the Use of the Nutrition Information on the Food Label When Female Consumers from Pietermaritzburg Select and Purchase Fat Spreads? *South African Journal of Clinical Nutrition*, 22(2):69-73.

Yeboah-Awudzi M. (2016). Microbial Hazard Analysis and Development of Control Measures for Bissap Drink (*Sobolo*). Bachelor's thesis. Kwame Nkrumah University of Science and Technology.

