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THE IMPACT OF SOCIOECONOMIC FACTORS AND MEAT ATTRIBUTES ON WILLINGNESS TO PAY FOR LOCALLY OR REGIONALLY PRODUCED LIVESTOCK PRODUCTS IN GEORGIA

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Abstract

The study examined the impact of socioeconomic factors and meat attributes on willingness to pay for locally or regionally produced livestock products. The data were obtained from a convenience sample of participants from several counties in Georgia, and were analyzed using descriptive statistics and ordinal logistic analysis. The socioeconomic factors comprised more females than males, slightly more Whites than Blacks, about equal proportions of middle-aged or older persons and younger persons, with relatively moderate educational levels, with moderate household incomes, and more married persons than singles. Most of the respondents were willing to pay more for meat certified as locally or regionally produced. Moreover, a majority agreed or strongly agreed with statements on meat attributes, except for the "no difference in safety" and "hygiene" attributes. The ordinal logistic results revealed that race/ethnicity, education, household income, safety (safe to consume), no difference in safety, availability, affordability, desirability, and hygiene had significant effects on the willingness to pay more for meat certified as locally or regionally produced. Therefore, socioeconomic factors of consumers and meat attributes matter in the consumption of locally or regionally produced livestock products, and should be considered in the production and marketing of such products.

Keywords: Socioeconomic Factors, Meat Attributes, Local or Regional, Willingness to Pay, Livestock Products

INTRODUCTION

Locally or regionally produced foods are increasingly becoming consumer favorites in the U.S. For example, Hu, Batte, Woods, & Ernst (2012) confirmed this by providing statistics on the number of farmers' markets and value of direct-to-consumer sales. From 1994 to 2011, the number of farmers' markets increased from 1,755 to 7,175, while from 2008 to 2014, the value of direct-to-consumer sales increased from $5 billion to $11.7 billion. In line with the preceding, King, Gómez, & DiGiacomo (2010) also stressed that the number of major food retailers that market locally produced products has grown rapidly. Pinchot (2014) was of the view that the increasing demand for local foods is based on the belief that local food production systems are more sustainable, and enhance local economies.

There are various definitions as to what constitutes "local." However, a common approach is to base the definition on the distance from where food products are produced to where they are transported. For example, Smith & MacKinnon (2007) indicated a 100-mile radius as the limit for local foods. Hu, Woods, & Bastin (2009) and James, Rickard, & Rossman

(2009) used the criterion of a product having a state label to define local food. Contrarily, Harris, Burress, Mercer, Oslund, & Rose (2000) defined local foods as foods produced within or near one's county, state, or neighboring states.

Not only are locally or regionally produced foods in general becoming popular, but also locally or regionally produced meats in particular are becoming popular. In fact, according to Frewer, Kole, Van De Kroon, & De Lauwere (2005) consumers attach specific levels of importance to meat attributes, and they use these attributes in their purchasing decisions. These authors also stressed that local producers have the task of differentiating their products as "local" in order to satisfy consumers and fend off competitors.

Villalobos, Padilla, Ponce, & Rojas (2010), Koistinen (2010), and Schmitz, Menkhaus, Whipple, Hoffman, & Field (1993) argued that consumer perception of quality affects choice. Consequently, consumer perceptions and the willingness to pay more for particular meat attributes is of importance and should be understood by producers in order to meet the demand of consumers. In addition, the authors emphasized that increased consumer consciousness has divided the food market into several segments based on differing tastes and preference rankings for the meat attributes. Therefore, the development of quality attributes could be a profitable way for producers to differentiate their products, and thus, gain a competitive advantage. Furthermore, Ferngvist & Ekelund (2014) explained that the willingness to pay for "something" is a positive response to an attribute of interest.

There is limited research on factors affecting consumers' willingness to pay for locally or regionally produced livestock products, especially in the Southeastern U.S. An understanding of which socioeconomic factors and meat attributes affect consumers' willingness to pay is of importance to agricultural practitioners. Based on the preceding, there is a need to conduct research to shed more light on the subject and add to the existing literature. That notwithstanding, Tackie, Bartlett, & Adu-Gyamfi (2015) conducted a study on the impact of socioeconomic factors and meat attributes on willingness to pay for locally or regionally produced livestock products in Alabama. Also, Tackie, Bartlett, Adu-Gyamfi, & Kpomblekou (2017) conducted another study on the impact of socioeconomic factors and meat attributes on willingness to pay for locally or regionally produced livestock products in Florida. This study focuses on the State of Georgia because it is also part of the Southeastern U.S., and it is patterned after the Tackie et al. (2015) and Tackie et al. (2017) studies.

The purpose of the study, therefore, was to assess the impact of socioeconomic factors and meat attributes on willingness to pay for locally or regionally produced livestock products in Georgia. Specific objectives were to (1) identify and describe socioeconomic factors, (2) describe and assess meat attributes, and (3) estimate the extent to which socioeconomic

factors and meat attributes affect the willingness to pay more for locally or regionally produced meat products.

LITERATURE REVIEW

Socioeconomic Factors and Willingness to Pay

Several studies have reported on socioeconomic factors and their relationships to willingness to pay. These factors include race, gender, age, education, household income, and household size. For instance, Sanders, Moon, & Kuethe (2007) evaluated consumer willingness to pay for fresh pork attributes. Their findings showed that race had a statistically significant effect on willingness to pay more for pork. Specifically, when compared to other races, African Americans were generally willing to pay more for pork attributes such as juiciness, tenderness, marbling, and leanness. However, other socioeconomic factors, such as, gender, income, and education, did not have statistically significant effects on willingness to pay.

Onyango, Hallman, & Bellows (2007) assessed purchasing organic food in U.S. food systems. Their results indicated that gender, age, education, and religion had positive and statistically significant effects on consumers' willingness to pay more for organic foods. Female consumers, younger consumers, consumers with at least a college education, and those who had a religious affiliation were more likely to purchase organic foods compared to male consumers, middle-aged consumers, consumers with at most a two-year college education, and those with no religious affiliation.

Haghiri, Hobbs, & McNamara (2009) analyzed consumer preferences for organically grown fresh fruits and vegetables in Eastern New Brunswick, New Jersey. They reported that gender had a statistically significant but negative effect on consumers' willingness to pay for organically grown fresh fruits and vegetables. Females were less likely to pay a premium than males. However, age had a statistically significant and a positive impact on willingness to pay. Older consumers were willing to pay more for produce than younger consumers. Education and marital status did not have statistically significant effects on willingness to pay.

Lyford, et al. (2010) assessed the effects of consumer demographics and meat consumption preferences on willingness to pay for beef quality grades. The authors found that only age had a statistically significant and positive impact on willingness to pay. Older consumers were willing to pay more for quality meat compared to the younger consumers. Other factors, such as income, household size, occupation, and gender, did not have statistically significant effects on willingness to pay.

Jerop, Kosgey, Owuor, & Chelanga (2013) examined consumer willingness to pay for dairy goat milk in Siaya County, Kenya. Their results showed that education and age had

statistically significant and positive effects on consumers' willingness to pay more. Consumers with higher education were willing to pay more compared to those with lower education. Also, older consumers were willing to pay more compared to younger consumers. Gender and income had statistically significant but negative effects on consumers' willingness to pay more. Females were willing to pay more for goat milk relative to males. Consumers with lower incomes were willing to pay more for goat milk compared to those with higher incomes.

Tackie et al. (2015) analyzed the impact of socioeconomic factors and meat attributes on willingness to pay for locally or regionally produced livestock products in Alabama. Their findings revealed that household size had a negative and statistically significant effect on willingness to pay more for livestock products certified as locally or regionally produced. That is, the higher the household size, the less likely the willingness to pay more. Other factors, such as gender, age, and marital status had negative relationships with willingness to pay more but were not statistically significant. Race/ethnicity, education, and household income had positive relationships with willingness to pay more but were not statistically significant.

Alinda, Kavoi, & Mugisha (2016) evaluated consumer willingness to pay for quality beef in Kampala, Uganda. They reported that income had a statistically significant and positive effect on willingness to pay more for quality beef. Further, other factors, namely, household size, gender, education, and age did not have statistically significant effects on willingness to pay more for quality beef.

Tackie et al. (2017) investigated the impact of socioeconomic factors and meat attributes on willingness to pay for locally or regionally produced livestock products in Florida. The authors found that race/ethnicity and education had positive and statistically significant effects on willingness to pay more for livestock products certified as locally or regionally produced. The higher the educational level the higher the willingness to pay more. Also, it was surmised that if a respondent changes from Black to White, the higher the willingness to pay more. Other factors, such as household size, gender, and age had negative relationships with willingness to pay more but were not statistically significant. Household income and marital status had positive relationships with willingness to pay more but were not statistically significant.

Meat Attributes and Willingness to Pay

A number of studies have reported on meat attributes and willingness to pay. Some of these attributes are price, labeling, safety, certification, and place of origin. For instance, Becker, Benner, & Glitsch (2000) evaluated consumer perception of fresh meat quality in Germany. They reported that the price of meat was of less importance to the respondents in assessing the quality and safety of beef, pork, and chicken. In other words, consumers did not necessarily

assume that a higher price automatically meant higher quality. However, smell, tenderness, flavor, and juiciness were identified as the most important attributes in determining meat quality. Feuz & Umberger (2001) assessed consumer willingness to pay for flavor in beef steaks. They compared highly marbled USDA choice versus low marbled USDA select beef, and U.S. corn-fed beef versus Argentine grass-fed beef. The results showed that consumers were willing to pay a slightly higher price for the more marbled choice beef over the less marbled select beef. Also, results from the domestic corn-fed beef and the Argentine grass-fed beef comparison showed that, on average, consumers were willing to pay more for the U.S. corn-fed beef relative to the Argentine grass-fed beef. There were no statistically significant differences found between consumers who preferred choice beef over select beef, and those who preferred corn-fed beef over grass-fed beef.

Sanders, Moon, & Kuethe (2007) analyzed consumer willingness to pay for fresh pork attributes. The authors found that 57% of the respondents were willing to pay for tenderness; 50% were willing to pay for juiciness; 57% were willing to pay for leanness; 26% were willing to pay a premium for marbling, and 31% were not willing to pay a premium for any single attribute. Consumers who had past experience with purchasing premium meat were more likely to pay a premium for quality-enhanced fresh pork products, and the size of their premium was greater than those who did not have any experience with purchasing premium meat products. Health concern was positively and significantly linked to consumers' willingness to pay more only for the attribute of leanness.

Liu, Nelson, & Styles (2013) assessed the demand for goat meat in the U.S. meat market. The results indicated that price, safety, and lower fat content had positive and statistically significant effects on willingness to pay more for goat meat. They surmised that the relatively better safety assurance and lower fat content labeling enticed consumers and they were willing to pay more for these attributes.

Berges, Casellas, Rodríguez, & Errea (2015) evaluated willingness to pay for quality attributes of fresh beef implications on retail marketing. They found that 34% of the respondents trusted in the brand name; 32% trusted in the place of purchase, while 18% trusted in the quality labels on the products. They also found that consumers were willing to pay a premium of $ 4.48, on average, for a hygiene certification of the place of purchase, especially in cases where the retailed beef products were sold unbranded. Price, color, mode of retail, and meat certification had statistically significant and positive effects on consumers' willingness to pay more.

Owusu-Sekyere (2015) assessed consumers' perception, preferences and willingness to pay for safety and quality attributes of beef in some selected formal meat markets in the Kumasi metropolis and Sunyani municipality of Ghana. The author reported that respondents relied on

product attributes such as brand name (68%), appearance/color (83%), product odor or smell (84%), inspection and certification (74%), origin (58%), and shopping place (52%) to make decisions. The results also indicated that attributes such as freshness as well as inspection and certification had statistically significant and positive effects on consumer willingness to pay more. However, safety had a statistically significant but a negative effect on consumer willingness to pay more.

Tackie et al. (2015) examined the impact of socioeconomic factors and meat attributes on willingness to pay for locally or regionally produced livestock products in Alabama. They found that 24% of the respondents were not willing to pay more per pound of beef or goat meat certified as locally or regionally produced; however, 47% were willing to pay 1-5 cents more per pound, and 12% were willing to pay 6-10 cents more per pound. Furthermore, at least, 67% agreed or strongly agreed with statements on meat attributes such as safety, availability, affordability, quality, and desirability. For a couple of attributes, namely, “no difference in safety” and “hygiene”, the percentages were lower, respectively, 40 and 47%. They also found that “safety” had a positive and statistically significant effect on the willingness to pay more for beef or goat meat certified as locally or regionally produced. However, “no difference in safety” and “hygiene” had statistically significant and negative effects on the willingness to pay more for beef or goat meat certified as locally or regionally produced.

Alinda, Kavoi, & Mugisha (2016) analyzed consumer willingness to pay for quality beef in Kampala, Uganda. Their findings showed that 42% were willing to pay more for bone content; 52% were willing to pay more for fat content, and 47% were willing to pay more for meat color and juiciness. The findings also showed that bone content and meat color and juiciness had statistically significant and negative effects on consumers’ willingness to pay more for quality beef. However, fat content had a statistically significant and positive effect on consumers’ willingness to pay more for quality beef.

Tackie et al. (2017) investigated the impact of socioeconomic factors and meat attributes on willingness to pay for locally or regionally produced livestock products in Florida. The authors reported that 13% of the respondents were not willing to pay more per pound for beef or goat meat certified as locally or regionally produced; despite this, 20% were willing to pay 1-5 cents more per pound; 30% were willing to pay 6-10 cents more per pound, and 24% were willing to pay 11-15 cents more per pound. Moreover, at least, 61% agreed or strongly agreed with statements on meat attributes such as safety, availability, affordability, quality, and desirability. Here again two of the attributes, specifically, “no difference in safety” and “hygiene” had lower percentages, respectively, 21 and 32%. The results also showed that “safety” and “availability” had positive and statistically significant effects on willingness to pay more for beef and goat

meat certified as locally or regionally produced. However, “no difference in safety” and “hygiene” had negative and statistically significant effects on the willingness to pay more for beef or goat meat certified as locally or regionally produced.

METHODOLOGY

For this descriptive research, the researchers developed a questionnaire, including some questions adopted with permission, from Govindasamy, Italia, & Rabin (1998). It had two main sections, attitudes and beliefs, and demographic information. It was submitted to the Institutional Review Board of the Institution for approval before being administered. The sampling method used was convenience sampling. The reason for this choice was that there was not an available sampling frame from which the subjects could be drawn. Therefore, it was the most feasible choice considering the available time and other resources.

The data were collected using self-administration techniques, and the respondents were from several counties of Georgia; specifically, Barrow, Bartow, Butts, Cherokee, Clarke, Clayton, Cobb, Coweta, Dekalb, Elbert, Fayette, Forsyth, Fulton, Gwinnett, Hall, Henry, Jackson, Lincoln, Morgan, Newton, Oconee, Oglethorpe, Pickens, Rockdale, Spalding, Walton (northern Georgia); Baldwin, Bibb, Bleckley, Bryan, Burke, Chattahoochee, Crawford, Dodge, Dooley, Effingham, Emanuel, Harris, Houston, Jefferson, Laurens, Macon, Marion, Monroe, Muscogee, Peach, Pike, Screven, Sumter, Tattnall, Taylor, Troup, Upson, Wilcox (central Georgia); Appling, Brooks, Calhoun, Clay, Coffee, Colquitt, Dougherty, Glynn, Jeff Davis, Lanier, Lee, Lowndes, Mitchell, Pierce, Randolph, Terrell, Turner, Ware, and Worth (southern Georgia). Although Extension agents and other technical personnel in the various counties of Georgia assisted in collecting the data, graduate students and other technical personnel from Alabama assisted tremendously in collecting the bulk of the data at the Georgia National Fair, which occurs in Perry, Georgia, once a year. The data were collected in the summer of 2013 through the spring of 2015, from a sample of 384 respondents. The sample size was considered adequate for the study. The Cronbach’s alpha was 0.63, which is relatively good (Goforth, 2015).

The data were analyzed using descriptive statistics and ordinal logistic regression analysis. The regression model was based on a modified version of the one used by Banterle & Cavaliere (2009), and is stated as:

$$C_j(X_i) = \ln[P(Y>j|X_i)/P(Y\leq j|X_i)] = \beta_1 X_{i1} + \ldots + \beta_n X_{in} - \tau_j + 1 \quad (1)$$

Where:

$C_j(X_i)$ = cumulative odds of being at or below category j of an ordinal variable with k categories, $1 \leq j \leq k-1$

i = number of participants considered

j = score for a category

Y = dependent variable

n = number of independent variables

X_i = independent variables

β_i = coefficients

τ = cut points between categories

There were two models used, similar to Tackie et al. (2015) and Tackie et al. (2017). The estimation model for Model 1, focusing on socioeconomic factors, is stated as:

$$\ln (P\text{WTP}>j/P\text{WTP}\leq j) = \beta_1\text{HHS} + \beta_2\text{GEN} + \beta_3\text{RAE} + \beta_4\text{AGE} + \beta_5\text{EDU} + \beta_6\text{HHI} + \beta_7\text{MAS} - \tau + 1 \quad (2)$$

Where:

ln (*P*WTP>j/*P*WTP≤j) = cumulative odds of being at or below a willingness to pay (WTP) category

HHS = Household size

GEN = Gender

RAE = Race/ethnicity

AGE = Age

EDU = Education

HHI = Household income

MAS = Marital status

Therefore, the estimation model hypothesizes that the willingness to pay more for beef or goat meat certified as locally or regionally produced is influenced by household size, gender, race/ethnicity, age, education, household income, and marital status. It was assumed that the expected signs of the independent variables were not known a priori (i.e., signs could be positive or negative). The details of the independent variable names and descriptions used for Model 1 are shown in Appendix Table 1.

An identical model, Model 2, was set up for meat attributes as follows:

$$\ln (P\text{WTP}>j/P\text{WTP}\leq j) = \beta_1\text{SAF} + \beta_2\text{NDI} + \beta_3\text{AVA} + \beta_4\text{AFF} + \beta_5\text{QUA} + \beta_6\text{DES} + \beta_7\text{HYG} - \tau + 1 \quad (3)$$

Where:

ln (*P*WTP>j/*P*WTP≤j) = cumulative odds of being at or below a willingness to pay (WTP) category.

SAF = Safety
NDI = No Difference in safety
AVA = Availability
AFF = Affordability
QUA = Quality
DES = Desirability
HYG = Hygiene

This estimation model hypothesizes that willingness to pay more for beef or goat meat certified as locally or regionally produced is influenced by the perception of being safe to consume, no difference between the safety of locally or regionally produced product and non-locally or regionally produced product, availability of product, affordability of product, quality (taste and texture) of product, desirability (appearance and smell) of product, and hygiene of product. Again, it was assumed that the expected signs of the independent variables were not known a priori. The details of the independent variable names and descriptions used for Model 2 are shown in Appendix Table 2. The details of the descriptions for the dependent variable categories, willingness to pay more for beef or goat meat certified as locally or regionally produced are summarized in Appendix Table 3. The ordinal logistic regression analysis was run for the models, using SPS 12.0© (MapInfo Corporation, Troy, NY). The criteria used to assess the model were the model chi-square, beta coefficients, and *p* values.

RESULTS AND DISCUSSION

Table 1 shows the socioeconomic factors of the respondents and the responses to willingness to pay. About 58% had 1-3 persons in their households and 28% had 4-6 persons in their households. The mean household size was 3 (not shown in Table). About 63% of the respondents were females and 37% were males; 46% were Blacks and 48% were Whites. Moreover, 50% were 44 years or younger and 50% were older than 44 years of age; 62% had at most a two-year/technical degree or some college education, and 39% had a college degree. Also, 29% earned $30,000 or less as annual household income; 61% earned over $30,000 as annual household income (including 29% of the latter who earned at least $60,000); 41% were singles and 57% were married. The respondents comprised more females than males, slightly more Whites and Blacks, about equal proportions of middle-aged or older persons and younger persons, with relatively moderate educational levels, with moderate household incomes, and more married persons than singles. These socioeconomic factors differ from those obtained by Tackie et al. (2015) for Alabama, except for household size where 1-3 person household sizes

dominated. Also, compared to Tackie et al. (2017), the Florida study, the socioeconomic factor trends are identical in four variables, household size, gender, race/ethnicity, and marital status, but differ in the others. About 20% were not willing to pay more for beef or goat meat certified as locally or regionally produced; 27% were willing to pay 1-5 cents more; 17% were willing to pay 6-10 cents more, and 12% were willing to pay 11-15 cents more. Furthermore, the willingness to pay more is more evenly spread over the 1-5, 6-10, and 11-15-cent groups compared to the Tackie et al. (2015) results for Alabama, where the pattern was more skewed toward the1-5 and 6-10-cent groups. However, compared to the Tackie et al. (2017) results for Florida, the Georgia trend is identical; that is, the Florida results are also more evenly spread over the 1-5, 6-10, and 11-15-cent groups.

Table 1. Socioeconomic Characteristics (N = 384)

Variable	Frequency	Percent
Household Size		
1-3	224	58.3
4-6	109	28.4
7-9	4	1.0
10 or more	3	0.8
No Response	44	11.5
Gender		
Male	141	36.7
Female	241	62.8
No Response	2	0.5
Race/Ethnicity		
Black	175	45.6
White	186	48.4
Other	19	4.9
No response	4	1.0
Age		
20-24 years	69	18.0
25-34 years	54	14.1
35-44 years	68	17.7
45-54 years	79	20.6
55-64 years	84	21.9

65 years or older	27	7.0	Table 1…
No Response	3	0.8	
Educational Level			
High School Graduate or Below	68	17.7	
Two-Year/Technical Degree	56	14.6	
Some College	107	27.9	
College Degree	87	22.7	
Post-Graduate/Professional Degree	63	16.4	
No Response	3	0.8	
Annual Household Income			
$10,000 or less	40	10.4	
$10,001-20,000	30	7.8	
$20,001-30,000	43	11.2	
$30,001-40,000	31	8.1	
$40,001-50,000	45	11.7	
$50,001-60,000	38	9.9	
$60,001-70,000	49	12.8	
Over $70,000	69	18.0	
No Response	39	10.2	
Marital Status			
Single, never married	102	26.6	
Married	220	57.3	
Separated	3	0.8	
Divorced	33	8.6	
Widowed	18	4.7	
No Response	8	2.1	
Willingness to Pay More			
No	78	20.3	
Yes, between 1 and 5 cents more	104	27.1	
Yes, between 6 and 10 cents more	65	16.9	
Yes, between 11 and 15 cents more	46	12.0	
Yes, between 16 and 20 cents more	21	5.5	
Yes, over 20 cents more	47	2.2	
No Response	23	6.0	

Table 2 depicts attitudes and beliefs about selected attributes of locally or regionally produced beef or goat meat. Nearly 66% agreed or strongly agreed that locally or regionally produced beef or goat meat is generally safe to consume (safety); 26% agreed or strongly agreed that there is no difference between the safety of locally or regionally produced beef or goat meat and non-locally or regionally produced beef or goat meat (no difference in safety); 77% agreed or strongly agreed that they would buy locally or regionally produced beef or goat meat if it were more readily available (availability); 69% agreed or strongly agreed that they would buy locally or regionally produced beef or goat meat if it were cheaper (affordability).

Moreover, about 71% agreed or strongly agreed that they would buy locally or regionally produced beef or goat meat if it were of equal quality [taste and appearance] as non-locally or regionally produced beef or goat meat (quality); 69% agreed or strongly agreed that they would buy locally or regionally produced beef or goat meat if it were of equal desirability [appearance and smell] as non-locally or regionally produced beef or goat meat (desirability); 32% agreed or strongly agreed that they would buy locally or regionally produced beef or goat meat not worrying about how it was raised if it appeared hygienic and wholesome (hygiene).

Both the no difference in safety attribute and hygiene attribute reflected less than 33% agreed or strongly agreed, indicating either a strong “neutral factor” or a tilt toward disagreed/strongly disagreed, implying that either respondents were not sure or they simply disagreed with the questions on the two attributes. In addition, the pattern of these findings are in agreement with Tackie et al. (2015) for Alabama and Tackie et al. (2017) for Florida, where they found higher percentages for agree or strongly agree for all meat attributes, except for the no difference in safety and hygiene attributes. Also, similar to this study, Sanders et al. (2007), Berges et al. (2015), and Owusu-Sekyere (2015) reported that consumers were concerned about the safety of meat products.

Table 2. Attitudes and Beliefs about Selected Attributes of Locally or Regionally Produced Beef or Goat Meat (N = 384)

Variable	Frequency	Percent
Locally or Regionally Produced Beef or Goat Meat is Generally Safe to Consume		
Strongly Agree	67	17.4
Agree	186	48.4

Neutral	109	28.4	Table 2…
Disagree	14	3.6	
Strongly Disagree	4	1.0	
No Response	4	1.0	
No Difference between Safety of Locally or Regionally Produced Beef or Goat Meat and Non-Locally or Regionally Produced Beef or Goat Meat			
Strongly Agree	26	6.8	
Agree	74	19.3	
Neutral	123	32.0	
Disagree	130	33.9	
Strongly Disagree	27	7.0	
No Response	4	1.0	
Would Buy Locally or Regionally Produced Beef or Goat Meat if More Readily Available			
Strongly Agree	92	24.0	
Agree	205	53.4	
Neutral	64	16.7	
Disagree	12	3.1	
Strongly Disagree	8	2.1	
No Response	3	0.8	
Would Buy Locally or Regionally Produced Beef or Goat Meat if Cheaper			
Strongly Agree	97	25.3	
Agree	168	43.8	
Neutral	95	24.7	
Disagree	17	4.4	
Strongly Disagree	4	1.0	
No Response	3	0.8	
Would Buy Locally or Regionally Produced Beef or Goat Meat if of Equal Quality as Non-Locally or Regionally Produced Beef or Goat Meat			

Strongly Agree	91	23.7	Table 2…
Agree	184	47.9	
Neutral	81	21.1	
Disagree	18	3.9	
Strongly Disagree	15	1.8	
No Response	6	1.6	
Would Buy Locally or Regionally Produced Beef or Goat Meat if of Equal Desirability as Non-Locally or Regionally Produced Beef or Goat Meat			
Strongly Agree	84	21.9	
Agree	179	46.6	
Neutral	93	24.2	
Disagree	14	3.6	
Strongly Disagree	10	2.6	
No Response	4	1.0	
Would Buy Locally or Regionally Produced Beef or Goat Meat not Worrying about how Raised if it Appeared Hygienic or Wholesome			
Strongly Agree	39	10.2	
Agree	105	27.3	
Neutral	91	23.7	
Disagree	105	27.3	
Strongly Disagree	41	10.7	
No Response	3	0.8	

Table 3 presents estimates for Model 1, socioeconomic factors and their effects on willingness to pay more for beef or goat meat certified as locally or regionally produced. It reveals overall statistical significance of the model (p = 0.001), i.e., at least one or all of the socioeconomic variables jointly explain the dependent variable (willingness to pay more for beef or goat meat certified as locally or regionally produced, WTP). Willingness to pay more for beef or goat meat certified as locally or regionally produced is significantly affected by race/ethnicity, education, and household income, respectively, p = 0.031, p = 0.018, and p = 0.062. Therefore,

race/ethnicity, education, and household income contribute greatly to willingness to pay more for beef or goat meat certified as locally or regionally produced.

For race/ethnicity, a plausible explanation is that White respondents are more likely and willing to pay more for beef or goat meat certified as locally or regionally produced than Black respondents, because Whites generally have more financial resources than Blacks, and hence, willing to pay more. Also, the higher the educational level, the more likely the willingness to pay more for beef or goat meat certified as locally or regionally produced. Perhaps, those who have higher education prefer to support the local or regional meat products, all things equal, compared to those who have lower education. Furthermore, the higher the household income, the more likely the willingness to pay more for beef or goat meat certified as locally or regionally produced. Those who have higher incomes have more financial resources and may have the propensity to be willing to pay more for such a product. The results are similar to Tackie et al. (2017) for Florida in terms of race/ethnicity and education, where they found that race/ethnicity and education had statistically significant and positive effects on willingness to pay more for beef or goat meat certified as locally or regionally produced. However, the results are contrary to Tackie et al. (2015) for Alabama, where they found that household size had a statistically significant and negative effect on willingness to pay more for beef or goat meat certified as locally or regionally produced.

Table 3. Estimates for Socioeconomic Factors and their Effects on Willingness to Pay More for Beef or Goat Meat Certified as Locally or Regionally Produced

Variable	β	*P*
Household Size	-0.067	0.364
Gender	-0.258	0.253
Race/ethnicity	0.413**	0.031
Age	-0.115	0.148
Education	0.202**	0.018
Household Income	0.095*	0.062
Marital Status	0.110	0.345
Chi-square	23.788***	(*P* = 0.001)
Nagelkerke R^2	0.083	

**Significant at 5%; *Significant at 10%

Marital status was not statistically significant, but had a positive relationship with willingness to pay more. In addition, household size, gender, and age were not statistically significant, but had negative relationships with willingness to pay more. The coefficient for education, for example, implies that for one unit increase in the educational level, the expected ordered log odds increases by 0.20 moving from one category to the next higher category of willingness to pay more for beef or goat meat certified as locally or regionally produced. Similarly, for race/ethnicity, the coefficient means that one unit change (i.e., if a respondent changes from Black to White), the ordered log odds increases by 0.41 moving from one category to the next higher category of willingness to pay more for beef or goat meat certified as locally or regionally produced. In other words, an increase in education or a change of race/ethnicity (from Black to White) will cause an increase in the willingness to pay more in the said magnitude. Identical explanations apply to the other independent variables in Model 1.

Table 4 presents estimates for Model 2, meat attributes and their effects on willingness to pay more beef or goat meat certified as locally or regionally produced. It also reveals an overall statistical significance of the model (p = 0.000), i.e., at least one or all of the meat attributes jointly explain the dependent variable (willingness to pay more for beef or goat meat certified as locally or regionally produced, WTP). Willingness to pay more for beef or goat meat certified as locally or regionally produced is significantly affected by the perception of being safe to consume (safety); no difference between the safety of locally or regionally produced beef or goat meat and non-locally or regionally produced beef or goat meat (no difference in safety), availability, affordability, desirability, and hygiene, respectively, p = 0.002, p = 0.000, p = 0.076, p = 0.087, p = 0.001, and p = 0.033.

For safety, the stronger the perception that beef or goat meat certified as locally or regionally produced is safe to consume, the more the willingness to pay more for it. Consumers generally want safe products; therefore, when the perception of safety is high, obviously, they will be more willing to pay more for the said product compared to an identical product. For no difference in safety, the stronger the perception that there is no difference in safety between beef or goat meat certified as locally or regionally produced and beef or goat meat non-locally or regionally produced, the less the willingness to pay more for the product. Here, the plausible argument is that if consumers perceive that two products are not identical in attributes, they would certainly want to pay more for the product whose attributes they prefer compared to the other, and vice versa.

Table 4. Estimates for Product Attributes and their Effects on Willingness to Pay More for Beef or Goat Meat Certified as Locally or Regionally Produced

Variable	β	*P*
Safety	0.431***	0.002
No Difference	-0.358***	0.000
Availability	0.262*	0.076
Affordability	-0.221*	0.087
Quality	-0.003	0.985
Desirability	0.531***	0.001
Hygiene	-0.181**	0.033
Chi-square	59.597*** (*P* = 0.000)	
Nagelkerke R^2	0.160	

***Significant at 1%; **Significant at 5%; *Significant at 10%

Regarding availability, the stronger the perception that beef or goat meat certified as locally or regionally produced is readily available the more the willingness to pay more for it. The reason may be that respondents value highly the availability attribute, all things equal; and therefore, the willingness to pay more for it. Regarding affordability, the stronger the perception that beef or goat meat certified as locally or regionally produced is affordable the more the willingness to pay more for it. A possible explanation is that affordability is linked to price, and therefore its relationship clearly shows that if consumers perceive locally or regionally produced meats as not being affordable, then they would buy less of such meats.

Considering desirability (appearance and smell), the stronger the perception that beef or goat meat certified as locally or regionally produced is desirable the more the willingness to pay more for it. In this case, consumers generally will prefer a desirable product to a non-desirable product, so if they perceive locally or regionally produced beef or goat meat as desirable they will be willing to pay more for it. Considering hygiene, the stronger the perception that beef or goat meat certified as locally or regionally produced is hygienic and wholesome (hygiene), the less the willingness to pay more for it. This result may appear to be an anomaly; however, a close examination may go to the heart of consumer behavior. Most likely, the result may be due

to the fact that, consumers expect meat for sale to be hygienic and wholesome anyway so they do not expect to pay more for this attribute.

These findings are generally in agreement with Tackie et al. (2015) for Alabama. In their study, they also found that safety had a positive and statistically significant effect on willingness to pay more for beef and goat meat certified as locally or regionally produced. Whereas, they found no difference in safety and hygiene had negative and statistically significant effects on willingness to pay more for beef or goat meat certified as locally or regionally produced. Furthermore, the findings are similar to Tackie et al. (2017) for Florida. In this instance, they reported that safety, availability, and desirability had positive and statistically significant effects on willingness to pay more for beef and goat meat certified as locally or regionally produced. In a similar vein, they reported that no difference in safety, affordability, and hygiene had negative and statistically significant effects on willingness to pay more for beef and goat meat certified as locally or regionally produced.

Quality (taste and texture) of product was not statistically significant, but had a negative relationship with willingness to pay more. Here again, the coefficient for safety, for instance, means that if the perception of safety increases by one unit, the expected ordered log odds increases by 0.43 moving from one category to the next higher category of willingness to pay more for beef or goat meat certified as locally or regionally produced. Put it another way, an increase in the perception of safety will cause an increase in the willingness to pay more by the aforementioned magnitude. Similar interpretations apply to the other independent variables in Model 2.

CONCLUSION

The study assessed the impact of socioeconomic factors and meat attributes on willingness to pay for locally or regionally produced livestock products in Georgia. Specifically, it identified and described socioeconomic factors; described and assessed meat attributes, and estimated the extent to which socioeconomic factors and meat attributes affected the willingness to pay more for locally or regionally produced meat products. The socioeconomic factors comprised more females than males, slightly more Whites and Blacks, about equal proportions of middle-aged or older persons and younger persons, with relatively moderate educational levels, with moderate household incomes, and more married persons than singles.

Also, 44% were willing to pay 1-10 cents more for beef or goat meat certified as locally or regionally produced. Additionally, a majority, at least 66%, agreed or strongly agreed with the perceptions on selected meat attributes, except in the cases of the no difference in safety and hygiene attributes. The regression results revealed that, regarding the socioeconomic factors,

race/ethnicity, education, and household income had statistically significant effects on the willingness to pay more for beef or goat meat certified as locally or regionally produced. Regarding, the meat attributes, safety (safe to consume), no difference in safety, availability, affordability, desirability, and hygiene had statistically significant effects on the willingness to pay more for beef or goat meat certified as locally or regionally produced.

Based on the above findings and taking into consideration that the willingness to pay more for beef or goat meat certified as produced locally or regionally may be ideal, three of the seven socioeconomic factors, namely, race/ethnicity, education, and household income had statistically significant impacts on willingness to pay more. Also, six out of seven meat attributes, specifically, safety, no difference in safety, availability, affordability, desirability, and hygiene, had statistically significant impacts on willingness to pay more. Consequently, the study has provided important information as to how socioeconomic factors and meat attributes influence willingness to pay more for beef or goat meat certified as locally or regionally produced. The major contributions are the indication that race/ethnicity, education, household income, safety (safe to consume), no difference in safety (between locally or regionally produced beef or goat meat and non-locally or regionally produced beef or goat meat), availability, affordability, desirability, and hygiene influence the willingness to pay more for beef or goat meat certified as locally or regionally produced. The broad implications for this study are that socioeconomic factors and meat attributes do matter, and they should be considered in the research on the consumption of locally or regionally produced livestock products and willingness to pay more for "specialized meats." It may be useful for producers and marketers to also consider them in their operations. Although the findings of this study are in line with Tackie et al. (2017) for Florida and to an extent Tackie et al. (2015) for Alabama, future studies (e.g., broadening the geographical area) are suggested to affirm further the results of the study.

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APPENDICES

Table 1. Variable Definitions and Description of Data for Model One

Variable	Description	Mean	Standard Deviation
Household Size	1-6	3.06	1.73
Gender	1 = male	0.37	0.48
	0 = female		
Race/ethnicity	1 = Black	1.59	0.59
	2 = White		
	3 = other		
Age	1 = 20-24	3.36	1.57
	2 = 25-34		
	3 = 35-44		
	4 = 45-54		
	5 = 55-64		
	6 = 65 or above		
Education	1 = high school or less	3.06	1.32
	2 = two-year/technical		
	3 = some college		
	4 = college degree		
	5 = post-graduate/professional		
Household income	1 = $10,000 or less	4.93	2.39
	2 = $10,001-20,000		

	3 = $20,001-30,000		
	4 = $30,001-40,000		
	5 = $40,001-50,000		
	6 = $50,001-60,000		
	7 = $60,001-70,000		
	8 = more than $70,000		
Marital status	1 = single, never married	2.08	1.07
	2 = married		
	3 = separated		
	4 = divorced		
	5 = widowed		

Table 2. Variable Definitions and Description of Data for Model Two

Variable	Description	Mean	Standard Deviation
Safety	0 = strongly disagree	2.78	0.81
	1 = disagree		
	2 = neutral		
	3 = agree		
	4 = strongly agree		
No Difference	0 = strongly disagree	1.85	1.04
	1 = disagree		
	2 = neutral		
	3 = agree		
	4 = strongly agree		
Availability	0 = strongly disagree	2.95	0.85
	1 = disagree		
	2 = neutral		
	3 = agree		
	4 = strongly agree		
Affordability	0 = strongly disagree	2.88	0.88
	1 = disagree		
	2 = neutral		

	3 = agree		
	4 = strongly agree		
Quality	0 = strongly disagree	2.89	0.88
	1 = disagree		
	2 = neutral		
	3 = agree		
	4 = strongly agree		
Desirability	0 = strongly disagree	2.82	0.91
	1 = disagree		
	2 = neutral		
	3 = agree		
	4 = strongly agree		
Hygiene	0 = strongly disagree	1.99	1.18
	1 = disagree		
	2 = neutral		
	3 = agree		
	4 = strongly agree		

Table 3. Variable Definition and Description of Willingness to Pay Categories

Variable	Description	Mean	Standard Deviation
Willingness to Pay	0 = no	1.91	1.64
1 = 1-5 cents			
	2 = 6-10 cents		
	3 = 11-15 cents		
	4 = 16-20 cents		
	5 = more than 20 cents		