

December 2007

The Roles of Positive and Negative Utility in Predicting Online Wine Purchase Behavior

Michael Sheridan
Appalachian State University

Joseph Cazier
Appalachian State University

Douglas May
Appalachian State University

Follow this and additional works at: <http://aisel.aisnet.org/amcis2007>

Recommended Citation

Sheridan, Michael; Cazier, Joseph; and May, Douglas, "The Roles of Positive and Negative Utility in Predicting Online Wine Purchase Behavior" (2007). *AMCIS 2007 Proceedings*. 122.
<http://aisel.aisnet.org/amcis2007/122>

This material is brought to you by the Americas Conference on Information Systems (AMCIS) at AIS Electronic Library (AISeL). It has been accepted for inclusion in AMCIS 2007 Proceedings by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.

THE ROLES OF POSITIVE AND NEGATIVE UTILITY IN PREDICTING ONLINE WINE PURCHASE BEHAVIOR

Michael J. Sheridan, Appalachian State University, michaeljsheridan@gmail.com

Joseph A. Cazier, Appalachian State University, cazierja@appstate.edu

Douglas B. May, Appalachian State University, maydb@appstate.edu

Abstract

The transition from the old economy to the digital economy has been more challenging for some industries than others. One industry that faces many uncommon challenges is the wine industry, which has many risks to buyers and vendors beyond the ones typically found in E-Business. For example, in the United States many of the laws differ from state to state on what can be shipped from one location to another and from what type of company. Indeed, it is a felony for a winery to ship to some states. There are also legal restrictions around age verification requirements and questions regarding taxes. Taken together this legal ambiguity creates confusion in the supply chain and customer base. In addition the wine industry is far from commoditized. A great deal of variety in taste, quality and selection exists within the industry, which can be difficult for first time online wine buyers of a given product to ascertain without prior experience. This research attempts to study this unique market transition to the digital economy by building on prior research with positive and negative utility factors such as the Technology Acceptance Model (TAM), perceived risk harm and likelihood, trust and related antecedents to purchase intentions.

Keywords: TAM, trust, risk harm, risk likelihood, digital economy, wine

Introduction

Recent rulings by the Supreme Court of the United States and the subsequent altering of certain state's laws have enabled wineries to sell directly to the consumers of particular states. This development allows the consumer to forgo the traditional three-tier system of wine distribution and transition to a digital business model, thus providing the consumer with access to smaller producers and conversely, wineries access to a potentially global market. Still, the wine consumer faces a number of challenges in the online wine world. These challenges include amalgamating information from sometimes contradictory sources in order to determine the relevant laws governing each specific situation. Adding further complexity to the matter is the legal landscape of direct to consumer shipments still being in transition. This presents a number of legal quandaries, real and perceived, to the consumer and producer. It is within this ephemeral terrain that a consumer's perception of risk, as well as the trust instilled in the producer by the consumer, significantly affects one's decision to purchase wine online.

Unlike books or music, prior to completion of the transaction, wine sellers and consumers must address issues such as age verification and the legality of shipment to different states. Wine is one of the more specialized commodities with a seemingly infinite number of choices available to the consumer and a potentially high level of differentiation. While broad descriptions may prove to be of some utility to the consumer, it is nearly impossible to predict another's reaction to a particular bottle.

With the growth of one's knowledge, the available options expand: No longer will a mere Pinot Noir suffice, the experienced consumer now seeks a Grand Cru from Burgundy or a specific vintage of a cult winery from Oregon. As the American wine industry surpasses the \$24 billion a year mark, doubling its revenues in the past decade, the importance of understanding consumer's behavioral tendencies now becomes exceedingly important, (Wine Institute 2007).

Furthermore, the growth of wine sales and e-commerce will further develop with the Long Tail phenomenon. The removal of the distributor from the traditional distribution structure will allow smaller producers access to potentially global markets and offer consumers with a vast array of choices. Consumers can potentially search large databases to find not only familiar products, but to discover new items (Brynjolfsson, et al. 2006). The Pareto principle, a maxim for brick and mortar retailers; stating 80% of sales will be generated from 20% of product, loses some of its relevancy in an online context: In research conducted by Brynjolfsson et al. (2006), the top 20% of the items barley generated 70% of online sales. This may

drop of further in the future. The wine world, with its vast array of choices, seems particularly suited to take advantage of this phenomenon.

With this research, we intend to identify factors that influence a consumer's decision to purchase wine online and measure their respective influences. This paper postulates the inclusion of legality to the model presented in Cazier et al. (2007), as well as identifying other influences in a consumer's decision to purchase wine in this setting. This research will be valuable to both online retailers and traditional brick and mortar operations for it will identify the strengths and weaknesses of online wine purchases. Retailers will then be able to apply these findings to their own businesses and develop models tailored to their specific segment. While others have explored the potential of e-commerce for wine sales, the majority of this work has been conducted in Europe, which contains a different set of legal issues, and has focused upon the retailer or producer. Our study focuses on the American market, with its unique history that includes Prohibition, its repeal (21st Amendment) and the subsequent conflicts between the 21st Amendment and the Interstate Commerce Act. Furthermore, this research seeks to understand the factors leading the consumer to adopt tendencies to buy wine online.

TAM

Since we are looking at the adoption and acceptance of technology in online wine sales, we propose this research as an extension of the Technology Acceptance Model (TAM) (Davis, Bagozzi, & Warshaw 1989). Derivations and extensions of TAM have been used extensively in this type of research. TAM is a derivation of the theory of reasoned action (TRA) (Ajzen & Fishbein, 1980) that is customized for prediction of IT adoption and use. TRA and TAM represent a rational decision-making approach to the prediction of behaviors in which individual beliefs are mediated by attitude and behavioral intentions leading to subsequent use or non-use of technologies. For example, TAM posits that IT use will be predicted judiciously by perceived usefulness (PU) and perceived ease of use (PEOU), as mediated by behavioral intention (BI).

Although attitude was included in the initial development of TAM, most subsequent studies do not include an attitude measure (Lee et al., 2003). All factors in TAM except IT use are usually measured as the individual's perceptions of his or her beliefs and intentions. However this study also includes a measure of potential customers' self-reported actual use of online wine purchase systems.

TAM Extensions

Cost/Value Importance (CVI)

The definition of value is generally defined as the perception of a consumer's expectation of a commodity compared to the amount paid for it. Furthermore, literature segmenting wine consumers considers value-seeking to comprise a significant portion of the population (Constellation Wine Brands 2005). Therefore, we postulate the CVI will have a positive influence on PU. Thus:

H1: Increasing perception of CVI will increase PU.

Desire for a Locally Scarce Wine (DLSW)

Desire for a Locally Scarce Wine (DLSW) includes a consumer's desire for a specific varietal, place of origin (Perrouy 2006, Orth et al. 2005), producer, and/or vintage. Furthermore, Orth (2005) recognizes that the situation in which the wine is consumed will affect a consumer's decision. In addition to these influences we consider prior experience with the wine, varietal, or producer, as well as the influence of a recommendation from a trusted source. We anticipate these components will strengthen one's DLSW and have a positive influence upon PU.

H2: Increasing DLSW will increase PU.

Convenience (CV)

Both Forsythe et al. (2004) and Childers et al. (2001) include convenience in their modification to the TAM model. Childers et al. (2001) contends online shopping enables the consumer to more easily collect product information and offers a greater diversity in selection. Furthermore, convenience is increased because the consumer is no longer bound by time constraints (store hours) or geography (store location). In this study we focus on CV as the effort needed to acquire wine online compared to a similar transaction in a traditional setting. This view considers the ease in which the consumer locates

the wine, the ease in which the transaction is completed, and the overall time expended to acquire the wine. Thus, as consumers increasingly feel it is easier to purchase wine online, the PU and the PEOU will rise.

H3: Increasing the perception of CV will increase PU.

H4: Increasing the perception of CV will increase PEOU.

Negative Utility

TAM and its' extensions provides a nice view of positive utility, or the benefits one might perceive to using the system. However, due to the special nature of our product negative utility is also likely to play a role. Negative utility includes the liabilities and risks to using a system.

Featherman and Pavlou (2003) draw upon the theory of perceived risk, which conveys the importance of expanding TAM by looking at the negative utility factors such as perceived risk. Their more balanced approach increases the likelihood of a broader range of factors, and thus their results can produce more in-depth findings. The vast majority of prior TAM literature focuses on positive utility measures, leaving untapped a wide domain of negative utility factors that can be used to explore a more realistic and complete picture of technology acceptance. Negative utility can be an important component of an individual's behavior and choices.

(Cazier et al., 2007) found that by building on the work of Featherman and Pavlou (2003) in looking at perceptions of risk by breaking the risk into its components of perceived risk harm (RH) and perceived risk likelihood (RL) they could achieve a greater understanding of consumer behavior. Risk is calculated as the probability of an event occurring multiplied by the loss or amount of harm that could be done if that loss is realized (Straub and Welke, 1998). Our conceptualization of risk follows the suggestion of Kim and Leem (2005) that risk involves two elements: the probability of an event occurring, which we denote as *perceived risk likelihood*; and a loss amount, which we denote as *perceived risk harm*.

Of the risks involved in an online transaction, questioning the legality of the transaction itself may increase the concern of a potential customer. In online wine sales there are two issues that have an impact on the legal question. One potential concern involves the means through which the shipper becomes satisfied that the purchaser is old enough and therefore legal to purchase wine. The second concern has to do with potential differences in state laws related to the direct shipping of wine to the consumer. The repeal of Prohibition through the twenty-first amendment specifically allows states to control their individual regulations on the importing of wine and other alcoholic beverages. In spite of numerous lawsuits attempting to address various aspects of these state differences, there remain differences. This changing legal environment may impact the consumer's perception of the likeliness of risking a violation of one or more of the changing laws. The consumer may also be concerned with the possible harm that could come to pass should they get caught violating the laws.

The issue of determining the age of the recipient is relatively easily addressed through established procedures among commercial carriers. The legality of the interstate shipping of wine between given states remains specific to those states. The 2005 Supreme Court ruling on *Granholm v. Heald* has been a landmark case with widespread impact on issues of direct shipping to consumers (Pasahow 2006). There are frequent changes to these laws as additional litigation makes it through the various state systems. The added dimension of these legal questions may well impact perceptions of both risk likelihood (RL) and risk harm (RH) and therefore the consumer's intention to use (BI) online wine purchases.

Our research model augments TAM with risk likelihood and risk harm (see Figure 1). Based on predominating findings in the TAM literature, we anticipate PEOU will have a positive effect on both PU and BI toward IT use, and we anticipate PU will have a positive effect on BI.

We propose that perception of risk will influence decisions toward use of IT. We anticipate BI toward IT use will diminish where risk is perceived to be high and increase where it is perceived to be low. In the present study, we operationalize risk through its two elemental components, risk harm (RH) and risk likelihood (RL). We hypothesize that both factors will negatively influence BI.

H5: Increasing RH will reduce BI toward IT use.

H6: Increasing RL will reduce BI toward IT use.

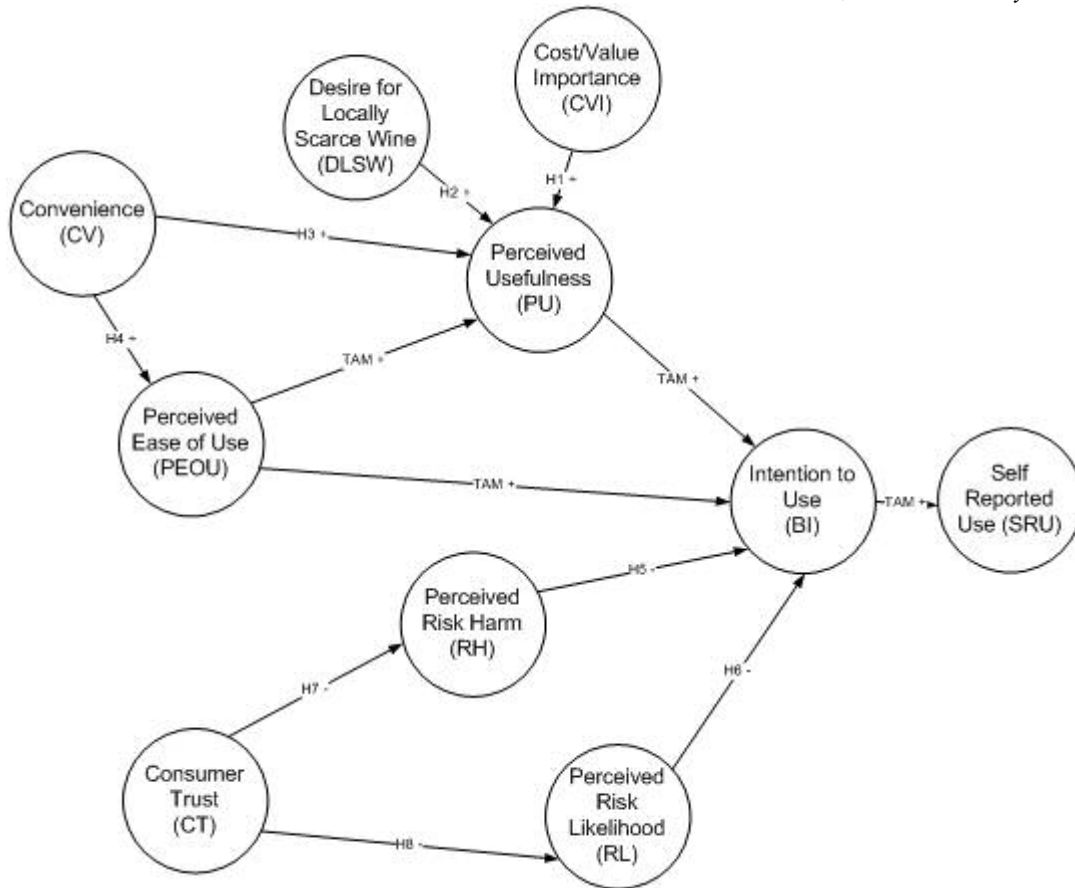


Figure 1: Research Model

Trust

Trust, defined as the “willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform particular actions important to the trustor, irrespective of the ability to monitor or control the other party” (Mayer et al. 1995), may be an important factor in overcoming risk perceptions. The willingness of a party to be vulnerable is a key component of trust. Hence if the consumer believes the site offering online sales of wine is adequately addressing the legal issues, this trust may decrease RL and clarify matters sufficiently to set an expectation of RH. Given the frequently changing legal environment, perhaps the most online an online wine sales site can offer is accurate information regarding currently legal options. Done adequately, this may well have a positive impact on the consumer’s intention to use the site.

H7: Consumer trust in the organization will reduce RH.

H8: Consumer trust in the organization will reduce RL.

Methodology

The research methodology uses an online survey, as well as a paper-based instrument to assess the perceptions and usage intentions of potential wine consumers toward online wine sales. The survey instrument has three to four items on each variable in the model with some additional demographic items. Each item will solicit a response on a seven-point Likert scale ranging from a “Strongly Disagree/Little Value” to “Strongly Agree/Very Much Value.” The survey will be available on the websites of a number of local wine shops and paper-based versions will be available at a regional health food store chain and the aforementioned wine shops.

We will apply factor analysis methods to determine those items of the survey instrument that offer significant contributions to the model and to confirm convergent and discriminate validity of these remaining components. To further confirm the reliability of the remaining items and components we will also examine Cronbach's Alpha coefficient measuring the reliability of our scales anticipating that it will be .70 or greater (Peterson, 1994).

The descriptive statistics of the responses to each item will be examined to help describe the nature of responses in measuring various components of the model. Finally, in order to test our research model we will conduct structural equation modeling (SEM) analysis using LISREL. We will examine the fit of the model with prominent fit indices to see that it falls within levels recommended by Kelloway (1998).

Discussion

As the obstacles preventing direct to consumer and online wine sales are overcome, retailers and academics will need to build a greater knowledge of the wine consumer's willingness to adopt e-commerce technology. Conducting the survey in North Carolina, a state that represents a "middle ground" in direct to consumer litigation, provides a control measure in which we can garner the impact of state laws on the consumer's decision to purchase online.

Our study attempts to uncover the factors preventing the wine industry, an industry seemingly well-suited for e-commerce, from matching the growth of other commodities. The wine industry shares the risks of all e-commerce commodities, such as identity theft and timely, safe, and accurate shipments. Other commodities such as cigarettes, liquor, beer, and pornography also share similarities in facing the challenges presented by the variation of state laws and interstate commerce. However, online wine sales face its own unique set of obstacles in that it is a highly differentiated commodity and each individual's reaction to that particular bottle cannot be predicted.

In this study we intend to identify significant factors that affect Behavioral Intent (BI) and the survey instrument has been designed to measure and validate the consumer's self-reported use. Specifically, we attempt to measure the positive impacts of Cost/Value Importance (CVI), Desire for a Locally Scarce Wine (DLSW), and Convenience (CV). We have also added the concept of legal issues to the Negative Utility aspect of the model, which in turn would affect Consumer Trust (CT), Perceived Risk Harm (RH) and Perceived Risk Likelihood (RL). Data will be collected, analyzed before the conference for presentation at the conference.

References

- Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Englewood Cliffs, NJ: Prentice-Hall.
- Bellman, Steven, Lohse, G.L., & Johnson, E.J. (1999). "Predictors of Online Buying Behavior," *Communications of the ACM*, Vol. 42, No. 12, pp. 32-38.
- Brynjolfsson, Eric, Hu, Yu & Smith, Michael D. (2006). "From Niches to Riches: Anatomy of the Long Tail," *MIT Sloan Management Review*, Vol. 47, No. 4, pp. 67-71.
- Cazier, J. A., Wilson, E. V., & Medlin, B. D. (2007). "The Role of Privacy Risk in IT Acceptance: An Empirical Study," *International Journal of Information Security and Privacy*, Vol. 1, No. 2, pp. 61-73.
- Childers, T.L., Carr, C.L., Peck, J.P., & Carson, Stephen. (2001). "Hedonic and Utilitarian Motivations for Online Retail Shopping Behavior," *Journal of Retailing*, Vol. 77, pp. 511-535.
- Constellation Wine Brands. (2005). "Project Genome Segment Overview," Project Genome: Understanding the DNA of the Premium Wine Consumer (2005). <http://www.cwinesus.com/genome/ProjectGenomeSegmentOverview.pdf> (retrieved March 4, 2007).
- Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: A comparison of two theoretical models. *Management Science*, Vol. 35, pp. 982-1002.
- Featherman, M. S., & Pavlou, P. A. (2003). "Predicting e-services adoption: a perceived risk facets perspective." *International Journal of Human-Computer Studies*, Vol. 59, pp. 451-474.
- Forsythe, Sandra, Kim, Jai-Ok, and Peete, Thomas. (2004). "Modeling Consumer Behavior in On-line Environments (NTC Project: S02-AC23)," *National Textile Center Research Briefs – Management Systems Competency*, June 2004.
- Kelloway, E. K. (1998). *Using LISREL for structural equation modeling: A researcher's guide*. Thousand Oaks, CA: Sage Publications.
- Kim, S. & Leem, C. S. (2005). "Security of the internet-based instant messenger: Risk and safeguards," *Internet Research*, Vol. 15, No. 1, pp. 68-98.

- Koufaris, Marios. (2002). "Applying the Technology Acceptance Model and Flow Theory to Online Consumer Behavior," *Information Systems Research*, Vol. 13, No. 2, pp. 205-223.
- Mayer, R. C., Davis, J. H., & Schoorman, F. D. (1995). "An Integrative Model of Organizational Trust," *Academy of Management Review*, Vol. 30, No. 3, pp.709-734.
- Orth, U.R. (2005). "Consumer Personality and Other Factors in Situational Brand Choice Variation," *Brand Management*, Vol. 13, No. 2, pp. 115-133.
- Orth, U.R., Wolf, M.M., and Dodd, T.H. (2005). "Dimensions of Wine Region Equity and their Impact on Consumer Preferences," *The Journal of Product and Brand Management*, Vol. 14, No. 2/3, pp. 88-98.
- Pasahow, Michael A. (2006). "*Granholm v. Heald*: Shifting the Boundaries of California Reciprocal Wine Shipping Laws," *Berkeley Technology Law Journal*, Vol. 21, No. 569, Annual Review 2006, pp. 569-584.
- Perrouy, J.P., d'Hauteville, Francois, and Lockshin, Larry. (2006). "The Influence of Wine Attributes on Region of Origin Equity: An Analysis of the Moderating Effect of Consumer's Perceived Expertise," *Agribusiness* Vol. 22, No. 3, pp. 323-341.
- Peterson, Robert A. (1994). A meta analysis of Cronbach's coefficient alpha, *Journal of Consumer Research*, Vol 21, 381-391.
- Straub, D. W., & Welke, R. J. (1998). "Coping with systems risk: Security planning models for management decision making," *MIS Quarterly*, Vol. 22, No. 4, pp. 441-469.
- Wine Institute, The. (2006). "2005 California Wine Sales Continue Growth Trend As Wine Enters Mainstream U.S. Lifestyle," http://www.wineinstitute.org/industry/statistics/2006/wine_sales.php. (retrieved March 4, 2007).