Demand Shifts and Changes in Competition: Evidence from the Movie Theater Industry.

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Abstract

In this paper, I empirically examine how demand shifts affect firm behavior. In particular, I study how competitive behavior between firms changes across different demand states. For this purpose, I use price and concentration data from the Spanish movie theater industry in 1995 and 2000. The evidence suggests that demand shifts change the competitive nature of the industry under study, and that this change differs across different demand shifts. Firms deviate less from tacit collusive behavior when gains of deviation are smaller.

Key Words: Competition, Conjectural Variations, Movie Theaters.
JEL Codes: L1, L11, L82.

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1 Introduction

Given the typical schedule of working hours available nowadays, individuals do not have much room to smooth their leisure consumption. See for example how individuals concentrate their leisure consumption on weekends and summer time. This pattern generates different aggregated demand shifts in the leisure-providing industries. Firms in such industries will then react to these changes in their business environment and alter their competitive behavior. Knowing and understanding how firms adapt to such shifts and how responses differ when facing different shifts is important for those interested in firm behavior. This is the goal of this paper.

In this paper, I investigate how demand shifts affect competitive behavior using price and concentration data from the Spanish movie theater industry in 1995 and 2000. In this industry, there are three important demand shifts during this period: weekends, summers and the recovery of the economy in 2000. For each one of these, I observe an effect on prices and firm entry through theater openings. Three types of movie theaters are observed in the data: those opening every day, those opening only on weekends and those opening only during the summer. Then I match entry decisions and prices in this industry with demand shifts and conduct an analysis on firm behavior. Specifically, I make inferences on how the degree of competition in the industry changes as demand shifts occur.

In my analysis, I take as a starting point a theoretical benchmark where firms compete a la Cournot with barriers to entry and establish a relation between this, the motivation behind Green and Porter (1984) and the facts in the data. Firms in the movie theater industry play a repeated game where they know when a demand shift exists but they do not observe the exact extent of such demand shift. This demand shift attracts new firms in the market that must pay their fixed costs. These new firms may alter the pre-existing degree of competition in the industry as they want to recover their fixed costs. The firms only observe their industry share of revenue and therefore compete more aggressively if they perceive a sufficiently large decrease in their share of industry revenues. Imperfect information creates the existence of price wars even though no firm deviates in equilibrium. I benefit in my analysis from considering how the firm strategy varies with the number of firms in the market, and I am able to draw some conclusions about the existence of price competition and the competitive behavior.

The methodology used to determine the change in the degree of competition will follow that of Bresnahan and Reiss (1991) when examining price data. I interpret their results in a slightly different manner. I estimate how prices decrease with entry, and I claim that prices will be more sensitive to entry in more competitive environments than they will be in more collusive environments. Even though undertaking this analysis across industries may not be useful, once we hold industry constant, the price-concentration ratio should be enough to determine qualitative changes in the degree of competition.

The evidence suggests that demand shifts have an effect on firm behavior. It also suggests that this effect is bigger when gains of deviating are bigger. During economic recession (1995), demand shifts had minor effects on the degree of competition. The magnitude of these effects increased during economic boom (2000). This is consistent with the hypothesis that firms colluded during the economic recession of 1995, but this collusion agreement became very unstable with the booming of the economy in 2000 and the entry of new firms. The break of that tacit collusive behavior made the industry more competitive.

This paper relates to different existing literatures. Bresnahan and Reiss (1989, 1990, 1991 and 1993) estimate the population threshold to induce entry and relate those to barriers to entry. In this paper, I extend their analysis of price sensitivity to firm entry and interpret larger price decreases with firm entry as larger increases in the degree of competition among firms in the industry. The work here also relates to that of Genesove and Mullin (1994), Corts (1999), and Puller (2001). This approach contrasts to that of Porter (1983), Green and Porter (1984), Rotemberg and Saloner (1986) and Ellison (1994) which use the JEC committee to observe collusive firm behavior under different demand shifts. Others such as Haltiwanger and Harrington (1991) and Rosenbaum and Sukharomana (2001) study the stability of competition throughout the business cycle. All these relate to the peak-load pricing literature (Boiteux (1956) and Panzar (1976)).

The paper is organized as follows. In the following section, I present a model of Cournot competition that combines with facts from Green and Porter (1984), and Bresnahan and Reiss (1991). I then establish testable implications and define my empirical strategy in the paper. In section 3, I document the relevant institutional details of the movie exhibition industry, identify the demand shifts and describe my data. Section 4 shows empirical results regarding the effect of demand shifts on changes in competition. In section 5, I perform some robustness checks to control for the possible endogeneity of firm entry. Section 6 concludes.

2 A Theoretical Framework

Following the model developed in Bresnahan and Reiss (1991), we imagine a world in which firms have a total cost function TC such that

$$TC_i = C(q_i) + F \tag{1}$$

where i is the individual firm. This is an U-curve average cost function.

On the demand side, firms face a demand function $P(Q)$, where Q is just the sum of the production of all firms in this particular industry. Firms in this industry compete a la Cournot and therefore maximize profits such that

$$\max_{q_i} \; P(Q)q_i - C(q_i) - F. \tag{2}$$

When firms maximize profits, they set $MR = MC$ taking the other firms' decisions on production as given. These are what we call reaction functions and they set the optimal response of firm i to the total production of all the other firms in the industry.

The equilibrium in this industry when there is free entry will drive profits to zero ($\pi = 0$) by adjusting P and n. In the case where there are barriers to entry and incumbents do not face immediate potential entry, incumbent firms maximize profit setting the optimal quantity according to the first order condition

$$(\frac{P - MC(q_i)}{P}) = -\frac{\theta}{\epsilon_p^d} \tag{3}$$

where θ is the behavioral parameter criticized in Genesove and Mullin (1997) or Corts (1993), and later rescued by Puller (2001) under a dynamic model of firm competition.

In this case, economic agents adjust quantity in a repeated game with each other every day and it becomes a strictly dominant strategy to collude in this market. Firms choose their quantity and observe the market share on the overall amount of sales, but they cannot observe perfectly what quantity the other firms are choosing since they do not observe exactly the extent of the different shifts. The uncertainty and information asymmetry create incentives for each one of the firms in this market to deviate from the pre-existing agreement and secretly increase quantity. Therefore, when a firm observes a decrease in its sales, it does not know whether this decrease is due to some secret deviation undertaken by some other firm or just because the shift in demand affected its own demand less than expected. These firms can differentiate demand shifts through the day they are in (week day versus weekend, and winter versus summer). Having perfect information of everything that is going on in this world is costly, and therefore firms face some stochastic component that can be predicted more or less accurately depending on the time of the year.

In order to prevent deviations from other firms in the cases where uncertainty exists, Green and Porter (1984) conclude that firms commit to implement a trigger strategy for which they would charge a price until their share of revenue goes below a certain threshold. In their setting, if that occurs firms charge a price much lower than the agreed collusion price p during a certain number of periods such that deviating is not optimal. In any case, we will end up observing price wars although no firm will ever deviate. The entry of new firms and increase in production by existing firms when a shift takes place also makes tacit collusion more fragile and therefore firms compete more intensely than otherwise.

In the movie theater industry there exist capacity constraints and adjustment to demand shifts. According to different sources, 70% of the audience attends the movie theaters on weekends (Friday to Sunday). Despite this, we do not observe prices go up on weekends (even though screens are filled up) and prices go down during the week (even though screens are far from full). This makes movie theaters adjust input quantities that go into the fixed costs depending on the demand level the theater faces. This could explain why, during the week, prices do not go down although theaters do not fill up and why, during the weekends, prices do not go up even when capacity is filled up.

[Figure 1]

Let us borrow Figure 1 from Bresnahan and Reiss (1991). This figure shows the negative relationship between P and n. As demand increases (D_1 to D_{100}), more firms enter the market. As firms enter, overall quantity increases driving price down and forcing each firm to produce more to cover their fixed costs. The negative relationship between price P and n comes from the fact that entry will drive profits to zero, and price will go down the average cost curve as new firms come into the market. This relationship between P and n will also depend on the degree that firms are colluding or competing aggressively.

Figure 2 shows how this relationship between P and n may vary with the competitive behavior of firms. The two possible extreme cases when firms can only set prices are Perfect Collusion and Bertrand competition. As we see in the figure, the cartel price stays roughly constant as we increase the number of firms in the cartel. On the other hand, under Bertrand competition once there are two firms or more in the market the price drops to marginal cost. All the space in between the lines representing these two cases are intermediate cases of both collusion and perfect competition when firms are more or less aggressive in competition. Obviously, the closer a line stands to the Bertrand line, the closer the situation is to perfect competition. Therefore if we observe an industry changing the line that links P and n towards the Bertrand line, we will determine that such industry is becoming more competitive.

[Figure 2]

Bresnahan and Reiss (1991) claim that the rate at which price decreases (approaches the minimum average cost) with entry is a sufficient statistic to identify competitiveness. They link faster decrease rates with bigger sunk cost, and this to less competitive industries[1]. But since the free entry condition is not binding, firms can vary their competitive behavior and stay on positive profits. Therefore how P and n are related is not a good indicator of competition across industries. Ideally, we would like to observe mark-ups and relate changes in these to changes in n and P. This being said, observing P and n in the same industry across different demand shifts might enable us to identify changes in mark-ups and therefore changes in competitive behavior.

Following the theoretical motivation in this section, I link changes in the competitive behavior of firms with demand shifts by examining the rate of change in prices P with respect to the number of firms n. Even under the caveats highlighted here, we can still give some value to our empirical findings without reaching any misleading conclusions.

3 Institutional Details & Data Description

In this industry, there are three main agents: movie producers, movie distributors and movie exhibitors (theater owners). The distributors introduce movies produced by producers into the theatrical market. This means movie theaters rent movies from distributors at release. When movie exhibitors rent movies from distributors, they use revenue-sharing contracts. These contracts specify the share of revenue that distributors keep for every week the theater shows the movie on its screens. These contracts do not include any clause specifying ticket prices, even though we cannot rule out any kind of informal enforcement by the distributors if theaters charged very low prices. This could indicate that distributors informally put a lower bound to ticket price and competition puts an upper bound on pricing.

As briefly described above, there are three types of movie theaters in the Spanish movie theater market: movie theaters that show movies all days of the week all year, movie theaters that show movies only on weekends all year and movie theaters that show movies only during summer season. Meanwhile Spanish movie theaters charge three different prices during the week: week day, bargain day and weekend day are priced different. This fact is the main reason to assert that firms react through pricing, besides entry, to demand shifts in this industry.[2]

Despite the various types of theaters operating at each point in time, the dynamic release of movies that characterizes the industry ensures that all theaters show movies from the same pool at any given week. In other words, theaters running all year are not first-run theaters and summer theaters second-run theaters. This fact rules out the possibility that any difference in pricing across theaters may be due to the movies that they show. This does not say that all theaters show the same movies, but all movies showing at any given week belong to a same pool of movies given the endogenous release of movies (Einav(2004)) that characterizes the industry.

3.1 Identifying Demand Shifts

In my data I identify three different demand shifts or states of demand. I take a winter week day as my benchmark to compare to the situations emerging when a demand shift takes place. Attendance to movie theaters on weekends more than doubles even though prices increase. This fact cannot be associated with a stable demand function, but with a shift in the demand curve. Consumers find much cheaper to consume leisure on weekends than on Monday to Friday.

The second shift in demand that I identify is the summer shift. Every summer millions of tourists come into the country from all over the world and most of the inhabitants living in the big metropolitan areas move to less populated areas, both on the coast and in the mountains. It is worth mentioning the importance in number of second residences in this country, which supports my hypothesis that both coastal and non-coastal cities experience a change in the size of population with respect to their winter population. This shift comes from an increase in the population, and therefore market size.

Finally, the third shift in demand identified is the one occurring from 1995 to 2000 in Spain. Between those two years the overall economic environment improved substantially. Lower inflation, less unemployment and higher growth rates were some of the symptoms of this improvement in the economic situation faced by Spanish citizens. This improvement is reflected in an increase in consumption and in an overall rise in demand for movie theater tickets within the business cycle.

Therefore, I have in the paper three different types of shift.

3.2 Data Description

The data used in this paper comes from four different sources. The unit of observation I use is the movie theater. I obtain the data for 1995 from "Relación General de Locales 1995". This contains data on movie theater concentration, prices and characteristics per screen for 664 movie theaters distributed across 198 towns in Spain. Here we observe price data for each movie theater and each day of the week. Also from this source, I collect the number of days that each movie theater opens, and whether the theater only opened during the summer[3]. I also identify the firm to which the movie theater belongs and the circuit at which the firm is attached[4]. Other variables will be the number of screens and the number of seats.

The same data for the year 2000 was obtained through two sources. I obtained the data on concentration and movie theater characteristics from the "Censo de Exhibición Cinematográfica en España" compiled by the three biggest on-screen-advertising firms in the country. Since this screen census does not report the number of days that a movie theater opens per week, I take this information from the 1995 census. The 2000 census reports very accurately whether the theater opens only during the summer. I then use this information to complete the 1995 data. I collected price data for the year 2000 by hand from several web pages where information and sale of tickets were offered[5]. Even though concentration data was available for 1015 theaters across 495 towns, I only had price data for 318 of those theaters. I also accurately observe number of movie theaters and firm to which they belong. When I combine all sources of data, I obtain 2740 observations per theater and demand state. Summary statistics for these data are in the upper half of Table 1.

[Table 1]

Note that average price is always lower in the summer and that its standard deviation varies between 10% and 20%. This is always bigger in the summer season than winter season. Notice as well that the average of number of screens and seats goes down in the summer but not significantly. This would mean that theaters that only enter the market in the summer tend to have less screens and less seats. All the other variables stay roughly constant across demand states.

I created indicator variables to account for geographical location such as coastal province, or Barcelona and Madrid provinces. Finally, I collect demographic information per town from the "Anuario de La Caixa" editions for 1997 and 2001. These editions contain data for 1995 and 2000 respectively since that publication main source is the official census. The variables extracted from this source are population, economic level of the population and a tourism index. Population is given by the number of people registered as inhabitants in the town. The economic level of the town is a measure of individual disposable income constructed by "La Caixa". This economic level variable takes values from 1 to 10 where 1 represents those towns with less than \$5,000 a year and 10 those with more \$14,000. The average individual disposable income in Spain would take a value of 5 in this index. The tourism index is made using criteria such as cultural interest of the town for foreigners or number of foreign visitors in the summer. Summary statistics for these controls appear in Table 1 as well.

Table 1 also shows summary statistics for a part of the data described above (bottom half of Table 1). I call this smaller sample "reduced sample" hereafter. This sample drops from the initial data set all observations from theaters located in a coastal province, located in the provinces of Madrid and Barcelona and those in cities with more than 500 thousand inhabitants. The purpose of this is to focus the analysis in the paper in local markets, and for this reason we drop all observations from highly populated areas in the country. See from Figure 3, that all interior provinces have low population densities (except Madrid right in the middle) which is a good indication that towns are probably more isolated than they are in provinces with high population densities.

[Figure 3]

Finally, Table 2 reports the number of theaters in the data set (both whole and reduced samples) by number of exhibition firms in their respective cities and the state of demand. See that in the reduced sample, there are almost no cases with more than 5 firms operating the market.

[Table 2]

4 Empirical Results

I follow the estimation procedure undertaken in Bresnahan and Reiss (1991) with tire prices. The intuition behind is simple. As market size increases, more firms enter the market. These firms maximize their profits. It is in their interest to keep quantity low and price high to generate higher profit. Then the more sensitive to entry prices are, the more competitive the industry is. Therefore we should observe how the price-concentration ratio changes with the degree of competition changes within an industry. I use the demand shifts mentioned above as the exogenous cause for a change in competition among firms.

In order to capture nonlinearities in the relationship between price and the number of competitors in the market (as it is shown in Figure 1), I proceed to do my estimation using the following regression model

$$p_{ijc} = \alpha_0 + \sum_{k=1}^{4} \alpha_k 1\{k\_firms\}_{ijc} + \beta X_i + \gamma Z_{ijc} + \epsilon_{ijc} \qquad (4)$$

where i is an individual movie theater, j are the different demand states and c is the city where theater i is located. $1\{k\_firms\}$ is a dummy variable that takes value 1 if there are k firms operating theaters during demand state j in the city c where movie theater i is located. The subscript k denotes the number of firms operating movie theaters and it only takes values from one to four. Controls that go into X_i and Z_{ijc} are number of screens, number of seats,[6] economic level and population. These two types of variables differ in that some of them differ across theaters (number of screens and number of seats) and others differ across towns and demand state(population and economic level). I include a tourism index when examining competition during the summer season to control for the inflow of tourists and summer residents into town, since summer population is unobserved.

I run this regression for each demand state and year: winter week day, winter weekend and summer weekend on one hand, and 1995 and 2000 on the other hand. Since I limit the number of variables included in the analysis as much as possible, these variables cannot capture the totality of the underlying heterogeneity between cities. A way to complement these variables is restricting the sample of observations to markets that a priori will be more alike to one another. I restrict the definition of the sample to a more homogenous one. I exclude observations belonging to Madrid and Barcelona provinces, coastal provinces and those cities with a population number exceeding 500 thousand inhabitants. Next I comment on the regression results and determine the qualitative change in competition. I graph these results to illustrate those changes in competition better. The use of graphical tools to present my results and the intuition behind it is a major contribution of this paper.

4.1 Regression Results and Graphical Evidence

I show the results in Table 3. I show first the results of running the regressions for the complete sample. The fact that most of the cities in the whole sample are not isolated markets result in flat or increasing relationships between price P and number of firms n. Following those, we run the regressions for the reduced sample. Coefficients in this case decrease as firm entry occurs. Surprisingly, in some instances the coefficient value for the duopoly dummy is higher than the coefficient value for the monopoly value. For this reason, we reestimate the regressions on the reduced sample constraining the coefficients values of monopoly and duopoly to be the same. The constrained regressions show how entry decreases price except for the cases of summer 1995 and week day 2000. Economic level and population correlate positively with price and all the other variables lose statistical significance (number of screens and number of seats). At this point, we are left with the question of whether demand shifts change the degree of competition among firms and how it does so. As previously stated, the degree of competition is calculated by the rate at which price decreases with entry, everything else held constant. This rate is just the average change in the coefficients for the dummy variables. In other words, this rate would equal the slope of the trendline that unites the dummy coefficient values against the number of firms that such dummies represent.

[Table 3]

Therefore graphical evidence is especially necessary in this case for two reasons. It allows us to see how the trendline is fitted and therefore we can rise issues that would not be noticeable if only the trend line was reported. A second reason is that it allows the reader to make his own judgements and interpretation. I report in Figure 4 the comparison of intensity of competition in the industry for week days, weekends and summer in 1995 and 2000. As we can see from Figure 4, demand state matters to determine the degree of competition. Competition remains the same as demand shifts from weekday to weekend in 1995, and decreases during the summer in 1995, and approaches perfect collusion. This would be, in our framework, a flat line where price would hardly vary as firm entry occurs. This would mean that firms behaved more competitively during winter season of 1995. During week day of 2000, price hardly varies with entry. Competition increases during weekends and does not change during the summer of 2000.

[Figure 4]

When examining the year 2000, we observe how the slope for weekends is steeper than that of week days. This means that competition increased as a result of the weekend demand shift. This differs from the result from the 1995 data and presents a first puzzle in the empirical findings of this paper. One explanation for this can be the shift that took place during 1995 and 2000. This combined with the weekend demand shift may have created an incentive to deviate from the tacit collusive agreement and changed the degree of competition between both years. This could be true if the degree of competition would prove to be more sensitive to some types of demand shifts than it is to others. Notice that Table 3 reports F-statistic for the hypothesis of whether coefficients of triopoly and quadropoly are the same, and whether all number of firms dummy variable are the same. The former null hypothesis is never rejected, and the latter is rejected in 3 out of the 6 regressions. Interestingly, these mean that slopes decrease (degree of competition decreases) when the summer shift occurs in 1995 and 2000. Therefore the summer season appeared to be more collusive than the winter season in both 1995 and 2000.

These are interesting empirical findings that shed light on the puzzle presented before. In other words, if we look at the status of this industry from the business cycle perspective, in 1995 when the economic situation was bad firms only colluded during the summer season. Tacit collusion seems more common during 2000. Results in this section seem to indicate that collusion is more likely to appear during high states of demand.

4.2 Panel Pooled Regression Analysis

Another way to analyze the problem at hand is by treating the observations as longitudinal data. By doing this, we can explicitly test how different the oligopoly dummy coefficients are and if firms really change their pricing behavior. Also, this allows us to use more observations in the estimation and therefore get more efficient and consistent estimates. The only inconvenience in this approach is that the effect of the rest of controls is held constant across demand shifts. These controls are number of screens, number of seats, economic level, population and tourism index. Some may argue that movie theaters are now much bigger than they were five years ago and therefore the effect of the size of a movie theater on price and firm competition should not be held constant. Again we face a trade-off when specifying the econometric model: this time the trade-off lies between flexibility and the number of degrees of freedom. The good news is that we can now compare the results that we obtain in this section with those obtained in section 4.1.

To implement the longitudinal approach, I take each demand state as a period in my data set. As I did previously, I only use observations from theaters located in towns that do not belong to coastal provinces, Madrid and Barcelona provinces or have population of less than 500 thousand inhabitants. The first model I show in Table 4 is the most flexible model I test in this section and basically tests how differently price changes with firm entry in each one of the periods (demand states) versus each one of the other periods. The regression model that I use is

$$p_{ijc} = \alpha_0 + \sum_{k=1,j=1}^{4,6} \alpha_{kj} 1\{k\_firms\}_{ijc} + \beta Z_{ijc} + \gamma_0 POP_{ijc}(1 + \gamma_1 1\{\text{Summer}\} * Tourism) + \epsilon_{ijc} \quad (5)$$

where k is the number of firms in the market and ranges from 1 to 4. I specify a dummy concentration variable α_{kj} per value of k and per period j, which makes a total of 24 dummy variables. I also include a "Year_2000" dummy variable to control for the change between years. From what we can see in Figure 5, firms relaxed competition during the summer of 1995 with respect to winter of 1995, while competition seemed to increase during winter weekends and summer of 2000.

[Table 4]

Models II, III and IV look for differences in degrees of competition between years, seasons and days within a week respectively. Model II tests how different competition is between 1995 and 2000. I show results in Table 4 and in Figure 5. We can observe that the slope in 2000 is slightly steeper than that of 1995. Model III tests whether firms changed their competitive behavior from winter to summer season. I test then differences of behavior between firms in a winter weekend and a summer weekend (I leave out all the observations from the movie theaters opening during the week). I show the results in the third set of columns in Table 5 and in Figure 5. We see how the slope for summer is significantly steeper for summer than it is for winter (competition is more aggressive during the summer season). Finally, Model IV tests the difference between competition during the week and weekends across years (leaving out the observations belonging to summer season). I show these results in the fourth set of columns in Table 4 and in Figure 5. Here we see how the degree of competition does not change between week days and weekends, which is consistent with the findings from Model I.

[Figure 5]

When comparing these results with those shown in section 4.1, we can conclude that there is a major increase in competition during summers and the year 2000. Also no major change in competition occurred between week days and weekends. These results do not suppose a major contradiction with the results in section 4.1.

5 Robustness Checks

Even though we restricted the sample to similar towns, there are chances that some other factor may be driving pricing and firm entry in a market besides population and economic level. In Table 5 and Figure 6, I show the results of controlling for endogeneity in section 4.2. In this case, since the endogeneity comes from some unobserved heterogeneity across cities in the error term, I include town fixed effects to capture this unique component in the error term. Table 5 first report results of using all observations available and then using only the reduced sample. The regressions reported constrain the monopoly and duopoly coefficient values to be the same. Using the graphical representation of the coefficients in Figure 6, we see there is no change in competition between week day 1995 and weekend 1995, and then a decrease in competition in the summer of 1995.

[Table 5]

In 2000 we see quite the opposite. There seems to be collusion during week days (no change in price with firm entry) which breaks into competition during weekends. The degree of competition does not change during the summer of 2000. These findings follow into the line that 2000 brought up more competition than 1995 did. This is consistent with results in previous sections.

[Figure 6]

[Table 6]

Finally, I estimate in Table 6 (and illustrate in Figure 7) the results of estimating the effect of entry using a linear variable for the number of firms (as opposed to dummy variables as we did above). This will allow us to test directly whether the rates of change of price with firm entry are equal across demand states. Results show that slopes for week days and weekends in 1995 and 2000 are positive, while slopes for summers are negative. This means that competition increases in summers which is consistent with some of the findings above. We also find that the slope for summer 2000 is statistically significant whereas the slope for 1995 is not (according to column (3)). When we test whether all coefficients are the same, we consistently reject the null hypothesis that all the slope coefficients are equal. This means that the degree of competition statistically changes across demand states.

[Figure 7]

6 Conclusions

The main conclusion of this paper is that demand shifts affect the degree of competition in an industry. The evidence in this paper suggests that firms are less likely to react to demand shifts (less likely to deviate from tacit collusion agreements) when gains of deviation are lower (1995 versus 2000).

The evidence in this paper brings together the methodology in Bresnahan and Reiss (1991) and the spirit of the initially called New Empirical Industrial Organization and the Conjectural Variations. Overall this paper contributes to the existing literature through a better understanding of the use of the methodology of Bresnahan and Reiss (1991) and the provision of an interesting empirical fact.

Future related research should follow more closely the methodology in the first part of Bresnahan and Reiss (1991), and document the relation between firm entry, branching and the development of economies of scope closer since availability of price data turned out to be a problem. In addition to this, investigating the costs and benefits of peak-load pricing in this industry should be a first-order problem. To do so, we would need to develop a dynamic model of firm decision-making. Finally, an empirical regularity difficult to explain in this paper is that the second entrant never lowers the price, but the third does. Future research should investigate this fact, and find an explanation in the existing literature.

Notes

[1]Firms in industries that require a bigger sunk cost to operate will not face much entry if they collect positive profits. Therefore, big sunk costs leave room for market power.

[2]Caves (2000), De Vany and Walls (1996) or Ravid (1999) are other sources for more institutional details. Even though these references treat the American industry, both industries resemble much in most aspects.

[3]The most precise data here was the number of days they opened per week. The question of whether they only opened during the summer was mainly answered through the data for the year 2000 and common sense, e.g., if the name of the cinema started by "Terraza"(=terrace) it was clear that it would only open during summer season.

[4]A circuit is understood as a number of movie theaters, or firms, which stand in the market under the same name.

[5]Some of this web sites were cine.msn.es, www.serviticket.es, www.cineentradas.es and some cityhalls webpages.

[6]Number of screens and number of seats are included following directions from Rosen and Rosenfield(1997). All the variables are included thinking of a hedonic approach as of Rosen(1974).

References

[1] Anuario Comercial de España 1997-2001 (Servicio de Estudios, Fundación La Caixa).

[2] Boiteux, M. (1956) Sur la gestion des Monopoles Publics astreints a l'equilibre budgetaire, *Econometrica*, 24 (1), pp. 22-40.

[3] Bresnahan, T. and Reiss, P. (1987) Do Entry Conditions Vary across Markets, *Brookings Papers on Economic Activity*, 1987 (3), pp. 833-871.

[4] Bresnahan, T. and Reiss, P. (1990) Entry in Monopoly Markets, *The Review of Economic Studies*, 57 (4), pp. 531-553.

[5] Bresnahan, T. and Reiss, P. (1991) Entry and Competition in Concentrated Markets, *Journal of Political Economy*, 99 (5), pp. 977-1009.

[6] Bresnahan, T. and Reiss, P. (1993) Measuring the Importance of Sunk Costs, *Annales d'Economie et de Statistique*, 31, pp. 182-217.

[7] Carlton, D. and Perloff, J. (1994) Modern Industrial Organization (HarperCollins College Publishers, 2nd Edition).

[8] Caves, R. (2000) Creative Industries, Harvard University Press.

[9] Censo de Salas de Cine 2001 (Asociación para la Investigación de Medios de Comunicación).

[10] Corts, K. S. (1999) Conduct Parameters and the Measurement of Market Power, *Journal of Econometrics*, 88 (2), pp. 227-250.

[11] De vany, A. and Walls, D. (1996) Bose-Einstein Dynamics and Adaptive Contracting in the Motion Picture Industry, *Economic Journal*, 106 (439), pp. 1493-1514.

[12] Einav, L. (2004) Gross Seasonality and Underlying Seasonality: Evidence from the U.S. Motion Picture Industry , SIEPR Discussion Paper No. 02-36.

[13] Ellison, G. (1994) Theories of Cartel Stability and the Joint Executive Committee, *Rand Journal of Economics*, 25 (1), pp. 37-57.

[14] Genesove, D. and Mullin, W. P. (1998) Testing Static Oligopoly Models: Conduct and Cost in the Sugar Industry, 1890-1914, *Rand Journal of Economics*, 29 (2), pp. 355-77.

[15] Green, E. J. and Porter, R. H. (1984) Noncooperative Collusion Under Imperfect Price Information, *Econometrica*, 52 (1), pp. 87-100.

[16] Haltiwanger, J. and Harrington, J. E. (1991) The impact of cyclical demand movements on collusive behavior, *Rand Journal of Economics*, 22 (1), pp. 89-106.

[17] Panzar, J.C. (1976) A Neoclassical Approach to Peak Load Pricing, *Bell Journal of Economics*, 7 (2), pp. 521-530.

[18] Porter, R. H. (1983) A study of Cartel Stability: The Joint Executive Commitee, 1880-1886, *Bell Journal of Economics and Management*, 14 (2), pp. 301-314.

[19] Puller, S. (2002) Pricing and Firm Conduct in California's Deregulated Electricity Market, UCEI POWER Working Paper PWP-080.

[20] Ravid, S. A. (1999) Information, Blockbusters, and Stars: A Study of the Film Industry, *Journal of Business*, 72 (4), pp. 463-492.

[21] Relacion General de Locales (1995).

[22] Rosen, S. (1974) Hedonic Prices and Implicit Markets: Product Differentiation in Pure Competition, *Journal of Political Economy*, 82 (1), pp. 34-55.

[23] Rosen, S. and Rosenfield, A. M. (1997) Ticket Pricing, *Journal of Law and Economics*, 40 (2), pp. 351-376.

[24] Rosenbaum, D.I. and Sukharomana, S. (2001) Oligopolistic pricing over the deterministic market demand cycle: some evidence from the US Portland cement industry, *International Journal of Industrial Organization*, 19 (6), pp. 863-884.

[25] Rotemberg, J.J. and Saloner, G. (1987) A Supergame-Theoretic Model of Price Wars During Booms, *American Economic Review*, 77 (5), pp. 917-926.

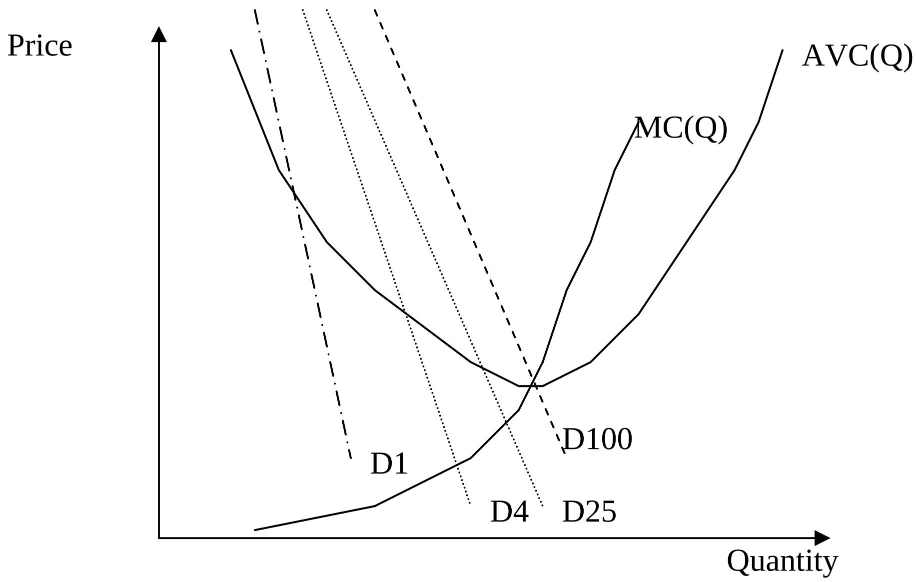


Figure 1. Following the case and example given in Bresnahan and Reiss(1991), as demand increases (D1→D4→D25→D100) the initial monopoly can charge a higher price and increase profits. This will create entry in such an industry and therefore, competition among firms will arise. This competition will drive price down and quantity produced by each firm up until the firms reach their optimal scale production point.

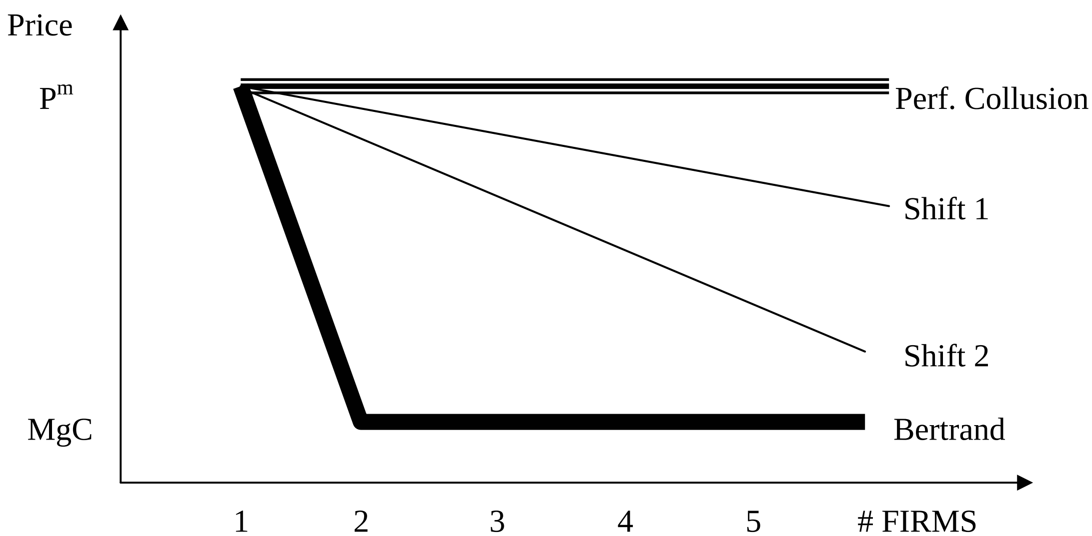
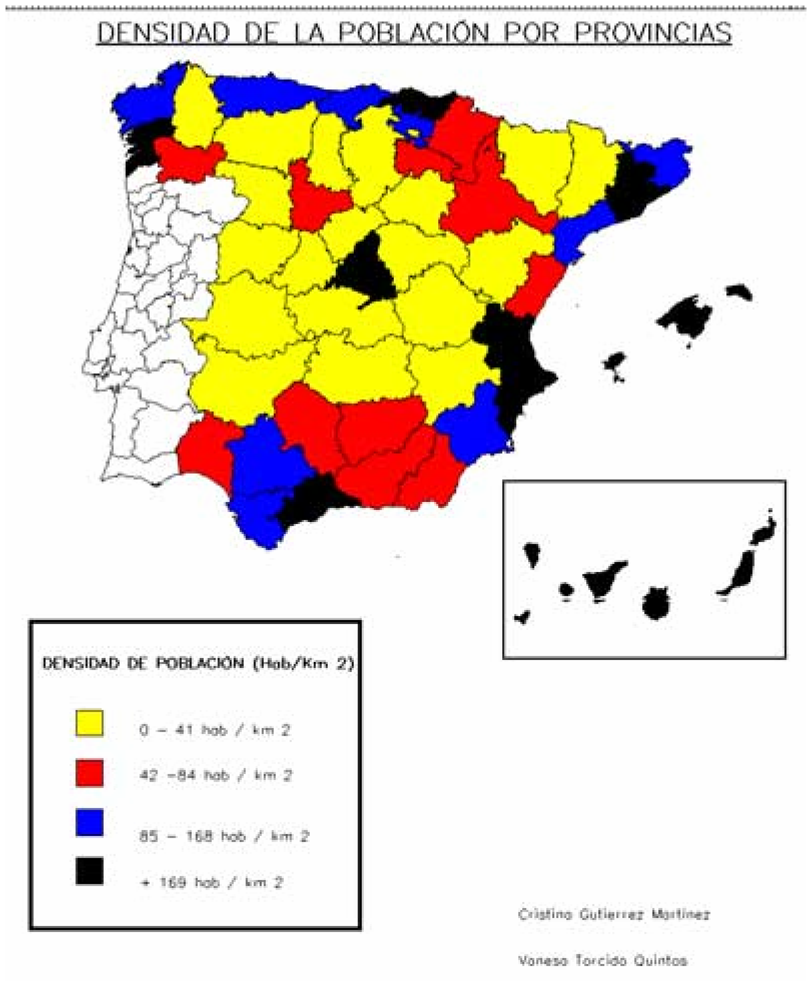


Figure 2. See that under perfect collusion price does not vary with entry, whereas in Bertrand competition the price declines sharply to marginal cost with the second entrant. All other cases lie between these two extreme cases. We measure the degree of competition by the proximity to the Bertrand line, that is, the closer the decline line is to the Bertrand line, the more competitive is firm behavior.

Figure 3. Population Map of Spain



Source: http://centros5.pntic.mec.es/~barriope/geografia/densidad.htm

Note: See that the most densely populated areas in Spain are the coastal provinces and the province of Madrid. For those interior provinces on red and blue, we delete all towns that account with more than 500,000 inhabitants.

Figure 4. Price Level and No of Firms
(when constraint Monopoly=Duopoly)

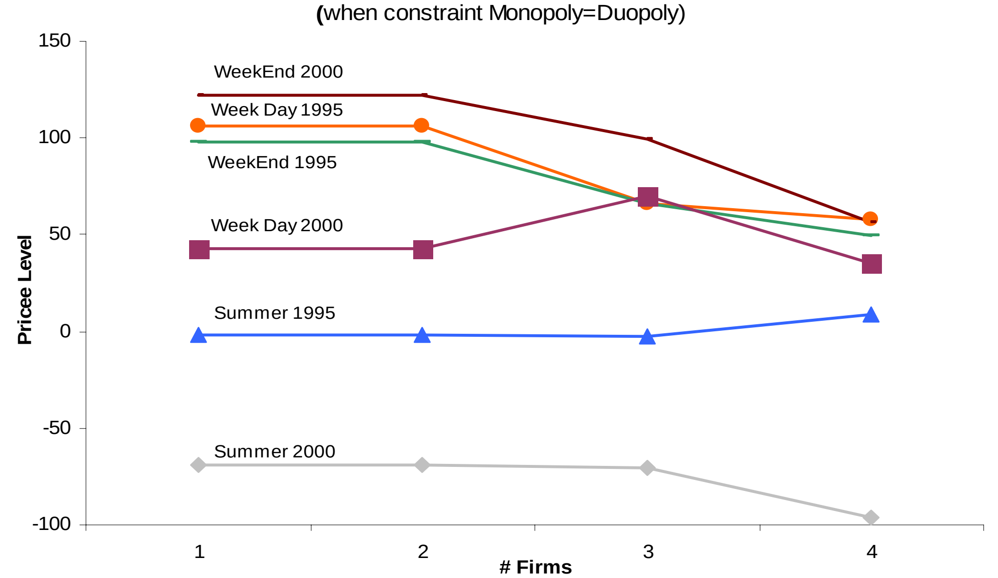


Figure 6. Graph from Regression II in Table 5

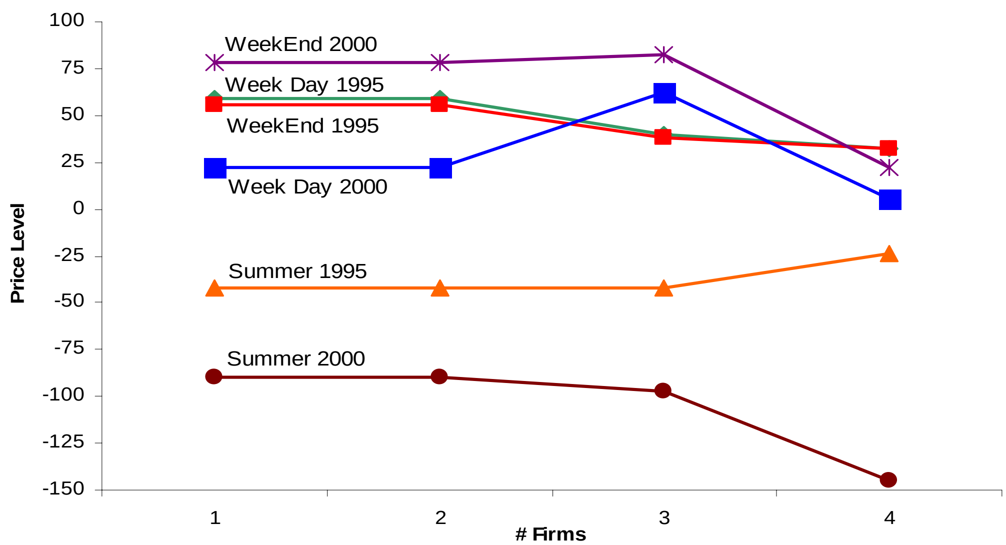


Figure 7. Graph from Regression (3) in Table 6

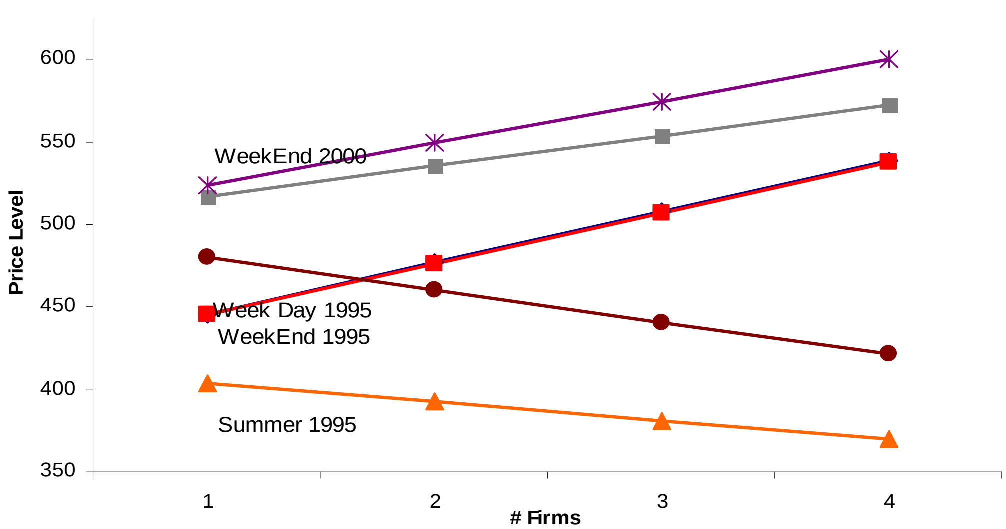


Figure 5. Graphical Representation from Results in Table 4

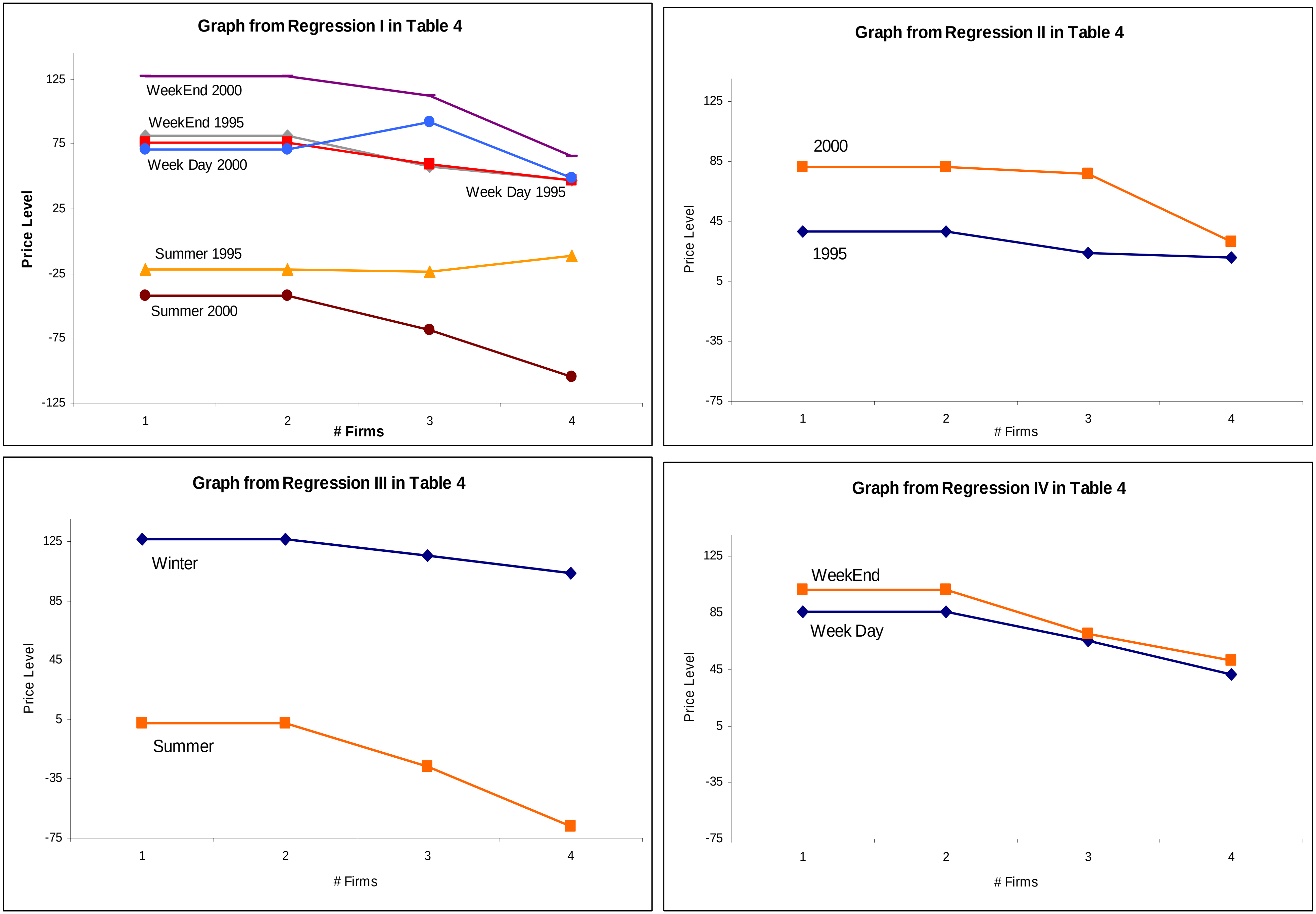


Table 1. Summary Statistics for all and selected observations

A) WHOLE SAMPLE

Variable	Week Day 1995	Week End 1995	Summer 1995	Week Day 2000	Week End 2000	Summer 2000
Price	546.69	555.04	399.17	667.39	705.91	498.85
	(82.57)	(88.20)	(90.84)	(94.55)	(83.06)	(78.26)
# Firms	5.18	4.77	4.68	3.45	3.41	3.74
	(6.40)	(6.11)	(5.99)	(4.01)	(3.98)	(4.11)
# Screens	2.51	2.34	2.28	5.61	5.53	5.46
	(2.20)	(2.12)	(2.09)	(4.15)	(4.15)	(4.10)
Seat capacity	910.62	893.24	883.02	1328.17	1318.39	1298.65
	(501.79)	(482.72)	(475.48)	(899.78)	(893.95)	(886.77)
Barcelona or Madrid?	0.33	0.30	0.29	0.27	0.27	0.26
	(0.47)	(0.46)	(0.46)	(0.45)	(0.44)	(0.44)
Coast Province?	0.55	0.56	0.57	0.58	0.58	0.59
	(0.50)	(0.50)	(0.50)	(0.49)	(0.49)	(0.49)
Population	662377.20	585056.20	561758.30	290119.50	285042.20	279988.40
	(981531.60)	(941562.40)	(924757.40)	(473449.40)	(470274.90)	(461036.90)
Tourism Index	2061.02	1814.33	1743.94	787.48	774.48	765.46
	(3166.08)	(3035.87)	(2981.02)	(1688.87)	(1675.18)	(1642.31)
Economic Level	5.08	5.14	5.08	6.17	6.20	6.19
	(1.74)	(1.73)	(1.74)	(1.78)	(1.79)	(1.76)
# Observations	544	621	654	305	311	326

B) REDUCED SAMPLE: Drop obs. from Barcelona, Madrid and coastal provinces and those towns with more than 500K inhabitants.

	Week Day 1995	Week End 1995	Summer 1995	Week Day 2000	Week End 2000	Summer 2000
Price	507.79	506.59	387.17	635.00	673.02	484.33
	(74.42)	(75.33)	(87.46)	(78.68)	(73.27)	(74.98)
# Firms	2.56	2.41	2.38	2.95	2.86	3.19
	(1.37)	(1.32)	(1.31)	(1.89)	(1.89)	(2.19)
# Screens	2.53	2.28	2.25	4.42	4.30	4.22
	(2.05)	(1.94)	(1.92)	(3.31)	(3.27)	(3.19)
Seat capacity	780.90	754.14	755.48	943.19	942.23	912.74
	(392.88)	(377.07)	(373.08)	(478.83)	(468.21)	(471.07)
Population	144537.40	122398.20	121557.80	125758.60	120324.30	122802.80
	(104809.70)	(106659.60)	(105566.70)	(104166.90)	(104527.50)	(104246.70)
Tourism Index	266.12	222.05	220.78	278.83	265.75	260.43
	(252.35)	(248.31)	(246.57)	(336.88)	(333.89)	(324.92)
Economic Level	4.31	4.59	4.54	6.23	6.32	6.25
	(1.49)	(1.59)	(1.60)	(2.01)	(2.00)	(1.96)
# Observations	120	145	149	60	63	67

Note: Each observation is a theater located in a city that contains a determinate number of firms running different theaters in the corresponding period (demand shift). The whole sample contains 2761 observations spread across 253 cities. The reduced sample contains 604 observations spread across 74 cities.

Table 2. Concentration Values Across Demand Shifts

A) WHOLE SAMPLE

# Firms	Week Day 1995	Week End 1995	Summer 1995	Week Day 2000	Week End 2000	Summer 2000	Total
1	137	180	186	69	73	66	711
2	125	141	155	98	97	98	714
3	60	77	80	40	43	44	344
4	50	50	59	42	42	37	280
5	36	23	23	10	10	23	125
6	43	57	43	27	27	17	214
7 +	93	93	108	19	19	41	123
Total	544	621	654	305	311	326	2,761

B) REDUCED SAMPLE: Drop obs. from Barcelona, Madrid and coastal provinces and those towns with more than 500K inhabitants.

# Firms	Week Day 1995	Week End 1995	Summer 1995	Week Day 2000	Week End 2000	Summer 2000	Total
1	38	48	51	19	22	21	199
2	20	32	33	11	11	12	119
3	35	38	38	6	6	6	129
4	11	11	11	15	15	15	78
5	16	16	16	0	0	0	48
6	0	0	0	5	5	0	10
7	0	0	0	4	4	13	21
Total	120	145	149	60	63	67	604

Note: Each observation is a theater located in a city that contains a determinate number of firms running different theaters in the corresponding period (demand shift). The whole sample contains 2761 observations spread across 253 cities. The reduced sample contains 604 observations spread across 74 cities.

Table 3. How does the number of exhibition firms affect ticket price in each demand state?

	FULL SAMPLE						REDUCED SAMPLE						REDUCED SAMPLE w constraint MONOPOLY=DUOPOLY					
	1995 Week Day	1995 Winter	1995 Summer	2000 Week Day	2000 Winter	2000 Summer	1995 Week Day	1995 Winter	1995 Summer	2000 Week Day	2000 Winter	2000 Summer	1995 Week Day	1995 Winter	1995 Summer	2000 Week Day	2000 Winter	2000 Summer
Monopoly	-38.0202	-40.1151	25.2573	12.2988	2.8050	25.3437	109.1240	98.4077	14.3128	41.6477	109.6240	32.5019	106.4190	98.0346	-2.0768	43.0483	121.9870	-69.0153
	(10.9305)***	(11.3966)***	(11.2322)**	(16.3407)	(16.4403)	(12.7319)**	(29.9711)***	(28.5036)***	(28.3892)	(30.1482)	(29.1807)***	(51.2012)	(22.7773)***	(24.0898)***	(35.4028)	(34.4077)	(30.8389)***	(75.4357)
Duopoly	-8.7821	-29.7587	10.3081	-2.3810	-6.5123	-12.5760	104.5350	97.6896	-17.8151	43.3253	124.5480	-38.0696	106.4190	98.0346	-2.0768	43.0483	121.9870	-69.0153
	(11.3120)	(11.8832)**	(9.2943)	(16.0958)	(15.7837)	(11.5595)	(27.4529)***	(27.0672)***	(27.1177)	(23.0231)*	(19.8395)***	(46.5720)	(22.7773)***	(24.0898)***	(35.4028)	(34.4077)	(30.8389)***	(75.4357)
Triopoly	-17.1930	-28.3028	7.9120	33.7622	14.4064	14.2549	66.9636	65.8809	-0.7215	69.5063	94.2487	-19.2500	66.4196	65.8422	-2.4407	70.0468	99.0977	-70.5600
	(12.0107)	(11.8074)**	(9.9310)	(16.7990)**	(15.5295)	(10.6170)	(21.5378)***	(20.8709)***	(23.1088)	(31.7458)**	(20.0835)***	(35.2083)	(18.1747)***	(19.5458)***	(28.6128)	(38.2123)*	(34.2925)***	(64.4268)
Quadropoly	-11.8886	-2.8548	-5.0482	31.2929	5.8888	0.9192	57.7875	49.5852	7.7554	34.2650	49.9756	-43.5513	57.8936	49.6097	9.1353	34.9861	56.6322	-96.0180
	(11.5364)	(10.6900)	(10.5392)	(13.8785)**	(13.9179)	(9.5508)	(21.8567)***	(19.7855)**	(34.4296)	(25.4555)	(21.6770)**	(32.6732)	(24.3487)**	(23.7936)**	(34.6390)	(29.5657)	(26.2063)**	(43.2682)**
# Screens	4.1069	5.7913	-1.0821	3.9858	4.1084	2.6721	5.0154	5.6846	-2.6482	0.7793	1.4735	-4.7373	4.8266	5.6645	-3.6866	0.7524	1.2746	-4.8355
	(1.3045)***	(1.2617)***	(1.5610)	(2.0961)*	(1.9153)**	(1.6528)	(2.4251)**	(2.4301)**	(3.5648)	(3.2030)	(2.6630)	(3.3017)	(2.5912)*	(2.7470)**	(4.0039)	(4.3960)	(3.8771)	(4.4811)
# Seats	0.0158	0.0225	0.0142	0.0106	0.0124	0.0121	0.0164	0.0133	0.0153	0.0326	0.0527	0.0695	0.0169	0.0133	0.0178	0.0329	0.0545	0.0677
	(0.0056)***	(0.0050)***	(0.0073)*	(0.0096)	(0.0096)	(0.0074)	(0.0120)	(0.0127)	(0.0221)	(0.0249)	(0.0248)**	(0.0267)**	(0.0135)	(0.0138)	(0.0201)	(0.0277)	(0.0241)**	(0.0277)**
Economic Level	19.3478	21.3572	25.3259	21.6487	17.5861	18.6415	29.8579	31.0877	31.3792	27.2507	29.8016	18.9371	29.6070	31.0636	30.1980	27.1223	28.5930	24.1723
	(1.8768)***	(1.7449)***	(2.0266)***	(2.4911)***	(1.8023)***	(2.3129)***	(4.1765)***	(3.5763)***	(5.5897)***	(6.4109)***	(5.4343)***	(6.9612)***	(3.7811)***	(3.1844)***	(4.5512)***	(5.4970)***	(4.7927)***	(5.6406)***
Population (thousands)	0.0216	0.0213	0.0301	0.0492	0.0441	0.0450	0.5794	0.5521	-0.0676	0.3193	0.4277	0.2961	0.5759	0.5518	-0.0940	0.3227	0.4584	0.0436
	(0.0039)***	(0.0043)***	(0.0194)	(0.0086)***	(0.0075)***	(0.0261)*	(0.0853)***	(0.0776)***	(0.1106)	(0.0949)***	(0.0907)***	(0.1436)**	(0.0717)***	(0.0731)***	(0.1351)	(0.1229)**	(0.1103)***	(0.2293)
Population*Tourism (millions)			-0.0007			-0.0003			0.0973			-0.3537			0.1224			-0.3906
			(0.0019)			(0.0032)			(0.1598)			(0.0984)***			(0.1657)			(0.1948)**
Constant	424.2980	421.6160	235.7490	472.9810	544.7630	336.6690	192.7740	197.3530	240.7580	355.1810	297.6740	314.7380	195.1410	197.5630	251.0080	354.8100	294.8240	370.6340
	(16.2838)***	(16.1615)***	(14.1253)***	(23.3455)***	(20.9303)***	(17.3897)***	(46.0067)***	(44.2520)***	(46.5883)***	(52.7501)***	(52.6217)***	(71.6212)***	(32.1435)***	(33.4500)***	(48.6912)***	(62.2073)***	(55.2907)***	(104.6210)***
Observations	541	618	650	302	308	321	119	144	148	59	62	66	119	144	148	59	62	66
R-squared	0.49	0.52	0.37	0.37	0.39	0.39	0.66	0.6	0.37	0.51	0.53	0.47	-	-	-	-	-	-
F Hypothesis Test																		
Mono=Duo	16.01	1.97	3.20	1.33	0.77	11.54	0.17	0.00	4.06	0.00	0.21	5.09	-	-	-	-	-	-
Trio=Quadro	0.25	10.48	1.37	0.03	0.94	1.94	0.32	1.30	0.06	1.02	3.95	0.65	0.18	0.70	0.17	0.99	1.83	0.38
Mono=Duo=Trio=Quadro	6.33	11.68	2.89	3.54	1.46	4.67	3.06	2.71	1.45	0.42	4.47	3.40	6.11	4.44	0.08	0.57	3.49	0.22

Note: The first 6 columns use the whole sample (observations from 254 cities). The next 12 columns use only the sample result of dropping observations of theaters located in coastal provinces and in Madrid and Barcelona province. Columns (7) to (12) differ from columns (13) to (18) in that the latter constrain the monopoly and duopoly coefficients to be the same.

The bottom part of the table shows F statistics for each one of the Hypothesis posted in the left column. Remember the F-threshold at the 5% level is 4 (F(1,60)).

Robust standard errors in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 4. Results from Panel Pooled Regressions constrained such that Monopoly=Duopoly

	1995 Week Day	1995 Winter	1995 Summer	2000 Week Day	2000 Winter	2000 Summer	1995	2000	Winter	Summer	Week Day	Week-End
Monopoly	81.2287	76.5744	-21.9899	71.2301	127.5990	-42.1651	38.4686	80.9043	126.6770	2.8422	85.6772	101.5590
	(16.6207)***	(16.3297)***	(16.2163)	(18.2614)***	(18.0258)***	(18.3927)**	(18.6536)**	(22.5144)***	(19.9968)***	(20.2040)	(13.8883)***	(13.9021)***
Duopoly	81.2287	76.5744	-21.9899	71.2301	127.5990	-42.1651	38.4686	80.9043	126.6770	2.8422	85.6772	101.5590
	(16.6207)***	(16.3297)***	(16.2163)	(18.2614)***	(18.0258)***	(18.3927)**	(18.6536)**	(22.5144)***	(19.9968)***	(20.2040)	(13.8883)***	(13.9021)***
Triopoly	57.5220	59.6967	-23.8922	92.3293	112.3290	-68.8100	23.5459	76.4847	115.5380	-26.9034	65.4312	70.3748
	(15.4002)***	(15.2954)***	(15.3207)	(29.8635)***	(29.8635)***	(29.7479)**	(16.5147)	(29.6154)**	(18.0642)***	(18.0642)	(12.7173)***	(12.7099)***
Quadropoly	47.0613	47.0613	-11.5228	48.8531	65.5198	-104.4580	20.6920	31.1424	103.9290	-67.2249	41.8815	51.4969
	(21.8246)**	(21.8246)**	(21.8853)	(20.2395)**	(20.2395)***	(19.9200)***	(22.1250)	(22.9204)	(19.8367)***	(19.8367)***	(14.2305)***	(14.2305)***
Year 2000			76.8265				44.6130		78.4266		94.2102	
			(15.3533)***				(22.0418)**		(9.6549)***		(7.1478)***	
# Screens			2.1591				2.2677		1.2788		3.3894	
			(1.4986)				(2.2437)		(2.1397)		(1.5396)**	
# Seats			0.0256				0.0308		0.0320		0.0256	
			(0.0084)***				(0.0125)**		(0.0120)***		(0.0087)***	
Economic Level			29.0331				28.9218		29.9926		29.7209	
			(1.8677)***				(2.7499)***		(2.6035)***		(1.9782)***	
Population (thousands)			0.4249				0.3093		0.2815		0.5060	
			(0.0444)***				(0.0566)***		(0.0632)***		(0.0431)***	
Population*Tourism_Index (millions)			-0.6760				-		-0.6230		-	
			(0.0589)***				-		(0.0723)***		-	
Constant			233.4170				237.4190		198.9450		207.2660	
			(20.7065)***				(26.2488)***		(28.4390)***		(19.8733)***	
Observations			598				606		420		384	

Note: This table reports the results from 4 different pooled OLS regressions. Regression (1) look at the effect of Monopoly, Duopoly, Triopoly and Quadropoly in each state of demand holding the effect of other regressors constant across all demand states. Regression (2) examines changes between 1995 and 2000. Regression (3) examines changes between winter and summer. Regression (4) examines changes between week day and week-end days.
Robust standard errors in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 5. Results from Pooled Regressions using Fixed Effects per Town

	WHOLE SAMPLE						REDUCED SAMPLE					
Monopoly	80.5209	88.9164	-45.2694	79.8578	122.8340	-77.2104	59.3942	55.8075	-42.3703	22.1871	78.2253	-89.8005
	(16.9756)***	(17.0017)***	(17.1720)***	(13.3741)***	(13.0614)***	(13.3805)***	(38.1094)	(38.0154)	(38.4534)	(18.8576)	(19.3891)***	(21.9676)***
Duopoly	80.5209	88.9164	-45.2694	79.8578	122.8340	-77.2104	59.3942	55.8075	-42.3703	22.1871	78.2253	-89.8005
	(16.9756)***	(17.0017)***	(17.1720)***	(13.3741)***	(13.0614)***	(13.3805)***	(38.1094)	(38.0154)	(38.4534)	(18.8576)	(19.3891)***	(21.9676)***
Triopoly	74.0702	73.8476	-79.8162	131.4780	165.8460	-56.4703	39.7922	38.4740	-41.8119	62.5867	82.5867	-97.6711
	(16.2695)***	(16.5528)***	(17.3332)***	(14.9135)***	(13.4300)***	(13.4275)***	(28.2401)	(28.1195)	(26.1927)	(22.6079)***	(16.5600)***	(21.2355)***
Quadropoly	59.9151	87.4151	-100.4760	77.1714	98.6000	-110.7880	31.9745	31.9745	-23.3976	5.6754	22.3421	-144.6670
	(18.4801)***	(18.3922)***	(20.3564)***	(13.9181)***	(13.3798)***	(13.5227)***	(33.5706)	(33.5706)	(39.2362)	(21.2318)	(20.8057)	(19.2976)***
Year 2000			109.8070						79.1326			
			(18.5817)***						(33.3443)**			
# Screens			1.2692						2.6692			
			(0.8271)						(1.2406)**			
# Seats			0.0093						-0.0065			
			(0.0037)**						(0.0089)			
Economic Level			-3.6752						39.3427			
			(3.5753)						(10.5605)***			
Population (thousands)			-0.2188						0.6378			
			(0.1187)*						(0.8240)			
Population*Tourism_Index (millions)			-0.0069						-0.7190			
			(0.0004)***						(0.0732)***			
Constant			597.8610						202.3660			
			(72.4333)***						(162.5010)			
Observations			2740						598			
R-squared			0.77						0.86			

Note: This table shows the estimation of the same regression as in Table 4 but using town fixed effects to control for unobserved heterogeneity that could be driving the observed price variation. Whole sample denotes all observations. Reduced sample denotes all observations from theaters not located in Madrid, Barcelona and coastal provinces and that have less than 500K inhabitants.
Robust standard errors in parentheses.* significant at 10%; ** significant at 5%; *** significant at 1%.

Table 6. Testing Whether Effect of Entry Differs Across Demand States

	(1)	(2)	(3)	(4)
# Firms:				
Week Day 1995	4.5390	0.9796	30.9979	14.4465
	(1.0725)***	(4.6128)	(9.3017)***	(7.4151)*
WeekEnd 1995	5.7752	1.1751	30.7085	15.1614
	(1.0737)***	(4.5399)	(9.2896)***	(7.3375)**
Summer 1995	-35.5576	-42.0733	-11.2562	-1.6876
	(1.5344)***	(5.2919)***	(9.7246)	(8.8735)
Week Day 2000	7.1982	-2.2371	18.2366	7.6953
	(1.2497)***	(3.7509)	(8.2313)**	(6.3743)
WeekEnd 2000	11.3305	4.7170	25.1853	0.4190
	(1.9350)***	(3.7010)	(7.7799)***	(5.8549)
Summer 2000	-29.0856	-38.3832	-19.3979	-5.1757
	(1.5596)***	(4.7405)***	(7.3308)***	(5.3352)
Year 2000	87.6544	79.3523	84.2844	-
	(5.3379)***	(14.3255)***	(22.8707)***	-
# Screens	3.6889	2.6952	3.3660	3.3856
	(0.8096)***	(1.4249)*	(1.4570)**	(1.1992)***
# Seats	0.0130	0.0283	-0.0084	-0.0077
	(0.0039)***	(0.0088)***	(0.0100)	(0.0092)
Economic Level	19.1832	28.3477	25.6498	26.5092
	(0.9881)***	(1.9938)***	(1.0577)**	(8.7158)***
Population	0.0083	0.3195	-0.7064	-0.6989
(thousands)	(0.0069)	(0.0467)***	(0.7708)	(0.6472)
Population* Tourism_Index	0.0244	0.5027	-0.0458	-0.0503
(millions)	(0.0011)***	(0.1052)	(0.0708)	(0.0609)
Fixed Effects	No	No	Town	Town, Demand State
Constant	384.8480	300.6810	414.7330	530.2490
	(5.7331)***	(11.7026)***	(125.6360)***	(109.4640)***
Observations	2740	598	598	598
R-squared	0.63	0.7	0.81	0.86
F hypothesis test				
All "#Firms" coefficients are equal?	274.09	33.37	110.7	5.39

Note: Column (1) uses all observations. Columns (2) to (4) uses observations from theaters not located in Barcelona, Madrid and coastal provinces as well as not located in cities with more than 500K inhab. The F-test examines whether the "# Firms" coefficient are all equal to each other. We reject the Null hypothesis in all cases.
Robust standard errors in parentheses.* significant at 10%; ** significant at 5%; *** significant at 1%.