

A Multinational Study of the Diffusion of a Discontinuous
Innovation

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Abstract

There has been a great deal written about the diffusion of discontinuous technical innovations, but very little about diffusion of discontinuous innovations in other areas, such as packaging. Also, little work seems to have been done about differences in diffusion rates in different countries or cultures. This project studies the differences in the diffusion process for the screw cap on wine bottles across three countries. We use an internet survey of over 3,600 wine consumers to understand why this discontinuous innovation appears to be more resistant in one country (the US), than in the other two (Australia and New Zealand). Logistic regression is used to model the characteristics of adopters versus non-adopters in each country. Our results show that the lack of availability of the innovation in the US, coupled with lower levels of regular consumption behavior, seem to account for the resistance to the innovation.

Keywords: Diffusion of innovation, Conjoint analysis, Marketing strategy, Market segmentation, Resistant innovations, Wine industry

Introduction

The topic of the successful diffusion of innovations introduced by firms has been extensively studied in the marketing literature (Rogers 1983, 1995; Mahajan et al 2000). Most of the work has been done on discontinuous technical innovations, such as TV sets, compact discs, and microwaves. Discontinuous innovations are defined as innovations that cause a discontinuity in the existing market or technology base because of features or attributes embodied in the innovation that are new to the market (Garcia and Calantone 2002). Little research has been conducted on discontinuous packaging innovations, even though such things as paper-based milk cartons, tetra pack boxes for juice drinks, and microwavable packaging have been successfully introduced into the market. Anecdotal evidence suggests that these types of innovation have been accepted relatively easily. An interesting case of a discontinuous innovation that has not been as easily accepted is the screw cap for wine bottles. This paper uses

the introduction of the screw cap for wine as a means of studying discontinuous innovations that have problems of consumer acceptance. We compare the acceptance rate among consumers in three different countries using a logistic regression of demographics and attitudes and compare those results to a discrete choice experiment. Our project uses the results of 3,600 online respondents to help understand why this discontinuous innovation has a differential acceptance rate between the three countries of Australia, New Zealand, and the United States, as well as to understand the differences between adopters and non-adopters regardless of country.

It has been suggested that the original failure of screw caps to diffuse into the wine industry marketplace was the result of an inappropriate marketing strategy by innovating wineries (Mortensen and Marks 2002). Because of this misaligned strategy, this innovation fell into a 'chasm' (Moore 1991) that can exist between early adopters of an innovation and the mainstream market for discontinuous innovations. The marketplace has to change its past behavior in some significant respect in order to gain the benefit of the innovation. Moore asserts that the product life cycle for these types of innovations will exhibit a chasm between early adopters of a new product and the larger mainstream market's adoption. To cross the chasm, a firm/industry must identify a viable market segment and gain acceptance of the innovation through this niche before the product will be accepted by the mainstream market. If the chasm cannot be crossed successfully, the new product will languish without breaking through to the high volume opportunities.

This theory of a chasm may be one explanation for the failure of screw caps in the market place. However, this strategic misalignment as suggested by Mortensen and Marks does not explain the more recent *favorable* re-introduction of screw caps into the Australian and New Zealand marketplace in the early 2000s and the continued *unfavorable* reaction to screw caps by

the US wine consumer during this same time frame. In this paper, we investigate why screw caps have crossed the chasm in Australia and New Zealand but not in the United States. We suggest that screw caps can be classified not only as a discontinuous innovation but also a resistant innovation. Unlike simple discontinuous innovations, resistant innovations require a launch strategy that encompasses more than just identifying the appropriate market segment. We offer suggestions on how to build a winning strategy for the diffusion of these types of new products. To provide normative suggestions for diffusing resistant innovations, we use a theoretical foundation from the marketing literature and the results of a multinational study of more than 3,000 wine consumers' preferences for different wine features, including closures. This paper will help to determine the current consumer preferences for wine closures and understand consumer traits leading to adoption so that firms can improve the rate of diffusion of innovations such as screw caps into both domestic and international markets.

Background of Screw Caps

Screw caps (often called by their brand name- Stelvin), through many trials and years of technical testing, have been found to eliminate cork taint and other problems found with cork closures, such as crumbling and leakage (Murray and Lockshin 1997). Screw caps have been shown to be effective in sealing wine bottles for up to 10 years with none of the problems associated with natural cork stoppers (Hart and Kleinig 2005). It has been reported that 2-15% of all wine bottles using natural cork closures are plagued with "cork taint," where bad corks cause a bottle of wine to taste poorly (Sogg 2005). Often the consumer does not realize that the poor taste is due to cork taint and blames the offending flavor on a poor vintage or a cheap brand. Hence, the wine manufacturer potentially loses a customer in addition to the cost of replacing the

bottle through the whole supply chain. This problem has resulted in millions of dollars of lost revenues with wine disposals and brand name erosion. An additional benefit of screw caps is that they ease the opening of wine bottles because no corkscrew is required.

Screw caps on wine have almost a 50 year history in the wine industry. They were tested for feasibility as a wine closure in the late 1950s and early 1960s and introduced in the late 1970s to the Australian marketplace by Yalumba Wine Company. Between 1976 and the early 1980s approximately 20 million wine bottles were sealed with the screw cap (Stelvin-brand) closure in Australia and New Zealand (Courtney 2001). But by 1984, the Australasian producers had stopped using the Stelvin because of consumer resistance to accept a screw cap closure. The effect on Yalumba's Pewsey Vale Riesling, an early introduction, almost killed the brand as a prestige product (Bourne 2000). However, the innovation did not completely die out with these failed introductions. The technical superiority of screw caps over other closures, including the traditional cork closure, caused its resurgence in 2000 this time with great success in Australia and New Zealand. Today, it has been estimated that 80% of wines bottled in New Zealand use screw cap seals (Sogg 2005). However, the diffusion of screw caps in the United States has not been as successful as consumers still seem to prefer cork closures.

Improving the seal on wine bottles is a win-win situation for consumers and manufacturers alike. However, there exists high customer reluctance to purchase mid to high priced wines with screw caps due to screw caps' past association with low-end wines (Courtney 2001). Lone manufacturers are reluctant to put screw caps on their high-end wines because they believe they will potentially lose sales to competing brands due to consumers who only see the symbolism of "cheap" wines associated with brands bearing screw caps. A winery that adopts an innovation like the screw cap is in a dangerous position. If it goes to market with the innovation

before the innovation has been accepted, considerable sales can be lost, especially in resistant markets.

The issue of consumer resistance to innovative closures in the wine industry is interesting because of the stark contrast between high performance of new closures such as screw caps and their lack of acceptance by consumers. Although screw caps perform well in preserving the quality of wine (Hart and Kleinig 2005), some consumers still prefer the romance of the cork (Courtney 2001). Rogers (1983, 1995) offers insights into understanding the delayed diffusion of these types of innovations. In this paper we extend upon Rogers' seminal research into the diffusion of innovations to focus on the screw caps in the wine industry. In the following sections of the paper we first discuss the data collection methods and the sample before demonstrating the differences in closure preference using discrete choice analysis. We then discuss the way we measured Rogers' five barriers to diffusion. These results are provided and compared among the three countries. We present the results of logistic regressions for adopters and non-adopters utilizing both demographics and Rogers' five barriers for each of the three countries to better understand consumer motivations to use or not use screw cap closures. Finally, we discuss the results both in a managerial sense for the wine sector and in an academic sense for understanding the diffusion of resistant innovations.

Data Collection

In cooperation with a Napa Valley-based closure manufacturer and a few US wineries interested in consumer preferences for Stelvins, we sought to determine the preferences of leading-edge wine customers in the US, New Zealand, and Australia. We thought that consumers who appeared on various retailer or wine club mailing lists would be more likely to

have experienced this innovation and would be the best indicator of why or why not it had been adopted. Research was conducted by designing a web-based discrete choice survey regarding various wine features. Each respondent completed two sequential, choice-based conjoint analysis tasks separated by a series of “memory cleansing” questions. In addition to the conjoint questions, a series of questions regarding wine consumption preferences were asked. The main goal of the study was to determine consumer’s preferences for screw cap closures and what attributes of the closures may lead or inhibit adoption. Respondents were obtained in the United States by sending emails to the customer lists provided by wine related groups such as the Wine Brats and the Winex Wine Club. Respondents were obtained in Australia and New Zealand by using an email list from direct mail wine companies. The survey was posted on the Internet from June 15, 2004 to November 14, 2004.

Sample Description and Closure Preference

A higher percentage of survey respondents were male in Australia and New Zealand and female in the United States. Across all three countries, the majority of respondents had income levels of \$25,000 or more based on the local currency. On average more than 30% of the respondents consumed wine daily. The sample represents wine drinkers and should not be taken as a population sample. It is a reasonable sample to understand why some consumers prefer one wine closure to another. Less than 50% of US respondents had purchased a screw-capped wine in the last month whereas more than 85% of respondents in the other two countries had purchased a screw-capped wine in the last month. These key demographics are summarized in Table 1. Discrete choice part-worth results are shown in Figure 1. The choice results show that Australasians are indifferent between natural cork closures and screw cap closures, however, the

Americans greatly prefer natural cork closures over either synthetic or screw cap closures. From Table 1 and Figure 1 it clearly shows that Australian and New Zealanders prefer screw cap/Stelvin closures more than do Americans. This accords with the usage results.

Diffusion of Innovations

Diffusion is the process by which innovations spread to the members of a social system (Rogers and Shoemaker 1971). According to Rogers (1983) “getting a new idea adopted, even when it has an obvious advantage, is very difficult.” (pg. 1). Technological superiority is not enough for a product to succeed with consumers – the new product must be *perceived* to be superior by the potential adopter. One of the goals of diffusion research is to shorten this lag time. The speed of diffusion of an innovation is influenced on two levels: (a) by the attributes of the innovation being diffused and (b) by the characteristics of the individuals adopting the innovation – consumer attributes. We examine both of these factors in this section. We first evaluate the attributes of the screw cap.

Innovation Attributes. Several characteristics of innovations, as sensed by the receivers, contribute to their different rates of adoption. Rogers asserts that there are five key attributes that are critical in determining the rate at which an innovation will be adopted – ‘relative advantage’, ‘compatibility’, ‘complexity’, ‘trialability’ and ‘observability’ (Rogers and Shoemaker 1971).

‘Relative advantage’ is the degree to which an innovation is perceived as better than the idea it supersedes. The degree of relative advantage may be measured in economic terms, but often, social prestige factors, convenience and satisfaction are also important components. It may matter little that the innovation has a great deal of objective advantage. What does matter is

whether the individual perceives the innovation as being advantageous. Rogers and Shoemaker (1971) posited that the relative advantage of a new idea, as perceived by members of a social system, is positively related to its rate of adoption. Wine producers have already recognized the advantage of screw caps. In this study we focused on consumers' perceived advantages of the screw cap. We asked three questions regarding the importance of three attributes of screw caps: ease of opening a bottle, ease of resealing the bottle, and need for a tool to open a bottle. We summed the score of the three questions to arrive at a measure of 'advantage'. The Cronbach's alpha was 0.724 showing good reliability (Appendix 2). The mean score for Australians was 11.64, for New Zealanders 12.92, and for the United States 10.73. The range of these scores was from 3 to 21. The means are significantly different from each other at $p < 0.001$. The US respondents see somewhat less advantage for screw caps than do the Australian and New Zealanders.

'Compatibility' is the degree to which an innovation is perceived as being consistent with existing values, past experiences, and the needs of the receivers. An idea that is not compatible with the prevalent values and norms of the social system will not be adopted as rapidly as an innovation that is compatible. The adoption of an incompatible innovation often requires the prior adoption of a new value system. Many mainstream consumers highly value the tradition and ritual of opening the wine and popping the cork, so the screw cap is incompatible with these customs and values. We asked our respondents three questions regarding tradition and rituals concerning opening wine: the importance of 'the tradition of opening wine sealed with a cork', the importance of 'the sound of the cork "pop"', and the importance of 'the ritual of opening wine (presentation and first taste)'. The Cronbach's alpha for these three items was 0.774 showing good reliability (Appendix 2). Summing these scores the Australians had a mean score of 10.24,

the New Zealanders had a mean score of 10.45 and the Americans had a mean score of 11.95, statistically significantly higher than the other two countries. The range of these scores was from 3 to 21. Americans clearly do not find screw caps as compatible with their existing values and past experiences.

‘Complexity’ is the degree to which an innovation is perceived as difficult to understand and use. The opening of a bottle sealed with a screw cap is not complicated, but understanding the nature of its superior performance is complex. A fairly deep knowledge of wine is required to be aware of the underlying technical benefits of the screw cap such as reduced incidence of oxidation and taint. We presented information about screw caps and asked our respondents if ‘this information [was] useful for future wine purchases’.¹ Consistent with prior findings, the Americans found the least amount of usefulness for this information compared to the respondents of the other two countries (AUS = 5.45; NZ = 5.58; US = 5.37).

‘Trialability’ is the extent to which the innovation can be tested before committing to purchase. A bottle of wine usually can’t be tested before purchase so corks and screw caps are on even ground here. Wine is a product that has a high proportion of attributes that can only be assessed during consumption (Chaney 2000) so trial is not often possible. ‘Observability’ is the extent to which the benefits of the innovation are visible to consumers. It is difficult for consumers to assess the benefit screw caps because of the technical nature of the benefits. As a proxy to determine impact of trialability and observability of the screwcap innovation we refer back to the respondents that have purchased screw capped wines (adopters) and those who have not (non-adopters). Using the self-explicated questions from the conjoint analysis we examined

¹ See Appendix for ‘question 5’ wording in the About Yourself measures. This question was presented after the conjoint and other questions regarding wine purchases, and just prior to the demographic questions. As this was a web-based survey respondents could not look forward or change previous answers based on this information presented.

the difference in preferences between adopters and non-adopters across the three countries. It comes as no surprise that adopters of the screw cap have higher preferences for this type of closure compared to non-adopters (See Figure 2). This is the same for all three countries. Thus, it can be conjectured that once the screw cap is trialed and the benefits observed that the consumers readily experience the superiority of this closure compared to other wine closures. However, what should be noted from this figure is that across the three countries there are no significant slope differences. In other words, the rate of change in preference for the screw cap from adopter to non-adopter is the same for Australasians and Americans. Once this product is adopted the benefits of the screw cap are equally recognized among consumers even in different countries. In the next section we investigate the difference in consumer attributes leading to the adoption of the screw cap.

Summary: Our study results show that the relative advantage of screw caps is still unknown by many consumers, particularly the US wine consumer. Many consumers find the screw cap incompatible with their current values and experiences. However, we have showed that once the consumer starts to use the product, their valuation of the product significantly increases.

Consumer Attributes: Comparing Adopters to Non-adopters. In order to identify the consumer characteristics that may impact the diffusion of screw caps, we next examine the differences between respondents who have adopted the screw caps into their regular purchasing patterns compared to those who have not. We classify ‘adopters’ of screw caps as those respondents who consume wine on a daily, weekly or monthly basis **and** who have purchased at least one screw capped wine in the last month. We classify all others as non-adopters. Based on

this categorization we have a sample size of 1958 ‘adopters’, 1039 ‘non-adopters’ and 616 non-respondents.

Rogers and Shoemaker (1971) gleaned over 3,000 findings relating various independent variables to innovativeness. Research findings on the characteristics of adopter categories were summarized as generalizations under the headings of ‘socioeconomic status’, ‘communication behavior’ and ‘personality variables’. Synthesizing the work of Rogers and Shoemaker and the literature of the wine industry we explore the differences between adopters and non-adopters of this resistant innovation on these three factors. The social characteristics of early adopters tend toward higher education and social status. Status is indicated by such variables as income, level of living, possession of wealth, and occupational prestige. Previous studies have found a positive relationship of status with innovativeness as a key element of early adopters (Goldsmith, d’Hauteville, and Flynn 1997). A proxy for social status is typically income level. Based on these extant studies we investigated if income level and adoption status are related. Using logistic regression with ‘adopter = 1’ as the dependent variable, we find that the higher the income level the greater the probability that a consumer will be an adopter of screw caps. As income level increases categorically, adoption probability increases by 21% (See Table 2). Thus, in our sample adopters do tend to have higher social status than non-adopters. This fits with much of the literature that suggests a positive relationship between social status and willingness to adopt. This is important to wineries because it enables them to target their message to a particular segment as recommended in Geoffery Moore’s “Crossing the Chasm” (2001).

For the early adopter reference groups or word-of-mouth behavior are more likely to be outside, as opposed to within, their social group. They travel widely and are connected to others

by extensive interpersonal communication channels. In “The Tipping Point”, Gladwell characterized these people as Connectors, Mavens, and Salesmen (Gladwell 2002). He asserted that their efforts are required if the innovation is to become popularized. Early adopters have more social participation than later adopters. Thus, we suggest that the frequency with which respondents describe wine with others will be positively and significantly related to their tendency to adopt the screw cap. Again, using logistic regression we find evidence that as consumers discuss wine more with others they will increase their adoption likelihood by 22% (Table 2). Early adopters do exhibit more social participation than non- adopters. This is a key finding because both Moore and Gladwell assert that references from specific types of people are needed for an innovation to catch on. Targeting the early adopters can help a winery reach the mavens that can help to launch a new product.

We also looked at two personality variables – consumer involvement and gender. Highly involved consumers relate to a product category as part of their lifestyle, and it holds an important place in their consumption patterns. They often will subscribe to specialty magazines, visit websites, linger in retail stores, and talk to sales people about their purchases (Lockshin et al, 1997). Low involved buyers can still enjoy a product category, but they do not cognitively process ads and other information when making purchasing decisions (Celsi and Olsen 1988). Rogers (1983, 1995) has suggested that highly involved consumers will adopt an innovation later than will low involvement consumers due to their need to gather more information (Robertson 1976). To measure involvement we used Lockshin et al’s (1997) measures for product involvement for wine consumers. Using these three measures our results showed good reliability with a Cronbach’s alpha of 0.819 (Appendix 2). Using the summated mean score for involvement in our logistic regression model, our results do not support Rogers’ insights

regarding the adoption timing for involved wine consumers. Our sample population was 11.3% more likely to have adopted screw caps for every unit incremental increase in the involvement scale. Thus, the more involved the consumer, the sooner they will adopt screw caps closures.

To further evaluate our contradiction with Rogers' findings we looked at why high involvement users might be early adopters as opposed to late adopters. Based on the mainly positive feedback about screw caps by industry experts, one would assume that the high involvement consumer would also gather more information regarding screw cap performance. One would then expect this positive reinforcement from industry experts to influence high involvement users. To further examine this result we looked at the relationship between the number of wine-related materials respondents reviewed and their adoption status. We found that with every incremental source consulted, consumers were 9.7% more likely to adopt screw caps. Early adopters did seek information more actively than non-adopters. Those utilizing more information sources were more likely to have adopted the screw cap. This result is consistent with our expectations regarding highly involved wine consumers.

Another 'personality variable' we studied was gender of the respondent and its impact on the adoption decision. In our logistic regression analysis, men were 30.8% more likely to be adopters of screw caps than were women. To further investigate this result, we then broke down the data by country and re-ran the logistic regression. We found that gender was insignificant for Australian and New Zealand but was significant for the United States (Table 3). Men in the US are 53% more likely to purchase screw caps wines than women. Women in New Zealand were more likely to be adopters of screw caps compared to men although this result was not significant.

Summary: Our results showed that adopters of screw caps are of higher income levels, communicate more with others regarding wine and read more wine related articles. They are also more likely to be men, particularly in the United States. Based on these results and those reported earlier, we next provide some normative suggestions for diffusing resistant innovations such as the screw cap closure.

Diffusing Resistant Innovations

Ram and Sheth (1989) suggest that there are five barriers which prohibit consumers from adopting innovations: ‘usage barriers’, ‘value barriers’, ‘risk barriers’, ‘tradition barriers’, and ‘image barriers’. ‘Usage barriers’ refer to consumer resistance to an innovation that is not ‘compatible with existing workflows, practices or habits’ (Ram and Sheth, pg. 7). Our research has shown that screw caps indeed are not compatible with existing practices and habits of wine consumers. ‘Value barriers’ appear when an innovation does not offer a strong performance-to-price value compared to other products. Currently, this is one of the major downsides of screw caps. Because of the historical usage of screw cap closure on low-end wines, consumers do not *perceive* the performance-to-price value compared to cork closures. They still associate the screw cap with low quality, low value wines (Courtney 2001). ‘Risk barriers’ become relevant when customers are uncertain about physical risks, economic risks, functional risks or social risk from using a product (Mitchell and Groatorex 1988). Our research has shown that even highly involved consumers may associate the adoption of screw caps with social risk. ‘Tradition barriers’ occur ‘when an innovation requires a customer to deviate from established traditions’ (pg. 9). Again, our research has shown cork closures are highly representative of a long tradition of wine drinking and the screw cap is not congruent with this tradition. ‘Image barriers’ occur

when a consumer associates an unfavorable image with a product. The low-end 'jug' wine image prevails to this current day as screw-caps are an extrinsic cue for low quality. By reviewing these diffusion barriers, it is easy to see that screw caps can be classified as a resistant innovation on a number of levels.

Ram and Sheth (1989) recommend several marketing strategies to overcome consumer resistance to innovations. One of the most important barriers to address regarding screw caps is the tradition barrier. The wine sector needs to convey the benefits of the screw cap from a consumer perspective. In our exploratory research studies as we were compiling our survey, many consumers told us that they believed that screw caps are used on wine as it is a cost savings for the wine producer, hence, further reinforcing the notion of low value. Mainstream consumers do not understand the relevance of screw caps in eliminating corked bottles, and even the high involvement consumers, although they may understand the benefits of the screw cap, still hesitate to adopt the innovation. Thus, diffusing this resistant innovation, the screw cap, must occur on two levels; one of educating the consumer of the value of screw caps and secondly, one of reducing social risk for adopting the innovation. The first level is easier to address than the second level.

Ram and Sheth suggest that a communication strategy is of primary importance to educate customers about the advantages of a resistant innovation. This strategy was in fact used with great success in Australia and New Zealand. In 2000, a group of 15 winemakers from the Clare Valley of Australia selected the Stevlin screw cap closure for their premium Rieslings. This collaboration of wineries jointly launched a marketing campaign, 'Riesling with a Twist' in which they communicated to the media, consumers and retail the quality aspects of the seal. The campaign was a huge success as supply could not meet demand for the screw-capped wines.

These wineries soon began to bottle not only their white wines but also their red wines with Stelvins. The success of the Australian launch motivated 27 New Zealand wineries to form the New Zealand Wine Seal Initiative in late 2001 (www.screwcap.co.nz/). The Initiative also focused on educating the trade and consumers of the superiority of screw caps. This campaign educated not only the wine consumers but also the retailers on the advantages of the screw cap over natural cork closures, which were three-fold – to reduce corked bottles, to ease the opening of a bottle of wine, and to ease storage of open bottles for future consumption. By 2004, domestic market sales of screw capped wines outnumbered wines with cork closures in New Zealand (Courtney 2004). Our earlier results in fact confirm that Australians and New Zealanders recognize the advantages of the screw cap over other closures, unlike American wine consumers. The conjoint results show that Australians and New Zealanders are indifferent between cork closures and screw cap closures.

To overcome the social risk, we suggest that wine marketers need to focus on the value and image barriers associated with the screw cap. In order to reduce the likelihood of making a bad purchase decision, consumers employ risk reduction strategies (Greatorex and Mitchell 1988). A variety of strategies have been enumerated in previous research (Spawton 1991), including the use of extrinsic cues such as pricing and packaging. Since objective information is not available, consumers rely on subjective information, which is also known as perceived quality. Ram and Sheth suggest improving the product's positioning by creating a unique image. One way of increasing perceived value is by introducing the screw cap only on mid-to-high end wines to send a signal of quality. This is a strategy that has been used by Plumpjack, a Napa Valley winery and notable pioneer in adopting screw caps. Plumpjack introduced their high-end red wine, a 1997 Reserve Cabernet Sauvignon, with a twist-off in September 2000. Another

strategy Ram and Sheth recommend is mandating usage of an innovation in order to overcome the usage barrier. This was a strategy used by banks in overcoming the resistance to using automatic teller machines (ATMs). If wineries only offer their finest wines with screw caps this acts as a signal to the consumer that screw caps have value over other closure types. This approach is consistent with our earlier findings that higher income consumers were more likely to adopt the screw cap innovation. It is these consumers that are also the target market for high-end wines.

It is also important for wine marketers to show the compatibility of screw caps with current values and lifestyle. Our results showed that Australians and New Zealanders do not find the tradition of corks (the ‘pop’ and the ceremonial presentation) as important as do Americans. There is thus some evidence that wine consumers’ values are shifting as they realize the benefits of the screw cap. Since, in our study, we found that men are more likely to be adopters of screw caps compared to women, marketing campaigns should target women’s values and lifestyle. One possible way of doing this is to develop wine cellar door activities for women. A ‘Girl’s Night Out’ program will allow women to feel comfortable discussing wine amongst themselves and will also allow the winery to obtain value feedback regarding women’s preferences.

This information is important because wineries need to know how to make wine more accessible to the public. As new innovations are introduced, the right people need to be reached in order to achieve success. By directing their marketing efforts to the right target segment, wineries can enhance their chances of success with new product developments.

Conclusion

This paper investigates the impact of the consumer's knowledge, expectations, and experience on buying decisions and responses to a resistant innovation, the screw cap. A variety of individual characteristics were researched, focusing especially on the attributes of product involvement and product knowledge. The results show that these characteristics can serve as a marker in developing and targeting persuasive messages in order to reduce resistance to product innovations. This will help marketers to develop strategies to overcome consumer resistance.

In order to achieve success with a new product innovation there is a need for a strong market orientation. A policy of innovating without paying attention to the needs of consumers is most likely to result in fewer successful new products (Calentone, di Benedetto et al. 1994). An understanding of what quality means to consumers offers the promise of improving brand positions through more precise market segmentation, product planning, promotion, and pricing strategy (Zeithaml 1988). It is important to know which cues are important and how they vary in different buying situations.

The wine industry is at a stage where just making good wine is not enough to grow the market. The Advanced Business Research (Advanced Business Research 1999) report indicates that there is a wide choice of wines available for consumers and that the industry, as it matures, needs to move from a production orientation to a marketing orientation based upon understanding the consumer (Thomas 2000). The average wine consumer's choice is likely to be influenced to a greater extent by product attributes that require less of an insider's knowledge. Opportunities lie in designing extrinsic product attributes such as unique packaging (Orth 2002).

The context in which wine is sold also affects how information reaches the consumer. More and more, it is the retailers that are the critical link in getting a brand into the hands of the

consumer. As far as supermarket sales are concerned, up to 70% of consumer decisions are made in the store (Bramwell 1997). The environment in which wine purchasing decisions are made is changing and this has created a gap in getting the word to wine consumers.

It is known that consumers use a variety of cues when making quality judgments. They consider price, the label, the brand, the region of origin, and shelf position (Lockshin et al 2005; Lockshin 2001). Many of the attributes are under the control of the winery so consumer response should be considered before implementing these attributes. An experiment providing information to some consumers and not others showed that knowledge of the purpose of alternative closures increased their acceptance (Murray and Lockshin 1997), so there is some proof that point-of-sale information can help consumers adopt a discontinuous innovation. It is important that wineries test all aspects of their wines on the intended audience in order to assure success in the marketplace. It is advantageous to isolate groups of potential customers who place differing emphasis on cues and to identify marketing opportunities by exploring the potential for cue combinations not currently available (Hair, Anderson et al. 1998).

Consumer perceptions of price, quality, and value are considered to be pivotal determinants of product choice. Despite the proliferation of alternate closures, cork is still by far the closure of choice. A recent study by B/R/S Group, a San Rafael, CA market research company, found that only 33% of American consumers who drink wine more than once per week had purchased wine with a screw cap (BRSGroup 2004). Once consumers have sampled screw capped wine, however, their acceptance rate of screw caps increases (Firstenfeld 2004). That study found that 72% of those who have never opened a screw cap feel the closure “cheapens the image of the wine”, compared with only 35% of drinkers who have actually tried screw caps.

The challenge is to encourage trial among those that are resistant to change. These findings also provide a clear impetus to the trade to place the innovation in the market, where trial can occur. One problem that can occur is for the trade to be more resistant to the innovation than consumers and thus slow the movement of the innovation into the marketplace (Wilson and Lockshin 2003). Indications are that consumers will trial an innovation, if it is available, and, as noted above, the risks are reduced to a viable level.

Future Research

More general and public research is needed to better understand wine and other consumers to understand how, for example, packaging impacts on the wine purchase decision (Thomas 2000). Packaging is pivotal to both the delivery and acceptance of a wide range of products. Packaging is important for technical and functional reasons, but also for aesthetics and emotion. It represents the last chance to communicate with and influence the consumer.

Outside of the wine marketplace, the results of this study can be useful for industry in general as a means for gathering knowledge about the timing of a product launch of a discontinuous innovation, for evaluating ways to speed the takeoff of new products, and for understanding how social networks may affect the diffusion of discontinuous innovations. Marketing managers in the U.S. have long been concerned with how to launch products most effectively. This research demonstrates how perceptions of innovations differ for various groups. The differences in these perceptions could help to predict likely communications problems and overcome them. It is clear that communications must include the trade and opinion leaders in order for resistant innovations to be adopted. Each product category will likely need

research to understand the role of the trade in getting innovations into the marketplace and how to influence early adopters.

A better understanding of how consumers choose products will lead to a better framework on which to base decisions on pricing, packaging, and distribution. These strategies then set the agenda for further development in the related area of product development and sales management. A major variable in the marketing mix whose major purpose is to project an image of quality in the package design. The package design, ideally, will instantly communicate an image of a brand that entices the consumer to buy. This is important because, according to the Wine Market Council, the wine industry has undertaken the mission of reaching out to marginal wine drinkers, with the goal shifting their attitudes toward wine so that wine for them can become a more common, casual, everyday enjoyment (Wine Market Council 2005). Packaging materials such as corks and screw caps are a key component of this strategy. The same level of industry commitment will be necessary in introducing other discontinuous and resistant innovations, especially in packaging into the marketplace.

Table 1: Key demographics

	AUS	NZ	US
SAMPLE SIZE	1429	493	1691
GENDER			
Male	68.2%	53.2%	36.1%
Female	31.8%	46.8%	63.9%
INCOME* (local currency)			
< \$9999	2.2%	1.7%	1.2%
10K-24,999	2.3%	3.9%	3.4%
25K-49,999	14.8%	31.7%	22.1%
50K-99,999	43.9%	44.9%	43.1%
100K or more	36.9%	17.8%	30.2%
DAILY CONSUMPTION	43.5%	33.3%	30.8%
PURCHASED SCREWCAP (in last month)	85.4%	89.4%	41%

Table 2 Logistic Regression with DV = Adopter of Screw caps¹

Covariate	B	S.E.	Sig.	Exp(B)
Gender	.268	0.098	.006	1.308***
Income	.194	0.053	.000	1.214***
Discuss wine	.200	0.042	.000	1.221***
Sources reviewed	.093	0.017	.000	1.097***
Involvement	.107	0.061	.080	1.113*
Constant	-3.495	0.416	0.000	0.030

1. controlling for Country

N = 3613, Nagelkerke R Square = 0.350,

Percentage Predicted Correctly= 76.3%

***significant at $p < 0.01$; * significant at $p < 0.10$

Table 3 Logistic Regression by Country with DV = Adopter of Screw Caps

Survey country	Covariate	B	S.E.	Sig.	Exp(B)
AUS N = 1190 Nagelkerke R Square = 0.080 PPC ¹ = 85.5%	Gender	.048	.186	.796	1.049
	Income	.210	.092	.023	1.234**
	Discuss wine	.164	.068	.017	1.178**
	Sources reviewed	.142	.043	.001	1.153***
	Involvement	.185	.094	.050	1.203**
	Constant	-1.592	.623	.011	.204
NZ n = 424 Nagelkerke R Square = 0.028 PPC ¹ = 89.4%	Gender	-.192	.344	.577	0.825
	Income	.117	.192	.544	1.124
	Discuss wine	.229	.132	.083	1.257*
	Sources reviewed	.058	.086	.502	1.060
	Involvement	-.033	.212	.878	0.968
	Constant	.718	1.281	.575	2.051
US n = 1383 Nagelkerke R Square = 0.100 PPC ¹ = 63.5%	Gender	.428	.123	.001	1.534***
	Income	.191	.070	.006	1.210***
	Discuss wine	.214	.060	.000	1.239***
	Sources reviewed	.081	.019	.000	1.084***
	Involvement	.058	.086	.497	1.060
	Constant	-3.271	.564	.000	.038

1. PPC = percentage predicted correctly

***significant at $p < .01$; **significant at $p = .05$; *significant at $p = .10$

Figure 1: Conjoint Results

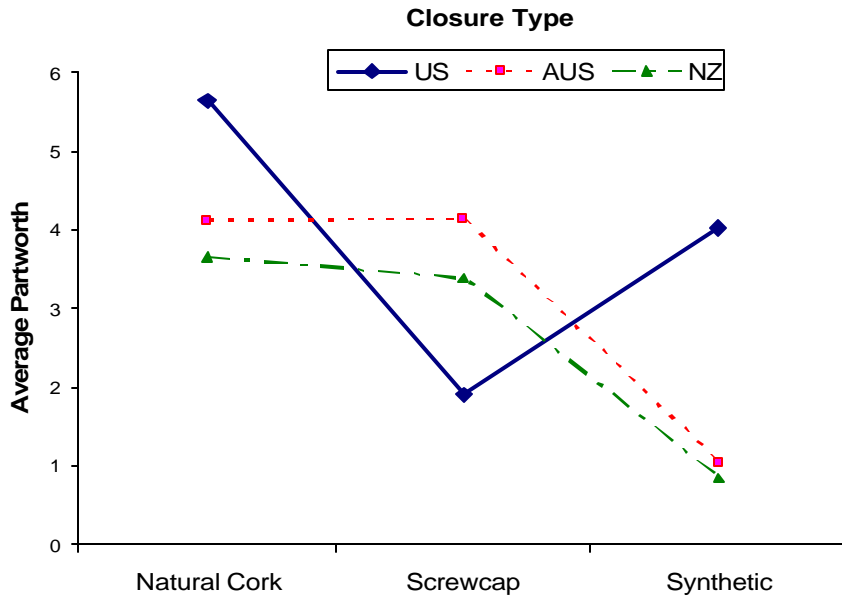
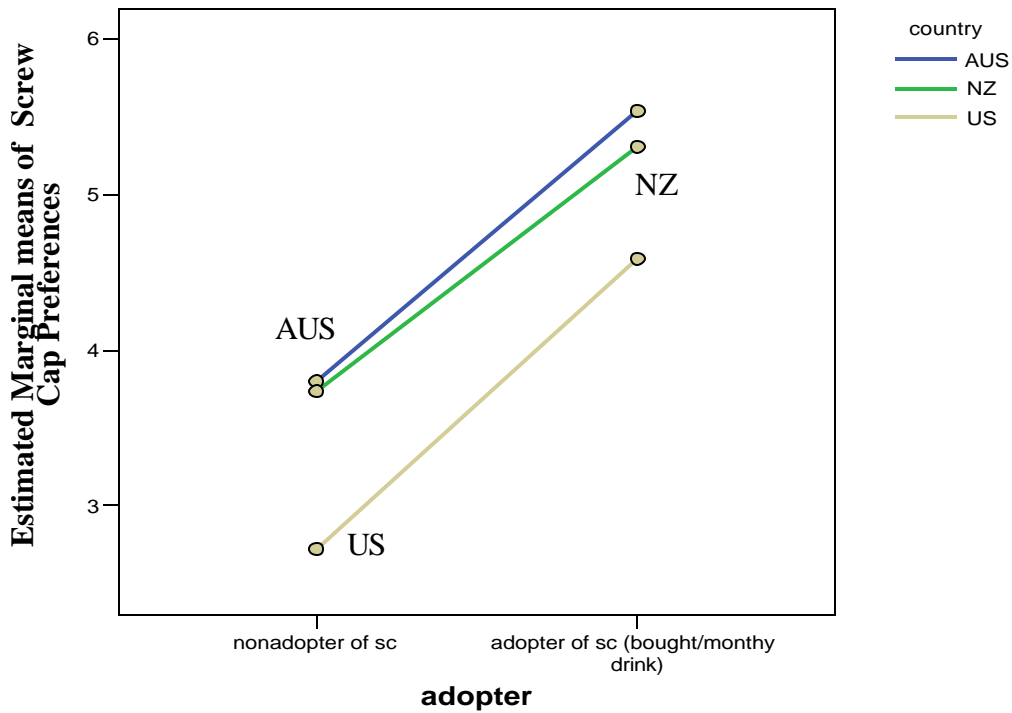


Figure 2: Non-adopters vs. Adopters Preference Change for the Screw Cap



Appendices

Appendix 1: Conjoint Partworths

	US	Australia	New Zealand
Closure			
Cork	5.638	4.127	3.665
Stelvin	1.917	4.142	3.389
Synthetic	4.034	1.055	0.852

Appendix 2: Means and reliabilities of the scale items

Involvement Measures

Likert Scale: 1 strongly disagree to 7 strongly agree

1. I have a strong interest in wine.
2. Wine is important to me in my lifestyle.
3. Drinking wine gives me pleasure.

$\alpha = 0.819$
 $\mu = 6.22$
 $\mu = 5.98$
 $\mu = 6.45$

Advantage of Screw Cap Measures

Likert Scale: 1 strongly disagree to 7 strongly agree

4. Rate the importance of the following attributes:
 - a. The ability to easily open a bottle of wine.
 - b. The ability to reseal a wine for later consumption/ transport.
 - c. The ability to open a bottle without a corkscrew.

$\alpha = 0.724$
 $\mu = 4.43$
 $\mu = 4.18$
 $\mu = 2.84$

Tradition of Cork Measures

Likert Scale: 1 strongly disagree to 7 strongly agree

5. Rate the importance of the following attributes:
 - a. The tradition of opening wine sealed with a cork (uncorking the bottle and sniffing the cork).
 - b. The sound of the cork “pop” when opening a bottle.
 - c. The ritual of opening wine (i.e. the presentation & first taste at a restaurant).

$\alpha = 0.774$

 $\mu = 3.70$
 $\mu = 3.16$
 $\mu = 4.23$

About Yourself

1. Number of wine related sources you routinely review including magazines, newsletter, list servers, etc. (open question: range[0,127], median = 3)
2. I frequently discuss wines with others (friends, family, co-workers, etc.)
Likert Scale: 1 strongly disagree to 7 strongly agree
3. Annual Income
 - a. \$0-9,999
 - b. \$10,000-24,999
 - c. \$25,000-49,999
 - d. \$50,000-99,999
 - e. \$100,000 or more
4. Sex
 - a. Male
 - b. Female
5. Screw cap closures can eliminate cork taint and greatly reduce oxygen ingress for 2 years or more. They do not leak or crumble like some corks. Many wineries have conducted taste tests, which showed that screw caps preserve the freshness and flavor of wine better compared to traditional and synthetic corks, especially for white wines. Most wineries switching to screw caps do so because they prefer the higher quality in their wines, not because of cost savings.
I find this information useful for my future wine purchases.
Likert Scale: 1 strongly disagree to 7 strongly agree

$\mu = 4.05$
 $\mu = 5.68$
 $\mu = 1.6\%$
 $\mu = 3.1\%$
 $\mu = 20.5\%$
 $\mu = 43.6\%$
 $\mu = 31.1\%$
 $\mu = 51.3\%$
 $\mu = 48.7\%$

$\mu = 5.43$

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