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Restaurant Strategy and Restaurant Performance: Evidence from the Mediterranean Sea[1]

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Abstract

The ultimate goal of strategic decision-making is to realize sustainable profits. To achieve this objective, managers must devise ways to create and capture value. Apart from actions to reduce production costs, to lower consumer transaction costs or to devise new products or services, the most promising strategy is to increase product demand by horizontal differentiation, i.e. by making the product sufficiently different from similar products offered by the competition. Using a large sample of restaurants from Croatia, a popular holiday destination in Southern Europe, we show that adoption of either a "celebrity strategy" or a "wine strategy" is associated with significantly higher revenues. Since they require substantial investment in social capital or access to financial capital both strategies are difficult, if not impossible to imitate.

Keywords: Strategy, Competition, Firm Performance, Tourism Industry

JEL-Code: D22, L25, L83

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1. Introduction

In the capitalist world few, if any, markets are subject to perfect competition, i.e. a scenario where a large number of firms produce a homogenous good that they try to sell to price-sensitive consumers who are always looking for a bargain. In reality, firms very often compete against a few identifiable rivals. It is, therefore, important for owners and/or managers to consider the likely responses of rivals when making strategic decisions about pricing, advertising, etc.

Moreover, since owners/managers are usually better informed about product quality and other product characteristics (i.e. whether in the production process pollution has been avoided, whether the firm treats its employees fairly, etc.) consumers are at a disadvantage. If owners/managers succeed in reducing consumer transaction costs (e.g. costs of searching for the product, learning product characteristics and quality) consumers are willing to pay more for a particular product/a particular service.

However, creating value by e.g. reducing consumer transaction costs is only a first step in generating profits. It is also necessary to capture this value. In the long run, a firm benefits from reducing consumer transaction costs and/or increasing consumer demand only if rivals cannot copy these changes quickly (Brickley et al. 2007). Thus, in a world characterized by "monopolistic competition" firms can maximize their profits by distinguishing themselves from their (main) rivals. However, horizontal differentiation enables firms to maximize profits only if consumers have idiosyncratic preferences (Besanko et al. 2007).

Due to its characteristics, the restaurant industry is particularly suited for an empirical analysis of the returns to a strategy emphasizing horizontal differentiation. The most important characteristics of that industry we have in mind here are the absence of

barriers to entry[5], the existence of a high degree of rivalry, and the absence of any market power. The combination of these factors tends to erode profits, implying that long-term survival may be extremely difficult. Although most restaurants leave the business rather quickly (e.g. Hjalager 2000), some owners are very successful even in the long run, raising the question whether distinctive characteristics either of the restaurant itself or of its owners' strategies can be identified that make survival more likely.

The paper proceeds as follows: In the next section we review the available literature on the determinants of restaurant success. In section 3 we identify the conditions under which a strategy of horizontal differentiation is likely to improve a firm's performance. In section 4 we describe our data set and present our empirical findings. Section 5 summarizes our major findings and concludes with some implications for further research.

2. Literature Review

Using hedonic pricing methods, a small, but increasing number of studies has analyzed the impact of vertical (as opposed to horizontal) differentiation on the relationship between (changes in) external evaluations and (changes in) meal prices[6]. Apart from some perhaps surprisingly consistent econometric evidence, a number of descriptive studies have been published too. We start our review of the literature with the latter type of studies.

5 We admit, however, that guidebooks can be considered as barriers to entry, but anecdotal evidence suggest that even newcomers with a well-crafted strategy are able to make it into the „top division" within just two or three years (see e.g. Firius 2009). Even more worrying, the «Ostend Queen» in the city of Ostend, Belgium, had received two forks and a Bib gourmand from the Michelin even though the place opened on January 8, 2005 after the book had gone to press: http://www.nzherald.co.nz/lifestyle/news/article.cfm?c_id=6&objectid=10009222

6 Moreover, restaurant hygiene has been shown to be significantly better at restaurants included in a widely recognized and appreciated restaurant guide („Zagat"; see e.g. Jin and Leslie 2009).

- To the best of our knowledge, Cotter and Snyder (1998) were the first to study the impact of being promoted in the French "Guide Michelin" (either from zero to one, from one to two or from two to three stars in the years 1990-1995) on the number of meals served per day, the number of employees and on annual revenues of a random sample of French restaurants over the period 1970–94[7]. While revenues increased by 20 percent in the one star and by 10 percent in the two star categories, they went up more than 40 percent in the three star restaurants. At the same time, the number of meals served increased by 13 percent and the number of employees by 15 percent.

- Based on 36 detailed case studies, Johnson et al. (2005) develop a typology of chefs in France, Belgium, the UK and Switzerland pursuing a "high quality strategy" [8]. They find that (self-reported) rigor and consistency in the creation of meals clearly dominate all other reasons for success (teamwork and stability rank second, followed by service quality and financial management). Perhaps surprisingly, only slightly more than half of the chefs reported that their business was profitable.

More convincing, however, is the econometric evidence that is usually based on hundreds of restaurants or restaurant-year-observations. It is this literature that we now focus on:

- Using detailed information from a highly respected guide – the "Gault Millau" – on the restaurants operated by 185 distinguished chefs in metropolitan France, Chossat and Gergaud (2003) find a highly significant correlation at around 0.63 between average meal prices and rankings or ratings. Moreover, they show that the art of cooking (e.g. delicacy, simplicity, subtlety, sophistication, and generosity of courses as well as artistic design) is clearly more important in terms of evaluation than the

7 Unfortunately, Cotter and Snyder (1998) fail to report the number of observations included in their study.

8 Surlemont et al. (2005) in their exploratory analysis use an even smaller sample trying to distinguish between different revenue models.

decoration of the restaurant and the setting (number of forks and spoons, number of candles and trays, etc.), suggesting that some chefs may over-invest in luxurious environments.

- Gergaud, Guzman and Verardi (2007) find that among all Paris restaurants included in the 2002 edition of "Zagat" (the world-leading provider of consumer survey-based gastronomic guides) those that are recommended by the "Guide Michelin" (no star) charge 9 percent higher prices than observationally similar restaurants not included in the latter guide. Those with at least one star charge about 25 percent higher meal prices (the difference between one, two and three star restaurants is found to be rather small).

- Ehrmann, Meiseberg and Ritz (2009) use a cross-section of 256 German Restaurants to examine the impact of "Michelin" stars and "Gault Millau" scores on restaurant prices. Their estimations reveal that an additional star/score is associated with a price increase of 15€ per meal. This effect is linear rather than non-linear. This means that prices increase proportionally as scores rise through a scale from one to four. Most important, however, is that for celebrity chefs, TV shows are a substitute for additional scores, with a point estimate similar in size to that of a unit increase in cuisine rating[9].

- De Silva, Elliott and Simmons (2012) use a data set including 2,998 British restaurants listed in the "Good Food Guide" over the years 2003-2011, yielding 8,558 observations. They find that a 100 percent increase in score (from e.g. 1 to 2, 2 to 4, 3

9 For a typology of chefs see e.g. Balazs (2002) as well as Johnson et al. (2005). Accomplished chefs consider recipes they develop to be a valuable form of intellectual property. Since recipes are not a form of innovation that is covered by law, chefs enforce social norms in ways that enhance their private economic returns from their innovations (see Fauchart and von Hippel 2008). Moreover, code-preserving (conservative) as well as code-violating ("progressive") changes in a restaurant's product portfolio have a significantly positive impact on external evaluations by third parties such as critics (see Durand, Rao and Monin 2007) and by customers (see Dubois and Nauges 2010). Finally, institutional change (from "classical" to "nouvelle" cuisine) is also rewarded by critics as well as by customers (see Rao, Monin and Durand 2003).

to 6) is associated with a 30 percent increase in meal price. Moreover, one Michelin star is associated with 10 percent, two stars with 20 percent and three stars with 60 percent higher prices. Restaurants appear to raise prices when nearby restaurants offering similar cuisine increase their prices and reduce their prices if the neighbors reduce prices, suggesting the existence of a mix of tacit collusion and standard competitive responses.

- Using detailed data on some 523 Australian restaurants in 2006 and 2007, Fogarty (2012) finds that a one unit increase in restaurant evaluation (ranging from 12 to 19) is associated with an 8 percent increase in meal prices. Moreover, the composition of the wine menu and the type of cuisine seem to affect meal prices significantly: The more positive the comments on the composition of the wine menu, the higher are c.p. meal prices. Moreover, the various types of Asian cuisine are associated with significantly lower meal prices while the various types of European cuisine (with the exception of Greek) are all associated with significantly higher meal prices.

- Gergaud, Storchmann and Verardi (2012) compare the changes in meal prices in the years 2004-2007 among New York restaurants that were initially listed in "Zagat" only with those that were later on also listed in "Guide Michelin". In their sample of more than 3.000 restaurants they find that inclusion in the Michelin guide induced substantial price increases. While restaurants that were not Michelin-reviewed raised their prices in response to improvements in food quality, Michelin-reviewed places enjoyed considerable returns to improvements in décor and service, suggesting that expert opinion exerts a negative externality on gourmets by giving restaurants incentives to invest in service and décor instead of food quality[10].

10 This close relationship between external evaluations and prices has also been documented for wines (see e.g. Benfratello, Piacenza and Sacchetto 2009, Cardebat and Figuet 2004, 2009, Combris, Lecocq and Visser 1997, 2000, Frick 2004, Frick and Simmons 2012, Hadj Ali and Nauges 2007, Hadj Ali, Lecocq and Visser 2008, Haeger and Storchmann 2006, Landon and Smith 1997, 1998, Rössel and Beckert 2012, Roma, Di Martino and Perrone 2013).

Summarizing, it appears that there are statistically significant and economically relevant returns to investing in reputation via vertical differentiation, i.e. in increasing the number of stars/the score of the restaurant and that, second, there is a substantial payoff to "non-food related" characteristics of the place, such as improving the restaurant's appearance (which we consider a possible dimension of horizontal differentiation). Before turning to our empirical analysis (section 4 below) we next discuss the conditions under which horizontal differentiation is likely to affect the revenue (and profit) potential of restaurant owners. We here concentrate on two presumably incompatible strategies that are different in that they are likely to attract different (groups of) customers with differences in their willingness to pay.

3. Theoretical Considerations

It is characteristic for many social activities, like e.g. restaurant dining, that people consume a product or service together and partly in public. Thus, an individual consumer's demand for some products depends on the demands by other consumers (hence, a consumption externality occurs; e.g. Becker 1991)[11]. Therefore, "herding" is likely to occur when people learn from the behavior of others (whether this observable behavior is based on more or better information is irrelevant). An intuitive example is, indeed, the choice of a restaurant: Suppose a person on the street decides which of two restaurants (A or B) to dine in. Assume that she has no particular information about them (information is imperfect). Both restaurants are equally appealing but both are empty as it is too early for most people to have dinner. At this stage, the choice is non-informed and random and the first consumer goes for, say restaurant A. Further potential customers now see that restaurant A has been chosen by someone while restaurant B is still empty. Most likely, they avoid the empty place on the assumption that having success makes the other place a better choice. Thus, with more people walking by, the restaurant that the first customer chose on a pure random basis will be more crowded all evening long, suggesting that agents are boundedly rational and make their decisions (only) on the observable behavior of those preceding them (for a detailed exposition of the concept of "information cascades" see e.g. Banerjee 1992, Bikhchandani, Hirshleifer and Welch 1992, 1998, and Heal and Kunreuther 2010).

Such kind of "naïve" behavior is likely to occur in the presence of asymmetric information e.g. between restaurant owners and customers (Albrecht, Lang and Vroman 2002, Surlemont and Johnson 2005): Most consumers are *ex ante* uninformed about restaurant quality and will, therefore, use price and/or other signals to infer quality (availability of a local guide only helps to overcome this information deficit if customers speak

11 „The gap between what is demanded and what is supplied affects demand when consumers get utility from competing for goods that are not available to everyone who wants them ... or when the camaraderie on a queue itself delivers utility" (Becker 1991: 1115).

the language in which that guide has been published; a point that we will return to below). Particularly in a holiday destination, the average customer's lack of familiarity with the local restaurant market allows low-quality firms to survive due to, first, the cost of acquiring information relative to the cost of a meal. Second, the customers' desire for variety together with a rather low importance of reputation (repeat purchases are not a key factor in this environment) and the absence of warranties foster the emergence of a market in which only few customers are *ex ante* informed and in which the uninformed are not willing to invest much time and effort in the acquisition of information on product quality (Albrecht, Lang and Vroman 2002).

In this situation, "credible signals" (Spence 1973) that are easy to interpret by customers, gain importance[12]. Restaurant owners can choose between different signals that, in turn, represent different strategies to separate themselves from the competition and to maximize their profits[13]. We distinguish two different strategies that have not yet received much attention in the relevant literature using a large sample of restaurants in Croatia, a famous holiday destination at the Mediterranean Sea:

- a „celebrity strategy" and
- a „wine strategy"[14].

These strategies are credible insofar as they either require considerable up-front investment in "social capital" (e.g. access to prominent people) or financial wealth (e.g. access to financial capital).

While product and marketing strategies of firms seeking cost advantage usually center on standardized products than can be mass produced, attaining a benefit advantage requires greater attention of e.g. the amount and the quality of resources dedicated to

12 Of course, restaurant critics continue to play an important role in this environment for the more informed customers and for those able to read and understand the available guide books (Hsu, Roberts and Swaminathan 2012).

13 We do not take into account different styles in preparing the food and in decorating the restaurant.

14 The idea, that restaurant owners distinguish themselves from the competition by offering a particular portfolio of high quality wines has initially been developed by e.g. Preszler and Schmidt (2009) and Berenguer, Gil and Ruiz (2009).

consumer service (see Porter 1980). We use two different variables to measure these differences in strategy:

- First, owners may try to attract prominent people (actors, musicians, football players, politicians, etc.) to visit their restaurants. This, in turn, increases revenues if the occasional presence of celebrities is used to attract other people to the restaurant. Unfortunately, however, the guide we use does not list the names of the celebrities. The information on whether the respective owner pursues a "celebrity strategy" comes from the editors of the guide who – upon their frequent visits – have either seen or talked to the people they consider "celebrities". This strategy is chosen by a minority of 14% of the restaurant owners in our sample. The restaurant industry is not the only case where artists, athletes and more generally "celebrities" work in close collaboration with firms to promote their brands. A growing strand of literature in marketing has explored the economic benefits (on stock returns for instance, overall profitability, likability, etc.) for a firm of endorsing a celebrity (see e.g. McCracken 1989, Agrawal and Kamakura 1995 and Pringle and Binet 2005 for more information about celebrity endorsement). The difference here is that there is no formal contract, maybe except in very few occasions, between the celebrity and restaurants owners.
- Second, owners may invest in an extended wine menu and high quality wines to attract a certain clientele. We consider a restaurant as pursuing a "wine strategy" if more than half of the entries on the wine list are "expensive" products from renowned wine growing regions in either Germany, France or Italy. Again, we have to rely on the classification performed by the editors of the guide because detailed information on the wine menus is not available. The wine strategy is accessible to a minority of the restaurant owners only because the wines included in the menu usually have to be paid upon purchase. Therefore, only 25% of the restaurant owners in our sample have adopted this strategy.

Firms attempting to pursue both strategies (initially cost advantage and benefit advantage; here celebrity strategy and wine strategy) simultaneously often become "stuck in the middle". Therefore, we expect only a minority of owners to consider the two strategies complements rather than substitutes and to pursue them simultaneously. Indeed, only 8% of the restaurants in our sample belong in that third category, implying that more than half of the owners in our sample do not pursue any of the two strategies.

In either case, due to inclusion in the restaurant guide on the one hand and the existence of information cascades on the other hand (tourists tend to talk to other tourists about their experience with particular restaurants), a strategy of horizontal differentiation is likely to pay off if at least some customers are willing to pay for the presence of celebrities and/or the availability of high quality wines. Moreover, celebrities may not even be present most of the time and still attract customers due to their role as "quality monitors".

4. Data, Estimations, and Findings

In this section our goal is to assess the impact of the different strategies of horizontal differentiation discussed above on the performance of restaurants in a particular environment (in Croatia, a holiday destination at the Mediterranean Sea). Our data set has been compiled from a highly respected Croatian restaurant guide published between 2005-2007 in Croatian language[15] (Schauer's Fine Croatian Restaurants). Unfortunately, the most recent editions of the guide cannot be used because since 2008 menu prices are published in classified form only. Thus, we are restricted to the first three editions (these refer to the years 2004, 2005 and 2006). The guide includes 310 restaurants of which 87 (28.1%) were listed only one year, 88 (28.4%) were listed two years, and 135 (43.5%) were included all three years, yielding 668 restaurant-year-observa-

15 Growing up in Germany, one of the authors (Petra Matic) was born in Croatia and is, therefore, familiar with the language in which the restaurant guide has been and continues to be published.

tions. Of those listed two or three years, 95 (14.2%) had a constant reputation (i.e. retained their number of stars[16]) while 128 (19.2%) experienced a change in their reputation (as measured by their number of stars). Nominal menu prices declined substantially during the observation period (by around 15%), reflecting the „crisis" of the tourist industry in that particular region. In the three years included in the sample, the average price (standard deviation) of a three course meal for two persons including table wine and water was as follows:

- 2004: 461 kuna or 63 € (175 kuna or 24 €)
- 2005: 450 kuna or 62 € (185 kuna or 25 €)
- 2006: 400 kuna or 55 € (142 kuna or 19 €)

Table 1 displays the descriptive statistics of our dependent as well as the independent variables.

Table 1 around here

The models we estimate below are of the following general form:

$$\ln PRICE = ß_0 + \beta_1 QUAL + \beta_2 HOT + \beta_3 CEL + \beta_4 WINE + \beta_5 \ln AGE + \beta_6 \ln SIZE + \beta_7 WCH + \beta_8 LD + \beta_9 CD + \beta_{10} YD + \varepsilon$$

where

lnPRICE: natural log of price of menu
CEL: Celebrity guests (0=no; 1=yes),
WINE: More than 50% of wines on menu from abroad (0=no; 1=yes),
QUAL: Restaurant quality (number of stars),
HOT: Number of five star hotels within 5 km,
AGE: Age of restaurant,

16 Although the grading system seems to be rather similar, the stars awarded by „Schauer's Fine Croatian Restaurants" should not be compared to the most famous restaurant guide available in Europe, the „Guide Michelin" (only one of the restaurants in our sample has been awarded a Michelin star).

SIZE: Number of seats in restaurant[17],
WCH: Restaurant located in world cultural heritage area (0=no; 1=yes),
LD: Vector of location dummies,
CD: Vector of cuisine dummies,
YD: Vector of year dummies.

Our estimations suggest that restaurant quality (as measured by the number of stars) has the expected impact on menu prices: Compared to a one-star restaurant (our reference category) a two star restaurant can charge 5 percent more for a three-course meal, while a three star (four star) restaurant usually charges about 14 and 26 percent more. While the number of five star hotels in the neighborhood is also associated with significantly higher menu prices, restaurant age and size seem to be irrelevant. Perhaps surprisingly, a location in an area denoted as "world cultural heritage" is associated with 15 percent lower meal prices. We conjecture that this effect is due to the higher restaurant density in these areas, leading to a more intense competition.

We now turn our attention to the two coefficients that we are most interested in. It appears from Table 2 that the "celebrity strategy" as well as the "wine strategy" have a statistically significant and economically relevant impact on menu prices[18]:

- First, the (occasional or even regular) presence of celebrities increases meal prices by approximately 10% (11.1% more precisely).
- Second, a wine menu consisting mainly of high quality foreign wines increases meal prices by about 20% (23.3% more precisely).

Table 2 around here

17 Our data allow us to distinguish between seats available in the restaurants and the number of seats outside. Estimating the models with either the number of seats inside or outside leaves the coefficients of the remaining variables completely unaffected. The results are, of course, available from the authors upon request. The correlation between seats inside and outside is r=+.35, suggesting that some restaurants place more weight on seats inside and others on seats outside.

18 Table A1 in the Appendix demonstrates that irrespective of the number of stars restaurants pursuing either a celebrity or a wine strategy can always charge higher prices. However, these differences are throughout the range of stars statistically significant only for the wine strategy.

In addition, it appears from Table 3 that the coefficient of the interaction term (celebrity strategy plus wine strategy) is statistically insignificant, while the coefficients of the two main effects retain their magnitude and significance. This suggests, that combining the two strategies does not yield any additional returns, i.e. that "specialization pays" in the sense that pursuing both strategies simultaneously is not helpful as each of them seems to attract a (completely) different clientele[19].

Table 3 around here

It may well be that our coefficients either over- or underestimate the "true" effects of a celebrity and/or a wine strategy. It is possible that, first, our results are driven by a small number of outliers and that, second, the marginal effects of the two strategies are not identical across the distribution. In the remainder of this section we therefore present the results of robust regression estimates (see Verardi and Croux 2009) as well as quantile regressions (see Koenker 2005). We start the discussion by first presenting the results of quantile regressions and then turn to the robust regression estimations.

Although log price measures for restaurant meals (as well as wines) tend to have a larger kurtosis value than standard products, none of the studies that we are aware of uses quantile regression estimation. Of course, ordinary least squares is the best linear unbiased estimator provided that the error distribution is homoscedastic. Moreover, ordinary least squares parameters tend to a normal distribution around true values even if the individual residuals are not normally distributed. The particular advantage of quantile regression is that it facilitates examination of price returns to restaurant

19 An obvious concern here is that the two strategies are not exogenous, i.e. that celebrities tend to visit the highly reputed restaurants and that choosing a wine strategy occurs more often in highly reputed restaurants. However, although the probability of adopting a wine strategy increases with the number of stars a restaurant has been awarded (see Table A1 in the Appendix), it appears from Table A2 (again in the Appendix) that the correlations between the independent variables – especially between the two strategies identified and the quality of the restaurants (as measured by the number of stars) – are quite low.

characteristics at different points in the salary distribution (see Koenker 2005). Ordinary least squares estimates constrain marginal effects of covariates to be the same at the mean and elsewhere. But in menu price models the average price is greater than the median due to excess kurtosis of the distribution. Marginal effects at the median are not necessarily the same as at the mean or anywhere else in the distribution. The presence of restaurant outliers – the "superstars" in haute cuisine – may well cause marginal effects of covariates, such as restaurant strategies, to differ through the distribution. However, we have no prior on the pattern of this variation. Presence of non-normality in the dependent variable is indicated by a large kurtosis value and, in our case, the D'Agostino (1990) test is performed by the sktest command in Stata 11. As expected, the Random Effects estimates are put into some doubt as the p-value for the D'Agostino test on log menu price is 0.000, showing a statistically significant departure from normality of the dependent variable (excess kurtosis of distribution: 3.48). This suggests the need to use quantile regression and estimates.

Figure 1 around here

Thus, we need to investigate the impacts of the celebrity and the wine strategy at any quantile of the price distribution, not just the conditional mean. Moreover, the quantile regression approach is semi-parametric in that it avoids assumptions about the parametric distribution of the regression error term, an especially suitable feature where the data are heteroskedastic as in our case. To ensure robustness of standard errors, we bootstrap standard errors with 200 replications.

Table 4 around here

As expected, the effects of the celebrity and the wine strategy are not identical across the distribution:

- Celebrities increase meal prices by about 7-14% (the positive effect is most pronounced in the less expensive restaurants as can be seen from the t-tests displayed in Table A1),
- A predominantly international wine strategy increases meal prices by about 16-22% (the positive effect is most pronounced in the more expensive restaurants).

This, in turn, suggests the existence of a separating equilibrium in which different types of consumers self-select in restaurants pursuing different strategies: While many (perhaps most) tourists with a low willingness to pay seem to prefer the company of prominent people, many (perhaps most) tourists with a high willingness to pay seem to prefer having the option of choosing from a large portfolio of high quality wines.

In regression analysis three types of outliers are likely to influence the least squares estimator: Vertical outliers are observations that have extreme values for the corresponding error term. Their presence affects the least squares estimation and in particular the estimated intercept. Good leverage points are observations that are extreme in the space of explanatory variables but are located close to the regression line. Their presence does not affect the least squares estimation but affects statistical inference since they tend to inflate the estimated standard errors. Finally, bad leverage points are observations that are extreme in the space of explanatory variables and located far from the regression line. Their presence affects the least squares estimation of both, the intercept and the slope (Verardi and Croux 2009).

Although in our case the respective plots (which are available from the authors upon request) seem to suggest that the outlying observations are unlikely to distort the least squares estimation (compared to the example presented by Verardi and Croux 2009, our outliers are “modestly extreme”) we will now turn to the results of our robust regression estimation that have been produced using the mmregress-command available in Stata 11.

Table 5 around here

The results displayed in Table 5 suggest that the random effects estimator has produced more or less the same coefficients than the estimator taking into account the influence of outliers. When the influence of outliers (and especially of the bad leverage points) is controlled for, the coefficient of the dummy variable for our celebrity strategy is 0.119 as opposed to 0.106 in the random effects estimation. If we consider a more efficient estimator, that coefficient decreases to 0.107 (almost identical with the coefficient obtained in the random effects estimation). Looking at the coefficient of the dummy variable for the wine strategy, the results are very similar too: Controlling for the influence of outliers, the coefficient is 0.181 as opposed to 0.210 in the random effects estimation. If we consider the more efficient estimator again, the value of the coefficient increases to 0.205 which is again practically identical with the value obtained in the random effects estimation.

5. Summary and Implications

According to our results, considerable profits can be earned in the (Croatian) restaurant industry by pursuing a strategy of horizontal differentiation. Assuming a meal price for two persons of 55 € (the lowest average value in our observation period), an average seating capacity of 166 persons, an average capacity utilization of 50 percent and 250 opening days per year[20] results in additional annual returns to the "celebrity strategy" in the order of 57,000 € while the additional annual returns to the "wine strategy" are even higher (around 115,000 €). As expected, however, the returns to these strategies differ between market segments: Cheap restaurants benefit more from a "celebrity strategy" while the more expensive restaurants benefit particularly from a "wine strategy". Pursuing both strategies simultaneously seems not to pay off: Revenues are clearly not affected, but costs are likely to be higher.

20 The latter two figures are reported by e.g. Cotter and Snyder (1998).

Given the quite substantial additional revenues that can be generated by either of the two strategies the question arises why not all restaurant owners in Croatia pursue either a “celebrity” or a “wine strategy”. The obvious answer is that the former requires access to social capital while the latter rests on access to the financial means required to purchase high quality wines. Since social as well as financial capital is limited and access to each of the two sources of capital is restricted, neither the “celebrity strategy” nor the “wine strategy” is easy to copy by other owners. This, in turn, suggests that both strategies are likely to increase profits in the long run and that these profits are sustainable, i.e. cannot be competed away by other owners lacking the specific resources required to build them.

In future work we will try to extend our analysis in two different directions: First, we want to see whether our results can be generalized to „non-holiday destinations“, suggesting the use of guides from metropolitan areas with large numbers of tourists. Second, we want to explore in more detail the ties between celebrities and restaurant profiles. Apart from that, the availability of detailed longitudinal data on high quality restaurants suggests a number of additional promising research areas in the economics and management of gastronomy.

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Table 1
Descriptive Statistics

Variable	Mean	Std. Dev.	Min	Max
Price (in Kuna)	435	170	170	1500
Celebrities	0.13	-	0	1
International Wines	0.25	-	0	1
Celebrities and International Wines	0.08	-	0	1
1 Star	0.24	-	0	1
2 Stars	0.43	-	0	1
3 Stars	0.25	-	0	1
4 Stars	0.08	-	0	1
Restaurant Age	19.8	16.6	1	102
Number of Seats	166	124	20	1050
Unesco Site	0.13	-	0	1
Five Star Hotels within 5 km	2.05	2.61	0	12

Table 2
The Impact of Celebrities and International Wines on Restaurant Prices
(Model I; Random Effects Estimation with Clustered Standard Errors on Restaurants)

Variable	**Coefficient**	**Robust Std. Error**	**t**	**p**
Celebrities (1=yes)	0.1055	0.0409	2.58	***
Int. Wines (1=yes)	0.2097	0.0380	5.52	***
One star		reference category		
Two stars	0.0493	0.0267	1.85	*
Three stars	0.1418	0.0332	4.28	***
Four stars	0.2658	0.0861	3.09	***
Five star hotels	0.0267	0.0070	3.78	***
Log age	-0.0151	0.0159	-0.95	+
Log seats	-0.0243	0.0223	-1.09	+
Unesco (1=yes)	-0.1515	0.0424	-3.58	***
Location dummies		included		
Cuisine dummies		included		
Year dummies		included		
Constant	6.1771	0.1226	50.38	***
N of Observations		668		
R^2 * 100		39.3		

+ not significant; * p < .10; ** p < .05; *** p < .01

Table 3
The Impact of Celebrities and International Wines on Restaurant Prices
(Model II; Random Effects Estimation with Clustered Standard Errors on Restaurants)

Variable	**Coefficient**	**Robust Std. Error**	**t**	**p**
Celebrities (1=yes)	0.1157	0.0429	2.70	***
Int. Wines (1=yes)	0.2147	0.0443	4.85	***
Celebrities & Wines	-0.0221	0.0785	-0.28	+
One star		reference category		
Two stars	0.0492	0.0267	1.84	*
Three stars	0.1413	0.0334	4.23	***
Four stars	0.2644	0.0873	3.03	***
Five star hotels	0.0266	0.0070	3.79	***
Log age	-0.1519	0.0159	-0.95	+
Log seats	-0.0238	0.0224	-1.06	+
Unesco (1=yes)	-0.1514	0.0424	-3.57	***
Location dummies		included		
Cuisine dummies		included		
Year dummies		included		
Constant	6.1742	0.1234	50.04	***
N of Observations		668		
R^2 * 100		39.3		

+ not significant; * p < .10; ** p < .05; *** p < .01

Table 4
The Impact of Celebrities and International Wines on Restaurant Prices
(Quantile Regression Estimations; Model I)[#]

Variable	Coefficient	Std. Error	t	P
		.10 quantile		
Celebrities	0.1412	0.0494	2.86	***
International Wines	0.1977	0.0433	4.56	***
		.25 quantile		
Celebrities	0.1211	0.0451	2.68	***
International Wines	0.1592	0.0387	4.11	***
		.50 quantile		
Celebrities	0.0713	0.0540	1.32	+
International Wines	0.1907	0.4617	4.13	***
		.75 quantile		
Celebrities	0.1128	0.0461	2.45	**
International Wines	0.2034	0.0401	5.07	***
		.90 quantile		
Celebrities	0.0774	0.0663	1.17	+
International Wines	0.2285	0.0564	4.05	***

The remaining explanatory variables are omitted for ease of presentation. The full results are, of course, available from the authors upon request.

+ not significant; * p < .10; ** p < .05; *** p < .01

Table 5
The Impact of Celebrities and International Wines on Restaurant Prices
(Model I; Outlier Robust Estimation)

Variable	**Coefficient (Std. Error)**	**t (p)**	**Coefficient (Std. Error)**	**t (p)**
	Efficiency (.70)		Efficiency (.90)	
Celebrities (1=yes)	0.1191 (0.0438)	2.72 (***)	0.1071 (0.0353)	3.04 (***)
Int. Wines (1=yes)	0.1811 (0.0434)	4.18 (***)	0.2052 (0.0343)	5.99 (***)
One star	reference category			
Two stars	0.0525 (0.0287)	1.83 (*)	0.0560 (0.0255)	2.19 (**)
Three stars	0.1555 (0.0436)	3.57 (***)	0.1551 (0.0354)	4.39 (***)
Four stars	0.3102 (0.1924)	1.61 (+)	0.3930 (0.0869)	4.52 (***)
Five star hotels	0.0238 (0.0093)	2.54 (**)	0.0212 (0.0062)	3.40 (***)
Log age	-0.0045 (0.0153)	-0.30 (+)	-0.0049 (0.0136)	-0.36 (+)
Log seats	-0.0421 (0.0224)	-1.88 (*)	-0.0358 (0.0186)	-1.92 (*)
Unesco (1=yes)	-0.1267 (0.0495)	-2.56 (**)	-0.1369 (0.0361)	-3.79 (***)
Location dummies	included		included	
Cuisine dummies	included		included	
Year dummies	included		included	
Constant	6.1049 (0.1233)	49.52 (***)	6.1642 (0.1051)	58.64 (***)
N of Observations	668		668	

+ not significant; * p < .10; ** p < .05; *** p < .01

Figure 1
Kernel Density Estimate of Log of Menu Price

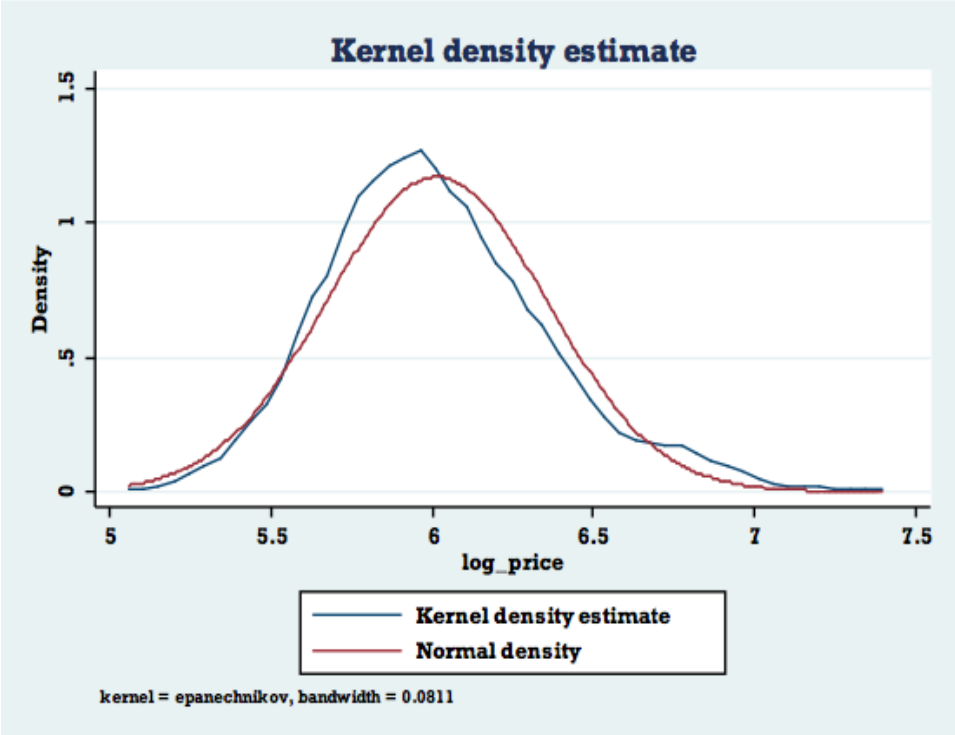

Table A1
Restaurant Quality, Strategy Choice and Nominal Meal Prices (in kuna)

Number of Stars	Celebrity Strategy			Wine Strategy		
	yes	no	∑	yes	no	∑
1	**473** **(168)** **[10]**	**358** **(117)** **[150]**	365 (124) [160]	**491** **(237)** **[14]**	**353** **(100)** **[146]**	365 (124) [160]
2	416 (91) [25]	399 (123) [262]	400 (120) [287]	**440** **(117)** **[44]**	**393** **(120)** **[243]**	400 (120) [287]
3	528 (227) [35]	480 (152) [134]	490 (171) [169]	**539** **(132)** **[70]**	**456** **(187)** **[99]**	490 (171) [169]
4	715 (274) [23]	629 (236) [29]	667 (255) [52]	**724** **(257)** **[39]**	**497** **(158)** **[13]**	667 (255) [52]
∑	**538** **(233)** **[93]**	**419** **(151)** **[575]**	435 (170) [668]	**552** **(202)** **[167]**	**397** **(137)** **[501]**	435 (170) [668]

Line 1 (no brackets): Mean price of menu
Line 2 (round brackets): Standard deviation
Line 3 (square brackets): Number of observations
Bold figures: Difference statistically significant at $p < .01$

Table A2
Correlation Matrix

	lnp	celeb	wine	star1	star2	star3	star4	hotel	lnage	lnsize	unesco
lnp	1.000										
celeb	0.235	1.000									
wine	0.405	0.317	1.000								
star1	-0.265	-0.124	-0.211	1.000							
star2	-0.156	-0.103	-0.172	-0.431	1.000						
star3	0.219	0.114	0.221	-0.327	-0.447	1.000					
star4	0.313	0.248	0.331	-0.128	-0.175	-0.133	1.000				
hotel	0.137	0.108	0.081	-0.029	0.041	-0.027	0.034	1.000			
lnage	-0.031	0.045	-0.034	0.053	0.040	-0.082	-0.046	-0.102	1.000		
lnsize	-0.077	0.107	-0.010	0.008	0.046	-0.025	-0.029	0.053	0.262	1.000	
unesco	-0.033	0.147	0.031	0.041	-0.039	-0.003	-0.003	0.301	-0.011	0.018	1.000