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Willingness-to-Pay for Halal and Branded Poultry in Northern Mozambique

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Cover Page Footnote

Alison Creasey is a May 2021 honors program graduate from the Department of Agricultural Education, Communications and Technology. Lawton Lanier Nalley, the faculty mentor, is a professor in the Department of Agricultural Economics and Agribusiness.

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Meet the Student-Author



Alison Creasey

I am a May 2021 graduate with a degree in Agricultural Education, Communications and Technology. I filled my time at the University of Arkansas with being active inside and out of the classroom. I was a member of Chi Omega, The Agricultural Communicators of Tomorrow, and served as an Associated Student Government agent. I also served as an office on the Bumpers Honors Student Board. I volunteered with Potter's House for two years and was active in the Fellowship Fayetteville college ministry. Along with leadership and service, I worked part-time for the university for two years in the Agricultural Education, Communications and Technology (AECT) department. As a communications specialist in the Experiential Learning Lab, I helped write departmental newsletters and created promotional materials for the Don Tyson Center for Agricultural Sciences. The AECT department has been a place of personal and professional growth over the course of my time as a student, and I am so thankful to have been able to call this department home. I want to extend my deepest gratitude to my honors mentor, Dr. Nalley, and my thesis committee members, Dr. Farmer and Dr. Miller. They all played such an integral role in shaping my college career, and I am so grateful for the mentorship and guidance they provided to me.



Alison Creasey with the marketing team and translator in Mozambique.

Research at a Glance

- Large-scale domestic poultry industries are relatively new in Mozambique; brand loyalty is a new concept that has not been empirically analyzed before in the literature.
- In communities like Nampula, branding could be a proxy for food safety concerns; in many low-income countries, commodities have no branding associated with them.
- Even in the poorest part of Mozambique, Muslims are willing to pay a premium for Halal-produced meat.

Willingness-to-Pay for Halal and Branded Poultry in Northern Mozambique

Alison Creasey and Lawton Lanier Nalley†*

Abstract

While price typically drives consumers' food-purchasing decisions in low-income countries, religious attributes associated with food production and corporate branding could influence buying patterns. In Mozambique, more than 46% of people were living below the poverty line of (\$0.31 USD) per day in 2018. That being said, in the Nampula Province (the location of this study), which is the second poorest province in the country, over 25% of the population is Muslim and may be willing-to-pay (WTP) a premium for Halal meat products to uphold Islamic beliefs. Like many parts of sub-Saharan Africa, poultry is the fastest-growing source of protein. Since large-scale domestic poultry industries are relatively new in Mozambique, brand loyalty is a new concept that has not been empirically analyzed before in the literature. In this study, we surveyed 312 consumers in Nampula, Mozambique, using a choice-based modeling approach to estimate if consumers were WTP for chicken that was slaughtered according to Halal laws and chicken which was branded by New Horizons (the largest chicken producer in Nampula). Results from the small sample in this study indicated that even in low-income countries like Mozambique, consumers are WTP a premium for branding. Specifically, Muslim consumers were WTP a premium for Halal-produced meat with branding. While non-Muslims did associate Halal poultry with being safer (69%) and of better quality (64%), but they were not found to be WTP a premium for these attributes.

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Introduction

Mozambique has consistently battled poverty and food insecurity since its independence from Portugal in 1975. Despite governmental efforts to combat food insecurity and stimulate economic growth, Mozambique has continued to rank among the lowest in the world for per-capita gross domestic product at \$1,300 (CIA, 2018). In holistic measurements of livelihoods, like the Human Development Index, Mozambique ranked 181 out of 188 countries in 2016 (UNDP, 2016).

While the availability of poultry in Northern Mozambique has been cited as one way to combat food insecurity, specifically pertaining to protein deficiencies (FAO, 2013), under Islamic law, 27% of Mozambique is estimated to be Muslim, meaning meat must be slaughtered in the Halal tradition, which can cause production constraints. While not a barrier to food security, Halal slaughtering could be seen as an impediment to achieving efficiency in food production.

According to the United Nations Food and Agricultural Organization (FAO), the definition of Halal foods is foods permitted under the Islamic Law and the following conditions: does not consist of or contain anything which is considered to be unlawful to Islamic Law; has not been prepared, processed, transported, or stored using any appliance or facility that was not free from anything unlawful according to Islamic Law; and has not in the course of preparation, processing, transportation, or storage been in contact with any food that fails to satisfy the previously stated conditions (FAO, 1997). When battling food insecurity and protein deficiencies, these rules could pose a high cost for non-Halal producing protein facilities to produce both Halal and non-Halal foods.

Branding for commodities, and specifically meat products, in open-air African markets is still in its infancy due to lack of copyright law, lack of labeling, lack of monitoring and enforcement, and lack of large-scale meat processors. The majority of rural Africans often find themselves searching for the cheapest food possible as the majority of their income goes to food purchases. This idea imposes an important question: are people willing to pay (WTP) for branded commodity products? Given that there is a lack of food safety enforcement in Mozambique, such as the Food and Drug Administration (FDA) in the United States, branded food could serve as a proxy for food safety, playing the role of educating consumers on where their food comes from and how it was made.

The objective of this study was first to determine if consumers (both Muslims and non-Muslims) are WTP a premium for Halal-produced chicken. In high-income countries where the majority of the household budget does not go to food purchases, the expectation is that Muslims

would be WTP a premium. In low-income countries where consumers are typically trying to minimize cost, this may not be the case. If it is found that non-Muslims are WTP a premium for Halal, it may signal to meat processors that Halal can proxy for food safety or quality. Second, this study attempted to determine if low-income consumers in Mozambique would be WTP a premium for a branded poultry product. As there is no FDA in Mozambique and very little food safety regulation, branding may again be a proxy for food safety. Given the recent growth of the poultry sector across Africa, processors must determine if it is worth investing in branding their product through marketing and slaughtering according to Halal rules. This study, while myopic to Northern Mozambique, provides a methodology that could be replicated across Africa to help answer these important questions regarding marketing on both brand and Halal production.

Materials and Methods

Over the course of two weeks in May of 2019, 312 people in Nampula, Mozambique, were surveyed on their buying preferences of whole frozen chickens. Questions were broken up into 12 possible buying options and labeling combinations. For each response, questions were randomized, so respondents were shown 6 different questions containing buying options. Information presented to survey participants included a control (with only a picture of a frozen chicken), a choice of chicken slaughtered in a Halal manner, and a choice of chicken produced by New Horizons (NH), which in this case was our branded option. Thus, participants had two information sets broken up into 4 possible combinations for purchasing a frozen chicken (halal only, NH only, halal and NH, and the control). Three different pricing options were associated with each of the four possible purchasing options above. These prices were chosen by current price averages of processed chicken at the time of the study. These prices were 165 Mozambican metical (MZN), 195 MZN, and 225 MZN for a 2-kg frozen chicken.

Figure 1 illustrates 3 of the possible 12 choices with which a consumer was presented. These choices were randomized such that each consumer was presented with a different choice set. Participants were shown three options at one time and asked to choose which one they preferred. While the three buying options were randomized between the 12 total options, participants were always given a “no buy” option to opt-out of choosing between the three options presented. Participants were shown a total of 6 choice sets (which included three buying options) before completion of the experiment.

The survey was offered in two languages: English and Portuguese. Along with six choice-based questions (Fig.

1), two questions were asked to obtain the respondents' demographic information: one regarding the respondents' age and one asking which religion the respondent identifies with (Christian, Muslim, or other). Frozen, processed chicken is most often sold as the whole bird, indicated by the image shown in the survey. The New Horizons logo used in the survey was provided by a representative of the company. The Halal logo shown in the survey is the official Halal logo for the Mozambique Muslim Commission.

After the choice-based experiment was completed, several questions were asked pertaining to buying habits of frozen poultry in Mozambique. The first question asked about which religion each participant practiced; this was asked to determine if the respondents' religion had an effect on their buying preferences, given that Muslims are only supposed to eat Halal meat. It was then asked if the respondent thinks that Halal meat is safer

than non-Halal meat. This question was asked because it was originally hypothesized that Halal meat could be a proxy for food safety for people even if they do not practice Islam. Respondents were then asked if they thought that Halal meat was of better quality than non-Halal meat. It was also hypothesized that Halal branding could serve as a proxy for higher quality meat for some people.

A random parameters logit (RPL) model was estimated using simulated maximum-likelihood techniques, where an individual's utility for a given poultry alternative is a function of the alternative's attributes and their price levels. The alternative specific constant (ASC) in the model is the "no buy option." In this case, mean utility parameters and their standard deviations are estimated for Price, "New Horizons Brand," "Halal," the interaction between "Halal" and a respondent being Muslim, and "No Buy." The interaction between Muslim and Halal was warranted given the possible compounding effect of the

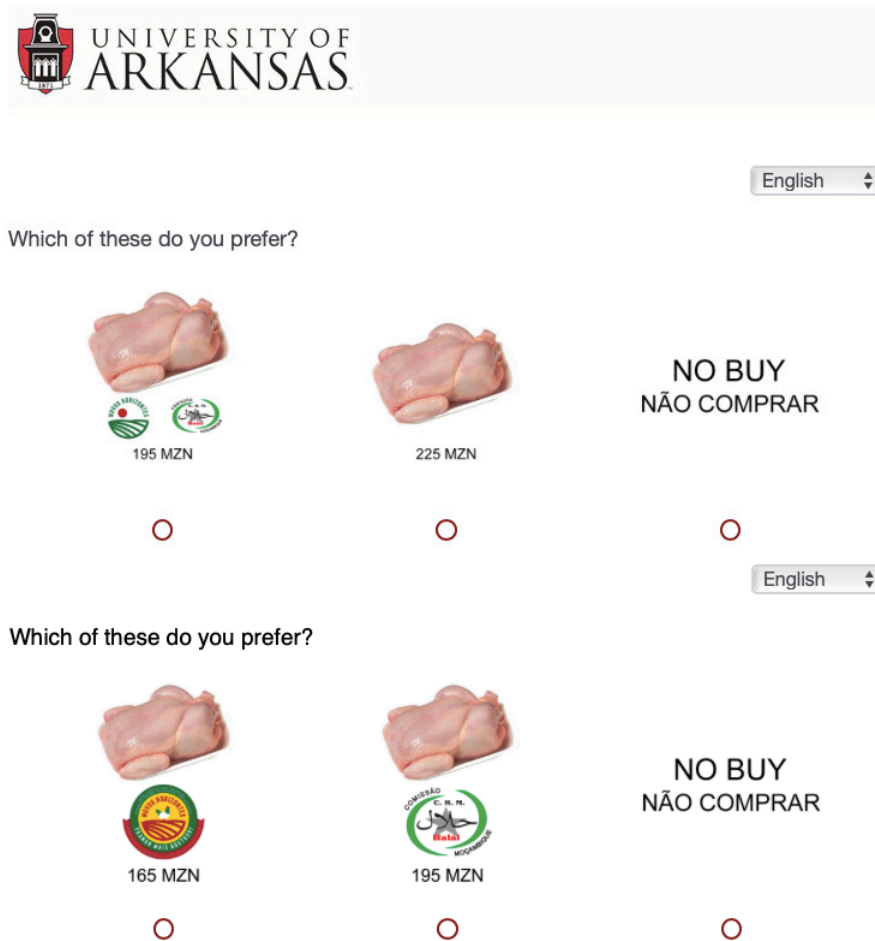


Fig. 1. Four product choices (halal only, branded halal, branded only, and non-branded) for 2-kg frozen chicken with 3 random pricing alternatives a producer could either opt to purchase or not in a repeated choice-based experiment with two information sets.

two independent variables. Marginal WTP values were then computed by dividing each mean parameter by the negative of the price coefficient.

Results and Discussion

Muslim respondents hold Halal meat in higher regard than non-Muslim respondents in relation to safety and quality (Table 1). Of all respondents, 69% thought that Halal meat was safer than non-Halal meat and 64% of all respondents thought that Halal meat was of better quality than non-Halal meat. When looking at the subsample by religion, not surprisingly, a greater percentage of Muslim participants thought that Halal meat was of better quality (85%) and was safer than non-Halal meat (92%). It should be noted that this experiment took place during the month of Ramadan, which could have biased these responses.

In the RPL Model (Table 2), importantly, the coefficient for Price was significant ($P < 0.001$) and negative as the theory predicts, which would imply that consumers were acting rationally and the law of demand holds. While this result seems intuitive, it is an important check to ensure that participants understood the survey, paid attention to the survey options, and comprehended alternative choice sets throughout the survey.

Marginal WTP (Table 2) indicates that people, on average, were WTP a premium of 40.51 MZN (\$0.55 USD) for the New Horizons Brand poultry ($P < 0.05$). This is 20.7% greater than the average price (195 MZN) of the 2-kg frozen chicken in the survey. This finding was significant as it suggests that at least in the frozen poultry market in Nampula, branding has an effect on WTP. While the drivers of this premium were outside the scope of this study, some assumptions can be drawn. First, New Horizons was a large employer in the Nampula region,

Table 1. Results of supplemental questions.

Questions	All respondents	Muslim respondents	Christian and other respondents
Do you usually buy live or processed chicken?			
Live	70.1%	77.0%	65.0%
Processed	29.3%	21.6%	35.0%
Prefer not to respond	0.6%	1.4%	0.0%
Do you think Halal meat is safer than non-Halal meat?			
Yes	69.0%	91.9%	52.0%
No	16.7%	4.1%	26.0%
Prefer not to respond	14.4%	4.1%	22.0%
Do you think Halal meat is of better quality than non-Halal meat?			
Yes	64.4%	85.1%	49.0%
No	21.3%	8.1%	31.0%
Prefer not to respond	14.4%	6.8%	20.0%
Do you work for New Horizons?			
Yes	9.8%	6.8%	12.0%
No	85.1%	90.5%	81.0%
Prefer not to respond	5.2%	2.7%	7.0%

which likely increased its name recognition. Second, New Horizons had billboards across Nampula advertising its products (something which is rare in Northern Mozambique), which also may familiarize participants with its product. While name recognition may have driven the WTP, there was still the likely possibility of hypothetical bias where participants may be WTP a premium for New Horizons but not 20.7% if faced with an actual transaction. With all of that being said, this result was important because it suggested that even poor consumers, who oftentimes maximize caloric intake on a tight budget constraint, put value into branding.

The mean WTP premium for Halal (Table 2) was not significantly different from zero ($P > 0.10$), indicating that, on average, participants were not WTP a premium for a Halal-produced chicken. However, when looking at the interaction between Muslim and Halal (a subsample of only those who identified as being Muslim), there was a positive and significant ($P < 0.10$) coefficient on the marginal WTP. This result indicated that Muslim participants in the study were WTP 37.10 MZN more for poultry produced in a Halal manner over a non-Halal manner. This would represent a 19% premium for Halal poultry. Like with the branding coefficient, some caution needs to be used when interpreting this. There was likely more hypothetical bias in this estimate, given its association with

“appropriate” religious behavior. Second, this survey was conducted during Ramadan, which likely influenced decision-making even more for Muslim participants.

These results would suggest two things. First, non-Muslims derive no utility from Halal-produced poultry in our study. One of the main hypotheses of this paper was to estimate if non-Muslims would be WTP for Halal as it could signal higher quality or safer food; this does not appear to be the case. Non-Muslims did associate Halal poultry with being safer (69%) and of better quality (64%), but they were not found to be WTP a premium for these attributes. Second, religious norms seemed to hold even in the face of poverty. It appeared that even in the poorest regions of one of the poorest countries of the world, Muslim consumers were WTP a premium to uphold their religious beliefs. These results are important as a large portion of Northern and coastal Mozambique is Muslim, and poultry production and consumption are growing nationwide. These results should not be used for exploitation (deriving the max WTP) but rather to show demand for a product.

Conclusions

Results from the small sample in this study indicated that even in low-income countries like Mozambique,

Table 2. Random parameter logit (RPL) model and respective marginal willing-to-pay (WTP) results.

Parameter	RPL	Marginal WTP
New Horizons Brand	0.506*** (0.109) ^a	40.51**
SD	0.759*** (0.166)	60.74**
Halal	-0.061 (0.143)	-4.86
SD	0.867*** (0.142)	69.37***
Halal x Muslim	0.464** (0.216)	37.10*
SD	0.055 (0.540)	4.40
ASC (No Buy)	-9.930*** (1.748)	-794.94***
SD	4.328*** (0.965)	346.45***
Price	-0.012*** (0.003)	-
SD	0.030*** (0.005)	-
Log L	-731.6	-
N ^b	1008	1008

^a Standard errors, given in parentheses, are needed to calculate the marginal effects.

^b N = 1008, given 312 respondents with responses to several information sets.

* Significant at the level $P < 0.1$.

** Significant at the level $P < 0.05$.

*** Significant at the level $P < 0.001$.

SD = standard deviation.

consumers are WTP a premium for branding. Specifically, Muslim consumers were WTP a premium for Halal-produced meat with branding. In communities like Nampula, branding could be a proxy for food safety concerns, given the lack of a food safety regulatory body. Companies could use Halal branding as a signal of safety and quality among meat products and could reach a market much larger than just Muslim consumers. This conclusion also proposes an ethical dilemma: whether companies should capitalize on the religious choices of consumers. Results indicate that producers could gain market share via labeling without necessarily having to raise the price of Halal poultry. Further, if there was a cost of production increase because of Halal production, this study provided empirical evidence of how much of that increased cost could be passed to consumers. Importantly, these results should not be used to exploit a religious belief but rather provide evidence that marketing towards a religious belief could increase market share.

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Literature Cited

- CIA Fact book, 2018. <https://www.cia.gov/the-world-fact-book/countries/mozambique/>
- FAO. 1997. Food and Agricultural Organization. General guidelines for use of the term "halal." Available at: <http://www.fao.org/3/Y2770E/y2770e08.htm>
- FAO. 2013. Poultry Sector Mozambique. United Nations Food and Agricultural Organization. FAO Animal Production and Health Livestock Country Reviews. No. 5. Rome.
- UNDP. 2016. United Nations Development Programme. <http://hdr.undp.org/en/content/human-development-index-hdi>