**Vienna 2019 Abstract Submission**

**Title**
What is the price of expert opinion?

**I want to submit an abstract for:**
Conference Presentation

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**Keywords**
Restaurants, wine, hedonic prices, consumer ratings, awards, Wine Spectator Award of Excellence, marketing, product attributes

**Research Question**
What does it take to get a Wine Spectator Award of Excellence? What is the association between Wine Spectator awards and restaurant prices, controlling for Zagat ratings, location, and cuisine?

**Methods**
We use a set of hedonic regressions to explore the relative influence of location, culinary region, and other restaurant attributes, as well as ratings, on average meal price.

**Results**
Wine Spectator Awards of Excellence are associated with higher prices. In cheap restaurants, Zagat food rating is inversely correlated with price.

**Abstract**
What is the price of expert opinion?
Evidence from restaurant ratings, restaurant awards, and an investigative experiment

The published opinions of critics (expert ratings) and consumers (non-expert ratings) are increasingly numerous and easy to find. This paper estimates relationships between New York City restaurant prices, restaurant attributes, and two sets of restaurant ratings: one from the consumers participating in the Zagat restaurant survey, and the other from the Wine Spectator experts who determine the magazine’s “Award of Excellence.” We use a set of hedonic regressions to explore the relative influence of location, culinary region, and other restaurant attributes, as
The Zagat Survey is a restaurant guide series, founded in New York in the 1970s, which rates and reviews restaurants in many cities around the world. Ratings and judgments expressed in the Zagat Survey come from the opinions of several thousand voluntary annual survey participants, who are not paid for their participation. Restaurants do not have to pay to be rated by Zagat.

Our Zagat data set includes 1,709 New York City restaurants. Each restaurant has three integer-denominated Zagat ratings (out of a maximum score of 30) for “Food” (range: 11 to 28), “Service” (range: 7 to 28), and “Décor” (range: 3 to 28). There is no aggregate Zagat rating. We collected the price per person of a meal, as estimated by Zagat, including tax and tip, in U.S. dollars (range: $5 to $155). The mean price, excluding outliers, is $40.20. Median price is $38. Other data we collected for each restaurant include neighborhood (e.g. “Flatiron District”), a dummy variable for restaurants in Manhattan, and variables for the 10 most popular non-U.S. cuisine types (listed by number of restaurants): French, Japanese, Italian, Mexican, Spanish, Indian, Korean, Chinese, Thai, and Vietnamese.

Wine Spectator, the world’s leading wine magazine, awards approximately 4,000 restaurants around the world each year with the “Award of Excellence.” To be considered for a Wine Spectator award, a restaurant must submit an entry fee of $250. We construct a binary variable for three levels of the Wine Spectator Award of Excellence: the basic award, the Best Of Award, and the Grand (highest) award. We populate the data set with Wine Spectator award results from 2008, the same year for which the Zagat data were collected.

Our first model estimates price using only Zagat ratings as the independent variables: \[ \text{Price} = \beta_0 + \beta_1 \text{Food} + \beta_2 \text{Décor} + \beta_3 \text{Service} + \text{error}. \] Our second model uses log price as the dependent variable: \[ \ln(\text{Price}) = \beta_0 + \beta_1 \text{Food} + \beta_2 \text{Décor} + \beta_3 \text{Service} + \text{error}. \] The nonlinearity in the second model may fit the data better, but the first model is more intuitive in terms of representing one-dollar price increments.

Next we consider the Wine Spectator Awards of Excellence, the world’s leading award for restaurant wine programs. We first ask: are these awards a reflection of some form of “quality,” or are they available to any restaurant that submits the $250 entry fee and completes the paperwork correctly? To test whether awards are rationed, we undertook an investigative experiment, also in 2008, in which we created an imaginary restaurant in Milan called “Osteria L’Intrepido,” submitted the $250 entry fee, and completed the paperwork correctly, or at least as correctly as possible as can be done for a restaurant that does not exist.

To construct the high-priced “Reserve Wine List” for Osteria L’Intrepido, we combed through the archives of Wine Spectator wine ratings and selected the lowest-rated and most undrinkable Italian wines from the last few decades. We included this list, along with the other requisite materials, in the Wine Spectator Award of Excellence application. In order to meet some of the requirements, we set up a voicemail account and website for the restaurant.

In August 2008, Osteria L’Intrepido received the basic level of Wine Spectator Award of Excellence. We thus conclude that Awards of Excellence are not rationed, at least with respect to restaurants that have access to basic desktop publishing and web authoring tools. Given that the types of restaurants that display awards on their walls often have walls full of them, we assume that the Wine Spectator award variable in our models may reflect not only the value of the award itself but the many other non-rationed awards that may be available in the marketplace for bullshit.

Our full regression model has a total of 18 parameters, including one location binary variable, “Manhattan”; 10 binary variables for foreign cuisine types (“French”, “Italian”, etc.); one culinary diversity variable called “MultiCuisine,” which indicates whether a restaurant serves more than one type of cuisine; three Zagat ratings (Food, Service, and Décor); and finally, three binary variables for the Wine Spectator award levels (Basic, Best Of, and Grand).

Based on the hypothesis that cheap restaurants may differ systematically from expensive restaurants in their relationships between price and hedonic attributes, we run regressions not only on the whole data set but also on...
subsets of restaurants that have “cheap” vs. “expensive” attributes. To set the boundaries for price attribute categories, we turn to the New York Times price categories: “$” (<$25), “$$” ($25 to $40), “$$$” ($40 to $55), “$$$$” ($55 to $70). We convert the 2018 boundaries of $25, $40, and $55 to 2008 dollars using a discount rate based on 10-year change to the CPI for food out of home in the New York metro area. We define the four estimated price categories as “$” (<=19.70), “$$” (19.71 to 31.53), “$$$” (31.54 to 43.34), and “$$$$” (43.35 and over).

We sort restaurants into these New York Times-derived price categories based on their predicted prices in a regression of our full (all-attributes) model on the full set of Zagat prices. This procedure puts 137 restaurants into the “$” group, 309 into “$$”, 565 into “$$$$”, and 698 into “$$$$.” To balance the size of the groups and avoid running a regression on a small data set of 137 restaurants, we combine the “$” and “$$” categories into one “$-$$$” category (<=31.53) with 446 restaurants. We run regressions on the subsets of restaurants in these three estimated price categories, which we call “cheap” (by Zagat standards anyway, including $-$$$), “midrange” ($$$), and “expensive” ($$$$. The mean predicted prices in these categories (cheap=$22.63, midrange=$37.46, expensive=$53.65) are similar to the mean actual prices for the same groups of restaurants (cheap=$23.80, midrange=$36.41, expensive=$53.76).

We repeat this same procedure for the log-price model, using predicted ln(price) to assign restaurants to cheap, midrange-attribute” groups that are constructed based on the logs of the discounted New York Times price category boundaries. The log-price version of the procedure generates three groups of restaurants that are more balanced in size (548 “basic,” 618 “midrange,” and 543 “expensive”).

For both the raw price and log-price models, we report regression results for each of the three price categories as well as the full data set. Our first main result is that controlling for location, cuisine type, and Zagat ratings, Wine Spectator Awards of Excellence are associated with relatively higher prices. The coefficient is positive and statistically significant for all three levels of award in both the price and log-price models. Best Of and Grand awards are limited almost exclusively to restaurants in the “expensive” category. In the regression on raw price for the full data set, a restaurant with a Grand award is priced higher by $22, a restaurant with a Best Of award is priced higher by $13, and a restaurant with a basic award is priced higher by $4, holding all other factors constant. In the straight price model, the effect for the basic level of award is strongest and most statistically significant (the one purchased by Osteria L’Intrepido) for midrange restaurants. In the log-price model, the price effect for the basic level of award is strongest and most significant for cheap restaurants.

Coefficients for “Manhattan” location and Zagat “Décor” and “Service” ratings are positive and statistically significant for all three price categories, and for the full data set, in both raw price and ln(price) regressions. We observe some interesting inversions of sign between price categories for the coefficients of some regional cuisines, but not others. In both raw price and ln(price) regressions, restaurants with Spanish, Indian, and Korean cuisines are associated with higher prices for cheap restaurants, but significantly lower prices for expensive restaurants. Mexican, Vietnamese, and Thai restaurants, on the other hand, are associated with lower prices across price categories; and coefficients for Japanese, French, and Italian are largely positive across price categories.

Perhaps most surprisingly, in the we find an inversion in the food rating coefficient, which is negative (and, in the raw-price model, statistically significant) for cheap restaurants, but positive (and in both models, statistically significant) for expensive restaurants. In other words, for restaurants priced at less than about $32 per person, holding constant décor, service, and other factors constant, the more money you spend, the lower-rated you can expect the food to be.

We provide some possible explanations for our results, and we consider implications for other types of consumer products where awards or certification processes may generate value, such as financial audits.

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