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Valuing Idaho Wineries with a Travel Cost Model

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ABSTRACT. Many commercial wineries produce a dual product; commercial wine and wine tourism. Growth of wine tourism throughout the US has been phenomenal. In contrast to the price of wine, which is reflected in the market, the demand for wine tourism can be only ascertained with a shadow price for winery visitation. The demand for wine tourism visits for Canyon County in southern Idaho was estimated using the Travel Cost Method. The value of wine tourism in Canyon County was estimated to be $5.40 per person per trip and trip demand was highly inelastic at 0.5. Elasticities of other trip demand function variables were estimated and analyzed, with a view to informing the marketing of Idaho's emerging wine tourism industry.

Visitors have long flocked to the famous grape and wine regions of the world. In the Western United States, the majority of wineries have clustered among the grape growing regions of central and eastern Washington, western Oregon, and the nation's foremost grape and wine region, California's Napa Valley. Those states, plus New York, produce 98% of the $20 billion of table wine produced in the U.S. (Shriver 2002). The wineries in the grape producing regions sell wine to a national or even international market, and correspondingly attract visitors from around the world. Wine tourism is increasing. New York wineries and festivals drew 3 million visitors in 2001, Missouri 1.8 million and Ohio 1.5 million (Shriver 2002). New York wine tourism went "through the roof" with visits up 25 to 30 % over last year (WSJ 2002). Last year, the Sonoma and Napa wineries attracted over 10 million visitors, who spent $2 billion (WSJ 2002). In response, wineries have been springing up across the nation. With the addition of North Dakota in 2002, all fifty states now have wineries and Washington has been adding a new winery every 20 days (Shriver 2002). Wineries in these grape-growing areas thus produce a dual product: commercial wine as well as wine tourism. In contrast, the scattered smaller wineries, not located in grape growing regions, generally attract fewer visitors.

With 1,000 acres planted to wine grapes and fifteen wineries scattered throughout the state, the Idaho grape and wine industry is in its infancy. Since 1993, Idaho's wine grape acreage

has doubled, making it the fourth largest fruit industry in the state (Idaho Fruit Tree Census 1999). Over 87 % of Idaho's wine production (from five wineries) and 75% of the vineyards are clustered within several miles of each other in southern Canyon County. By virtue of their close proximity, the Canyon County wineries are a single tourist site, analogous to California's Napa Valley. Moreover, not only are the wineries in close proximity, they are within 30 miles of Boise and 10 miles of Nampa, Idaho's largest two cities. The Canyon County wineries have neither the national nor the international stature to be a destination attraction. Rather, these wineries are tourism alternatives for day-outings for residents and tourists alike (Woodall et al 2002). From the wineries' perspective, tourism not only provides another sales outlet, but also builds brand awareness, thus increasing sales and wine price in the faddish and fickle wine market.

To analyze the tourism aspect of wineries, we examine how and why tourists value wine recreation. To be clear, we are not estimating the demand for wine as a commercial product, but rather wine tourism. Marketing studies for commercial tourist businesses or agribusiness typically start with demand studies that examine market prices for the admission fee or product price, respectively. In contrast, valuing a good that is not traded in a market, such as winery tourism, requires estimation of a shadow price for that good. The Travel Cost Method (TCM) allows demand to be estimated for wine tourism by pricing the number of recreational trips taken to a winery site. The goal of this study is not to pioneer new techniques for travel cost models, but rather to expand TCM to a new genre of studies, estimation of demand for commercial or agribusiness related tourism. Other TCM studies measure consumer surplus as a step to estimate the recreational, environmental, or resource value of an unpriced good for benefit cost analysis. Our primary interest is not to find the value of a recreation site, but rather to examine the shift parameters of the demand function to see how businesses can better produce and market commercial agribusiness related tourism.

We wished to accomplish three objectives; the first paved the way for the latter two. Our first objective was simply to determine if it would be feasible to use the travel cost method to estimate the demand for Canyon County wine tourism. Given the proximity of Canyon County

wineries to their customer base (the Boise-metropolitan area) we were concerned that the variation in trip distance and correspondingly variation in travel cost would be insufficient. Similarly, we were concerned that there was insufficient variation in the number of trips. Given successful estimation demand function, we can then calculate price elasticity and trip value (consumer surplus) for Canyon County wine tourism, the second goal. Lastly, we discover which variables influence tourists to spend an afternoon touring Canyon County wineries. These demand shift variables are the taste and preference variables of the wine tourist, the substitutes and complements in the demand function, and other demand shift parameters. Foremost among those shift parameters, we wanted to examine what we termed the "Napa Valley Effect" -- where vineyards and wineries cluster or agglomerate to attract wine tourism over an isolated individual winery.

METHODS

The Travel Cost Method has traditionally been used to value outdoor recreational sites – for public investment decisions. In estimating a demand for wine recreation, TCM was applied to a new field, that of a commercial agribusiness that couples as a recreation site. A brief synopsis of travel cost models as applied to estimating demand for Canyon County wine tourism is followed by a description of the data. Demand specification and demand estimation methods conclude this section.

Wine tourism trip demand is the relationship between quantity (the number of trips taken to a site per year) versus price (travel cost to the site). TCM calculates an "implicit price" paid by a visitor to a recreational site to estimate a demand for visiting the site. The implicit price is the travel cost to the recreation site; a cluster of wineries in Canyon County, Idaho. Observing individuals traveling different distances from the recreation site generates variation in price. Price is lower for those living closer to the site and higher for individuals further away – travel costs are thus correlated with distance traveled. People closer to the site to take more trips and those who live farther away to take fewer trips, thus resulting in the downward sloping trip demand function. A detailed history and description of TCM is in Ward and Beal (2000), Ward

and Loomis (1986) and Parsons (forthcoming).

Once estimated, the trip demand curve can be used to estimate visitor's consumer surplus: their willingness to pay net of travel costs (Loomis, Gonzalez-Caban, and Englin 2001). The travel cost trip demand function is the basis for empirical estimation:

where Q is trips to Canyon County wineries, P is the own price or travel cost, S is prices of closely related goods, Y is income, and Z includes all other demand shift variables. Demand for winery tourism can be inferred from this trip demand function by examining the coefficient on travel cost. In this study, the trip demand function is used to infer the value of wine tourism through the price (travel cost) coefficient and the coefficients on the other trip demand variables are used to examine factors influencing trip demand.

Data

A self-administered survey was distributed to the four largest Canyon County wineries between August 2001 and October 2001. Winery staff displayed the surveys in their tasting rooms and invited visitors to participate in the survey. Of the 250 surveys distributed at the wineries, a total of 98 surveys were returned for a response rate of 39.2%. In the first section of the survey, winery visitors were asked which Canyon County wineries they planned to visit and how often (yearly basis) they visited the wineries. Then they were asked to explain how they learned of the wineries (word-of-mouth, road signs etc.), and to describe the nature of the visit. The next section inquired about the visitor's home zip code and asked them to estimate how many miles they had traveled from where they were staying to reach the winery. Questions about their specific travel expenditures for the trip followed. They were asked a question about alternative activities they may have participated in had they not gone wine tasting. They were asked about their tastes and preferences. The last section of the questionnaire inquired about the respondent's demographics.

The survey provided a profile of the Canyon County wine tourist. The wine visitor is a well-educated individual (34 % with graduate degree) with a moderate to high income and a

household size of only two people. The average wine tourist is between the ages of 36 to 49. The Canyon County wine tourist drinks wine on a regular basis, with 83 % of the visitors drinking wine every week and one-third of these drinking it two to three times a week (Woodall et al. 2002).

Idaho wineries are not a travel destination as is the Napa Valley. Sixty percent of winery visitors originated from Idaho, a majority from the Boise area. The visitors are generally on a day outing specifically to wine taste. Those wine tourists who do come from outside Idaho are generally visiting extended family and are on an afternoon outing. The average number of miles traveled to the wineries is approximately 26 miles one way. For visitors from outside the state, we approximated the distance from where they were staying inside the state. Despite the close proximity of the wineries to the majority of visitors, the typical (modal) wine tourist makes only one trip per year to the wineries, with the mean number of visits being 2.8 per year. Sixty percent of the respondents had previously visited wineries in other states (Woodall et al. 2002).

Demand Specification

The TCM trip demand function is specified (see Table 1) with the number of trips per year as the dependent variable and the following independent variables: (1) own price (travel cost), (2) cross prices for closely related goods, (3) income, and (4) taste and preference variables.

Specification of the price of the good is a bit more complicated than it is for an ordinary market commodity because the good in question, the visit, is actually a complex commodity. Recreation trips are seldom single-purpose and travel can be either pleasurable or a nuisance. Many recreational trips combine sightseeing and the use of various capital and service items with both travel and the site visit, and include side trips (Walsh et al. 1990b). However, the effect of other activities on the trip-travel cost relationship can be captured by inclusion of the relevant prices paid during travel or onsite and for side trips. Furthermore, both trips and on-site recreation are required to exist simultaneously to satisfy the weak complementarity conditions

that allow estimation of the demand equation (McConnell, 1992). Weak complementarity implies that the travel activity is necessary for use of the site, but the quantity of travel is independent of the nature/quality/quantity of the site (Maler, 1974). The relationship between the number of trips and site experience reflects the marginal satisfaction of a trip, which depends on the experience at the wineries. For example, the experience of a winery visit may include the quality and quantity of wine tasting, wine making tours, or other on-site amenities such as a gift shop or jazz concert. Therefore, to fully specify the price of the good, the demand relationship should contain site quality variables, time-on-site, and goods used on-site, as well as other site conditions. Exclusion of these variables would violate the specification required for the weak complementarity condition, which allows use of the TCM to measure benefits (McKean, Walsh and Johnson 1996).

The price variable consists of travel costs to the wineries (round-trip). However, many complications arise when attempting to calculate these costs. One issue concerns estimating the trip cost and another problem deals with measuring the opportunity cost of time. Ideally, one would use the actual expenditures for the trip including all associated incremental costs for the trip in question. However, determining trip actual expenditures is not simple. In this case, a Canyon County winery visit was a day trip for the majority of visitors (55%). This means that reported expenditures can be a misleading indicator of actual expenditures. For instance, a day trip to the Canyon County wineries from Boise does not use a full tank of gas. If a wine tourist reports purchase of a full tank of gas for a 25-mile trip, reported expenditures will be higher than incurred trip-related expenditures. Conversely, 25 % of respondents did not report any gas expenditures. Using the reported cost information might be seen as an advantage in that it creates greater variability in trip costs data, but the increased variability comes at the cost of increased measurement error and an increased probability of response or recall bias (Ward and Loomis 1986).

To avoid this bias, we imputed the cost of the trip using the American Automobile Association's (AAA) estimate of the average cost of operating a vehicle per mile. The per-mile

estimate of cost is multiplied by estimated trip distance to arrive at a synthetic transit cost (Parsons forthcoming). We questioned visitors as to the type of vehicle they drove. According to AAA, the average per mile costs are $0.12, $0.13 and $.26 for a car, SUV, and recreational vehicle, respectively. In contrast with several previous TCM studies, we only included operating costs. Ownership costs are incurred regardless of vehicle usage. We therefore viewed them as not part of the incremental cost of the trip and excluded them from the study.

We followed Ward's (1984) advice in imputing travel costs; the most accurate price measure in the TCM is the minimum expenditure required to travel from origin and return since any excess of that amount is a purchase of other goods which is not a relevant part of the price of a trip to the site. Trip costs are calculated by multiplying the cost per mile of the vehicle by the number of miles traveled both ways. Trip costs are then divided by two (the average number of individual***s*** per wine trip), to yield per-person trip cost.

Time spent on the trip is a potentially important component of trip cost. In most applications of the travel cost model, the opportunity cost for time of travel has been assumed to be some proportion of money income. This approach has been adopted from studies of commuters and is based on the equilibrium labor market assumption – that consumers will equate the value of labor and leisure at the margin (Cesario 1976, McConnell and Strand 1981, Caulkins et al. 1986, Bowker et al. 1996, Cameron et al. 1996). However, controversy has long surrounded the issue of measuring opportunity time values. Following Cesario, many practitioners have used one-third the hourly wage rate, but scholars have disagreed about the "correct" income proportion. More recent approaches have attempted to empirically estimate the time value directly. However, these methods require time data, separate from the distance data. The issue of proper treatment of the opportunity cost of time remains the theoretically and empirically contested. The literature on this issue is vast and some important contributions include: Bishop and Heberlein (1979), Wilman (1980), McConnell and Strand (1981), Ward (1983, 1984), Wilman and Pauls (1987), Bockstael et al. (1987), Walsh et al. (1989), Walsh et al. (1990a), Shaw (1992), Larson (1993), McKean et al. (1995, 1996), McConnell (1999), and Ward

and Beal (2000).

A closer examination of travel time suggests that omitting the travel time does not leave out the value of travel time, although it implies some potential damage from mis-specification due to the omission of the variable. It can be argued that the time value is already implicitly captured in the overall value of the trip itself. For instance, the trip itself may be a pleasurable experience and therefore the trip can be viewed as a part of the recreational outing (Parsons forthcoming). Parsons suggests that, in this case, any added pleasure of the trip itself would should show up in the demand function in the form of additional trips, so it is not necessary to discount the time cost. Similarly, if the trip time were not pleasurable, it would result in a demand for fewer trips.

To summarize, ideally trip time should be included as an explanatory variable because it is one of the determinants of trips. Leaving time out implies misspecification. However, it can be argued that the value of trip time is implicit in the model in its influence on the number of trips. In our study we had no independent data on travel time, so we were unable to follow the preferred method of directly estimating the time value. The inclusion of time as a proportion of travel costs would simply increase the estimated trip value without substantially affecting parameter estimates. Moreover, we believe that some components of the time value of the trip are captured in the general specification of the model – a more pleasurable trip leads to more trips and vice versa for a less pleasurable trip. In the end, given the lack of data, we simply omitted treatment of the opportunity cost of time. Given the short distance and time associated with most trips in this study, and the approximate nature of the costs to begin with, we believe that this omission had little impact on our results.

Empirical estimates of demand can suffer mis-specification bias if the prices of "closely related goods" are omitted (McKean, Walsh, and Johnson 1996). The MWJ hypothesis was that a more complete specification of the TCM to include often-neglected closely related goods' prices would increase accuracy in isolating the site value from other values. In this model, closely related goods included lodging in Canyon County and staying at home.

The hypothesized Napa Valley Effect of wineries clustered in Canyon County was tested in the demand function by asking respondents the number of wineries visited during a single trip. We hypothesize that a cluster of wineries is significant in attracting wine tourists.

Taste and preference variables were specified as advertising variables, the frequency of wine consumption and the price paid per bottle of wine. The budget constraint was specified as an income constraint.

Demand Estimation

Data were obtained from a survey of winery visitors contacted on-site. These data included the dependent variable, the number of visits to Canyon County wineries. Due to the nature of the data and the survey method, estimation of a travel cost demand function must address three issues: (1) a truncated integer dependent variable, (2) overdispersion, and (3) endogenous stratification. Each estimation issue will be discussed, followed by the procedure adopted in this study.

The dependent variable (visits per year) is a nonnegative integer, truncated at one visit per year. Moreover, an on-site survey excludes those who did not visit the study site. Conventional regression will bias coefficients toward zero when the dependent variable is truncated from below because it implicitly assumes that some of the distribution lies in the negative quadrant (Maddala 1983). Truncated Poisson regression is often used to remedy this bias (Greene 1981; Creel and Loomis, 1990, 1991; Hellerstein and Mendelsohn 1993). However, Poisson regression can exhibit overdispersion; the significance of the Poisson regression coefficients can be greatly overstated if the variance of the dependent variable is not equal to its mean. The negative binomial regression does not suffer this shortcoming, thus overdispersion can be tested using the negative binomial regression (Cameron and Trivedi, 1990 and Greene, 1998). The overdispersion rate is: . In this study, when the truncated negative binomial regression was estimated, the coefficient on the overdispersion

parameter, alpha, was 0.14 with a t-value of 0.928. Overdispersion was rejected. The rejection of overdispersion allowed use of the truncated Poisson regression to estimate the travel cost demand for winery trips.

Another potential problem is that an on-site survey introduces self-selection bias—only those who visit the site are surveyed. Although the truncation estimation technique excludes zero values, the adjustment for truncation does not adjust for the possibility that frequent winery visitors are more likely to be in the sample than are less frequent winery visitors. The Poisson regression was adjusted for endogenous stratification by simply subtracting one from the dependent variable following the procedure developed by Englin and Shonkwiler (1995).

Results

In this section we report an estimate of the value wine visitation (consumer surplus) and interpret the other wine tourism demand function coefficients and respective elasticities. Table 2 reports the values of the estimated coefficients, t-values, and elasticities.

Consumer surplus is the net value of a winery visit, analogous to an unpaid entrance fee. Consumer surplus was estimated using the procedure shown in Hellerstein and Mendelsohn (1993) for consumer utility maximization subject to an income constraint, and where trips are a nonnegative integer. They show that the conventional formula to find consumer surplus for a semi-log model also holds for the case of the integer constrained quantity demanded variable. The Poisson regression, with a linear relation on the explanatory own monetary price variable, is equivalent to a semi-log functional form. Adamowicz et al. (1989), show that the annual consumer(s) surplus estimate for demand with continuous variables is E(r)/(-ß), where ß is the estimated slope on price and E(r) is the mean annual visits from the estimated trip demand function. Consumer surplus per trip from home to site is 1/(-ß). Utilizing the price coefficient from Table 2, consumer surplus per trip per person is $5.40 (1/ -.186). The total annual value of wine tourism for each visitor is $15 ($5.40 per trip and an average visitor making 2.8 trips per year).

Demand for Canyon County wine tourism is price inelastic, -0.5 (Table 2). As with any good, price of substitutes and portion of income explains the price inelasticity of Canyon County wine tourism. A Canyon County wine trip is a very specialized and high quality recreational activity, which empirical evidence shows decreases price elasticity (Loomis and Walsh 1997) Canyon County wine tourism is unique in Idaho; substitutes are costly (Oregon and Washington wineries are a five-hour drive). Further evidence of inelastic demand is shown when respondents reported that the foremost alternative to a winery visit was to "stay at home". The positive sign (0.421) on the "stay at home" dummy variable confirms that winery visitors view Canyon County winery tourism as unique, with few substitutes. For the small proportion of the regional population that enjoys visiting wineries, there are few recreational and travel alternatives.

Winery trips are a miniscule portion of participants' income, thereby increasing inelasticity. Price elasticity for recreational activities is usually greater for weekend trips (Loomis and Walsh 1997). The cost or price of wine trips on day outings is lower than for weekend wine trips and, thus, are less important in the consumer's benefit. In comparison, to our results, we would expect that Napa Valley or French wine tours would have both higher consumer surplus and higher price elasticity since these are costly multiple day destination trips for which there are numerous substitutes.

The lodging variable (lodging) measures visitors spending on lodging in Canyon County per trip, i. e. the price per trip for lodging. Winery visits and lodging are complements (Lodging coefficient equals -0.02). Non-local visitors, who do not stay with family use Canyon County lodging. As this category of visitors have more lodging available close to the wineries (i.e. the price of lodging drops) the more likely they would be to increase the number of visits to the wineries.

The variable measuring the number of wineries visited during a wine trip showed non-significance. We had hypothesized that the agglomeration of wineries in Canyon County or "Napa Valley Effect" would be a significant determinate of the number of trips. The Napa Valley attracts millions of tourists each year because wineries, restaurants, and hotels are

clustered together. Even with Canyon County wineries being within a 10 to 15 minute drive of each other, the agglomeration effect was not significant in the TCM demand in Canyon County (Table 2) as measured by visits to multiple wineries.

Income was significant (t = -2.552) and negative (-0.0000069). We assumed that winery tourism would be a normal good with a positive response to higher income. We believe that the negative sign on income resulted because the survey did not include a question about occupations and work status. Tourists earning higher incomes do not have the discretionary time to visit wineries, in contrast to retirees with lower incomes and more leisure time. Thus, the significant negative coefficient on income is really a proxy for discretionary time[1].

Advertising works. Advertising variables such as news ad, brochure, road sign, and guidebook were all statistically significant and thus positively influenced wineries visits. In particular, tourists who used guidebooks were most likely to make multiple visits to the wineries.

Wine taste and preferences were specified in the TCM demand function by wine consumption (Drink) and wine quality (Connoisseur). The rate of wine consumption was statistically significant (t = 5.04). A Canyon County winery visitor averages nine wine drinks per month As the number of drinks consumed increases the number of visits also increases so that tourists who drink one glass of wine a day are likely to make one additional trip to the winery per year compared to the average tourist. Wine tourists tend to prefer moderately priced wine, spending an average of $11.68 per bottle. The price paid for wine was not significant (t = 0.81), the wine price did not determine visits to the wineries. In summary, visits to Canyon County wineries increase as wine drinking increases, but visits are not affected by the price paid for that wine.

Conclusions

The TCM has been used extensively to value non-commercial outdoor recreational sites that have nominal access fees, often to inform decisions to invest in public recreation sites. In

[1] Techniques being developed by McKean alleviate this problem.

estimating a demand for recreational winery visitation, TCM was applied to a new field, that of a commercial agribusiness that doubles as a recreation site. TCM estimates demand based upon the fact that visitor's pay an implicit price in the travel costs. Marketing studies for commercial tourist businesses or agribusiness, in contrast, start demand studies by examining market prices for the admission fee or product price, respectively.

At the outset, we were skeptical TCM would be practical for valuing Canyon County wine tourism. Would the variation in trip numbers and travel costs from nearby Boise be sufficient to estimate a TCM demand function? However, in the end, we found that the price of an "afternoon getaway" to a Canyon County winery proved to be significant and was valued at approximately $5.40, just less than the cost of a movie ticket. Consumer surplus for a wine trip is akin to an uncharged entrance fee. The single analogous TCM study we found that was comparable to our study valued a trip to cut Christmas trees at $9.37 ($5.00 cutting fee plus consumer surplus of $4.37) (Markstrom and Donnelly 1988). Consumer surplus estimates are extremely sensitive to imputed travel costs; higher travel costs increases estimated consumer surplus. We included in the travel costs only the vehicle operating costs at 12 cents per mile traveling both ways, while other TCM studies have used as high as 35 cents per mile (Parsons forthcoming). Moreover, we did not include the opportunity cost of time.

Valuing a winery trip was not our main goal because the decision to invest in a winery is little influenced by prospective winery visits. From the winery's perspective, tourism is a marketing tool. Therefore, our main interest was to examine demand elasticity and variables that influence winery tourism. Demand was inelastic (–0.5) because Canyon County wine tourism is a unique experience for which there are few substitutes. The most popular alternative to visiting a Canyon County winery was to staying at home. In contrast, a Napa Valley or French wine tour would have both higher consumer surplus and higher price elasticity than Canyon County. "Napa Valley Effect" or agglomeration effects, manifest in the number of wineries visited during a wine trip, was not significant. We could not find evidence that the cluster of wineries influences Canyon County wine tourists. The absence of agglomeration effects prompt several

marketing questions: Is information about the proximity of the other sites lacking? Do Idaho tourists simply have the time or inclination to visit multiple wineries? Could activities such as festivals increase visits by encouraging additional visits to the wineries?

Wine preferences, wine consumption and wine quality, were specified in the TCM demand function. Wine quantity was significant, while wine quality did not affect winery visits. Canyon County wine tourists seem to enjoy drinking relatively larger amounts of the moderately priced wines which Idaho wineries predominately produce. Other significant variables include the advertising efforts such as road signs, brochures, newspaper advertisements, and guidebooks. Wineries advertising in these categories positively influence visitors to make additional trips. Should Canyon County wineries charge fees to capture the $5.40 consumer surplus? Larger wineries in established wine regions charge wine tasting fees. Fees separate freeloaders from potential customers. However, in emerging wine regions, such as Canyon County, wine tourism not only gives wineries another sales outlet but also promotes brand awareness, thereby boosting wine sales and more importantly wine prices in the faddish and fickle wine market. As Canyon County wineries establish themselves, free samples may be the cheapest and most effective marketing tool available. A tasting fee discouraging wine tourists from visiting would therefore be counter-productive.

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Table 1. Definition of Variables

Label	Units	Definition
Q	trips	Annual trips to a Canyon County wineries (dependent variable)
P	dollars	Round trip travel cost to wineries, per person.
Wineries	number	Number of wineries visited during trip
Connoisseur	dollars	Price per bottle of wine purchases
Drink	number	Wine consumption per month
Lodging	dollars	Lodging expenditures in Canyon County
Income	dollars	Annual income
News Ad	0,1	How wine tourists learned of wineries
Brochure	0,1	How wine tourists learned of wineries
Guidebook	0,1	How wine tourists learned of wineries
Road sign	0,1	How wine tourists learned of wineries
Stayed	0,1	Stayed home – alternative to visiting wineries

Table 2. Travel cost demand model estimated with truncated Poisson regression and adjusted for endogenous stratification (adjusted R^2 = 43%). The dependent variable is trips per year to the wineries (mean 2.8).

Variable	Coefficient	t-ratio	Mean	Elasticity
constant	-0.136		na	na
Price	-0.186	-3.11	2.5	-0.465
Wineries	0.0175	0.215	2.225	N.S.
Connoisseur	0.0249	0.81	11.68	N.S.
Drink	0.0487	5.040	9.06	0.4412
Lodging	-0.0233	-2.352	4.91	-0.1144
Income	-0.0000069	-2.552	74290	-0.5126
News Ad	0.88	3.621	0.067	0.059
Brochure	0.445	2.163	0.225	0.100
Guidebook	1.192	5.262	0.124	0.148
Road sign	0.782	3.721	0.236	0.185
Stayed	0.421	2.434	0.382	0.161