

ECONOMIC IMPACTS OF WINE TOURISM IN MICHIGAN

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Abstract: In Michigan, wine tourism is perceived as increasingly important concept because more and more tourists visit wineries and wine tasting rooms annually. However there have been few studies conducted concerning the economic impacts of wineries in Michigan even though the industry has been recognized as having significant economic impact potential.

The primary purpose of this study is to quantify both the economic impacts of winery visitors and wine production in Michigan. The three objectives that guided the design of the study are to: (1) segment winery visitors based on purpose of trip and length of trip, (2) estimate the economic impacts of winery visitors in Michigan using MITEIM, and (3) estimate the economic impacts of the wine production industry in Michigan using IMPLAN model.

Introduction

Agricultural tourism, such as visiting wineries, cider mills, historic farms or U-picks, and farm tours, has emerged as a strong and growing area of tourism recently. In Michigan, wine tourism is perceived as an increasingly important concept because more and more tourists visit wineries and wine tasting rooms annually. Wine tourism can comprise a substantial proportion of a winery's total sales, particularly for small wineries that do not have much access to other distribution outlets or wholesalers. Not only are tourists important for the sales they generate, but they also assist by educating others about wine and helping to change consumer attitudes and behaviors toward this product (Dodd and Bigotte, 1997). Therefore, income from tourists can be a major source of revenue, and their word of mouth advertising can be an important promotional tool for wineries and wine tasting rooms. Michigan now ranks 13th in wine production by volume in the U.S. and is the fourth largest producer of grapes for juice and non-alcoholic beverage processing in the nation. There are currently 27 commercial wineries in Michigan. It is estimated 600,000 people visited those wineries in 2000 (Mahoney et al. 2001). Previous research investigating the economic impact of tourist markets has sought to compare the relative economic impacts of tourist groups having different purpose of visit or different geographic origins. Without further description of the target segments, trip characteristics such as purpose of visit are of limited

usefulness (Spotts and Mahoney, 1991). There have been few studies conducted concerning the economic impacts of wineries in Michigan, even though the industry has been recognized as having significant economic potential.

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This study is valuable in that it partitions a single tourist market into three groups on the basis of primary purpose of winery visit and their relative level of spending, in order to estimate their economic impact.

Literature Reviews

Methods of Estimating Economic Impact

Economic impact analysis methods basically estimate average per-person spending, multiply this by the total number of visitors to determine the direct spending associated with the area or activity under investigation, and then apply multipliers to estimated secondary or indirect economic effects (Vogelsohn & Graefe, 2001). A multiplier derives from the decision by firms to hire workers, produce output, purchase intermediate inputs, etc., and assumes that these decisions are dependent on the demand for their output. Expenditure on their output is what drives their production and creation of income (Burgan & Mules, 1992). Even if economic impact analysis is focused on generating direct expenditure data, it can be carried further by putting the expenditure data into an economic impact modeling package. These computerized databases model the economic impact of expenditures on the economy of a defined region, and are based on the economic multiplier or rate of money leakage that is known to occur within the region (McIntosh & Goeldner, 1984). Furthermore, these methods are capable of estimating indirect and induced impacts for a region under study. For instance, the \$30 spent by visitors at a winery is the direct impact. This \$30 may be comprised of a \$20 wine purchase, a \$5 food purchase, and \$5 of wages and profits. Therefore, the expenditure of \$30 at a winery will generate not only demand in other sectors (wine manufacturing, food manufacturing, and the like) but will also create immediate household income (wages and profits). The stimulus provided to those other sectors will in turn generate household income. Finally, the whole \$30 will lead to household income in the form of wages and profits at a variety of stages of the production chain.

Input-output models are generally applied to tourism impact studies (Schwer, Gazel & Daneshvary, 2000). These models are accounting frameworks for analyzing the flow

of goods and services among businesses and between businesses and final consumers. These models are useful for defining the relationships, and the degree of interdependency, between various industries or sectors of an economy (Cox & Munn, 2001). Many economic impact studies include the use of computerized input-output models such as IMPLAN (Minnesota Implan Group, Stillwater, MN) to create a detailed description of how money entering a region travels through the economy and creates additional income and employment (Vogelsong & Graefe, 2001). There are other models including linear programming, computable general equilibrium, and social accounting matrix (Schwer, Gazel & Daneshvary, 2000).

Economic Impact of Wine Tourism

According to the Wine Institute and the California Association of Winegrape Growers, California's wine industry has a total annual economic impact on the state of \$33 billion in wages, revenues and economic activity. California's wine industry created an estimated \$12.3 billion in retail sales in the U.S. in 1998, and tourism directly related to the wine industry resulted in expenditures of \$1.2 billion annually by 10.7 million winery visitors. These figures were calculated using the IMPLAN model.

Another winery economic impact study (Michaud, Segarra & Dodd, 1998) estimated the economic impacts of the Texas wine and wine grape industry on the Texas economy through each sector of businesses from the vineyards to the final consumers. Survey data from the state's vineyards and wineries for 1996 was used to construct an input-output model of the Texas economy and an industry impact framework using IMPLAN. Results indicated that the total core economic impacts of the Texas wine and wine grape industry were \$85.8 million in output impacts, 1,157 jobs, \$29.6 million in income impacts, and \$46.6 million in total value added impacts in 1996. Much of these core economic impacts were attributable to the wine and wholesale trade sectors.

Michigan Tourism Spending and Economic Impact Model (MITEIM)

The Michigan tourism spending and economic impact model (MITEIM) was developed for the tourism industry within the state to estimate the economic impacts of tourism. The model estimates total visitor spending in an area and the associated economic effects in terms of sales, income, jobs and tax receipts. There are four steps to estimate the economic impact using the model. First, choose or edit a set of visitor spending profiles; second, enter the number and types of visitors; third, choose the multipliers for the local region; and last, enter applicable state and local tax rates. The basic rule of calculating economic impacts is to multiply the number of visits by the average spending per visit and then to multiply that product by the multiplier.

Spending data can be based on survey results or other recent studies. The figures from 1998 statewide lodging

segment spending averages are defaulted in the model and can be easily adjusted for different purposes. To apply the model, visits are broken down between several distinct types of visitors with different spending patterns. For example, day visitor spending is quite different from that of overnight visitors, and spending also varies across groups of overnight visitors depending on the lodging types they use including: motels, campgrounds, owned seasonal homes, and staying with friends and relatives.

This model converts tourist spending to the income generated and the number of jobs supported by using sets of economic ratios and multipliers for the state and sub-regions. MITEIM itemizes the direct effects within key tourism-related sectors of the economy by using sector-specific ratios of jobs and income to sales. Total effects are presented in aggregate form and include both indirect and induced effects. In MITEIM, economic ratios and multipliers for the state and sub-regions are derived from input-output models estimated with IMPLAN Pro 2.0.

To estimate the economic impacts of winery visitors in Michigan, MITEIM was used for this study. There were three primary inputs to MITEIM: (1) the number of visits in party nights and shares for each segment, based on the length of the winery visits, (2) the spending profiles of each different segment on a party-night basis, and (3) a set of multipliers for Michigan's wine industry and wineries. Direct and total impacts were estimated in terms of sales, personal income, jobs, and tax receipts. Total impacts included indirect and induced effects, too. Direct effects were broken down by major sectors and compared with estimates of economic activity in Michigan to estimate impacts in absolute or relative terms.

To generate the spending profile of the model, six categories were used for this study: 1) lodging (motels, hotels, cabins, B&Bs, and campgrounds), 2) restaurants and bars, 3) groceries and take-out food and 4) drinks, gas and oil, 5) wine, and 6) souvenirs and other expenses. The winery visitors were segmented into three different types based on the length—half day, full day and overnight visitors—and the purpose of their trips. This will be discussed in more detail later in this paper.

MITEIM employs visitor spending profiles for a set of travel segments, to estimate visitor spending, and also utilizes a set of sector-specific multipliers. Basically, the numbers already established in the spending dataset and set up in the model were used, and the spending for wine purchases, generated from the inventory survey, were added. The model uses distinct spending profiles for each segment to capture differences in spending between them. Sets of multipliers, which are set up in the model for the state of Michigan and various subregions, were used for the analysis. Spending was estimated in categories and then applied to an input-output model of the area's economy. This figure was translated into spending associated income and jobs and also into estimating the secondary effects used to estimate spending and the economic impacts of wine tourism in Michigan (Stynes and Propst, 2000).

Study Methods

Two different survey methods were employed to gather the data for this study, one for tourists and the other for commercial wineries. These surveys were designed to collect different information essential for estimating spending by winery tourists and the direct and secondary economic impacts of Michigan wineries. The results from the tourist surveys produced comprehensive data on wine drinkers, winery tourists and characteristics of trips on which travelers visit wineries. Some of this information is used to segment the winery visitors that are used for the basis of economic impact analysis. A web-based survey of wineries was also employed to collect information about the wineries needed to estimate the industry's economic impact.

Web-based Survey of Wineries

This study of Michigan's commercial wineries was conducted using a web-based survey. This type of survey has lots of advantages compared to mail and telephone survey methods. It is completed 75% faster by using the Internet and at half the cost of conventional methods. In this study, a web-based survey was designed and used to conduct a marketing focused inventory of all Michigan wineries, including their facilities, services, products and events. This survey collected the following information: number of visitors, amount of transactions, average dollar value of a sales transaction, if and when the winery is open to the public, at-winery and off-site wine tasting, whether tours are available, special events, on-site marketing and retailing of wines and other related products, winery affiliated restaurants and lodging, number of persons employed all year and on a seasonal basis, and zoning and regulatory issues affecting winery development and marketing.

The questionnaires were also mailed out to wineries at their request. Twenty-one out of twenty-seven wineries that asked to fill out the survey did so; one third of them completed the survey through the Internet, and the rest of them were used mailed surveys. The total response rate was 78 percent.

Welcome Center Wine Tourism Survey

The Michigan Welcome Center Travelers Survey (2000) was conducted at six different Michigan Welcome Centers: Monroe, New Buffalo, Dundee, Port Huron, and Mackinaw City from June to October in 2000; 1,176 surveys were completed during that four month period.

Respondents entering and leaving the Welcome Center facilities that house restrooms, vending machines, and a travel information outlet were randomly selected using a systematic sampling scheme—every 5th person. Potential respondents were approached by trained surveyors and asked to cooperate in the survey. When the survey was completed, the surveyor collected it. This was not only more efficient in that as many as five persons could

simultaneously complete the survey, but it also eliminated the introduction of interviewer bias.

The survey questionnaire consisted of twelve close-ended questions about length of trip (overnight vs. day trips, number of nights), purpose of trip and party size that were needed for economic impact analysis and some other wine related questions: whether they visited or planned to visit any wineries on the trip, whether they had visited any wineries in the last five years, whether they consume wine, whether they purchased wine, and also their socioeconomic characteristics.

Results

Using the information from the Welcome Center Travelers Survey, three different segments were selected for closer examination. Based on this segmentation, the analysis for economic impacts was developed with emphasis on the spending impacts of wine tourism. It is estimated that direct and secondary (indirect and induced) economic impacts of winery visitors are \$16.6 million and 357 jobs in Michigan. Wine tourism generates direct economic impacts of \$10.7 million, and it supports 206 jobs in Michigan. With the impacts of winery production, the total economic impact of the wine industry and wine tourism are \$75.4 million—counting \$58.8 million associated with winery production and \$16.6 million related to wine tourism. Wineries support 756 jobs in Michigan, 399 in winery production and 357 in the wine tourism area.

Segmentation of Winery Visitors Based on their Trip Characteristics

To estimate the economic impacts of winery visitors, the data gathered using the Welcome Center Travelers Survey was segmented. Researchers expected that spending would be significantly different between people who visited the winery as their primary purpose of trip and people who merely stopped by the winery on the way home. People who stayed overnight in the area were expected to spend more money than people who visited the area as a day trip; therefore, segmenting the winery visitors by their trip characteristics was necessary to estimate their economic impacts. Based on these segments, their economic impacts were then calculated using MITEIM.

The Welcome Center Travelers Survey provided varied information about the trip characteristics of travelers who visited Michigan wineries. First, the purpose of trip characteristic was used for segmentation. Winery visitors were asked if their winery visit was the only reason for their trip, a primary reason for their trip, or a secondary reason for their trip. Secondly, the length of trip characteristic was used for segmentation in this study. The questionnaire asked if this was an overnight trip, and if so, how many nights they stayed during the trip. Using this information, the winery visitors were divided in three segments: people who visited wineries on a day trip with that visitation being the primary purpose for their trip, people on overnight trips who visited a winery as primary (but not only) purpose for their trip, and people whose winery visit was the secondary purpose for their trips.

Below is the outcome of the analysis based on the survey results:

Table 1. Segments of Visitors to Michigan Wineries

Segment	Type of Trip	Percent
One	Overnight trips and winery visit was a primary trip purpose	3.1
Two	Day trips and winery visit was a primary trip purpose	1.5
Three	Overnight and day trips, but the winery visit was not a primary trip purpose	95.4

Some economic impact studies would have attributed the entire trip spending to the wineries, but clearly this is not correct because the trip to the winery may occupy only one day of the trip, and there were other reasons for the trips such as shopping and viewing fall colors. Assigning the entire trip spending to the wineries would result in an inaccurate and invalid estimate of the economic impacts of wine tourism. All the estimated spending by persons visiting wineries on day trips, where the winery visit was the primary trip purpose, could be attributed to the wineries. One half of each day's trip spending was attributed to wineries for the 95% of the persons who visited wineries on either overnight or day trips where visiting the winery was not the primary trip purpose. In some cases, the winery visit may not have been planned before the trip. One day and a half day's trip spending of the persons who visited the winery as their primary purpose and stayed overnight in the area was attributed to the wineries.

Using a similar approach that is currently being applied in other tourism economic impact studies, a portion (not all) of the trip spending was attributed to the wineries. While this approach of attributing a portion of tourist trip spending to the wineries generates a conservative estimate of local economic impact of wine tourism, it can provide a more valid and accurate approximation.

Economic Impacts of Visits to Michigan Wineries--Wine Tourism

The first step in estimating tourism economic impacts is to estimate the number of visitors/tourists and to develop a profile of their trips. For example, the proportion of visitors that are on day trips vs. overnight trips is important in estimating economic impacts because length of trip has a significant effect on the amount and distribution of their trip spending. In the previous section, the profile of winery visitors was discussed with the information from Welcome Center Travelers Survey.

The number of winery visitors was generated from the inventory survey. Twenty-one wineries responded to the winery inventory survey, including providing estimates of the number of visitors to their wineries, and average retail purchases/transactions at the wineries. Two other wineries were surveyed on the telephone to provide additional information. Based on these results, it was estimated that, on average, Michigan wineries host 22,000 visits a year. This ranges from a few thousand to about

150,000. A weighted average was calculated from the estimates provided by the wineries to approximate visitation to all the wineries.

Approximately 600,000 persons visit Michigan wineries and tasting rooms, including those that attend festivals and special events hosted at the wineries. While this estimate is almost two times the previous estimate¹, it should be recognized that two wineries (including tasting rooms) host more than 225,000 visitors annually, and new wineries and expanded visitor services have been added since the previous estimate was developed. Also, wine tourism activities, events and marketing, and winery tourist visits have increased substantially over the last several years.

The Welcome Center Travelers Survey determined that the average size of parties visiting Michigan wineries is two persons. This means that on average, Michigan wineries host approximately 11,000 parties per year. About 83% of these parties purchase something at the wineries they visit including wine, wine accessories, mementos and food products. This does not include, as was discussed previously, the after-visit purchases of the products of the wineries that they have visited.

Direct Local Spending by Visitors to Michigan Wineries

The next step was to generate the spending profile for each different type of winery visitor. Since there was no spending information specific to winery tourists, profiles were developed by adjusting the MITEIM spending averages for Michigan tourists. A database of spending profiles developed for different tourism market segments was available in MITEIM. These spending profiles were estimated based on a 1998 Michigan Welcome Center visitor survey and other recent spending studies.

The MITEIM day trip segment profile was used for most winery visitors, counting one half of one day's spending for non-primary purpose trips and a full day for primary purpose day trips. The MITEIM profiles were adjusted to better reflect the trip characteristics of winery tourists. They were also changed to include estimates of spending at the winery that were derived from the inventories of the wineries. The inventory survey generated information on visitor purchases (average transactions) at the wineries. Based on this information, it was estimated that the average party spent \$18 at the winery on the purchase of wine, and approximately another \$5 on other products sold by the wineries including foods, jellies, and mementos. The \$18 in wine purchases was substituted for the other shopping categories in the MITEIM profiles.

Retail spending at the wineries was included in the economic impact of winery visits, because total winery sales by Michigan wineries represent the producer's price without retail and wholesale margins added to capture what the consumer pays. The value added by the retailer and wholesaler are therefore not included in our estimates of

¹ The Michigan Wine Council estimates 350,000 persons visit Michigan wineries. (Michigan Wine Council, 2001)

the economic impacts of winery production for these purchases. When winery tourists purchase wine at the winery (directly from the wine producer), the price includes margins that are now captured directly by the winery. There may be some double counting of wine sales if the direct sales to consumers are also included in winery production figures. However, we believe that the amount of double counting of retail purchases of wine at the wineries is likely to be very minimal.

Winery visitors spent about \$12.6 million in local communities near the wineries in 2001 (Table 2). The majority (\$11.1 million) of this spending was by the 286,154 parties that visited wineries on either overnight or day trips where visiting the winery was not a primary trip purpose. As was discussed above, only a half-day (\$38.70) of their local trip spending was attributed to the wineries. Winery visitors on day trips where the winery was the primary trip purpose spent about \$255,000 in local communities near the wineries. Parties who visited wineries on overnight trips, during which visiting a winery was the primary purpose of their trips, spent an average of \$130.85 per night in the local area, including an average of \$18 on wine, for a total of \$1.2 million. Again, it was believed that this was a conservative estimate, in that only one day and night of their overall trip spending was credited to the wineries.

Table 2. Winery Visitor Spending of Different Segments by Categories

Category	\$ per party per trip		
	Half day ^a	Full day ^b	Overnight ^c
Motel, hotel cabin, B&B, campgrounds	0.00	0.00	50.00
Restaurants & bars	9.52	18.85	34.80
Groceries, take-out food/drinks	2.86	5.31	10.71
Gas & oil	6.32	12.43	15.34
Wine	18.00	18.00	18.00
Souvenirs and other expenses	2.00	2.00	2.00
Total	38.70	56.59	130.85
Party trips	286,154	4,500	9,346
Total Spending (\$'000's)	\$11,074	\$255	\$1,223

*Spending profiles estimated from general Michigan traveler spending profiles in the MITEIM model

^a Overnight and day trips, but the winery visit was not a primary trip purpose

^b Day trips and winery visit was a primary trip purpose

^c Overnight in Motel and Campgrounds trips and winery visit was a primary trip purpose

Direct and Indirect Economic Effects of Wine Tourism in Michigan

The spending estimates for different types of trips served as input for the MITEIM to estimate the secondary effects of wine tourism. The \$12.6 million in winery tourist spending produced: \$10.7 million in direct sales (the retail margins we subtracted from the \$12.6 million), 206 jobs

and \$3.7 million in personal income. In this case most of the direct effects involved restaurants and bars, retail shops and lodging establishments near where the wineries were located.

Secondary effects of wine tourism were estimated to be almost \$6 million and 151 jobs. Secondary wine tourism effects included both indirect and induced effects. Indirect effects would include the increased sales in restaurant supply businesses because of the increased business in restaurants resulting from wine tourism. The increased sales in local grocery stores resulting from the additional stays in B&Bs would be another example of an indirect effect of wine tourism related spending. The induced effects included increased sales in Michigan businesses, especially those located near the wineries, generated by spending by persons employed in the businesses that sell products and services to winery tourists. Employees in restaurants, hotels, retail shops and gasoline stations spend the wages and income they earn from wine tourism on consumer goods and services. This in turn generates additional sales, income and employment throughout the region's economy.

The total economic effect of wine tourism in Michigan is conservatively estimated to be \$16.6 million in sales to businesses, 357 jobs and \$6.7 million in personal income to employees and business proprietors. What is especially noteworthy is the significant positive impact wine tourism has on non-winery businesses located in communities near the wineries. For some tourists, wineries are the attractions that draw them to visit local communities, and for others a trip to the winery is a trip activity that adds to the quality of their experiences.

* This is \$12.5 million in spending by winery tourists minus the retail and some wholesale margins on products they purchase while on their trips. The retail margins of many products purchased by tourists leak from the economy because the wholesaler, shipper, and manufacturer often lie outside the local area. While winery tourist spending on services is captured, the retail and possibly wholesale margins of imported goods they purchase will not accrue to Michigan's economy.

Economic Impact of Wine Production in Michigan

Total winery sales by Michigan wineries in 1998 were estimated to be \$37.5 million. There are also 164 direct jobs in Michigan wineries, including full-time and part-time employees and sole proprietors. The amount of personal income including wage and salary income, payroll benefits and income of sole proprietors provided by wineries is estimated to be \$4.2 million. Secondary sales in Michigan are \$21.4 million. Secondary sales consist of purchases by Michigan wineries of goods and services from other Michigan businesses, and purchases of goods and services by winery employees and proprietors from the wages and income they are paid. The amount of indirect business taxes including excise taxes, property taxes and sales tax paid by wineries is estimated to be \$5.4 million. The value-added effect of wineries is estimated to be \$12.5

Table 3. Economic Impacts of Visitors to Michigan Wineries, Including Wine Purchases

Sector/Spending category	Sales \$000's	Jobs	Personal Income \$000's	Value Added \$000's
Direct Effects				
Motel, hotel cabin or B&B	475	11	192	307
Camping fees	54	1	22	35
Restaurants & bars	3,236	92	1,205	1,731
Admissions & fees	-	-	-	-
Wine purchases	2,700	11	295	895
Other vehicle expenses	-	-	-	-
Local transportation	-	-	-	-
Retail Trade	3,646	88	1,897	3,091
Wholesale Trade	210	2	81	144
Local Production of Goods	294	1	32	66
Total Direct Effects	10,671*	206	3,724	6,269
Secondary Effects: Indirect and Induced Effects	5,955	151	3,012	4,605
Total Effects	\$16,626	357	\$6,736	\$10,874

million. Value-added includes total income and indirect business taxes attributable to wineries.

The secondary economic effects of winery production include indirect effects that are changes in sales, income or employment within the state in backward-linked industries (e.g., agricultural supply, wine making ingredients and equipment) that supply products and services to the wineries. For example, the increased sales in a local farm supply store resulting from additional winery production and sales would be counted as an indirect effect. Induced effects are the increased sales or employment in non-winery businesses within Michigan from household spending of the income earned in wineries. Winery owners, managers and employees spend the income they earn in a variety of Michigan businesses to purchase products and services. Their purchases generate additional sales, income and employment in a variety of businesses including restaurants and retail stores.

It is estimated that spending by wineries for goods and services accounts for \$16.5 million in sales, and supports an additional 153 jobs in other Michigan (non-winery) businesses. Spending of wages and salaries paid to winery employees and income to proprietors is estimated to generate \$4.9 million in sales and another 83 jobs in Michigan (non-winery) businesses. The total direct and secondary economic effect of Michigan wineries is \$58.8

million in sales and 399 jobs. The production/manufacturing side of the winery industry has a positive impact on many businesses in Michigan.

Conclusion and Implication

This study estimated the economic value of Michigan wineries of both the tourism and production sides of the industry. The industry has an economic impact of \$75.4 million on Michigan's economy including \$58.8 million on the production side and \$16.6 million related to spending in local communities near the wineries. The results verify the economic and tourism contribution of Michigan wineries to the state and local communities near the wineries.

The findings of this study can provide a platform to investors, tourism promotion organizations, local economic development agencies and tourism businesses to enhance the climate for further growth and development of the industry. Special effort should be directed at increasing awareness of the potential contribution of wineries to attract and lengthen the stay of tourists to Michigan wineries.

Wine tourism is an effective marketing media for wineries and nearby tourism attractions. Wineries, the wine industry, and tourism communities can all benefit from efforts to develop and market wine tourism in Michigan. In addition to the direct sales benefit to both wineries and local tourism businesses, wine tourism provides wineries with an effective way to communicate and expand relationships with wine drinkers and potential winery visitors. Winery tourists also request that retailers and restaurants located near their permanent residences carry wines produced by the wineries that they visit. Wine tourism provides opportunities for wineries to develop stronger relationships with people who visited, a benefit that is not possible through advertising alone.

While the marketing potential of wine tourism is significant, wineries need to recognize that it is crucial to satisfy and "market to" persons visiting their wineries. There is a very good chance that the next person through the winery gates will be a frequent wine buyer with the potential for positive and negative word-of-mouth promotion of the winery depending on their experience.

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