Factors Influencing Potential Demand for Goat Meat in Georgia

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Abstract

Growth in U.S. ethnic populations and a desire for healthy diets are driving demand for goat meat. Inventory of meat goats in Georgia has increased in recent years. A consumer survey was conducted in Georgia to determine potential driving factors determining the future outlook of goat meat demand in Georgia. About 56% of participants who had never tasted goat meat before expressed willingness to try it if grocery stores in their area gave out goat meat samples. A binary logit model was used to examine the demographic factors that impact consumers' willingness. Result shows that consumers' education, gender, and household size significantly affect willingness to consume goat meat.

Keywords: goat meat, marketing strategies, potential market, substantial demand

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Introduction

Growth in U.S. ethnic populations and a desire for healthy diets are driving U.S. demand for goat meat. U.S. imports of sheep or goat meat increased by 12%—from $258.8 million to $290.7 million—over the first four months of 2016 compared to the same period in 2015 (World City Trade Numbers, 2016; U.S. Bureau of the Census, 2010). In addition, U.S consumers are prepared to pay a large premium for domestically produced fresh meat over the frozen imported product (Johnson, 2016). According to the USDA Food Composition Databases (2016), goat meat is a lean meat with more favorable nutritional qualities than chicken, beef, lamb, or pork. Goat meat is a good match for consumers' demands for leaner and more nutritious meat (Webb, Casey, and Simela, 2005).

Raising meat goats is an affordable livestock enterprise (Solaiman, 2007). Because of the U.S. commercial agriculture system, goat meat is a new commodity to American consumers (Simon 2013), and goats are new enterprises for American producers, which has resulted in an undeveloped market structure and infrastructure currently available to goat producers compared to cattle, poultry, and swine producers. Even though meat goat marketing is highly unstructured in the United States, goat meat prices are generally higher than other red meat-producing species (Glimp, 1995). Studies have also indicated that there is an emerging demand for goat meat as a gourmet item, Several studies have mentioned that goat meat has previously mostly consumed by people with ethnic ties to Latin America, the Middle East, Asia, and the Caribbean (Luginbuhl, 2007). Today, a larger portion of general population is being introduced to the tasty and healthy product (McLean-Meyinsse, 2003).

The number of meat goats and other goat inventory in Georgia have increased from 65,100 heads in 2012 to 72,000 heads in 2016; in 2016 Georgia has the fifth largest goat inventory among U.S. states (U.S. Department of Agriculture, 2012, 2016). According to World City Trade Numbers (2016), $283,031 worth of fresh, chilled, or frozen sheep and goat meat were shipped through the Atlanta/Savannah customs district through April 2016. However, very few studies have focused on Georgia's goat meat market. The purpose of this paper is to determine potential driving factors to assess the future outlook of meat goat demand in Georgia using a logit model to explore marketing opportunities regarding potential meat goat consumers in Georgia.

Data and Empirical Model

The data used in this study are from a random-sample telephone consumer survey conducted through the Survey Research Center of the University of Georgia in 2012. More than 593 Georgia residents age 18 and older were interviewed. To identify current goat meat consumers, respondents were asked whether they or their family members had ever tasted or eaten goat meat. About 15% had tasted goat meat and about 85% had not. Those who had never eaten goat meat were further asked, "What are your reasons for not eating goat meat?"

Answers included no particular reason, no desire for goat meat, or that they did not find it appealing. Some answered that they had never thought about eating it, and some thought of goats as pets. We also observed a considerable interest expressed from buyers or end consumers about

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goat meat. For about 24% of those who had not eaten goat meat, the reason was closely related to unavailability: "not readily available," "It is not available in the stores or local market," "not marketed very well," or "never had seen in supermarkets." About 16% of respondents indicated that they had never had a chance to taste goat meat: "never had opportunity," "I have not been introduced to it," "never had the chance," or "never had it before." Very few answered that it was expensive or that they had no reason.

In an effort to raise an awareness about goat meat consumption and its nutritional knowledge/taste, individuals who never tasted or eaten goat meat before were further asked, "Suppose your area grocery store is giving out goat meat samples. Would you be willing to try it?" Out of the total 487 respondents who never tasted goat meat before, 56% expressed willingness to consume goat meat and 44% did not want to try, even if their area grocery stores gave away samples. The willing consumers can be considered as potential goat meat consumers in Georgia. This paper determines the demographic and socioeconomic variables that may affect potential goat meat consumers in Georgia or consumers' willingness to consume goat meat.

Demographic and socioeconomic factors such as gender, age, race, marital status, education, and household size were considered as the potential factors that could influence willingness to consume goat meat in Georgia. Table 1 shows the variable definitions and descriptive statistics. Additional explanations for the independent variables of interest follow.

Table 1. Variable Definition and Percentage for Those Who Had Never Tasted Goat Meat.

Variable	Description	Percent
DEPENDENT	Suppose your area grocery store is giving out goat meat samples. Would you be willing to try it? Yes (273) No	 56.06 43.94
HSHOLD	Number of people in the household	
MALE	Gender: 1= if respondent is a male; 0 otherwise	30.29
AGE	Age of consumer: 1= if respondents age is 35 or more years; 0 otherwise	78.58
EDU	Highest level of education	
1	Less than high school	5.33
2	High school diploma	21.31
3	Associate/ Technical degree/ some college	28.42
4	College Graduate	26.29
5	Post Graduate	18.65
MARRIED	Marital status: 1= if respondent is married; 0 otherwise	58.32
BLACK	Race: 1= if respondent is black; 0 otherwise	67.97

Model

Logistic regression has applications in such diverse fields as epidemiology, medical research, banking, marketing research, and social research; one of its advantages is that model interpretation is possible through odd ratios, which are functions of model parameters (Stokes, Davis, and Koch, 2000). A binomial logit model was used to estimate willingness to consume

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goat meat and consumers' demographic and socioeconomic characteristics. The dependent variable is valued with the "yes' and "no" response to the question, "Suppose your area grocery store is giving out goat meat samples. Would you be willing to try it?"

The binomial model can be expressed as (Greene, 2013)

$$(1) \qquad\qquad y_i^* = \gamma' x_i + \varepsilon_i.$$

The random variable y_i^* takes two values, 1 and 0, with probabilities

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\begin{aligned}
\text{Prob}(y_{i=1|x_i}) &= \text{Prob}(y_i * > 0|x_i) \\
(2) \qquad &= \text{Prob}(\gamma' x_i + \varepsilon_i > 0) \\
&= \text{Prob}(\varepsilon_i > -\gamma' x_i).
\end{aligned}
$$

The model is completed by the specification of a particular probability distribution for ε_i. In terms of building an internally consistent model, we require that the probabilities be between 0 and 1 and that they increase when $\gamma' x_i$ increases. One of the dominant models in the literature on binary choices is the standard logistic distribution, $f(\varepsilon_i) = exp(\varepsilon_i)/[1 + \exp(\varepsilon_i)]^2$, which produces the logit model (Greene, 2013).

Results

SAS software version 9.4 was used to conduct the logit model to examine the demographic and socioeconomic factors that impact consumers' willingness to consume goat meat in Georgia. Due to missing values, only 422 observations were used in this model.

Respondents' education, gender, and household size significantly affected their willingness to consume goat meat (Table 2). The variables AGE, MARRIED, and BLACK are not significant.

Table 2. Consumers' Willingness to Consume Goat Meat.

Parameter	Estimate	Standard Error	t Value	Approx Pr > |t|	Mean Marginal Effect
INTERCEPT*	-1.0478	0.5517	-1.90	0.0575	--
HSHOLD**	0.1925	0.0787	2.44	0.0145	0.0449
MALE ***	0.7386	0.2367	3.12	0.0018	0.1725
AGE	0.0794	0.1346	0.59	0.5555	0.0185
EDU*	0.1236	0.0684	1.81	0.0707	0.0289
MARRIED	0.0880	0.1116	0.79	0.4304	0.0206
BLACK	-0.3350	0.2316	-1.45	0.1481	-0.0782

Notes: Single, double, and triple asterisks (*, **, ***) indicate significance at the 10%, 5%, and 1% level.

The EDU variable is positive and significant at the 10% level, meaning that individuals with higher levels of education are more likely to consume goat meat. The marginal effect of EDU explains that with each additional level of education, an individual will be 2.89% more likely to consume goat meat. Possibly, higher educated groups may be the types of consumers seeking

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specific health attributes that may increase potential demand for goat meat. The variable MALE was significant at the 1% level and the marginal effect explains that males are 17.25% more likely to consume goat meat than females.

Individuals with larger household size are more likely to eat goat meat. The mean marginal effect explains that with each additional member of a household will be 4.49% more likely to consume goat meat. Household size could represent a collective impact on food consumption patterns, as food requirements increase with the increase in household size.

Conclusions

The current value of goat meat imported to Georgia markets and the size of the goat inventory represent substantial demand for goat meat in Georgia. In the future, demand for goat meat may expand among potentially willing consumers. Multiple factors—such as education, family size, and gender—influence consumers' willingness to consume goat meat. From these results, marketing and promotional efforts must be directed toward males, higher educated populations, and larger households.

Taste could be a future avenue of study. Education regarding the nutrition of goat meat is needed to promote goat meat. Possibly, this is an informative study for the U.S goat meat producers about a potential market. Marketing strategies targeting consumers' exposure to this low-fat meat and availability of goat meat by direct sales to consumers may promote the market.

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