The Wine Market in Japan:

Market competition among exporting countries and the strategy of US wine

Katsumi Arahata

Department of Agricultural Economics,

Faculty of Agriculture, Gifu University, Japan

1-1, Yanagido, Gifu shi,

Gifu pref. 501-1193, Japan

E-mail: arahatak@cc.gifu-u.ac.jp

Phone: +81-(0)58-293-2904

The Wine Market in Japan:

Market competition among exporting countries and the strategy of US wine

Katsumi Arahata

Abstract

The purpose of this paper is to examine the structure of wine consumption in the Japanese market, focusing on the consumption in households. Considering various tendencies of Japanese eating and drinking habits nowadays related to wine consumption, the model was built and empirically estimated. The data to be investigated was household's data from the past twenty-seven years of official statistics. It was found that Japanese households show high income elasticity for wine demand. The strategy to prioritize department store distribution was demonstrated to be effective due to the fact that wine consumption in the high income class is steadily high, while the sensitivity to income and compatibility of foods is higher in middle income classes. However, the result that compatibility of foods with wine is influential suggests the necessity to revise the strategy. The facts that Japanese in general accept to taste wine although there are some cultural barriers such as incompatibility of foods with wine should be considered in the strategy.

Introduction

Wine consumption in Japan has been growing in the last three decades, even though there has been a temporary recession in the last few years. Wine was introduced to Japan more than one hundred years ago, yet, it was not long ago, that is, around thirty years ago when pure still wine started to become popular in general households. During this short history of the Japanese wine market, it has overwhelmingly been dominated by European wines. However, wines from the countries which more recently entered into the Japanese wine market, such as Chile, Australia and the U.S., have been becoming popular.

The purpose of this paper is to examine the present situation of the wine market in Japan, especially focusing on the market competition among exporting countries, to clarify the features of U.S. wine strategy and to analyze its effectiveness through an econometric analysis. With regard to methodology, Statistical data and relevant information was collected. Considering the results of descriptive statistics and recent tendencies in Japanese eating and drinking habits, a model was built and an econometrical analysis was conducted using official statistics from the last twenty-seven years.

The structure of this paper is as follows. In the subsequent section, as a preliminary study, the wine market in Japan will be analyzed, focusing on the market competition among exporting countries. In the third section, a theoretical framework for the analysis will be presented, especially paying attention to cultural aspects of eating and drinking habits influencing wine consumption. In the next section, a model will be built, and then three hypotheses will be presented. The features of data and the methodology of the analysis will also be explained. In the next section, the results of empirical tests will be provided. In the subsequent section, further consideration of the results will be discussed in depth. Finally, the conclusion of this paper will be provided.

Preliminary study: Market competition among exporting countries

Overview of wine market in Japan

The market for alcoholic drinks in Japan, as a whole, has already reached saturation point. However, the composition has been gradually altering. One composition shift is that the win market has been growing over the last three decades.

According to official statistics discussed later, wine is preferred by younger generations[1]. With regard to income classes, wine is preferred in higher income classes[2]. As for the difference between urban and rural, the consumption of wine is larger in urban areas[3].

Wine can be broadly categorized as imported or domestic. The retail prices of domestically produced wine represent the lowest price range, while the highest range consists of imported wines. Three-fourths of all wine consumption is consumed in households, while a quarter of it is used at restaurants.

Table 1 shows the market share among exporting countries in 1993 and 2001. The share of U.S. wine has not changed, although it succeeded to markedly expand its share in the 1970s and 1980s. Among other competitors, France has maintained its share and Italy and Chile have expanded their shares, while Germany lost its share. It should be

1 The comparison between the age classes of the head of the household shows that the consumption of sake simply rises as the head of the household's age increases, while, beer and wine consumption have a tendency to rise as the age increases at first, but after that, to reduce as the age increases. As for the turning point, wine reaches this level at a younger age class than beer.

2 According to the comparison of the data between income classes, the consumption of sake declines as income rises, while wine consumption shows a strongly increasing tendency. Beer consumption shows the same tendency but weakly.

3 Sake is consumed more in rural areas and less in urban areas. Beer does not have a clear feature with respect to this. Whiskey shows the opposite tendency as an urban-area preferred category. Wine shows a more typical feature as an urban-area preferred category than whiskey does.

noted that the market of imported wine in Japan has drastically been expanding partly because of the increase of demand and partly because of the shrinkage of the market share of domestic wine. Thus, even if the market share of a certain country's wine is constant, the absolute level of export would have expanded considerably. US wine achieved a marked increase in exports to Japan even during the last decade.

Features of US wine strategy

There are two distinctive features found in the strategy of US wine. One is related to its ratio of household use to restaurant use. The other is its distribution route. Price range is another noteworthy feature that will also be examined.

Firstly, with regard to the ratio of household use to restaurant use, Table 1 shows that Italian and Spanish wine are largely consumed at restaurants, while U.S. and German wines are conversely consumed at a relatively higher percentage in households. Other exporting countries' wines are allocated to households and restaurants at ratios near to the average. The figure of Italian wine indicates that the consumption of Italian wine has been successfully promoted, accompanied with the expanding of Italian restaurants. On the other hand, as for U.S. wine, the lower percentage sold through restaurants has, in a sense, a positive meaning. The reason is that it is said in the business circle of the wine industry that the sales promotion of U.S. wine has purposely targeted household consumption as a marketing strategy.

Secondly, within household use, the share of each distribution route was examined with respect to each exporting country. Table 1 shows that the share of department store distribution is extremely high in the case of U.S. wine. This fact implies that U.S. wine is well explained to the customers[4], which is a strong advantage in sales promotion.

---

4 Department store sales are important in order to support the brands' reputations. If the percentage through this route is higher, it means that sales persons may explain more satisfactorily about the quality and other features of the presented wines to the customers. The wine distributed through

Additionally, the share of supermarket and discount store distribution are relatively high in the case of U.S. wine. These facts suggest that U.S. wine is given an ample opportunity to be exposed more frequently to the customers in higher income classes or in younger generations.

Finally, the price range of each exporting country's wine was examined. According to Table 2, generally speaking, in the higher price ranges, French wine has a relatively high share, while in the lower price ranges other exporting countries' wines succeed in obtaining their own positions to some extent.

In restaurant use, the U.S. obtains a market share to a certain extent in every price range. Italian wine holds a fairly strong position second to French wine in every price range. Chilean wine spread its position in the market predominantly in lower price ranges.

In household use, U.S. wine can succeed in building market share in the price range from 500 to 1000 yen. This phenomenon is reported to be particularly prominent at supermarkets. Specific brands of Californian wine are emphatically promoted in the corners of supermarket stores, according to the business report "WANDS" (2001, July). Italian wine does not have strong competitiveness, compared with restaurant use, but is still second only to French wine in the higher price ranges.

Theoretical framework: Influence of cultural aspects on wine consumption

Until 1950, wine was regarded as an exotic drink even in comparison with other western alcoholic drinks such as beer and whiskey. Even after high economic growth had started in the mid-1950s and the life style of Japanese had considerably been westernized, wine consumption was still at a low level. Wine had been left alone in a position of an exotic drink, whereas beer and whiskey became widespread during the 1950s and 1960s.

Why did it take such a long time for wine to become popular, despite beer and

other retailers tends to be sold without adequate face-to-face explanations.

whiskey becoming popular at an early stage? Why has its market in Japan been growing just recently? The theoretical framework and the model developed in this paper are required to properly answer these questions.

These questions are not solved by a commonplace demand model using only income and price as explanatory variables. It is required for the approach of this paper to have a more expanding scope and to delve further into cultural aspects of eating and drinking habits.

To begin, it is reasonable to assume that the reason for the belatedness of the spread of wine compared with beer and whiskey would be explained by the mechanism that something related to cultural aspects of eating and drinking habits had hampered the progress of prevailing wine consumption. It is also assumed that since such barriers have gradually been removed and something which contributes to the increase in the familiarity to wine in Japanese eating and drinking habits has been growing, wine consumption has been increasing recently. The explanatory variables which succinctly represent those socio-economic movements should be incorporated in the model to explain the structure of wine consumption.

It is common knowledge that alcoholic drinks are categorized into those which are consumed during a meal and those which are consumed before or after a meal. Since wine is classified with the former, it is valid to suspect that the consumption of wine must have a close connection to what kinds of foods are taken at dinner where wine is served. Apart from the choice of variety, with regard to the amount of wine, it is not easy to infer which food positively or negatively affects wine consumption. Nonetheless, in the case of the Japanese market, it is relatively easy to suppose by commonsense some kinds of food groups which have high compatibility with wine. These food groups are the so-called "western foods". It is assumed in this study that westernization of dinner[5] is still progressing and this prompts the increase of wine consumption by

---

5 According to the description in the "White paper of foods and agriculture" published by the

enlarging the compatibility of foods with wine. Beer and whiskey had been introduced and become popular without changes in Japanese dinner style. However, wine had to wait for this change.

Aside from compatibility of foods with wine, there may be the argument that among many cultural aspects which are suspected to affect wine consumption, inadequate Japanese knowledge of drinking etiquettes and wine brands is possible to have hampered the progress of prevailing wine in Japanese market until now. Japanese were not familiar with manners related to drinking wine and with wine brands and subtle differences in their tastes. Recent increase of wine consumption might be explained by the reduction of these barriers. Indicators which represent the experience of coming in touch with such manners and enhancing the knowledge of them outside the household might be one nominee for such a variable.

Consequently, it is desirable that the model consists of the ordinary explanatory variables such as price and income and the proxy variables which represent cultural aspects, that is, compatibility of foods at dinner with wine and the experience of coming in touch with drinking etiquettes and enhancing the knowledge of wine brands.

Proxy variables specifically incorporated in the model related to cultural aspects

Although there might possibly be several western foods which have strong compatibility with wine, suitable ones as proxy explanatory variables are limited. Among many western foods, cheese is one of the foods which satisfy necessary conditions such as data availability and representation of westernization of dinner in

---

Government, the so-called "Westernization of eating habits" in Japan flourished mainly during the 1950s and 1960s, and had attained a mature level by the mid 1970s. However, this phenomenon was specifically observed for the change in breakfast habits. Westernization of dinner is quite another thing. It seems that westernization of dinner has not attained saturation level yet.

Japan[6].

One problem of using cheese consumption as an explanatory variable is that cheese is served not only for dinner but also for breakfast and lunch. Nevertheless, it can at least be said that this matter does not cause a serious problem. The reason is that the consumption of cheese which is consumed in breakfast or lunch had increased during the 1960s and 1970s but now it is at a steady-state. The recent increase of cheese consumption is chiefly attributed to that in dinner, especially for the purpose of enrichment of western style menus for adults, often accompanied with wine[7]. Therefore, the differences of cheese consumption in time series can be regarded as a difference of cheese consumption at dinner.

Another condition which a nominee for an explanatory variable should satisfy is exogeneity. According to the Granger's causality test, it was demonstrated that cheese consumption causes wine consumption as a Granger's meaning, while wine consumption does not cause cheese consumption. Besides, judging from general Japanese behaviors, this one-way effect is convincing[8]. Therefore, cheese consumption

---

6 Cheese is exclusively used as a material for western cuisines such as pizza, salad and gratin in Japanese dinner nowadays. It is also consumed directly as an hors d' oeuvres. It has no close relationship with traditional Japanese cuisines.

7 This distinction is clear from the viewpoint of the quality of cheese. Most of the cheese consumed for breakfast or lunch in Japan is ordinary and not expensive. It is made by the process mixed with many varieties which are imported in bulk and no original countries' brand is labeled. On the other hand, most of the latter cheese consumed for dinner is relatively expensive and branded such as Camembert made in France and Gouda made in the Netherlands.

8 There may be an argument in the light of common sense in western society that not only cheese consumption affects wine consumption but also the latter affects the former. It would be true in western society. The menu of dinner is often selected by considering the compatibility with wine. However, in Japan, such a sophisticated manner is unlikely to happen.

can be incorporated in the model as an exogenous variable. It is unnecessary to develop a more complicated model incorporating two-way effects. Consequently, cheese consumption was selected as an explanatory variable representing compatibility of foods at dinner with wine[9].

With regard to variables related to the knowledge of drinking etiquettes and wine brands, the expenditure on eating out in "western style restaurants" seems to be a nominee of appropriate indicators. Besides, it is common knowledge in the business circle of wine industry that trends of popular brands in wine market tend to be created in restaurant use and then they spread over to general households.

Nevertheless, according to the results of the Granger's causality test, the causal relationship between wine consumption and expenditure for a restaurant of this type is suspected to be not from the latter to the former but conversely from the former to the latter. Consequently, an explanatory variable representing the change of the knowledge of drinking etiquettes and wine brands was not incorporated into the model. Although this omission of a relevant variable should have been avoided, it could not be helped.

It was of concern that to omit this kind of variable might cause miss-specification in the model. Whether or not the deterioration of the performance of the regressions caused by this omission is negligible will be tested later. At the same time, this test may provide new empirical evidence for the relationship between restaurants and wine consumption pointed out by the wine industry.

---

9 It would be desirable that a food which shows incompatibility with wine would also be incorporated into the model as a supplementary explanatory variable. It may be intuitively imagined that traditional Japanese cuisines probably show incompatibility with wine. Among them, soy-sauce can be selected as one of the materials which satisfy necessary conditions. Nevertheless, in this model, partly in order to avoid multicolinearity and partly to make a model as parsimonious as possible, it was not included in the model eventually adopted.

Model and methods

Model

In order to examine the effectiveness of the US wine strategy, a model will be built and an empirical study will be conducted in this section.

If all nominees for explanatory variables initially considered in the previous section are listed, a conceptual model consists of four explanatory variable groups as follows:

Qw = F(P, I, VF, VC)

Qw: Quantity of wine consumption

P : Variables related to price information

I : Variables related to income information

VF: Variables related to compatibility of foods at dinner with wine

VC: Variables related to cultural aspects other than compatibility of foods such as

the knowledge of drinking etiquettes and wine brands

Firstly, the price of wine is incorporated into the model. The price of substitutes, that is, sake and beer, were considered to be nominees for explanatory variables. Nonetheless, it was found that the results of the model which includes the prices of these substitutes were not satisfactory because of an irregular economic situation in the Japanese alcoholic beverage market[10]. Consequently, the prices of sake and beer were omitted from the regression model.

Secondly, although income is another important factor often incorporated into a model of demand analysis, income itself cannot be grasped by relevant official statistics.

---

10 While the consumption of wine has been growing and the demand for it has been strong, the market could have been avoiding the rise of sake and beer prices or reducing it in real terms by the rationalization of distribution routes under government deregulation.

Therefore, total expenditure was incorporated as a proxy variable instead of income.

Thirdly, with regard to cultural aspects, it was desirable that not only the variables related to compatibility of foods at dinner with wine (VF) but also the variables related to cultural aspects other than foods such as the knowledge of drinking etiquettes and wine brands (VC) should be incorporated. However, due to the reason mentioned in the previous section, only one variable, that is, the consumption of cheese which represents compatibility of foods with wine, was incorporated.

Fourthly, if there is a drastic structural change, it should be explicitly incorporated into the model by using dummy variables. There were the so-called "wine booms" in the market history of wine in Japan, yet it is reasonable to regard them as mere fluctuations, not being interpreted as structural changes[11].

On the other hand, the recession from 1992 has deeply influenced various economic phenomena including households' consumption behaviors. Thus, the influence of the recession should be incorporated into the model. The results were divided into two periods, before the recession and after the recession, and separately analyzed using dummy variables. The point when the Japanese economy plunged into recession is commonly recognized as mid-1992. Although it should be statistically verified when the structural change in wine consumption occurred due to the influence of the recession, it is a priori assumed that such a structural change occurred at almost the same time as the recession. Therefore, within the period to be analyzed, the period before the recession means from 1975 to 1992, while the period after the recession means from 1993 to 2001[12].

---

11 These wine booms were not always caused by economic factors but often by non-economic factors such as the incident of safety problem and the scientific information that wine is good for health. Besides, in most cases, the level of consumption recovered within a few years.

12 In order to detect the structural change and to verify the point of it, Chow's break-point test was carried out by using the model described later. The results showed that the possibility of the

Considering these factors, the number of explanatory variables incorporated into the model was rigidly limited so that the model became a parsimonious one. The finally adopted model is as follows:

Qw = F(Pw, Ex, C)

Qw: Quantity of wine consumption

Pw: Price of wine

Ex: Total expenditure of household

C : Quantity of cheese consumption

Considering the relationship of each explanatory variable and wine consumption, since it is theoretically expected that effects of explanatory variables must be produced by multiplication, it is logically reasonable to adopt the double-log style of functional form. With regard to the time-lag of each explanatory variable, since the effect of price and expenditure on wine consumption is interpreted to be brought about within a year, it is rational to set no time-lag in these explanatory variables. On the other hand, since the effect of the change of compatibility of foods to wine consumption is understood to be influential often beyond a year, it is appropriate to set time-lag.

Consequently, the adopted empirical model is as follows:

$\text{Log}(Qw_t) = b0 + b1*\log(Pw_t) + b2*\log(Ex_t) + b3*\log(C_{t-1})$

Each explanatory variable was divided into two parts, that is, before and after the recession by using a dummy variable, and the parameters were separately estimated. After being separately estimated, each parameter was tested for stability between before the recession and after the recession using the Wald test. The parameters which are

structural change was significantly detected for each year in the first half of 1990s. Thus it can at least be said that the structural change was occurred during the first half of 1990s.

proved not to change were re-estimated as an integrated coefficient without using dummy variables[13].

Hypotheses

Considering the argument so far, the following three hypotheses are presented:

Hypothesis 1: The income elasticity of wine demand has been constantly larger than plus one during the period of observation.

Hypothesis 2: The wine consumption in the highest income class is stable but that in middle income classes are sensitive to various factors.

Hypothesis 3: Wine consumption in the households in urban areas is stable but that in the households in semi-urban areas is sensitive to various factors.

If the hypotheses mentioned above are empirically supported, the effectiveness of the U.S. wine strategy that attaches importance to department store distribution will be verified. Most of the customers at department stores are people in higher income classes. Even people in middle income classes may go shopping there if the situation of their income is improved. Another important ground is that department stores are exclusively located in urban areas, that is, metropolitan cities and major core cities in regions.

Data

The data employed in this paper are mainly from the "Annual report on the family income and expenditure survey", which is released by the Statistics Bureau in the Japanese Ministry of Public Management, Home Affairs, Post and Telecommunications. These statistics cover the expenditures of a broad range of items and trace them with

---

13 But this integration of parameters before the recession and after the recession was carried out by a lose criterion, that is, at 25% significant level. The reason is that it is effective to emphatically clarify shifts of parameters.

respect to income classes and city size groups. The period of the data utilized in the time-series analysis is from 1975 to 2001, a total of twenty-seven years. The data related to prices of individual consumer goods are adopted from the Consumer Price Index released by the Statistics Bureau. The data related prices and expenditures are both deflated using the CPI.

Methods of analysis

The time-series data shown in the official statistics are the figures calculated as means of all sample households or means of within-group all sample households. The analyses will be conducted, firstly for the former data as a general tendency. After that, the latter data will be analyzed with respect to income classes and city size groups as several sets of time-series data[14].

In income classes, there are five categories, that is, high, middle high, middle, middle low, and low. These classes are determined proportionately to each year's income distribution. Therefore, this means that the samples are classified by the relative income level, not by the absolute income level.

In city size groups, there are five categories, that is, large cities, medium-large cities, medium cities, medium-small cities, and small cities and villages. Roughly speaking, it is not wrong that this order can be regarded as a continuum of cities located in urban areas to cities or villages located in remote rural areas[15].

The estimation method employed in this study is principally OLS.

---

14 Since the latter are separately shown with respect to each cross-section group, these data seem to consist of panel data. However, it is invalid to deal with these data as an integrated panel data set. The reason is that the information related to within-groups data cannot be obtained due to statistical constraints. These data should be dealt with simply as several sets of time-series data.

15 Therefore, for convenience of explanation, the data related to city size will be described as the relationship between urban areas and rural areas as the occasion demands.

Results

General tendency

According to the results of the Wald test, the total expenditure parameter is proved to be stable, while the parameters of the other two variables are suspected to change. Considering this result, a more parsimonious model was shown in Table 2.

Firstly, with regard to income elasticity, the results in the regression show large elasticity (more than plus one) both before the recession and after the recession, and thus wine is proved to be a typical luxury good in the Japanese market. However, the implication of this result after the recession is crucial to understand the current market situation of wine[16]. Even after the recession, wine consumption has basically continued to expand irrespective of shrinking disposable income. This may be brought about by the factors other than income. Consequently, hypothesis 1, that the income elasticity of wine demand has been constantly larger than plus one during the period of observation is empirically supported.

Secondly, the coefficient of cheese consumption was highly significant after the recession. However, before the recession, this coefficient was insignificant (and the wrong sign). The reason for such results is that two explanatory variables, that is, total expenditure and cheese consumption, are closely correlated with each other. In the case of the increase in total expenditure, wine and cheese consumption both increased before the recession. The increase of wine consumption during this period is chiefly attributed to the increase of the total expenditure in statistical meaning. After the recession, since

16 It should be noted that the implication of the elasticity is completely different before the recession and after the recession. In the phase of income increase, high income elasticity means higher possibility of market expansion, from a wine sales-promotion point of view. However, in the phase of income decrease, it means vulnerability of the consumption level which was achieved in the previous period.

this was the phase of the decrease in total expenditure, conversely the increase of wine consumption is chiefly attributed to the increase in cheese consumption. In a sense, even before the recession, cheese consumption may have potentially contributed to the increase in wine consumption.

Thirdly, price elasticity was significant after the recession, although it was insignificant before the recession. It is also demonstrated that the elasticity after the recession is larger than three although it may have been less than one or no-relationship before the recession.

Finally, let us look at the estimated model as a whole and check the possibility of misspecification. At first, generally speaking, a high level of adjusted R square implies that the adopted model may be appropriate. In the next, according to the RESET test shown in table 2, the null hypothesis of no misspecification is not rejected. Besides, as for residuals, homoskedasticity is assured by the White heteroskedasticity test.

Since the model could not help initially omitting an explanatory variable related to the knowledge of drinking etiquettes and wine brands, it was suspected that this might cause problems such as misspecification. Nonetheless, as mentioned above, it was empirically demonstrated that there was no misspecification in this model. It may be inferred that the part of the influence of the factors related to the knowledge of drinking etiquettes and wine brands may be indirectly represented by other explanatory variables in the model such as total expenditure and cheese consumption. In order to verify the redundancy of an explanatory variable related to the knowledge of drinking etiquettes and wine brands, the data of total expenditure for western style restaurants were tested irrespective of its dubious exogeneity. In the model, the LR test was carried out by adding this variable. The result was that the null hypothesis that this variable is irrelevant was not rejected (Prob=0.738941). Thus, even if the direction of the effect of this variable to wine consumption would be purely exogenous, it is clear that this variable is redundant in the model.

Comparison between Income classes

The results of the comparison between income classes are shown in Table 3.

The coefficient related to cheese consumption after the recession was largest in the middle-high income class, next in the middle income class and the high income class, while smallest in the low income class. The figure in the middle-low income class was insignificant. On the other hand, as mentioned before, the wine consumption level itself of the high income class was highest and the low income class was lowest. The order of wine consumption follows the order of income. Considering this fact, the results explained above imply that the influence of compatibility of food at dinner to the increase of wine consumption may spread from the high income class to lower classes; however, it may not adequately reach the middle-low income class.

The income elasticity before the recession was largest in the middle-high income class and next in the middle income class, while the figure of that after the recession was largest in the middle-low income class and next in the middle income class and the low income class. The price elasticity after the recession was largest in the middle-low income class, followed by the low income class and the middle income class, then in the middle-high income class, while smallest in the high income class. The price elasticity before the recession was insignificant in some classes.

Consequently, in the comparison between income classes, it is concluded that the wine consumption in the high income class responds to the factors incorporated in the model less sensitively than those in the other classes. The wine consumption in the high income class is relatively resilient to changes in these factors. On the other hand, the wine consumption in the other income classes shows relatively sharp responses. Nowadays the increase of wine consumption in the middle-high class is interpreted to be strongly affected by the increase of compatibility of foods at dinner with wine, while that in other lower three income classes are interpreted to be strongly affected by the

price reduction[17]. In conclusion, hypothesis 2, that wine consumption in the highest income class is stable but that in middle income classes are sensitive to various factors, is partly supported in the case of the response to income before the recession and in the case of the response to cheese consumption after the recession.

Comparison between city size groups

Table 4 shows the results of the regression for city size groups. The income elasticity before the recession in the medium-large cities, the medium cities and the medium-small cities are almost equally larger than the figure of the large cities. After the recession, the results show that the households in the large cities did not sharply respond to income reduction, however, those in other groups might have had the possibility of responding keenly to income reduction.

The coefficient related to cheese consumption after the recession was largest in the medium cities, next in the medium-large cities and next in the large cities. The figure in the small cities and villages was small. The figure in the medium-small cities was insignificant. On the other hand, as mentioned before, as for the consumption level itself, the level in the large cities was highest and the level in the medium-small cities was lowest. The order of wine consumption mostly follows the order from urban to rural. Considering this fact, the results explained above imply that the influence of the increase of compatibility of foods at dinner with wine to the increase of wine consumption may spread from households in urban areas to households in semi-urban areas, however, it may not reach the households in rural areas.

The price elasticity after the recession was largest in the small cities and villages, next in the medium-large cities, the large cities and the medium cities. The price

17 Although in these three lower income classes the sensitivity to the income reduction is also high and this must negatively affect wine consumption, it can at least be said that the response to the price reduction offset this negative effect.

elasticity before the recession was insignificant in most categories. Thus, a pattern considerably different from what is predicted by hypothesis 3, that wine consumption in the households in urban areas is stable but that in the households in semi-urban areas are sensitive to various factors, was observed in the comparison of price elasticity.

Consequently, it is concluded in the comparison between city size groups that before the recession the mechanism by which the increase of income leads wine consumption was typically observed around semi-urban areas. After the recession, the mechanism by which the increase of cheese consumption leads wine consumption was typically observed around the same areas. In this context, hypothesis 3 is partly supported. However, in other cases, patterns which did not follow hypothesis 3 were observed.

Discussion

Considering the results of the econometric analyses, the effectiveness of several features of the strategy of U.S. wine will be argued.

It was found that Japanese households show high income elasticity for wine demand, although at present it affects wine consumption negatively under income shrinkage. It is ambiguous in the future whether or not the strategy of U.S. wine attaching importance to household use will be effective, although it was effective in the past. Be that as it may, potentially, it can be said that there is the possibility of large market expansion in household use.

It can at least be said that the small share of restaurant use and the small number of the restaurants where American original cuisine is served may not be a serious fault in the U.S. wine strategy. Furthermore, the restaurant use from now on looks promising. In the past, U.S. wine had a disadvantage in restaurant use because there were only a small number of restaurants specializing in U.S. cuisine in Japan, whereas there were a large number of French and Italian restaurants. Additionally, in the case of French and Italian restaurants, it was an advantage that the popularity of these restaurants was closely

connected to the reputation of their individual cultural atmosphere and their harmonization with sophisticated cuisines and wine. Recently, however, the situation is changing. Non-European style restaurants, which do not have specific wine brands as a suitable complements for their cuisines are trying to provide Californian wine as a suitable brand, instead of French and Italian wine, according to the business report "*WANDS*" (2001, July). Besides, contrary to the business circle's rumor that the trends of wine in restaurant use decisively influences those in households use, it was found that the experience in western style restaurants may not cause the increase of wine consumption. Thus, even though until now the strategy of U.S. wine has not attached priority to restaurant use, it does not necessarily disadvantage U.S. wine. Rather, the restaurant use for U.S. wine in the future has the possibility to expand.

The strategy related to distribution routes should be discussed further. According to the empirical results, the income elasticity is higher than plus one. As described in hypothesis 2, the results show that the wine consumption in the high income class is steadily high, while the sensitivity to income and compatibility of foods is higher in middle income classes. In this situation, the strategy of sales promotion through the department store route may work effectively, although in the irregular market situation nowadays under the shrinkage of income, it does not work well. Besides, as described in hypothesis 3, the results show that the wine consumption of the households in urban areas is steadily high, while the sensitivity to income and compatibility of foods is higher in the households in semi-urban areas. In this context, the strategy of sales promotion through department stores may also work effectively. Since in some semi-urban areas, supermarket stores of large nation-wide companies play a role as quasi-department stores in shopping centers located in suburban areas, priority should also be given to distribution through such supermarkets from now on.

The weak point of the U.S. wine strategy would rather exist in the fact that there is a considerable disadvantage in the competitiveness for American individual foods compared with European foods from a viewpoint of cultural aspects. For example,

canned tomatoes imported from Italy have predominantly achieved a large market share recently, although in the past U.S. canned tomatoes had a top share. The reason is that Japanese prefer genuine products from Italy due to boom in Italian cuisine even though U.S. canned tomatoes were strong in the price competition. The fact that the introduction of western foods such as cheese into household's dinners significantly increases wine consumption and the idea that this should be understood as a cultural phenomenon suggests that it would be effective for wine and western foods to be promoted as a set of goods representing a consistent cultural background. A set of American pure wine and American original foods may be more attractive to Japanese who want to try an exotic alcoholic beverage.

Concluding remarks

It was found that Japanese households show high income elasticity for wine demand. One of the features of the U.S. wine strategy was to attach importance to household use, and in the future there is the possibility of large market expansion in this area. The strategy to prioritize department store distribution was demonstrated to be effective due to the fact that wine consumption in the high income class is steadily high, while the sensitivity to income and compatibility of foods is higher in middle income classes. Besides, the fact that the wine consumption of the households in urban areas is steadily high, while the sensitivity to income and compatibility of foods is higher in the households in semi-urban areas also provides evidence to the effectiveness of this strategy. However, the result that compatibility of foods with wine is influential suggests the necessity to revise the strategy. The facts that Japanese in general accept to taste wine although there are some cultural barriers such as incompatibility of foods with wine should be considered in the strategy. For example, it may be effective for wine and western foods to be promoted as a set of goods representing a consistent cultural background. That is, it may be a powerful strategy for a set of genuine American wine and American original foods to be simultaneously presented to Japanese who show natural curiosity in an exotic beverage but hesitate due to cultural barriers.

References

WANDS staff report, "*Tokushu Kariforunia wain*" (Special report of California wine), *WANDS* (Monthly business report of wine and spirits), 2001, July, pp.31-33.

Table 1 Market share and features of distribution route among exporting countries (2001)

	France	Italy	Germ.	US	Chile	Spain	Aus.	Total
Market share (1993)	45.1	8.2	26.2	11.6	0.3	1.8	2.7	100.0
Market share (2001)	43.0	21.7	7.1	11.3	6.7	3.7	3.3	100.0
Restaurant use	38.0	51.3	19.9	22.2	34.0	49.6	37.9	38.0
Household use	62.0	48.7	80.1	77.8	66.0	50.4	62.1	62.0
Alcoholic dink specified shop	33.9	27.4	25.9	13.4	41.0	30.6	24.7	29.1
Department store	9.4	8.1	4.0	18.3	7.2	6.7	7.1	9.6
Supermarket store	28.8	31.4	35.1	37.1	27.5	27.1	30.1	31.0
Discount store	15.4	18.5	21.7	23.6	15.8	27.5	23.7	18.4
Convenience store	8.8	11.5	10.9	4.2	7.1	4.2	2.2	8.3
Other distribution route	3.7	3.2	2.5	3.4	1.5	3.5	11.9	3.6

Source: *WANDS* Publicity Limited, '*WANDS*' (Business report of wine and spirits), Apr. 2002

Note: figures show the percentage of the share.

Table 2 Market share with respect to price range among exporting countries (2001)

	Restaurant use				Household use			
	France	Italy	US	Chile	France	Italy	US	Chile
Less than 500 yen	28.9	48.9	0	6.7	39.6	33.0	0	2.2
From 500 to 999 yen	39.1	32.3	8.1	6.3	37.1	18.5	27.2	6.3
From 1,000 to 1,499 yen	36.8	34.9	5.4	8.9	37.1	16.3	6.0	13.4
From 1,500 to 1,999 yen	47.6	29.6	6.7	4.2	54.9	19.0	2.4	6.2
From 2,000 to 2,999 yen	66.2	18.9	7.6	1.1	78.9	9.0	2.4	1.7
From 3,000 to 4,999 yen	63.2	21.5	8.9	0.8	73.2	12.6	3.4	1.1
From 5,000 to 10,000 yen	71.3	17.8	6.9	1.0	76.5	11.3	3.4	0.8
10,000 yen or more than	79.4	11.8	5.9	0	89.7	6.9	3.4	0
Total	44.0	30.6	7.1	5.9	44.8	17.2	14.6	7.5

Source: *WANDS* Publicity Limited, '*WANDS*' (Business report of wine and spirits), Apr. 2002

Note: The figures are only for still wine. Sparkling wine is excluded.

Table 3 Result of the regression for general tendency

Parameter	Intercept	Wine price	Total expenditure	Cheese consumption
Parameter before recession	-43.49690***	-0.237378	3.613016***	-0.407904
Parameter after recession		-3.822678***		3.042416***
Statistical performance	Adjusted R^2=0.960656, DW=1.874761			

Source: Statistics Bureau, "Annual report on the family income and expenditure survey" (1975-2001), "Consumer Price Index".

Estimation method: OLS, Note: *P<0.1, **P<0.05, ***P<0.01

Table 4 Comparison between income classes

Parameter	High income class	Middle-high Income class	Middle Income class	Middle-low income class	Low income class
Intercept	-7.842900	-29.01040**	-54.68680***	-61.82349*	-43.92634
Price elasticity before rec.	-2.170765***	-2.739373***	-0.644640	1.509717	0.625592
Price elasticity after rec.			-4.340195***	-5.890689***	-4.477108***
Income elasticity before rec.	2.422010***	4.835396***	4.426311***	3.483914	3.097448*
Income elasticity after rec.	0.412718	1.468180*		7.079943**	4.413870**
Compat. of foods before rec.	-0.899715	-2.407342**	-0.137423	0.667057	-0.034899
Compat. of foods after rec.	3.143979***	4.312225***	3.375577***		2.428374**
Adjusted R^2	0.930794	0.951866	0.935325	0.859438	0.934651

Source, Estimation method, Note: 1) The same as Table 3. 2) rec; recession, comapt; compatibility.

Table 5 Comparison between city size groups

Parameter	Large cities	Medium-large Cities	Medium cities	Medium-small Cities	Small cities and villages
Intercept Before rec.	-24.07967	-44.29390***	-57.30825***	-50.05659**	-16.45366
Intercept After rec.				95.33499	
Price elasticity before rec.	-0.682601	-0.113064	1.431434	-1.414808	-0.794536
Price elasticity after rec.	-3.513402***	-3.766754***	-3.047020***		-5.704702***
Income elasticity before rec.	2.420067**	3.638286***	3.491586***	3.850206***	1.242452
Income elasticity after rec.				-5.786717	3.561972**
Compat. of foods before rec.	-0.108389	-0.466227	0.041900	1.216907	1.377013***

Compat. of foods after rec.	2.564458***	3.030239***	4.390710***		
Adjusted R^2	0.939133	0.950894	0.959680	0.831730	0.910055

Source, Estimation method, Note: 1) The same as Table 2. 2) rec; recession, comapt; compatibility.