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Goat and Sheep Meat Market Segmentation: A Case from Florida

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Introduction

➤ Increase in popularity and demand for goat meat over the past few decades:

- *Change in eating behaviors:* Consumers become more health-conscious. This can be clearly seen through their decisions regarding meat products, which are mainly influenced by health characteristics, such as lower cholesterol levels, and lower saturated animal fats.
- *Cultural traditions and religious beliefs:* Recent immigration patterns are another factor driving higher demand for goat and lamb meat.

➤ Emerging goat and sheep meat industry in Florida

- *Production of goats raised for meat:* Florida is among the top 5 states in the southeast, and top 10 nationwide, that are involved in the production of goats raised for meat.

- *Cost effective production:* Compared to other farm animals, raising goats is relatively cheaper and requires less land, which means that farmers can raise more livestock and reap larger profits.



Objectives

- Examine market segments of goat and lamb consumers in Florida
- Understand consumers' preferences for goat meat
- Identify willingness to pay for key attributes

Data

- Survey of 1037 adult Floridians
- Attributes: price, locally produced, quality, organic certified, and USDA certified
- Socio-demographic information

Model

➤ Latent class analysis model

$$\ln L(\beta, \theta) = \sum_{n=1}^N \ln \sum_{c=1}^C \pi_{cN}(\theta) P_n(\beta_c)$$

➤ Random parameters logit model

$$U = \beta_0 + \beta_1(\text{price}) + \beta_2(\text{flfresh}) + \beta_3(\text{qualit}) + \beta_4(\text{organic}) + \beta_5(\text{goat}) + \beta_6(\text{neither})$$

Results

Table 1: Optimal number of latent classes

Classes	LLF	Nparam	AIC	CAIC	BIC
2	-4294	29	8647	8819	8790
3	-4027	51	8156	8459	8408
4	-3948	73	8044	8476	8405
5	-3901	95	7994	8558	8463
6	-3861	117	7957	8652	8535

Table 3: Willingness to pay space (Class 4 is reference class)

	Class 1	Class 2	Class 3
Male	-8.35***	-0.69**	-5.20**
Age 18-24	7.44**	0.58	7.20*
Age 45-64	8.02***	0.76**	4.15*
Age, over 65	43.55	5.31	43.07
African	-11.45***	-1.09***	-8.61***
Hispanic	-8.57***	-0.61***	-5.00**
Asian	2.49	-0.007	0.07
Other Race	5.77	0.55	5.00
Income Low	4.31**	0.65	4.60*
Income High	-2.19	-0.53*	-4.27*
Christian	-5.97	-0.47	-6.85
Muslim	46.58***	6.51	57.74***
Not Religious	-3.30	-0.27	-5.26
Health Important	-3.17	-0.38	-2.87
Health Moderately Important	-3.17	-0.35	-4.33
constant	12.12**	1.28	17.11*

Log likelihood =-3947.3102

1037 participants

*, **, *** statistically significant at 10%, 5% and 1% respectively

Table 2: Latent class model with 4 classes

	Class 1	Class 2	Class3	Class 4
Price	-0.58***	-4.39***	-0.51***	0.00
Fresh for FL	0.00	-2.91***	0.22***	-0.14*
Quality	0.88***	-1.48**	0.65***	7.55***
Organic	0.21*	0.67	-0.04	-3.76***
USDA	1.24***	2.08**	0.25***	-3.77***
None	-1.91**	-24.65	-3.29***	-17.37
Goat meat	-3.67***	-17.96***	0.16**	0.20*

Discussion

- Based on BIC result we did analysis with 4 latent classes
- From the results we conclude that in class 1 consumers prefer higher quality, organic and USDA certified attributes, and beef meat. In Class 2 consumers prefer USDA certified attribute, they have negative utility from fresh from Florida, and quality attribute. In Class 3 consumers prefer Fresh from Florida, high quality, USDA certified attributes of goat meat, this class prefer goat meat compared to beef. Finally, in Class 4 consumers are not sensitive to price, they are most sensitive to quality attribute among all classes.
- Our results indicate that consumers are not concerned about health in either of classes, consumers aged 18-24 and 45-64 compared to 25-44 in class 4 are willing to pay premium for goat meat, Muslim consumers are willing to pay premium of around 50 cents compare to white people in class 4.
- Our finding may help highlight market development strategies to promote this emerging enterprise in Florida and provide insights on targeted marketing tools for informational advertisements.

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