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Expert opinion and cuisine reputation in the market for restaurant meals

James J. Fogarty^{a*}

^aSchool of Agricultural and Resource Economics, The University of Western
Australia,
Crawley, WA 6009, Australia

*E-mail address: James.Fogarty@uwa.edu.au

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Abstract. As food is an experience good, the market for restaurant meals is a market where the cost of acquiring information regarding quality is relatively high. In such markets consumers often turn to reputation measures to guide purchase decisions. As Australia does not have a longstanding cuisine style of its own, and given Australia has been open to substantial immigration inflows since federation, it represents an especially appropriate market to study regarding the impact of individual restaurant reputation and collective cuisine reputation on meal prices. The following study uses the hedonic price approach to investigate the implicit price of individual reputation indicators, cuisine type reputation indicators, and other objective indicators in the market for restaurant meals. The empirical findings presented suggest that both individual restaurant reputation and cuisine type reputation are important. Other important factors are shown to include the quality of the restaurant wine list, the availability of private dining rooms, and whether or not there is an outdoor dining option.

Key Words: Expert Opinion, Food, Hedonic Pricing

JEL: D12, R22

1. Introduction

The hedonic price approach has been used extensively to study the relationship between wine prices, objective wine attributes, expert opinion, and collective reputation; with relevant examples including, but not limited to Oczkowski (1994; 2001), Combris, Lecocq and Visser (1997; 2000), and Landon and Smith (1997; 1998). Although Chossat and Gergaud (2003) and Gergaud et al. (2007) examine the relationship between restaurant quality ratings and objective restaurant attributes in France, the ability of the hedonic approach to provide insights into the value of restaurant meal attributes has not yet been fully explored. The wide variety of cuisine types available in Australia, combined with the fact that Australia has no long standing food tradition of its own, means that Australia represents an excellent country for a study of the value of restaurant meal attributes, and in particular the reputation effect for different cuisine types.

The following paper uses the hedonic price approach to investigate the role of expert opinion, cuisine reputation, and the value of different objective attributes in the market for restaurant meals in New South Wales and Victoria, Australia; and the remainder of the paper is structured as follows. Section 2 describes very briefly the theoretical approach used to study the market for restaurant meals, and then provides an overview of the data set and how it was created. Section 3 outlines the estimation approach and discusses the empirical findings. Concluding comments are presented in Section 4.

2. Approach and data

Given Triplett (2004) is a comprehensive reference for the theory of hedonic price equations, the overview of the approach presented here is relatively brief. The

hedonic approach to consumer demand analysis assumes there exists some function that relates the price of a good to the underlying attributes of the good, and that consumer utility depends not on the good actually purchased, but on the underlying attributes of the good. With respect to restaurant meals, a hedonic price function might be written as $P = P(\mathbf{Z})$, where P is the price of a restaurant meal, and $\mathbf{Z}$ is a vector of observable product attributes such as cuisine type, restaurant reputation, etc., that appears directly in the consumer utility function. The hedonic approach has been widely used, but does impose some restrictions on the nature of the demand relationships across and between goods, and it is worth being clear about these restrictions. The main restrictions are that at least across the attributes in the hedonic good, the utility function be weakly separable, and that consumers engage in multi-stage budgeting. Once the weak separability condition is imposed on the consumer utility function it is possible to retrieve the hedonic price function, although not the specific form of the function (Triplet 2004).

In the case of restaurant meals, multi-stage budgeting and weak separability are not thought to impose any especially troubling restrictions. The approach does however imply that for restaurant meals, the trade-offs the consumer makes between different restaurant meal attributes is independent of the level of consumption of all other goods. It is also worth emphasising the result shown in Rosen (1974) that for the case of many buyers -- which is the case for restaurant meals -- the distribution of buyers across the attribute space determines the form of the hedonic price function.

Data on Victorian restaurants were obtained from the 2006 and 2007 editions of *The Age Good Food Guide*, and data on New South Wales restaurants were obtained from the 2006 and 2007 editions of *The Sydney Morning Herald Good Food Guide*. In both cases the restaurant guides were purchased from a national chain book store. *The Age* and *The Sydney Morning Herald* are both leading broadsheet newspapers in, respectively, Victoria and New South Wales, and the guides originally emerged as publications of the group that controls these two newspapers, Fairfax press. The Saturday editions of *The Age* and *The Sydney Morning Herald* -- which tend to include greater coverage of lifestyle and leisure matters such as restaurant reviews -- have an audited circulation of, respectively, over 280,000, and over 340,000, and remain vehicles for promoting the guides.

The guides are now published by Penguin, and the combined print run for the most recent editions of the guide books was 45,000. The first edition of *The Age Good Food Guide* was published in 1980, and the first edition of *The Sydney Morning Herald Good Food Guide* was published in 1985. Each year the release of the guides is associated with highly publicised awards ceremonies where prizes for restaurant of the year etc. are presented. These award ceremonies and any notable restaurant downgrades or upgrades receive national press coverage. Although there are now online social media restaurant review websites, *The Age Good Food Guide* and *The Sydney Morning Herald Good Food Guide* remain the benchmark source of information on restaurants in Australia's two most populous states.

For each restaurant reviewed in the guides, the following information is available: location, capacity, cuisine type, meal price range for entrée, main, and

dessert, summary numerical restaurant rating, written restaurant review, wine list comment, whether or not there is a private dining room or outdoor seating area at the restaurant, and whether or not the restaurant received an award for restaurant of the year, chef of the year, etc. How the available information was ordered for analysis is explained below.

The guides generally specify a range of prices for entrées, mains, and desserts. For example, an entry for a restaurant may read something like \$19 to \$23 for entrées, \$28 to \$34 for mains, and \$14 to \$16 for desserts.¹ The guides attempt to exclude observations that would skew the range of values reported, but the processes used are not perfect. To determine an average meal price at each restaurant the following steps were taken. First, the mid-point of the range specified for each meal category was calculated for both 2006 and 2007. The values reported for 2007 were then compared to the values for 2006, and cases where the difference between the two years appeared substantial were investigated further. This process was used to identify any coding errors in the classification of data to each meal type. Next, any very high or very low average values were investigated further. Specifically, restaurant websites were checked to see if the range of values specified were an accurate reflection of the average meal price for that category of meal. This process identified several cases where a single dish, such as a 350 gram Kobe beef steak, resulted in the mid-point of the meal price range reported in the guide being an inappropriate indicator of the actual average meal price. For such cases the actual average meal price based on the advertised online menu was calculated. Where the range specified in the guide appeared to

¹ It is difficult to determine an appropriate exchange rate for converting Australian dollars into US dollars or Euros, but the 10 year average US-Australian and Euro-Australian exchange rates to April 2011 were .80 US dollars per Australian dollar and .61 Euros per Australian dollar.

possibly represent a distorted picture, or if it was not possible to confirm meal prices at the restaurant via reviewing an actual online menu, the observation was deleted from the sample.

Following Gergaud et al. (2007), the average value for an entrée, main, and dessert was then summed to arrive at a representative meal price for each restaurant, with 2007 meal prices deflated to 2006 dollars using the Consumer Price Index. Restaurants that offered only a degustation menu were excluded from the sample. Additionally, if there was only one restaurant of a specified cuisine type, which was the case for Burmese cuisine, the observation was also deleted from the sample. For estimation reasons the sample was further restricted to restaurants that appeared in both the 2006 and the 2007 editions of the respective guides. This process left a data panel consisting of 523 observations on individual restaurants $\times$ two years. In 2006 the average meal price was \$53.13, S.D \$13.91, range \$24 to \$110; and in 2007 the average meal price was \$53.51, S.D \$13.80, range \$25 to 107.

The restaurant scores listed in the guides are out of 20, with the total score comprised of: ten points for food, five points for service, three points for ambiance, and two additional points for excellence in any particular food or service aspect. Any restaurant that receives a score below 11 is excluded from the guide. In addition to awarding each restaurant a numerical score, a range of awards for such things as: restaurant of the year, chef of the year, etc., are also reported in each edition of the guide. In 2006 the average restaurant rating was 13.8, S.D. 1.4, range 12 to 19; and in 2007 the average restaurant rating was 13.8, S.D. 1.2, range 12 to 19. Comparing individual restaurant ratings in 2006 and

2007 revealed that in 2007 there were 90 restaurants that were downgraded, 124 that were upgraded, and 309 restaurants where the restaurant rating was unchanged.

For the wine list at each restaurant the guides provide a comment rather than a specific score. To determine a wine list rating therefore involved creating a ranking based on the nature of the wine list comment at each restaurant. Restaurant wine list comments were grouped into five categories as follows. Where the wine list was described in unflattering terms such as "...some obscure choices in a badly spelled, almost exclusively Australian list, not very well matched to the food..." the restaurant was classified as receiving a negative wine list comment. Where the restaurant had no wine list they were classified as having no wine list comment. Where the wine list description was along the lines of "...suits the food at predictable mark-ups..." the restaurant was classified as receiving a neutral wine list comment. For positive wine list comments along the lines of "... smart, small boutique list..." the restaurant was classified as receiving a positive wine list comment. Where the wine list comment was strongly positive, for example "Terrific list with a range of vintages ..." the restaurant was classified as receiving a very positive wine list comment. The distribution of restaurant wine comments in 2006 and 2007 is shown in Figure 1, and as can be seen, in both years the most common wine list remark was a positive comment. Although at an aggregate level the distribution of wine comments is similar for both years, there was a surprisingly large amount of variation in wine list comments for individual restaurants across the two years. Specifically, between 2006 and 2007 the wine list comment was upgraded at 189 restaurants, downgraded at 192 restaurants, and unchanged at 142 restaurants.

[Figure 1 approx here]

Across the two years there was very little variation in other restaurant attributes, such as restaurant capacity, outdoor seating availability, and private dining room option; and no variation in the cuisine type or locations attributes. In 2006, the average restaurant capacity was 97 seats, S.D. 70, range 14 to 800; and in 2007 the average restaurant capacity was 98 seats, S.D. 71, range 16 to 800. Of the 523 restaurants in the sample, 240 had private dining rooms in 2006, and 241 had private dinning rooms in 2007. In 2006, outdoor dining was available at 285 restaurants, and in 2007, outdoor dining was available at 287 restaurants.

3. Model and empirical results

As there are two years of data, panel data methods were explored first. In the market for restaurant meals, many of the variables of interest are time invariant, and as there are only two time periods there is little variation in many of the variables that are time varying. As such, the fixed effects model provides few useful insights. Oczkowski (2001) has shown that for wine ratings there is a potential endogeneity problem. Conceptually, there would seem strong similarities between expert opinion reputation ratings for meals at individual restaurants, and expert opinion reputation ratings for wine. The potential for endogeneity was investigated across the restaurant rating variable, the wine list comment variables, and the restaurant capacity variables, and endogeneity was found to be a problem for the restaurant rating variable only. Given endogeneity is a problem, the random effects model is inappropriate. Where endogeneity is a problem with only some explanatory variables, the Hausman-Taylor approach can be used. In this case model identification is not a problem, but with only two time periods, and little variation in many of the explanatory variables, the Hausman-

Taylor approach provides unconvincing results. As such, the final model specified is a pooled instrumental variables regression model. The instrument used for the restaurant rating is the group mean rating, and testing indicted this was a strong instrument.

Regarding the specific functional form of the hedonic price relationship, Triplett (2004) argues authoritatively that functional form is to be determined empirically. As such, a series of Box-Cox transformations on the dependant variable with lambda values ranging between minus two and two were used to guide the process of selecting an appropriate functional form. The natural log transformation on the dependent variable performed well, and a hedonic price regression with the natural log transformation on the dependent variable also passed a RESET functional form test. Where appropriate, a variety of transformations were also considered for explanatory variables, but these had little impact on results. The complete list of columns in the model design matrix is given in Table 1.

[Table 1 approx here]

Empirical results for the hedonic price regression where endogeneity is appropriately considered are reported in Table 2. In terms of interpreting the information in the table, the wine list comment, location, and cuisine type variables are a series of dummy variables, and therefore require a base category for interpretation. For the wine list comment the base category is no wine list. For the location and cuisine type dummy variables there is no natural base category. As such, for these two groups of dummy variables, rather than drop a cuisine type and location category, the approach taken has been to follow Kennedy (1986) and use the average cuisine type and location effect as the base

category. The point estimates for cuisine type and restaurant location are therefore interpreted as deviations from the average. As heteroskedasticity appeared to be a problem with the data, the reported standard errors are based on White's sandwich estimator.

[Table 2 approx here]

The impact of the individual restaurant rating is statistically significant, and as a one unit increase in the restaurant rating is associated with an 8.1 percent increase in price, the effect is large in practical terms.² The impact of the restaurant rating variable seems consistent with the reputation concepts developed in Shapiro (1983). The framework for understanding reputation Shapiro develops generates equilibrium conditions for the case of perfect competition with free entry and exit, but imperfectly observed quality; conditions which would seem to approximate those observed in the market for restaurant meals. In the context of the market for restaurant meals, the essential propositions of Shapiro can be understood as follows.

Assume there are various quality levels a restaurant may choose to produce at, including some minimum quality level which is the regulated minimum quality level. Here the regulated minimum quality level would be the standard prescribed by the relevant health and safety standards for food preparation. As the regulated minimum quality level is guaranteed, this level of quality is known to potential diners with certainty. Now, consider a restaurant wanting, in period t , to produce in the high quality segment of the market. To produce high quality meals the restaurant purchases high quality produce and

² Percentage changes have been calculated using the Kennedy (1981) method, and the standard error of the percentage change has been calculated using the van Garderen and Shah (2002) method.

skilled staff and so incurs costs above those associated with the cost of producing a meal consistent with the minimum regulated quality level. However, as quality is revealed and acknowledged in the market with a lag of say n periods, for all periods up to $n-1$, where $n > 1$, the restaurant must sell high quality meals at the minimum quality price. So, for $n-1$ periods the restaurant earns a return below zero economic profit, where the lower return can be thought of as equivalent to the restaurant's investment in the asset reputation. To make this investment worthwhile, the restaurant must enjoy a return on this investment in period $t+n$ and subsequent periods. Further, the return to the investment in the asset reputation must represent a fair return, otherwise the investment will not take place. As such, meals from restaurants with a reputation for quality -- measured in this instance by the expert opinion rating -- must, in equilibrium, attract a premium.

To develop a comprehensive wine list at a restaurant involves substantial costs. There are direct wine storage costs and sommelier labour costs, plus substantial opportunity costs in terms of the capital tied up in stock. The margins on wine sold at restaurants are typically substantial, and so could be expected to appropriately compensate for these costs. However, the point estimates for the wine list comment dummy variables indicate that investing in a wine cellar also allows the restaurant to command higher meal prices, which suggests a possible positive spill-over effect from the investment in developing a wine list to restaurant meal prices. Relative to restaurants that have no wine list, a neutral wine list comment is associated with meal prices that are 6.9 percent higher; a positive wine list comment is associated with meal prices that are 9.9 percent higher; and a very positive wine list comment is associated with meal prices that

are 15.5 percent higher. Relative to restaurants with no wine list, there is no cost, in terms of lower prices, for restaurants that receive a negative wine list comment.

In addition to considering the wine list comment, whether or not BYO wine was allowed on a regular basis or limited basis was also considered. As margins on wine are relatively high, it was thought that, other factors constant, restaurants that allow BYO wine on a regular basis may need to charge slightly higher prices to compensate. Given patrons are aware that margins on wine are high, it was thought that, holding other factors constant, diners would also be willing to pay slightly more for their meal at a BYO restaurant knowing that they could make a substantial saving on the cost of alcoholic beverages. This does not, however, appear to be the case. The point estimate for the regular BYO wine dummy indicates that, other factors constant, restaurants that allow BYO wine on a regular basis charge 4.4 percent less for meals than restaurants that do not allow BYO wine on a regular basis.

Interpretation of the regular BYO wine result is somewhat speculative, but a possible explanation may be as follows. Restaurants that allow BYO on a regular basis still charge customers either a per bottle or per patron amount to consume the wine they bring with them. As such, the discount to meal prices in restaurants that allow BYO wine every night relative to restaurants that do not might suggest that the economic return to this practice more than adequately compensates owners for incidental glass breakage and additional glass cleaning costs such that they reap a pure profit from BYO charges for wine.

Relative to restaurants that do not allow BYO wine, other things constant, there is no premium or discount observable in meal prices for restaurants that allow limited BYO wine. Limited BYO wine restaurants typically allowed customers to bring their own wine only on certain days, for example, Monday to Wednesday. The strategy appears to be an attempt to attract mid-week diners to restaurants without effecting trade on the main business nights for restaurants, and given there is no evidence of a discount in meal prices at these restaurants it is a strategy that does not appear to have a negative impact of meal prices.

The results for restaurant location were somewhat surprising. Due to cost differences in land prices, the expectation prior to estimation was that the cost of restaurant meals in Melbourne and Sydney would be above average, while the cost of restaurant meals in regional Victoria and regional New South Wales would be below average. The results indicate that, other factors constant, restaurant meals in regional Victoria and New South Wales are more expensive than average; restaurant meals in Sydney are not different to the average; and restaurant meals in Melbourne are cheaper than average. One possible explanation for the result could be that it reflects the interplay between both costs and the extent of competition in each spatially separate market. With this interpretation, the implication is that competition for patrons in Melbourne is the most intense, and competition for patrons in regional Victoria and regional New South Wales is the least intense.

A series of dummy variables were used to identify cuisine type effects. Additionally, a control was introduced for the total number of seats available per cuisine type per location. The cuisine type capacity variable attempts to control

for the rarity of each cuisine type so that the coefficients on the cuisine type dummy variables can be interpreted as intensities of preference. Before turning to a discussion of the individual cuisine type coefficients, it is however worth noting the effect of a restaurant being identified as serving modern cuisine. In some instances, rather than the cuisine of a restaurant being identified as just Italian or Vietnamese, it was identified as Modern Italian or Modern Vietnamese. Relative to cuisine not identified as modern, modern cuisine attracts a statistically significant price premium of 3.2 percent. This suggests that restaurants that allow fresh new meal creations to appear on the menu are rewarded.

The results presented in Table 2 for cuisine effects have the average cuisine type effect as the base, and the average effect reflects the relative importance of each cuisine type in the data set. In terms of understanding cuisine effects it is possibly more appropriate to consider differences based on an equally weighted sample of the data. Following the approach of Suits (1981) allows for cuisine effects to be calculated where the base category is an equally weighted sample of cuisine types, and the cuisine effect, where the base category is an equally weighted average of cuisine types has been plotted in Figure 2. In the figure the solid bars for each cuisine type represent the heteroskedasticity robust two standard error range of values for each cuisine type.

As can be seen in Figure 2, it appears seafood, steaks, European food, and contemporary Australian cuisine sell for the highest prices, while vegetarian food, Lebanese food, Malaysian food, and Indian food sell for the lowest prices. This result could in part reflect the history of immigration to Australia with the cuisine of more recent Asian migrants trading at a discount to the cuisine of more

established migrant communities that arrived in Australia from Europe after WWII (ABS 2008; 2001). It is however interesting to note that contemporary Australian cuisine, which is generally a fusion of Asian and European cuisine, attracts a price premium, and this may suggest an increasing awareness of the quality of Asian cuisine in Australia. The results may also provide some pointers for those thinking of opening a restaurant in terms of the type of cuisine most likely to attract the highest prices.

[Figure 2 approx here]

There were no prior expectations regarding the impact of a restaurant offering dining in an outdoor setting or in a private room. The empirical results suggest that, other factors constant, restaurants with a private dining room have higher meal prices than restaurants without private dining rooms, and that meal prices in restaurants that have outdoor seating are lower than in restaurants that do not have outdoor seating. Again these findings provide useful information for those in the business of providing restaurant meals. In many circumstances the configuration of a restaurant venue could easily accommodate private dining. Where this is the case, the empirical results suggest that incorporating such an option will be rewarded in the market with higher average meal prices. Additionally, if a restaurant is considering renovations or refurbishments, the results suggest that an investment in indoor dining renovations would be a better investment than adding an outdoor dining area.

Restaurants in the sample ranged in size from 14 seats to 800 seats, although most restaurants catered for between 30 and 200 patrons. Theory suggests that moving from a very small restaurant size to a modest restaurant size would allow for specialisation, and hence higher quality and higher priced meals;

but that at some point, as size continued to increase, quality and price would fall. Given the size increase required before specialisation takes place is likely to be relatively small, and given the range of restaurant sizes possible before quality and price are seriously affected is potentially quite substantial, a transcendental specification for the impact of restaurant size is consistent with theory. A range of alternative specifications for the influence of restaurant size were investigated, including several different forms of spline function, and the final transcendental specification used was found to be a good fit to the data.

By considering only the point estimate information provided in Table 2 it is difficult to quickly evaluate the relationship between restaurant capacity and meal prices. As such, predicted values for restaurants of different size were calculated and overlayed on a plot identifying restaurant size and meal price. The predicted values were generated using mean values for restaurant rating, location, and cuisine type, assuming a positive wine list comment, allowing the cuisine to be identified as modern, and assuming there is no private dining room or outdoor dining area. As can be seen from Figure 3, the coefficients for restaurant capacity imply a relatively rapid increase in meal prices as size initially increases, before reaching a plateau and then falling. Specifically, moving from a restaurant with a capacity of 20 seats to a restaurant with a capacity of 100 seats sees meal prices increase by 27 percent. Meal prices are then broadly flat as restaurant size continues to increase, before starting to fall again for restaurants with capacity greater than 300 seats.

[Figure 3 approx here]

The final areas of investigation were into the impact of receiving an award such as chef of the year, and whether there was a time effect. In both cases no effect was identified.

4. Conclusion

Since federation in 1901, Australia has been a nation that has welcomed migrants from across the globe. In addition to the valuable economic contribution these migrants have made, they have also brought with them the cuisine of their country of origin. This means that today there is a wide variety of cuisine types to select from when dining out in Australia. The current study used the hedonic price approach, and controlled for endogeneity with respect to individual restaurant reputation ratings, to provide insights into the Australian market for restaurant meals. Key findings were that restaurant critic ratings are important; investing in the restaurant wine list is rewarded with higher prices; and that other factors constant, European and modern food tends to attract higher prices than Asian food.

References

- ABS (2008) *2008 Year Book Australia*, Australian Bureau of Statistics, ABS Catalogue No. 1301.0.
- ABS (2001) *2001 Year Book Australia*, Australian Bureau of Statistics, ABS Catalogue No. 1301.0.
- Chossat, V. and O. Gergaud (2003) "Expert Opinion and Gastronomy: The Recipe for Success", *Journal of Cultural Economics*, Vol. 27, No. 2, pp. 127-141.
- Gergaud, O., L.M. Guzman, and V. Verardi (2007) "Stardust over Paris Gastronomic Restaurants", *Journal of Wine Economics*, Vol. 2, No.1, pp. 24-39.
- Combris, P., S. Lecocq and M. Visser (1997) "Estimation for a Hedonic Price Equation for Bordeaux Wine: Does Quality Matter?", *Economic Journal*, Vol. 107, No. 441, pp. 390-402.
- Combris, P., S. Lecocq and M. Visser (2000) "Estimation for a Hedonic Price Equation for Burgundy Wine", *Applied Economics*, Vol. 32, No. 8, pp. 961-967.
- Evans M. and S. Thomsen (eds) (2005) *The Sydney Morning Herald Good Food Guide 2006*, Penguin Group, Camberwell, Victoria.
- Grundy, R. (ed.) (2005) *The Age Good Food Guide 2006*, Penguin Group, Camberwell, Victoria.
- Kennedy, P. (1986) "Interpreting Dummy Variables", *Review of Economics and Statistics*, Vol. 68, No. 1, pp. 174-175.
- Kennedy, P. (1981) "Estimation with Correctly Interpreted Dummy Variables in Semilogarithmic Equations", *American Economic Review*, Vol. 71, No. 4, p. 801.
- Landon, S. and C.E. Smith (1998) "Quality Expectations, Reputation, and Price", *Southern Economic Journal*, Vol. 64, No. 3, pp. 628-647.
- Landon, S. and C.E. Smith (1997) "The use of Quality and Reputation Indicators by Consumers: The Case of Bordeaux Wine", *Journal of Consumer Policy*, Vol. 20, pp. 289-323.
- Letherlean J. and N. Wilden (eds) (2006) *The Age Good Food Guide 2007*, Penguin Group, Camberwell, Victoria.
- Oczkowski, E. (1994) "A Hedonic Price Function for Australian Premium Table Wine", *Australian Journal of Agricultural Economics*, Vol. 38, No. 1, pp. 93-110.
- Oczkowski, E. (2000) "Hedonic Wine Price Functions and Measurement Error", *Economic Record*, Vol. 77, No. 239, pp. 374-382.
- Rosen, S. (1974) "Hedonic Prices and Implicit Markets: Product Differentiation in Pure Competition", *Journal of Political Economy*, Vol. 82, No. 1, pp. 34-55.

- Shapiro, C. (1983) “Premiums for High Quality Products as Returns to Reputations”, *Quarterly Journal of Economics*, Vol. 98, No. 4, pp. 659-679.
- Suits, D.B. (1984) “Dummy Variables: Mechanics v Interpretation”, *The Review of Economics and Statistics* Vol. 66, No. 1, pp. 177-180.
- Thomsen S. and C. Keenan (eds) (2006) *The Sydney Morning Herald Good Food Guide 2007*, Penguin Group, Camberwell, Victoria.
- Triplett, J. 2004. Handbook on Hedonic Indexes and Quality Adjustments in Price Indexes: Special Application to Information Technology Products. STI Working Paper, OECD.
- Van Garderen, K. J. and S. Chandra (2002) “Exact Interpretation of Dummy Variables in Semilogarithmic Equations”, *Econometrics Journal*, Vol.5 No. 1, pp. 149-159.

Table 1 Columns of the design matrix

Column	Description
(1)	Intercept
(2)	Restaurant rating in 2006 and 2007 (Range 12 to 19)
(3)	Dummy variable taking the value 1 if the restaurant received an award
(4-7)	Dummy variables for wine comment (negative to very positive)
(8)	Dummy variable taking the value 1 if BYO wine is allowed on a regular basis
(9)	Dummy variable taking the value 1 if BYO wine is allowed on a limited basis
(10-13)	Dummy variables for location (Melbourne, Sydney, Regional Vic, Regional NSW)
(14)	Control for the total number of seats available per cuisine type per location
(15-37)	Dummy variables for cuisine type (French, Italian, Chinese etc.)
(38)	Dummy variable taking the value 1 if the cuisine is identified as modern cuisine
(39-40)	Restaurant capacity and of log restaurant capacity
(41)	Dummy variable taking the value 1 if there is a private room dining room
(42)	Dummy variable taking the value 1 if there is an outdoor dining option

Table 2 Summary regression results

Variable	Estimate	Std Err.	Variable	Estimate	Std Err.
Intercept	2.31***	(.122)	Indian	-.295***	(.030)
<i>Expert Opinion</i>			Italian	.071***	(.013)
Restaurant Rating	.078***	(.006)	Japanese	-.018	(.039)
Award	-.048	(.031)	Lebanese	-.324***	(.046)
<i>Wine</i>			Malaysian	-.321***	(.046)
Negative comment	.050	(.039)	Mediterranean	.029	(.029)
Neutral comment	.067***	(.024)	Mexican	-.159***	(.057)
Positive comment	.095***	(.025)	Middle Eastern	-.011	(.062)
Very positive comment	.145***	(.028)	Moroccan	-.109	(.084)
BYO option	-.045***	(.014)	Wood Fired Pizza	-.213***	(.035)
Limited BYO option	.009	(.026)	Regional Australian	-.070	(.057)
<i>Location</i>			Seafood	.157***	(.031)
Melbourne	-.042***	(.009)	Spanish	-.200*	(.103)
Sydney	-.011	(.021)	Steakhouse	.109	(.042)
Regional Victoria	.029***	(.009)	Thai	-.143***	(.037)
Regional NSW	.025*	(.014)	Vegetarian	-.411***	(.073)
<i>Cuisine Type</i>			Vietnamese	-.211***	(.054)
Control for capacity	.000	(.000)	Modern	.032*	(.017)
Asian	-.115***	(.037)	<i>Other Measures</i>		
Chinese	-.220***	(.026)	Restaurant seats × 100	-.040**	(.018)
Contemp. Australian	.074***	(.022)	Log restaurant seats	.121***	(.023)
European	.113***	(.023)	Private room	.032***	(.012)
French	.100***	(.022)	Outdoor dining	-.044***	(.012)
Greek	-.112***	(.042)	GR ²	.603	

Note: *** significant at the 1 percent level ** significant at the 5 percent level, * significant at the 10 percent level

Figure 1 Wine list comment distribution

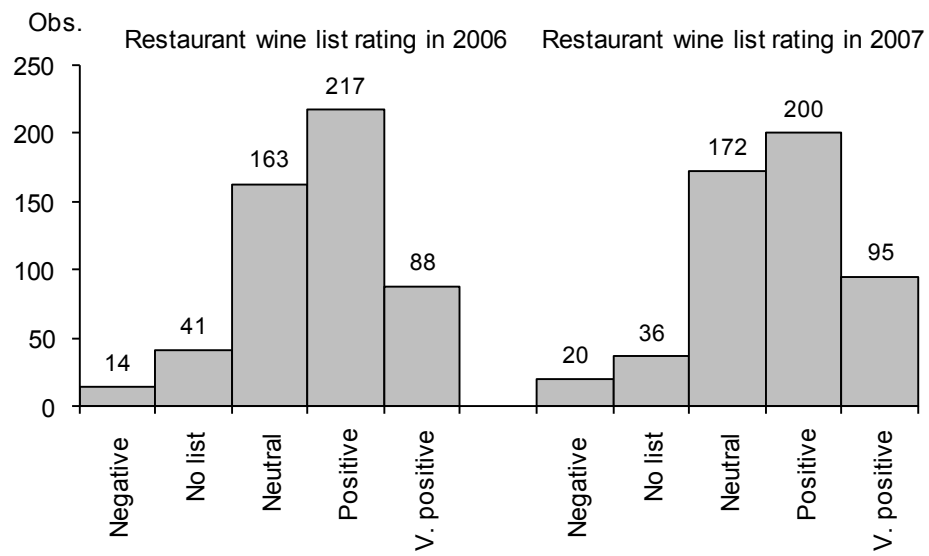


Figure 2 Cuisine effect 95 percent confidence intervals

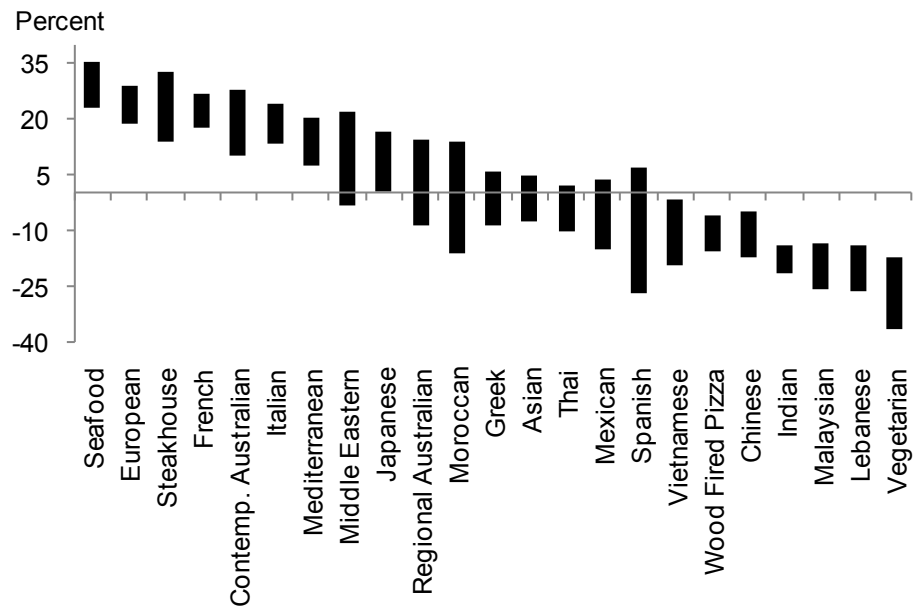


Figure 3 Relationship between restaurant capacity on meal prices

