

Ithaca 2018 Abstract Submission

Title

Muscadine entrepreneurship: Will the grape sell the wine?

I want to submit an abstract for:

Conference Presentation

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Keywords

buy local, consumer behavior, fresh grape, health, ingredient branding, muscadine

Research Question

The authors explore if the purchase of muscadine wine is linked to consumption of the fruit itself or even familiarity with other muscadine-based products in terms of spillover effects.

Methods

A quota-based sample of screened consumer panel data from the US South was generated using Qualtrics® panel services. A total of 543 usable surveys were analyzed using SPSS®.

Results

Prior muscadine-derived product knowledge was a major driver for buying muscadine wine. Familiarity with fresh muscadine grapes and buy local attitudes were insignificant. Health and natural attributes were influence factors.

Abstract

INTRODUCTION AND BACKGROUND

Entrepreneurs growing muscadines sell the grape both as fresh fruit for consumption and as an ingredient in a variety of products. In the US South, e.g., North Carolina (NC), where the muscadine is an important native grape, both of these markets are actively pursued and form part of the state's economic development plan for the wine and grape industry (Boles et al., 2017). Like many derivative products, muscadine wine has the potential to be affected by consumer opinion and behavior towards its central ingredient, the muscadine grape.

The current study looks at the interplay between consumer experience with the grape itself as a fresh or table grape product and the decision to buy muscadine wine. Product knowledge and experience exercise important

roles in consumers' future decision making (Brucks, 1985). Product experience or familiarity involves a mix of usage behaviors including prior purchase or consumption activities (Chocarro, Cortiñas, and Elorz, 2009). Familiarity with a food item may make it appear less risky to consumers (Fischer and Frewer, 2009). Wine education teaches about specific ingredients and terroir to both distinguish wine products and to create a sense of familiarity and reduce negative attitudes (Taylor, 2009). Consumers with higher subjective wine knowledge show more self-reliance when making purchase choices (Chocarro and Cortiñas, 2013). We argue that experience with standalone product ingredients and familiarity with other derivatives using the same ingredients will have spillover effects on product purchase as well (Jacob, Boulbry, and Guéguen, 2003). Moreover, ingredient branding strategies promote product recognition through highlighting ingredients as a way to infer product quality and value (Keller, 2003; Vaidyanathan and Aggarwal, 2000). By increasing awareness of ingredients, suppliers seek to increase the net positive consumer experience with the product (Hariharan, Bezawada, and Talukdar, 2012). Thus, we test associations between familiarity with fresh muscadine table grapes, knowledge about muscadine derivative products (including wine) and muscadine wine buying, as well as other exploratory factors that might influence purchase (see Figure 1).

Figure 1 Model of muscadine wine purchase decision

The main hypotheses tested in this study are as follows:

- H1 Consumer subjective knowledge about muscadine wine is positively associated with buying muscadine wine.
- H2 Consumer familiarity with fresh muscadine table grapes is positively associated with buying muscadine wine.
- H3 Consumer knowledge of other derivative muscadine products, e.g., jams, juices, smoothies, sauces, and health/beauty products, is positively associated with buying muscadine wine.

METHODS

A sample of screened consumer panel data was generated through a third-party online survey service, Qualtrics®. Quota sampling was used to target six US southern states representing major markets for NC muscadine products. A total of 543 usable surveys were achieved for the present study. Multiple survey scales were included in the online survey instrument, covering consumer attitudes and behavior toward muscadine grapes. Topics covered included muscadine purchase and usage, and subjective product knowledge, and buying US/local products. SPSS was employed in subsequent analysis of three hypotheses. We also explore the importance of selected demographics and consumer attitude scales on health, natural food, and buying US and local products.

FINDINGS

Results in Table 1 show the sample to be predominantly female, spread out across age groups, with household income from 20,000 to 59,999 US dollars. Quotas were used to oversample NC consumers, with other states each averaging 12% of the sample. About 40 percent of respondents buy fresh muscadines and 43% buy muscadine wine with a significant association between these two purchase activities. Sixty percent of fresh muscadine buyers also buy muscadine wine compared to 31% of people who don't buy fresh muscadines, $X^2(1, N = 529) = 40.524$, $p < .001$. Further demographic analysis showed that only age associated significantly with muscadine wine purchase. For every age class except 65 and over, buyers and non-buyers were relatively even in numbers, whereas only a quarter of seniors buy muscadine wine, $X^2(5, N = 529) = 13.245$, $p < .05$.

Table 1 Demographic profile of respondents

In Table 2, we see the mean scale values for six consumer factors inspected during this study. Respondents have indicated moderate familiarity with fresh muscadines and slightly higher perceptions that muscadines are healthy and natural fruit. They also claim relatively low knowledge about muscadine wine or other muscadine-infused products and pay only moderate attention to their own personal health and buying US or local products. In subsequent analysis, these factors were used in trying to understand people's muscadine wine purchase behavior.

Table 2 Consumer attitude, belief, and experience scales

Forward logistic regression was conducted to see which of the factors in Table 2 would predict whether or not a respondent buys muscadine wine. Regression results show the overall model of four factors (knowledge of

muscadine wine, knowledge of other muscadine products, attention to health, and beliefs about healthiness of muscadines) was questionable (-2 Log Likelihood = 445.758) but was statistically reliable in distinguishing between buyers and non-buyers of muscadine wine, $X^2(3) = 275.750$, $p < .0001$. Nagelkerke's R^2 is 0.546 which indicates that the model is useful for predicting wine purchase.

Thus Hypothesis 1 and 3 were confirmed regarding the role of prior knowledge of muscadine wine and of other muscadine derivatives; no evidence was found for Hypothesis 2 on the impact of familiarity with fresh muscadines. The model correctly classified 80.00% of the cases. Regression coefficients are presented in Table 3. Wald statistics indicated that all variables significantly predict muscadine purchase. However, attention to personal health shows a negative association with buying muscadine wine since the odds ratio, $\text{Exp}(B) = .653$, is below 1.

Table 3 Regression coefficients for buying muscadine wine

CONCLUSION

We found several factors to be important in predicting if a consumer buys muscadine wine. Two factors, subjective wine knowledge and knowledge of other muscadine products, were aligned with theoretical expectations based on extant research on the role of product knowledge on purchase behavior. Two exploratory factors were also involved in the final model. Beliefs about the healthiness and naturalness of muscadines were positively associated with buying the wine whereas personal attention to health was negatively associated with purchase. Given that muscadine wine is considered to be a very sweet beverage, often with added sugar to accommodate consumers, it makes sense that people who greatly prize their health might be less incentivized to purchase muscadine wine. Beliefs about muscadines being either healthy or natural products (organic, pesticide-free) did correlate positively with buying muscadine wine.

Findings did not, however, identify a significant role for either familiarity with the muscadine fruit itself nor with a person's attention to buying US or local products. Regarding the former variable, this is not necessarily a bad thing due to the fact that some aspects of the fresh muscadine grape have caused issues for consumers, namely having large seeds and thick skin, and thus, being difficult to eat compared to other types of table grapes. It is not clear whether consumers are making any real connection between the fruit and the wine. At the same time, our findings suggest that drawing attention to the physical fruit during educational events or via displays in tasting rooms should not have a negative effect on wine purchase.

It is also uncertain to what extent vendors should advertise the purchase of muscadine wine as an opportunity to express patriotism in their spending habits. Although the respondents in this sample were motivated to buy local, these beliefs did not convert into muscadine wine purchases. All in all, muscadine wine producers should look at the wine quality itself and other derivative products as a way to innovate and increase consumer confidence in muscadine wine.

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Muscadine entrepreneurship: Will the grape sell the wine?

Purpose: The authors explore the interdependency between the market for fresh muscadine grapes and muscadine wine purchase. Entrepreneurial muscadine growers in North Carolina (USA) have asked whether the purchase of muscadine wine is linked to consumption of the fruit itself or even familiarity with other muscadine-based products in terms of spillover effects.

Methods: Consumer panel data were collected through a third-party online survey service, Qualtrics®. State-based quotas were used to investigate online consumers from the US South. A total of 543 usable surveys were achieved for the present study. SPSS® was employed in analysis.

Results: Prior wine knowledge and knowledge of other muscadine products, e.g., jams, juices, smoothies, sauces, and health/beauty products, were significant factors associated with buying muscadine wine. Beliefs about muscadines showed a slight influence, while experience with fresh muscadines and consumer attitudes towards local or US products were insignificant.

I. Introduction

Entrepreneurs growing muscadines sell the grape both as fresh fruit for consumption and as an ingredient in a variety of products. In the US South, e.g., North Carolina (NC), where the muscadine is an important native grape, both of these markets are actively pursued and form part of the state's economic development plan for the wine and grape industry (Boles et al., 2017). Like many derivative products, muscadine wine has the potential to be affected by consumer opinion and behavior towards its central ingredient, the muscadine grape.

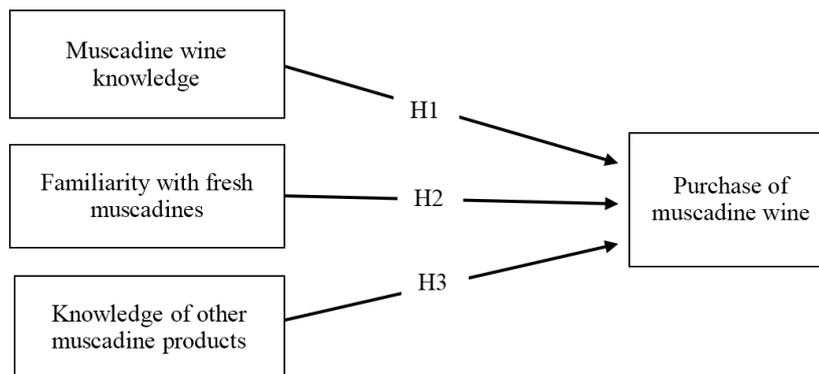
The current study looks at the interplay between consumer experience with the grape itself as a fresh or table grape product and the decision to buy muscadine wine. Product knowledge and experience exercise important roles in consumers' future decision making (Brucks, 1985). Product experience or familiarity involves a mix of usage behaviors including prior purchase or consumption activities (Chocarro, Cortiñas, and Elorz, 2009). Familiarity with a food item may make it appear less risky to consumers (Fischer and Frewer, 2009). Wine education teaches about specific ingredients and terroir to both distinguish wine products and to create a sense of familiarity and reduce negative attitudes (Taylor, 2009). Consumers with higher subjective wine knowledge show more self-reliance when making purchase choices (Chocarro and Cortiñas, 2013).

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grapes, knowledge about muscadine derivative products (including wine) and muscadine wine buying, as well as other exploratory factors that might influence purchase (see Figure 1).

Figure 1

Model of muscadine wine purchase decision



The main hypotheses tested in this study are as follows:

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- H3 Consumer knowledge of other derivative muscadine products, e.g., jams, juices, smoothies, sauces, and health/beauty products, is positively associated with buying muscadine wine.

II. Methods

A sample of screened consumer panel data was generated through a third-party online survey service, Qualtrics®. Quota sampling was used to target six US southern states representing major markets for NC muscadine products. A total of 543 usable surveys were achieved for the present study. Multiple survey scales were included in the online survey instrument, covering consumer attitudes and behavior toward muscadine grapes. Topics covered included muscadine purchase and usage, and subjective product knowledge, and buying US/local products. SPSS® was employed in subsequent analysis of three hypotheses. We also explore the importance of selected demographics and consumer attitude scales on health, natural food, and buying US and local products.

III. Findings

Results in Table 1 show the sample to be predominantly female, spread out across age groups, with household income from 20,000 to 59,999 US dollars. Quotas were used to oversample NC consumers, with other states each averaging 12% of the sample. About 40 percent of respondents buy fresh muscadines and 43% buy muscadine wine with a significant association between these two purchase activities. Sixty percent of fresh muscadine buyers also buy muscadine wine compared to 31% of people who don't buy fresh muscadines, $X^2(1, N = 529) = 40.524, p < .001$. Further demographic analysis showed that only *age* associated significantly with muscadine wine purchase. For every age class except 65 and over, buyers and non-buyers were relatively even in numbers, whereas only a quarter of seniors buy muscadine wine, $X^2(5, N = 529) = 13.245, p < .05$.

Table 1 Demographic profile of respondents

Demographic characteristics	Percentage (% of 543)
<i>Gender</i>	
Male	23%
Female	77%
<i>Age</i>	
21 to 24	6%
25 to 34	17%
35 to 44	19%
45 to 54	21%
55 to 64	22%
65 or older	16%
<i>Annual household income (USD \$)</i>	
Below \$20,000	20%
\$20,000 to \$59,999	53%
\$60,000 plus	27%
<i>State of origin</i>	
In-state (NC)	39%
Out-of-state (GA, FL, SC, VA, TN \approx 12%)	61%
<i>Buy fresh muscadines</i>	
Yes	40%
No	60%
<i>Buy muscadine wine</i>	
Yes	43%
No	57%

In Table 2, we see the mean scale values for six consumer factors inspected during this study. Respondents have indicated moderate familiarity with fresh muscadines and slightly

higher perceptions that muscadines are healthy and natural fruit. They also claim relatively low knowledge about muscadine wine or other muscadine-infused products and pay only moderate attention to their own personal health and buying US or local products. In subsequent analysis, these factors were used in trying to understand people's muscadine wine purchase behavior.

Table 2 Consumer attitude, belief, and experience scales

	Scale mean	S.D.	Number of items	Cronbach's alpha
Knowledge of muscadine wine	1.85 (1 to 3)	0.77	1	--
Familiarity with fresh muscadines	3.54 (1 to 6)	1.62	4	.882
Knowledge of other muscadine products	1.54 (1 to 3)	0.55	7	.865
Attention to personal health	3.52 (1 to 5)	0.91	11	.942
Perceived muscadine health benefits/risks	3.91 (1 to 5)	0.71	5	.848
Attention to buying US or local	3.66 (1 to 5)	0.89	6	.910

Forward logistic regression was conducted to see which of the factors in Table 2 would predict whether or not a respondent buys muscadine wine. Regression results show the overall model of four factors (knowledge of muscadine wine, knowledge of other muscadine products, attention to health, and beliefs about healthiness of muscadines) was questionable (-2 Log Likelihood = 445.758) but was statistically reliable in distinguishing between buyers and non-buyers of muscadine wine, $X^2(3) = 275.750$, $p < .0001$. Nagelkerke's R^2 is 0.546 which indicates that the model is useful for predicting wine purchase.

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Table 3 Regression coefficients for buying muscadine wine

	B	S.E.	Wald	df	Sig.	Exp(B)
Knowledge of muscadine wine	2.003	.208	92.934	1	.000	7.414
Knowledge of other muscadine products	1.223	.260	22.196	1	.000	3.398
Attention to personal health	-.426	.149	8.212	1	.004	.653
Perceived muscadine health benefits/risks	.437	.180	5.903	1	.015	1.548
Constant	-6.259	.823	57.797	1	.000	.002

IV. Conclusion

We found several factors to be important in predicting if a consumer buys muscadine wine. Two factors, subjective wine knowledge and knowledge of other muscadine products,

were aligned with theoretical expectations based on extant research on the role of product knowledge on purchase behavior. Two exploratory factors were also involved in the final model. Beliefs about the healthiness and naturalness of muscadines were positively associated with buying the wine whereas personal attention to health was negatively associated with purchase. Given that muscadine wine is considered to be a very sweet beverage, often with added sugar to accommodate consumers, it makes sense that people who greatly prize their health might be less incentivized to purchase muscadine wine. Beliefs about muscadines being either healthy or natural products (organic, pesticide-free) did correlate positively with buying muscadine wine.

Findings did not, however, identify a significant role for either familiarity with the muscadine fruit itself nor with a person's attention to buying US or local products. Regarding the former variable, this is not necessarily a bad thing due to the fact that some aspects of the fresh muscadine grape have caused issues for consumers, namely having large seeds and thick skin, and thus, being difficult to eat compared to other types of table grapes. It is not clear whether consumers are making any real connection between the fruit and the wine. At the same time, our findings suggest that drawing attention to the physical fruit during educational events or via displays in tasting rooms should not have a negative effect on wine purchase.

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