Introduction

Accumulated theoretical and empirical evidence suggests that wine prices depend on quality, reputation and sensory characteristics (Combris et al., 1997 and 2000; Oczkowski, 2001; Jones and Storvormann, 2001; Schamel and Anderson, 2003; Cardebat and Figuet, 2004; Lecouq and Visser, 2006). Generally, price is also an important cue for quality when there is some degree of risk of making a wrong choice (Cox and Rich, 1967; Szybillo and Jacoby, 1974; Horowitz and Lockshin, 2002). Beyond the attributes of the wine and the situation, different consumers choose wine differently. Given the incomplete information on quality, price is used in the purchase of wine to overcome any perceived risk. Risks include functional, such as the taste of the wine or the physical aspects of the product, social, such as being embarrassed or the quality is not adequate, financial because of the cost of the product. Gluckman (1990) contends that the act of purchasing wines is clouded with insecurity and many wine purchases therefore involve risk-aversion (Mitchell and Groatorex, 1988, 1989)

Buying a bottle of wine is often marked by expectations and uncertainty as to its quality. Spawton (1993) suggests that with the exception of a few connoisseurs, most wine purchasers are highly risk-sensitive and their subsequent purchases are governed by risk-reduction strategies. Consumers are also confronted with an enormous amount of changing information on brands and vintages which impacts on perceived risk (Speed 1998).

Different people will respond to similar risky situations in very different ways. Numerous experiments have been undertaken by psychologists and others in attempts to define profiles of risk-taker and risk-averse persons. Differences in the behavior of individuals facing similar risky situations could be partially explained by the individual’s family background, education, position, prior experience, and geographical location (Kogan and Wallach 1974). The conventional anthropological theory is that individuals are guided in their choice between risk-avoiding and risk-taking strategies by their culture. A renewed interest in this area of study is linked to the work of Hofstede.2

MacCrimmon and Wherung (1986) provide an extensive survey of theoretical and empirical studies directed towards the understanding of risk behavior. Some of this research focuses on the riskiness of situations, while other studies focus on the willingness of people to take risks in such situations. An important amount of research has been devoted to study how people recognize, evaluate, and respond to similar risky situations that have been framed in different contexts or across different countries (Loubérgé and Outreville, 2001).

The study of human choice behavior provides a focus for considering this issue in different contexts. The experiments reported in this paper try to shed some light on this issue by analyzing choices within the framework of a purchase decision for a wine bottle when the context assumes a possible functional risk. The experiments show how individuals actually behave when they are confronted by the prospect of a potential loss with and without insurance.

Keywords: Wine purchase, risk behavior

JEL classification:
doubts on the validity of the principles of expected utility. Behavioral decision theorists try to take into account biases in people’s information processing. In the prospect theory formulated by Kahneman and Tversky (1979) the behavior of people may at the same time exhibit overestimating of low probabilities and under weighting of high ones. Many other approaches have been developed (Macina, 1982, 1987; Camerer, 1988) and the conclusions of much of these analyses seem to be that no one theory can explain all of the data (Camerer, 1994; Harless and Camerer, 1994; Hey and Orme, 1994).

A strong intuition about preferences is that people treat gains and losses differently (Hershey and Schoemaker, 1980). A property called loss aversion refers to the fact that people tend to be more sensitive to decreases in their wealth than to increases (Thaler et al., 1997). The common reluctance to accept a fair bet on the toss of a coin suggests that the displeasure of losing a sum of money exceeds the pleasure of winning the same amount. This defined as risk aversion in expected utility theory and this is shown to be consistent with (smooth) decreasing marginal utility of wealth. However, this observation may also be consistent with different shapes of the utility function for gains and losses, i.e. loss aversion (Tversky and Kahneman, 1986, 1993).

Once different shapes of the utility function are not excluded for gains and losses, it remains to be seen whether risk-seeking or risk-aversion reflects best actual behavior in each outcome range. Previous studies presenting experimental evidence on decisions under risk when losses are involved seem to imply that choices are often risk-seeking in the loss domain and risk-averse in the domain of gains (Kahneman and Tversky, 1979; Tversky and Kahneman, 1986; Schoemaker, 1990). Risk-taking in the domain of losses is not inconsistent with expected utility (EU) theory provided the Von Neumann and Morgenstern utility function exhibits a convex segment in the loss range. However, experiments reported by Hershey and Schoemaker (1980, 1985) also revealed some inconsistencies when preferences are analyzed in the domain of losses. The same risky prospects experienced in different contexts are valued differently. The way, in which a problem is formulated, including its script, presentation, and response mode, affects preferences. This has been known as a context effect.

The context is the decision to purchase a bottle of wine (the price of which varies from $5 to $500) assuming that there is a probability (defined in the question) that the wine may have a functional risk (it is corked or corky). The purchase is considered in a tax-free zone of an airport rather than in a wine shop where the consumer usually can bring back the bottle. The experiment is defined in two phases: 1) there no possibility to hedge the potential loss (no insurance) and 2) there is a possibility to buy an insurance contract (the price is determined in the question) to cover for the loss.

It is important to determine how individuals actually behave when they are confronted by the prospect of winning and losing the same amount. This is defined as risk aversion in expected utility theory and this is shown to be consistent with (smooth) decreasing marginal utility of wealth. However, this observation may also be seen whether risk-seeking or risk-aversion reflects best actual behavior in each outcome range. Previous studies presenting experimental evidence on decisions under risk when losses are involved seem to imply that choices are often risk-seeking in the loss domain and risk-averse in the domain of gains (Kahneman and Tversky, 1979; Tversky and Kahneman, 1986; Schoemaker, 1990). Risk-taking in the domain of losses is not inconsistent with expected utility (EU) theory provided the Von Neumann and Morgenstern utility function exhibits a convex segment in the loss range. However, experiments reported by Hershey and Schoemaker (1980, 1985) also revealed some inconsistencies when preferences are analyzed in the domain of losses. The same risky prospects experienced in different contexts are valued differently. The way, in which a problem is formulated, including its script, presentation, and response mode, affects preferences. This has been known as a context effect.

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The experiments

To assess the extent of risk taking related to the price of a bottle, subjects are required to indicate whether they accept to buy L Dollars a bottle of wine against the functional risk of buying a corked bottle and losing L Dollars with an unknown probability P. It is assumed that all of the students are familiar with the concepts of expected values and probabilities.

First experiment (the effect of price on demand)

The risky prospect is suggested by a case of 12 bottles containing for sure one corked bottle. It is equivalent to an urn containing red and blue balls in known amounts. A series of seven questions is used to assess the context effect. Each question required a choice between buying and not buying one bottle in this case. The answer is a statement of preference for which there is no right or wrong answer per se. The design of the questions is as follows:

You want to buy a bottle of wine valued $5 in a case in which there is for sure one corked bottle. Do you buy a bottle: YES NO

Second experiment (a risky prospect)

The risky prospect is suggested by a case of 12 bottles containing for sure one corked bottle. It is equivalent to an urn containing red and blue balls in known amounts. A series of seven questions is used to assess the extent of risk taking, subjects are required to indicate whether they accept to buy a bottle and insure against the risk of losing L Dollars with probability P. In this experiment the probability P is held constant and an insurance policy is available to cover for the loss. The experiment is similar to previous ones and the questions are designed as follows:

You want to buy a bottle of wine valued $5 in a case in which there is for sure one corked bottle. Do you buy a bottle: YES NO

Third experiment (impact of insurance coverage)

To assess the extent of risk taking, subjects are required to indicate whether they accept to buy a bottle and insure against the risk of losing L Dollars with probability P. In this experiment the probability P is held constant and an insurance policy is available to cover for the loss. The experiment is similar to previous ones and the questions are designed as follows:

You want to buy a bottle of wine valued $5 in a case in which there is for sure one corked bottle. Do you buy a bottle: YES NO

Note that the price of the insurance contract is $1.

Do you buy a bottle: YES NO

Do you purchase the insurance policy with the bottle: YES NO

Do you buy a bottle: YES NO

Do you purchase the insurance policy with the bottle: YES NO

Results of the experiments

The first experiments, used to test the questionnaires, have been undertaken during the fall term of 2010 with students enrolled in Finance bachelor classes at HEC Montréal. Each experiment was performed in a different class and the size varied from 28 and 31 students. The small size of the experiment is recognized here. Further experiments were realized in 2011 at Aarhus University, Denmark and at Montesquieu University in Bordeaux, France. In the latter case, two samples of 31 and 33 students are merged. In the former case, the samples are smaller and it was decided to revise the scale of prices assuming that the larger prices were not reasonable prices for students in Denmark.

Interestingly, to the question “If you buy a bottle of wine when you are invited by friends to a dinner, how much would you usually spend?” the answer was very close in Bordeaux (£14.5) and in Denmark (£15.3).

Results of experiment 1 and 2

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As shown in figure 1 for the original experiments in Québec, the demand function is negatively related to the price of a bottle as expected. When potential buyers are facing a known functional risk, the demand curve is shifting downward.

Figure 1: The demand as a function of price with and without a risky prospect
HEC Montreal, sample size = 28 and 22

The results were confirmed in Bordeaux (figure 2) and Aarhus University (figure 3). Interestingly, the shapes of the curves in the risky situation are very similar in these two universities and the scale of prices does not seem to affect the results.

Figure 2: The demand as a function of price with and without a risky prospect
University of Montesquieu, Bordeaux, France, sample size = 31 and 33

Figure 3: The demand as a function of price with and without a risky prospect
Aarhus University, Denmark, sample size = 16 and 17

In their model, Bagwell and Riordan (1991) conclude that if consumers lack information about quality, then a high quality product may signal its true type by its price. Similarly, the influence of price has been studied as one of the most important cues used consistently by consumers to predict quality, across a wide range of products (Verdú Jover et al., 2004; Kardes et al., 2004). This price/quality relationship reflects consumers' strongly held belief that 'you get what you pay for' (Lee and Lou, 1996).

According to consumers' behavior, one would anticipate that the demand for wine is non linear with price (does have a relationship with quality) and is therefore lower for cheap wines perceived as low quality wines. This hypothesis means that there is a non linear relationship between demand and price. Our analysis does not confirm this hypothesis with the exception of the sample of students at Aarhus University.

Because wine is an experience good (Nelson, 1970), the quality of a bottle of wine is not directly observable in advance of purchase. Given the incomplete information on quality, price is used as an information variable in the purchase of wine to overcome any perceived risk. Mitchell and Greetorex (1989) suggest the major concern in purchasing wines revolves around functional risks, such as the taste of the wine. However, there is some degree of risk of making a wrong choice and experiencing a social risk. Here again, price may be an indication of the reputation of a product.

To alleviate the functional risk (in our experiment a corked bottle), an insurance policy is proposed and would reimburse the cost of the bottle. The price of the insurance contract, the premium, is equal to the probability of loss multiplied by an assumed transaction cost of 20%.

Results of experiment 3
When insurance coverage is introduced in a risky situation, the demand is restored. In our results the demand is even shifted upward compared to the original situation with an unknown risky prospect with the same results in Montreal (figure 4) or in Bordeaux (figure 5).

5 See Roberts and Reagans, 2007.
6 See Veale and Quester, 2008.
7 Horowitz and Lockshin (2002), show that the relationship between price and quality is not necessarily linear either.
Although the price of insurance is increasing with the increased expected loss, the demand for insurance also increases. The EU theory predicts that risk-averse individuals will accept to pay the fair insurance premium in all cases. However, as pointed out by many authors, it is reasonable to assume that some of them will not bother to take out insurance in two instances. First, according to the EU theory, the utility cost of not purchasing insurance is higher for large unlikely losses than for small probable losses. Hence, insurance-proneness should decrease, as the possible loss becomes smaller. Second, subjects tend to neglect very small probabilities. In this case, they would refrain from insuring when the occurrence of loss seems remote.

In this experiment, the demand for insurance corroborates the results of Shoegren (1990) and Loubergé and Outreville (2001). There is significant risk-taking for small expected losses. In spite of this general tendency to assume risk, insurance-proneness increases sharply as the amount subject to loss grows. Typically, only around 10% of subjects purchase insurance against the smallest loss ($5) but more than 80% decide to purchase insurance when the loss amounts to $50 or more (table 5).

Also both curves exhibit ‘single-peakedness’: the percentage of subjects purchasing insurance first increases, then decreases for the lowest probability. This result is expected if the utility function has an inflection point in the range of losses. This result also corroborates the results of Loubergé and Outreville (2001) undertaken with a similar kind of questionnaire in the context of insurance with small samples of graduate students at universities in Geneva (Switzerland) and Nijenrode (The Netherlands).

Conclusion

The experiments reported in this paper provide some evidence on risk-taking when purchasing wine. Clearly, individuals do not prefer to purchase insurance for small probable losses. On the contrary, they typically choose to insure when they are exposed to losses which are both sizeable and likely to occur.

The results must, however, be viewed in the context of the study’s limitations. It does not necessarily imply that risk attitude is the same in all cultural environments.

References


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