The Impact of Competition on "Make-or-Buy" Decisions: Evidence from the Spanish Local TV Industry[*]

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Abstract

This paper empirically investigates whether changes in product market competition affect firm boundaries. Exploiting regulation-induced shocks to entry barriers and differences in regulation enforcement across cities to obtain exogenous variation in competition, we establish a negative causal effect of competition (through reduced entry barriers and a larger number of rival firms) on vertical integration in the setting of the Spanish local television industry between 1995 and 2002.

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1 Introduction

Firm boundaries are constantly redefined, as witnessed by the multibillion-worldwide volume of corporate mergers and acquisitions and the sharp increase in outsourcing activity observed in recent years (see, e.g., Abraham and Taylor, 1996; Campa and Goldberg, 1997; Kakabadse and Kakabadse, 2002; and Whittington et al., 1999). Understanding what determines firm boundaries has been a perennial concern in economics and management at least since Coase (1937) posed the "make-or-buy" question nearly 80 years ago, and has led to a vast body of theoretical and empirical research (see, e.g., the recent surveys by Bresnahan and Levin, 2013; Harrigan, 2003; and Lafontaine and Slade, 2007). An explanation for the increasing adoption of new organizational structures and redefinition of firm boundaries that seems to have been largely overlooked by that body of research, and that is now gathering consensus (see Bloom and van Reenen, 2007; Bloom et al., 2009; and Bresnahan and Levin, 2013), relates changes in firm boundaries to changes in the firms' operating environments – prominently, changes in competition in product markets brought about by, for example, local deregulation and international trade liberalization.

Despite the growing consensus on the relevance of product market competition as a driver of vertical integration, empirical studies explicitly linking product market competition and firm boundaries are in relatively short supply.[1] Early studies by Balakrishnan and Wernerfelt (1986), Levy (1985), and Tucker and Wilder (1977) report a positive correlation between vertical integration and industry concentration in US manufacturing. More recently, Aghion et al. (2006b) show evidence of a U-shaped relationship between competition and vertical integration in UK manufacturing, whereas Galdon-Sanchez et al. (2015) find a positive correlation between service outsourcing

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[1]For instance, the extensive survey of Lafontaine and Slade (2007) on vertical integration does not even include a section addressing the relationship between competition and integration. In Macher and Richman's (2008) survey of approximately 900 empirical articles testing predictions from transaction cost economics, only two say something about competition and integration, whereas none of the 63 papers and 308 statistical tests of vertical integration reported in David and Han (2004) include a measure of competition as an explanatory variable.

and competition in survey data from Spanish manufacturing.

Although various correlations have been documented, much research into this question is still needed to establish causality. We contribute to this agenda by proposing a plausible identification strategy to show that increased competition causes a reduction in the degree of vertical integration. Exploiting regulation-induced shocks to entry barriers and differences in regulation enforcement across cities to obtain a source of exogenous variation in the number of rival firms in the product market, we establish a negative causal effect of competition on vertical integration in the setting of the Spanish local television industry between 1995 and 2002. To the best of our knowledge, the only other paper that provides evidence of a causal effect of competition on firm organization is Guadalupe and Wulf (2010), who show global competition among corporations shapes the internal organization of firms. Using trade liberalization as a quasi-natural experiment and tariff differentials across industries to implement a difference-in-differences (DiD) strategy, they find increased competition leads firms to flatten, that is, reduce depth (the number of management levels) and increase breadth (the CEO's span of control).

We use a data set composed of three annual censuses of Spanish local television stations published in the years 1996, 1999, and 2002. For each station, the data report the percentage of content produced internally, the city location, and other station-level information. More importantly, for our purposes, industry regulation and its enforcement experienced several changes that were orthogonal to individual station characteristics during the period of time of our study, thus providing a convenient source of plausible exogenous variation in entry barriers. First, local TV stations were essentially unregulated until December 1995, when the first industry regulation was passed. Second, national election results in 1996 and 2000 changed the degree of enforcement of the 1995 law, which depended to a great extent on the particular party ruling in any given city. To examine the relationship between vertical integration and competition, we begin by using a DiD strategy to

exploit the first source of variation, as stations passed from being in an unregulated to a regulated industry. We then run traditional two-stage least squares (2SLS) regression models to exploit the second source of variation, using the identity of the political party ruling a city (for whether the existing law was enforced) to instrument competition.

Both empirical approaches find a robust negative effect of increased competition on vertical integration. For example, our findings from the 2SLS approach suggest entry of an additional competitor in a market reduces the percentage of in-house production by almost 5 percentage points. Our results are robust to a series of specification checks that control for within-station variation and sample selection. We introduce agency considerations in the decision making of station managers when investigating further the mechanisms by which an increase in competition may lead firms to increase outsourcing. Although station managers may be "conservative" and maximize private benefits (over firm profits) in the absence of competition, an increase in the number of competing stations potentially reduces the amount of slack a manager can afford, thus pressuring managers to improve performance through a more competitive programming mix that encompasses increased programming hours, more outsourced content of higher quality (movies, documentaries), and lower prices for advertising spots in prime time. We show evidence consistent with complementary changes in all these variables of a firm's strategy in response to a higher intensity of rivalry.

The strategic management literature has previously studied the link between market structure and vertical integration (Cachon and Harker, 2002; Nickerson and Vanden Bergh, 1999; Spiller, 1985; and Vroom, 2006). Yet these studies have typically focused on the opposite direction of causality, namely, on how vertical integration is chosen strategically to influence competitive conditions in the product market.[2] Our work also contributes more generally to a recent literature

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[2]See Harrigan (1986) for an exception.

in economics and management that uses non-market dimensions (politics, judicial independence, regulation) as sources of variation in market variables (Chin et al., 2013; Conti and Valentini, 2014; and Fosfuri et al., 2012).

The remainder of the paper is organized as follows. Section 2 describes the institutional details of the Spanish local TV industry between 1995 and 2002, and presents our data. In section 3, we describe our empirical methodology, and show and discuss our findings. Section 4 analyzes the mechanisms underlying the causal effect of competition on vertical integration, whereas section 5 discusses the implications of our findings and concludes.

2   Local television in Spain

This section builds on information obtained in personal interviews with industry managers, archival research, and previous work.[3] In many respects, the Spanish local television industry is similar to other two-sided markets. A TV station collects revenue from two groups of consumers: it sells content to viewers and advertising space to advertisers. A station's pricing policies must take into account that consumers on either side of the market might react to the presence of the other group: for instance, viewers tend to value television content free of advertising, whereas advertisers value the number of television viewers. Some stations do not charge viewers for their content so as to maximize the number of viewers, while selling advertising space to advertisers at high prices; other stations charge a subscription fee to viewers and limit the amount of advertising.

Therefore, TV station managers must carefully choose the content of their programming to attract both viewers and advertisers, that is, select a competitive product mix and decide on its sources of content. The station has two basic sourcing strategies for content: it can either make

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[3]We have consulted several issues in the archives of the journal *Comunicar* (http://www.revistacomunicar.com/) and the proceedings of the June 2004 conference celebrating the 15th anniversary of Televisión Segovia, which was entirely devoted to the local television industry. The entire proceedings can be found in Badillo and Fuertes (2004).

content (in-house production or internal sourcing) or buy it (outsourcing or external sourcing). The TV station managers we interviewed were clear that outsourced content was cheaper, but that content produced internally allowed for greater differentiation from competitors (see also Monedero, 2005). In-house content is mainly local content (newscasts and local-interest programs), which is predominantly broadcast in prime time (Garcia, 2005; Iglesias, 2005).

Because the high costs of modern production facilities make filling all the slots in a daily schedule with its in-house production unprofitable for a local TV station, we tend to see two typical business models in the local television industry: (i) stations that limit their time on air basically to the number of hours they can fill with their in-house production facilities (e.g., Radio Televisió Cardedeu in Catalonia or Televisió Menorca Ciudadela in the Balearic Islands, which produce 100% of their content in house and broadcast less than three hours per day); and (ii) stations that tap into both content sources (e.g., Tele 7 in Castilla-La Mancha or Tele Plasensia in Extremadura, which outsource 80% of their content and broadcast all day).[4]

A central tenet of this paper is that the optimal sourcing choices of TV station managers are contingent on the competitive conditions they face; thus, vertical arrangements in this industry may change over time as those competitive conditions change. Agency considerations in the decision making of TV stations would suggest managers might care mainly about keeping their private benefits of control, or enjoying a quiet life, subject to firm survival, in the absence of competition (Hart, 1983; Aghion et al., 1997, 1999). As the number of stations competing for viewers and advertisers (the main source of revenue for most stations) increases, the elasticity of the residual demand for each station will also increase, while demand per station shrinks (Vives, 2004). Because the new residual demand the station faces will be flatter and of a smaller potential size, the amount of slack a manager can afford while keeping his firm alive will be reduced. Therefore, an increase

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[4]See, e.g., Monedero (2005).

in product market competition will pressure managers to cut slack and improve performance.[5]

Based on conversations with industry managers, we posit that the best way for local stations to improve revenues is to increase the number of advertisers, attracting regional as well as national advertisers (see also Badillo and Fuertes, 2004). To do so, local stations need to broadcast more high-quality content, while keeping costs manageable.[6] Given that the cost of high-quality content grows exponentially when produced in house at local stations, station managers must rely more on outsourced content to stay competitive. Hence, we would expect increases in competition to be positively associated with increases in outsourcing, content quality, and time on air at the station level. Although we focus our analysis below on the relationship between vertical integration and product market competition, we will show evidence of the impact of competition on all other margins more formally in section 4. To obtain a source of exogenous variation in competitive conditions for our empirical exercise, we will exploit changes in the regulatory environment of local television, to which we turn next.

2.1   Regulation of local television

We can define three phases in the regulation of local television in Spain in the period considered in this paper: (i) no regulation (1980-94), (ii) regulation by law (1994-95), and (iii) de facto deregulation (1996-2002) (Badillo, 2005a). Until the mid-1980s, Spain had just two TV stations, TVE and TVE2. TVE was the main station and TVE2 served as a window to minority content and local news broadcast from small satellite stations that had little independence in their programming decisions. The new democratic regime in Spain consolidated during the mid-1980s and, as a

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[5]Aghion et al. (1999) show that the higher the degree of product market competition, the smaller the gap between profit-maximizing and "quiet-life" behaviors.

[6]Large advertisers (e.g., Coca-Cola) typically require large audiences (hence the need to have more time on air) and a diversity of viewer profiles (which means broadcasting at different times of the day, and general interest content). Those advertisers are also reluctant to advertise in stations whose programs are mostly of the "As Seen on TV" type, fortune tellers, adult content, or other content of similar nature.

consequence, the central government granted its regional counterparts the right to develop regional stations. Still, the law did not recognize local TV stations as legal entities – which did not prevent a number of local stations from emerging in the late 1980s as a result of the joint efforts of local civil associations.

Many local stations were created after those years, and as their economic and cultural significance grew, the need for a legal framework became clear to politicians and regulators.[7] The left-winged Partido Socialista Obrero Español (PSOE) won the 1993 general election but, having lost its majority in Congress, had to yield to the demands of its allies (especially Izquierda Unida and Convergència i Unió – CiU), who were pushing for a regulatory framework for local television. 1994 saw the first regulatory proposals, which announced the end of the no-regulation period. After bargaining with other parties in Congress, the PSOE government finally approved the law of local TV stations in December 1995 (Law 41/1995, BOE 309, 27-12-1995), to be implemented in 1996. With this law, regulators aimed at shaping the composition, commercial activities, ownership, and competitive structure of the Spanish local TV industry. Among other things, the 1995 law limited the market of local stations to their city. Some of the most controversial points of the 1995 law were that it limited the number of stations to two per city (regardless of population), banned TV networks, and restricted local TV stations' ownership and control to local governments and non-profit organizations (the latter was a concession to CiU). Given the nature of the 1995 law and the discussions surrounding its passing, one can safely assume the new regulation was unrelated to vertical integration decisions – indeed, neither the law nor any of the proposals that circulated contained any disposition concerning the production of content.

The PSOE model for the local television industry would be progressively dismantled in the

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[7]According to ratings data published by the Asociación de Investigación de Medios de Comunicación (AIMC), local stations were responsible for a 0.6%, 1.1%, and 1.7% market share for the years 2000, 2002, and 2004, respectively. Although these percentages may seem low, regional stations at the time captured 4.2%, 3.7%, and 4.2%, respectively.

following years, as the right-winged Partido Popular (PP) rose to power. In March of 1996, the PSOE lost the national election to the PP, which had a very different perspective on how the local TV market should be regulated, if at all. Shortly after winning the election, the PP (which had no majority in Congress) unsuccessfully tried to pass a new law that would lift the restrictions on the number of stations and private ownership and management introduced by the 1995 law. The fiercest opposition came from CiU, now an ally to the PP in Congress, which still favored a more regulated environment. Rather than insisting on a new law, the PP government took the alternative route of not implementing the PSOE law – what Badillo (2005a) has termed an "invisible deregulation."

We see evidence of a lack of enforcement of the PSOE law in the relatively low levels of sanctioning activity by the PP administration. According to data from the Asociación de Investigación de Medios de Comunicación (AIMC hereafter) – which most likely underestimates true entry because AIMC only records the date of entry of those stations that respond to its census – 508 stations were created between 1995 and 2002, all of which were, stricto sensu, illegal. The level of sanctioning by the authorities in that period did not match this level of entry: only 115 new files were opened between 1997 and 2002 (with a marked decrease toward the end of the period; see Badillo, 2003, for details).

Lack of enforcement of the 1995 law was more pronounced in cities ruled by the PP. Badillo (2003, 2005a,b, 2011) and Bustamante (2002) provide abundant anecdotal evidence on this differential enforcement of the PSOE law. Coming by more systematic evidence is difficult because information on files opened and sanctions is only available from 1997, and even for this period, public records do not contain information on sanctions at the firm or city level. We were able to find information only on 28 of the 58 sanctions applied to local stations in 1998, and this (admittedly) partial evidence strongly suggests enforcement was indeed lighter in PP cities: only 20% of the sanctions we observe were applied to stations located in cities ruled by the PP (which represented

roughly half the total cities in that year).[8]

The 2000 election sped up the (de facto) deregulation of local TV stations, because the PP gained full control of Congress and decided to push forward the (de jure) deregulation the previous legislature had stopped. The PP took to Congress a revision of the law approved in 1995, which allowed the number of stations to be proportional to the number of inhabitants per city, no longer required local stations to be government owned or managed, allowed stations to be for-profit organizations, and lifted the ban on network formation. The new law was only passed in December of 2002 (Law 53/2002, BOE 313, 12-31-2002), but its main dispositions had been progressively implemented (and affected stations' entry decisions) since the PP took office. We observe further evidence of this de facto deregulation in the emergence of vertical networks such as Localia and Vocento already in 2001 and 2002, even though the 1995 law clearly prevented stations from being part of any network (horizontal or vertical). The complete undoing of the PSOE model of Law 41/1995 was completed in 2004 with the digitization plan for local television approved by the PP government.

Given the above discussion and the fact that the law delegated authority over new entry to local authorities, we would expect entry to be higher in cities ruled by the PP. Consistent with our expectations, we find that in markets (cities) ruled by the PP, entry was indeed greater after the 1995 law, even after controlling for market size and year fixed effects. For the sake of brevity, we report this evidence in Table A1 in the appendix.[9]

In this paper, we exploit changes in regulation and enforcement from 1995 to 2002 to analyze how changes in market structure affected firms' decisions about their degree of vertical integration in the Spanish local TV industry. But before turning to the empirical exercise, we present and

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[8] The complete list of the 28 stations on which we have information can be found in Badillo (2003: 102).

[9] Our estimates in Table A1 show that cities ruled by PP experienced 8% more entry than non-PP cities even after controlling by population and year fixed effects.

describe our data in the next section.

2.2 Data

The main data used in this paper come from three different sources. The first source is the Spanish censuses of local TV stations collected by the Asociación de Investigación de Medios de Comunicación (AIMC) and published in 1996, 1999, and 2002. These censuses collected information on the names and number of local TV stations per city and province for the years 1995, 1998, and 2001.[10] According to the data, 881 stations were operating in 1995, 740 stations in 1998, and 898 in 2001.

To create these censuses the AIMC sent questionnaires to each of the existing stations in each year and published the responses. In 1995, 183 stations responded whereas 457 and 645 responded in 1998 and 2001.[11] In the questionnaire, station managers answered questions about the station operations, coverage area, weekly and daily schedules, association memberships, advertising, and broadcasting. The questionnaire also asked managers about the percentage of content in their programming that was internally produced. This variable is informative of the degree of vertical integration in content production for each station that responded to the questionnaire, and it becomes the dependent variable in this study.

The second source of data is the business activity and population census published by "La Caixa." This census contains yearly socioeconomic information at the city, province, and region levels. The census covers $3,209$ cities, all of which at some point had $1,000$ inhabitants or more. When we merge both data sets, we lose a few stations that are located in cities of less than $1,000$ inhabitants. Of the $3,209$ cities, 562, 544, and 592 cities had at least one station in 1995, 1998, and 2001, respectively.

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[10] AIMC data do not include sporadic and random emission of television content, but rather established entities that emit on a regular basis.

[11] The low response rate in 1995 raises the concern of potential nonrandom sample selection. We deal with this issue formally in section 3, where we show that sample selection is unlikely to be affecting our results.

The last source of data that we include in this paper is the electoral outcomes from the May 1991, May 1995, and June 1999 Spanish municipal elections. We obtain these data from the data set "Consulta de Resultados Electorales" of the Subsecretaria de la Direccion General de Politica Interior at Ministerio del Interior in the Spanish Government's website.[12] These data are important because, as argued in section 2.1, entry (and competition) varied with the political affiliation of local government officials. Figure 1 provides a timeline for census data collection, changes in regulation, and elections.

[FIGURE 1 ABOUT HERE]

Table 1 provides summary statistics across years and cities, and then per year. Information in this table shows the average station produces 69% of its content in house, is located in a city of 150, 000 inhabitants receiving broadcast content from 4.4 stations, broadcasts its in-house content for 62 hours a week (9 hours per day) out of a total of 101 hours a week (roughly 14 hours per day), and charges 11, 770 pesetas (about 70 euros) for a 20-second advertising spot in prime time.[13] Eighty percent of the stations responding to the questionnaire are privately owned, and 60% of them belong to a network.

[TABLE 1 ABOUT HERE]

The last entries in Table 1 summarize our political variables, which are further discussed below. *Over 30% PP Votes* is a dummy variable that takes a value of 1 if the PP received at least 30% of votes in a given city in the 1995 municipal election, whereas *PP Max Votes*, *PSOE Max Votes*, and *CiU Max Votes* are dummies that take a value of 1 if the PP, the PSOE, or CiU were the political parties with the largest number of votes in each local election.

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[12]http://www.infoelectoral.mir.es/min/.

[13]The qualitative analysis remains unaltered if we consider the number of stations located in the same city, or the number of stations in the area covered by a station. The pairwise correlations between these variables are between 0.87 and 0.99. The "La Caixa"data did not contain information on population for 1996, which we proxied with population levels of 1998.

The rightmost columns of Table 1 break the sample by year, to preview changes over time in our variables of interest. For instance, the average number of stations broadcasting into a city increased from census to census, beginning with 3.2 in 1996, up to 3.8 in 1999, and reaching 5.2 in 2002. At the same time, the percentage of in-house content grew from 69% to 72% between 1996 and 1999, and then fell back to just 67% in 2002. Last, the percentage of votes of the PP increased from 1996 to 2002, whereas the electoral performance of the PSOE decreased from 1996 to 1999 and improved slightly in 2002.

3   Empirical methodology and results

The empirical analysis in this paper aims to recover the causal impact of product-market competition on vertical integration in the Spanish local TV industry. This section describes our empirical approach to causal inference, discusses the potential problems the analysis may encounter, and presents our results exploiting our plausible sources of exogenous variation.

Simple ordinary least squares (OLS) regressions of vertical integration on our competition measure reveal the coefficient on competition is of little economic significance, has no robust sign, and is, almost invariably, statistically insignificant.[14] Measurement error and/or endogeneity issues might be biasing our estimates toward zero. To begin with, our choice of the number of stations broadcasting into a city, over other reasonable options such as the number of stations located in a city or in a station's coverage area, as our competition measure might induce some measurement error in our main explanatory variable.

Second, the vertical foreclosure and strategic management literatures suggest reverse causality

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[14]Table A2 in the appendix shows these results of regressing vertical integration (*% Content In-house*) on our competition measure (*No Stations Comp*), controls for market size (city population, *Population*), whether the station belongs to a network (*Belongs to Network?*), and private ownership (*Private?*). These specifications also include year, province, city, and station fixed effects.

is a possibility in our setting.[15] Vertical foreclosure arises when a firm that controls an essential input limits rival firms' access to its input. Vertical integration may provide a firm with a product-differentiation advantage, thus creating an endogenous entry barrier (Balakrishnan and Wernerfelt, 1986), or it may serve as a commitment device to reduce competitive rivalry (Vroom, 2006).

Finally, specific, unobservable, time-varying shocks to the local television industry might affect both vertical integration and the number of firms. For example, if markets with more variation in their preference for local content also allow for more market segmentation, we are likely to observe stations in markets with more competition choosing very different levels of in-house production, and therefore find no correlation between vertical integration and competition across markets, because of the underlying variation in the demand for local content.

To address the potential problems of endogeneity and measurement error, in the next section we exploit the institutional environment described in section 2.1 to pursue two different identification strategies to pin down the causal effect of interest. First, we exploit the 1995 PSOE law to implement a DiD approach, and compare the change in vertical integration in stations located in cities ruled by the PP to the change in vertical integration in stations located elsewhere around the time the PSOE law was passed. Next, we claim that the political identity of the ruling party in a given city is a valid instrument for competition, and use 2SLS as our estimation procedure.

3.1 Addressing endogeneity I: Difference-in-differences estimates

To implement our DiD regressions, we separate PP markets from other markets by means of a dummy variable, $Over30\%PPVotes_j$, that takes a value of 1 if the PP received at least 30% of the vote in city j in the 1991 municipal election.[16] We use observations from before (1995, from

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[15]See Hart and Tirole (1990) and Rey and Tirole (2007) on foreclosure. See Cachon and Harker (2002), Nickerson and Vanden Bergh (1999), and Vroom (2006) for models in which vertical integration serves as a strategic device that affects competition.

[16]The last municipal elections before the passing of the 1995 law took place in 1991. Note the median value in our sample of the PP percentage vote is 27%, whereas the 75th and 90th percentiles are 42% and 52%. Therefore, we

the 1996 census) and after (1998, from the 1999 census) the law was passed. We also build a dummy $PostLaw_t$ that takes a value of 1 for 1998 observations and 0 for 1995 observations. In this subsample, the local TV station industry went from no regulation to regulation by law; therefore, we should expect a general decrease in competition (because the law limited the number of stations per city to just two). Enforcement of this law, however, was laxer in cities run by PP officials; therefore, we expect the restriction to competition (i.e., the increase in entry barriers) to be more important in non-PP cities. The law also banned TV networks and limited private ownership and control; hence, we include as controls dummies that take a value of 1 if the station belongs to a network, and if it is privately owned.

To sum up, we estimate the following relationship:

$$VI_{ijt} = \beta_0 + \beta_1 PostLaw_t^*Over30\%PPVotes_j + \beta_2 PostLaw_t \tag{1}$$
$$+\beta_3 Over30\%PPVotes_j + \alpha X_{ijt} + \gamma_i + \delta_j + u_{ijt},$$

where VI_{ijt} is the percentage of content produced in house by station i located in city j in year t, X_{ijt} are time-varying station and city characteristics, γ_i are station fixed effects that control for non-varying characteristics of each station, and γ_i and δ_j are city and province fixed effects.[17]

The causal effect of interest is β_1, the coefficient on the interaction of the PP and post-law dummies. Table 2 shows the results of our estimation of (1). We find a negative coefficient on the interaction $PostLaw_t^*Over30\%PPVotes_j$, which we ascribe to a negative effect of competition on vertical integration; in this case, a restriction of competition leads firms to integrate more. Our results show that a relative increase in competition in PP markets decreased the degree of vertical

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choose a cutoff right above the median of the distribution of the PP percentage vote. Our results are robust to using different thresholds (35%, 40%, and 50%), or the actual share of PP votes as a continuous measure of the intensity of treatment. These results are available upon request.

[17]Because stations do not change cities during our sample period, recovering city or province-specific fixed effects is not possible when we include station fixed effects.

integration in content between 12 and 19 percentage points. The result is robust to the inclusion of controls for market size (city population, *Population*), whether the station belongs to a network (*Belongs to Network?*), and for private ownership (*Private?*) in column (2), and of province fixed effects in column (3).

When we introduce city fixed efffects in column (4) and station fixed effects in column (5), the result is robust in sign and magnitude but loses statistical significance. In column (6), the result is again statistically significant and negative at 18 percentage points after using station fixed effects and limiting the sample to those stations that we observe both in 1996 and 1999. Finally, in column (7), we increase the sample used in column (6) by adding observations from those stations that answered the questionnaire in 1996 and at least once in 1999 and 2002. The result does not change in sign or magnitude, while gaining in statistical significance. Standard errors in all the specifications are clustered at the city level.

[TABLE 2 ABOUT HERE]

Because PP and non-PP markets reacted differently to the 1995 law, we also examine how the marginal effect varied across market types and the existing number of stations in 1995. We show these results in Figure 2. The graph shows the average marginal effects (and their 90% confidence intervals) of competition on in-house production by political affiliation (PP vs. non-PP markets) and by number of stations in 1995.[18] The marginal effect in PP cities is always negative but only statistically significant at the 10% level in markets with three or more stations. The marginal effect in non-PP cities is positive in markets with up to five stations and negative in cities with 6 or more stations. Only those non-PP markets with up to three stations in 1995 have a positive and statistically significant marginal effect.[19] In summary, our findings show that, relative to the

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[18]To generate Figure 2, we had to run a specification slightly different from those in Table 2, by including a double interaction $PostLaw_t^*Over30\%PPVotes_j^*Nostations95_j$, where $Nostations95_j$ is the number of stations in 1995 in city j (so that we can hold this variable constant in the analysis).

[19]Note that those observations with 13, 15, and 17 competing stations are all coming from the same market in each

unregulated status of 1995, PP and non-PP markets displayed different behaviors after the new regulation of 1995. Whereas the implementation of regulation decreased competition in non-PP markets and increased the percentage of in-house content production, the absence of implementation in PP markets increased competition and decreased the percentage of in-house content production.

[FIGURE 2 ABOUT HERE]

Remember that according to our description of the institutional evolution of this industry, the 1995 law should have implied a larger *reduction* in competition in markets not ruled by the PP, which led to increased vertical integration in stations located in these markets relative to stations located in PP markets. We find in columns (1) to (3) of Table 2 an overall positive increase in vertical integration between 1995 and 1998, although the statistical significance is washed out in columns (4) to (7) once we introduce city and station fixed effects. Other results in Table 2 show again that privately owned stations are less likely to produce content in house (except when we include city and station fixed effects). Stations belonging to a network seem to outsource more content production, though the estimates are not statistically significant. We do not find evidence of a statistically significant relationship between market size (proxied by population) and the degree of vertical integration.

A standard concern in DiD estimation has to do with whether treatment and control groups are ex-ante alike, and whether differences in pre-treatment trends among groups could drive the results. Table A3 in the appendix shows differences between groups in the available observables, whereas Table A4 shows no differences exist in pre-treatment trends across groups.[20] Finally, Table A5 in the appendix re-runs the specifications in Table 2 with all the available controls from the "La Caixa" database, and finds our DiD results are robust to this modification.

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case – not surprisingly, the marginal effects are imprecisely estimated.

[20] The AIMC station level data do not exist for periods earlier than 1995. Therefore, all the pre-treatment analysis is performed at the city level with data from La Caixa.

Another important concern in the DiD estimation presented in Table 2 is that the response rates in the 1996 and 1999 censuses were low (21% and 62%). If selection into the sample (answering the AIMC questionnaire) were correlated with station and city characteristics, our results could be biased toward an overestimation of the impact of competition on vertical integration decisions. If stations with lower costs of answering the questionnaire within a city or a province were also more sensitive to competition, our results would pick changes in the subsample but misrepresent the overall impact of competition on vertical integration decisions. For this reason, we conduct a number of robustness checks that aim to attenuate concerns about self-selection of stations into the sample. To save space, we briefly describe these checks here and present the full results in the appendix in Table A6.[21]

First, we drop observations from the sample to equalize the characteristics of cities with more than 30% of PP votes with others, creating three subsamples that we name samples A, B, and C. Sample A is the result of finding out the minimum and maximum values of population, market quota (index of economic weight calculated in the yearbook of "La Caixa"), number of motor vehicles, and other available demographic variables in PP markets, and then dropping those observations in non-PP markets that lie outside of this support. Sample B finds the maximum and minimum of the available demographic variables in non-PP markets and then drops from sample A those stations in PP markets that lie outside these bounds. Thus, whereas sample A drops outliers outside of the support of demographic variables in PP markets, sample B only keeps observations in the intersection support of PP and non-PP markets. By definition, sample B must be smaller than sample A. Finally, sample C repeats the exercise of sample B, taking city population as the only selection criterion because it is the only demographic variable in our regression specifications. All

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[21] Although not shown there, we also regress a dummy variable that takes a value of 1 if a station answers the questionnaire, and 0 otherwise. We find no statistical relation between this dummy and the population and dummies for most voted political party in the station's town in any of the census years. These results are available upon request.

18

of our results are robust in sign, magnitude, and significance in the restricted samples.

We then conduct a Heckman correction using in the first stage all demographic variables available in the yearbook of "La Caixa" as well as station-level dummy variables for whether the station appears in the censuses of 1996, 1999, and/or 2002. Whereas the demographic variables are necessary to pin down differences in the probability of response across cities, the station-level dummies are the only information available to estimate differences in the probability of response for different stations within a city and are necessary for the identification of the first-stage regression. Once again, our result is robust to the first-stage Heckman correction.

Finally, we collapse the data at the city level and run the original DiD specification with city fixed effects and with the Heckman sample correction and province fixed effects. The results are again robust in sign, magnitude, and statistical significance when examining the effect of competition on vertical integration at the city level.

3.2 Addressing endogeneity II: Instrumental variables

As discussed in section 2.1, enforcement of the PSOE 1995 law depended strongly on the political party of the local authorities who were supposed to implement it. The PP, the PSOE, and other Spanish parties (particularly, the CiU in Catalonia) had very different views on how the industry should be regulated. As of 1996, the PP in power began a *de facto* deregulation, which implied, among other things, lower barriers to entry of new local TV stations. As we have argued, one can safely assume regulatory developments in the industry (both the 1995 law and the ensuing deregulation) were unrelated to vertical integration decisions, thus making the local electoral results good candidates for instruments of competition. The fact that regulation changes and vertical integration decisions were unrelated is our identifying assumption.

We estimate the following relationship through 2SLS:

$$VI_{ijt} = \alpha_0 + \alpha_1 Comp_{jt} + \alpha_2 X_{ijt} + u_{ijt}, \tag{2}$$

where VI_{ijt} is the percentage of content produced in house by station i located in city j in year t; $Comp_{jt}$ is the number of stations that broadcast their content into city j in year t; and X_{ijt} are time-varying station and city characteristics.[22]

Table 3, in columns (A) and (B), shows results of different regressions of our competition variable (number of stations broadcasting into a city) on our instruments, that is, electoral dummies that take a value of 1 if the PP (*PP Max Votes?*), the PSOE (*PSOE Max Votes?*), or the CiU (*CiU Max Votes?*) were the political forces with the maximum amount of votes in the previous local election. All coefficients in this first stage have the expected sign and are statistically significant, except for the PP dummy in column (B). This finding in the first stage could reflect the fact that little changed in cities ruled by PP before and after the passing of the law as opposed to cities ruled by other parties, but we should also note that the coefficient could also be reflecting cross-sectional differences.

[TABLE 3 ABOUT HERE]

We exploit our instruments to analyze the period of time after the PP won its first election. We use data from the 1999 and 2002 censuses, and instrument competition with results from the 1995 and 1999 elections (recall Figure 1). Columns (1) and (2) in Table 3 show the second stage. Column (1) contains a simple regression in which the number of stations is the only explanatory variable, whereas column (2) includes the full set of controls. Increased competition (through a larger number of rivals, induced by lower entry barriers) causes firms to reduce the degree of

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[22]Note our measure of competition varies across cities and years, but not across stations within a city.

vertical integration: for every new entrant, stations reduce in-house production of content by 4.8 percentage points (a 6.9% reduction from the industry average). We have also calculated the distribution of changes in the number of stations for those cities that we see at least twice in our data set. Given that the median change is +2, we estimate a reduction of vertical integration of 9.6 percentage points after a "typical" change in the number of competitors brought about by changes in regulatory enforcement within a city. Table 3 also shows private stations outsource more than their government-owned counterparts.[23]

Similar to the previous section, we must address as well the lack of response to the AIMC questionnaire in the 1999 and 2002 censuses, although response rates are substantially higher in those years than in the 1996 census (72% in 2002 and 62% in 1999 relative to 21% in 1996). For this reason, we apply the same robustness checks to the 2SLS estimation that we applied to the DiD analysis, and report the results in Table A7 in the appendix. Results for samples A, B, and C are robust in sign and magnitude (ranging between $-.054$ and $-.046$), but only statistically significant in sample A. When we correct for sample selection *à la* Heckman, introducing the Mills ratio as an explanatory variable, we find again a negative, statistically significant effect of competition on vertical integration. We obtain similar results when we perform the robustness check at the city level.

Having established the robustness of our results (i.e., more competition, less vertical integration) in both of our empirical approaches, we proceed in the next section to examine the mechanisms behind the negative causal relationship between product market competition and vertical integration.

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[23]Table A5 in the appendix re-runs the specifications in Table 3 with all the available controls from the La Caixa database and finds results consistent with those in Table 3.

4 Competition and business models

The previous section documents a robust, negative causal effect of an increase in the number of competing firms on the degree of vertical integration at the station level. This finding is consistent with several explanations given in the literature. Predictions from the leading theories of vertical integration (transaction cost economics [TCE] and property rights theory [PRT]), for instance, have focused on the impact of changes in competition, using as proxies changes in the number of parties to a transaction.[24] In TCE, an increase in competition (as measured by the number of competing firms) in either the product or the input market should lead to less vertical integration, by either limiting the hazards involved in small-numbers bargaining, reducing the overall degree of asset specificity, or reducing the rents over which to haggle.[25] In PRT, increased competition in the product market would reduce the likelihood of vertical integration, by increasing suppliers' outside options.[26]

Like most contractual theories of integration, both TCE and PRT try to isolate particular mechanisms (here, the holdup problem) and to focus on simple environments. They also tend to treat individual transactions in isolation, holding fixed transaction attributes and market conditions, which could be problematic for empirical work (Bresnahan and Levin, 2013). For example, even with an exogenous shift in market conditions, interpreting changes in the number of parties to a transaction (market structure) as a change in asset specificity (transaction attribute) runs into logical problems. In any case, based on the information gathered in our personal interviews with

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[24]TCE originated from the works of Williamson (1975, 1985), and the PRT approach dates back to Grossman and Hart (1986) and Hart and Moore (1990).

[25]See, e.g., McLaren (2000). But an increase in competition in the product market could also mean the product market contains more competitors to which a supplier could sell the input, thereby reducing appropriability and fostering vertical integration when defining and enforcing property rights is difficult (Pisano, 1990, ASQ).

[26]Increased competition in the input market would have the opposite effect (Acemoglu et al., 2010). An increase in competition in the product market could also lead to more integration if, for instance, the producer's investment is relatively more important, because competition among producers reduces any given producer's bargaining power and, hence, her investment incentives (Aghion et al., 2006a,b).

industry managers, changes in asset specificity in the context of a holdup problem just does not seem to be the best lens through which to look at this particular industry.

Rather than attempting a horserace between the different theories (which our data limitations prevent), we advocate a broader view of the organizational problem in this paper. Having exploited the particularities of the institutional environment to document a causal impact of competition on the degree of vertical integration, in this section, we extend the analysis to the impact of competition on other firm decisions in order to test for the mechanisms involved as we described them in section 2. That discussion suggests we look at weekly broadcasting hours, content quality, and advertising.

Our first prediction from section 2 is that increases in competition should induce local TV stations to increase their time on air. We test this implication in Table 4, where we reproduce DiD and 2SLS regressions from previous tables, using the number of weekly hours of in-house content and the total number of weekly hours of content as the dependent variables. Columns (1) and (2) show that stations in PP cities increased their on-air time by between 24 and 30 hours a week (around 3.5 hours more per day) relative to stations in non-PP cities after 1995. Columns (3) and (4) reproduce the instrumental variables approach, and report that entry of one additional competitor increased the hours of emission by 19 hours a week.

[TABLE 4 ABOUT HERE]

Because the total number of hours of content appears in the denominator of our measure of vertical integration, a valid concern is that the increase we document in Table 4 could be driving our main results in section 3. To address this concern, we show in columns (5)-(8) of Table 4 that the number of hours produced internally (the numerator in our integration measure) also increased more in PP markets relative to non-PP markets after 1995. Therefore, according to our evidence so far, competition leads stations to increase the number of on-air hours mainly, but not exclusively, through outsourced content, because internal sourcing also seems to be increasing with competition,

but relatively less than external sourcing.

Our second claim in section 2 was that this new content should be of high quality.[27] We cannot directly test this implication, because we lack hard, systematic data that could measure the quality of programming of each station in our sample. Instead, we have collected schedules for Barcelona TV (BTV hereafter) from 1995, 1998, and 2001 to provide qualitative evidence of the effect of competition on programming. Figure A1 in the appendix shows BTV increased its number of on-air hours from a 6 pm to a 9 am starting hour, and its share of outsourced content also increased substantially. In 1995, only musical programs (twice a week) could be considered outsourced content, whereas all other content was primarily low-quality but local-interest programs (news, debate, local sports, and local culture).[28] By 1998 and 2001, movies and short films were part of the programming, as well as science and history documentaries.[29]

Finally, an implicit assumption is that the increase in competition forces station managers to economize their resources to offer a competitive product mix because more entry makes the market for advertising more competitive. Therefore, we would expect entry to lower the market price of advertising. To test for this condition, we take advantage of a question in the AIMC questionnaire that asks station managers for the price of a 20-second advertising spot in prime time. Although prime-time advertising space did not increase as much as total air time, we test whether stations in PP markets decreased their advertising prices more than stations in other markets following our DiD and 2SLS methodologies used elsewhere in the paper. Columns (9)-(12) in Table 4 show a consistent negative effect of competition on advertising prices. Despite the robustness in sign,

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[27] The positive association between outsourcing and quality may be context-specific. For instance, when coordination is important for quality, the association might be negative (see, e.g., Forbes and Lederman, 2009).

[28] A representative local-interest program would cast one or two show hosts against a monocolor background discussing local matters with a local official.

[29] In 1995, Barcelona had 17 local TV stations (many of them just tiny neighborhood-specific TV stations). With the passing of the law, the local neighborhood stations merged with Barcelona TV, and two other stations entered. Two more from outside Barcelona also increased broadcasting into the city. Finally, by 2001, Lavinia TV and Canal XIII exited the market and City TV and Flaix TV entered. City TV and Flaix TV appeared to be more sophisticated than Lavinia TV and Canal XIII and closer to the standards set by BTV.

only column (12) under 2SLS and all controls yields a statistically significant result (at the 10% level). One additional competitor lowered the average price of a 20-second advertising spot in prime time by roughly 3,200 pesetas (around 19 euros, or 27% of the sample mean). We also find in column (12) of Table 4 that advertising prices are higher in larger markets (1 euro higher for every additional 7,000 people), private stations (which we have found to broadcast more hours and to outsource more), and stations that do not belong to networks (which should have a higher cost of content production).

The results of this section illustrate how firms react to changes in their environment by simultaneously adjusting a number of margins in their competitive strategy. Because these changes appear to happen simultaneously, they beg the question of whether they are interconnected and therefore their joint adoption is due to existing complementarities among these business dimensions. The theory of complementarities (e.g., Milgrom and Roberts, 1990) provides us with a coherent framework within which to analyze the changes we have documented. Let $\Pi(\mathbf{x}; \theta)$ be a performance indicator, where $\mathbf{x} = (x_1, ..., x_n)$ is a vector of activities (in our case, it would include outsourcing, weekly hours on air, (minus) advertising prices, and content quality) and θ is an exogenous parameter measuring competition. A well-known result in the theory of complementarities (see, e.g., Athey and Stern, 1998, and Cassiman and Veugelers, 2006) is that if $\Pi(\mathbf{x}; \theta)$ is supermodular and all of its arguments are complements, the optimal choice of each activity is increasing in θ, and the elements of x are positively correlated (conditional on observables).[30] Although joint occurrence is not proof of complementarity (we can only check necessary, not sufficient, conditions), our evidence is consistent with complementarities (strongest in the case of outsourcing and time on air)

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[30] For example, outsourcing may increase the marginal return of the total number of on-air hours at a station. This complementarity may arise from two potential sources that we have confirmed through interviews with industry managers and anecdotal evidence. On the one hand, syndication lowers the average cost to all stations purchasing syndicated content. On the other hand, stations may acquire content in bundles, which by definition lowers the marginal costs of content. In both cases, we would expect outsourcing and the number of weekly on-air hours to move in the same direction in response to an increase in product-market competition.

– and suggests stations are changing their organizations and strategies to fit the new competitive environment they face and to maximize performance.[31]

5   Discussion and conclusions

Since Coase (1937) posed the Big Question, asking why transactions are sometimes carried out in markets, and other times within firms, the issue of what determines firm boundaries (what has been traditionally referred to as "the theory of the firm") has garnered the attention of many scholars and businessmen alike; see Holmström and Tirole (1989) and Gibbons (2005) for a survey and discussion of the main theories, and Lafontaine and Slade (2007) for empirical evidence. In this paper, we focus on a determinant of make-or-buy decisions that, until recently, both theoretical and empirical work has largely overlooked: product market competition.

To study the relationship between product market competition and vertical integration, we exploit plausibly exogenous variation in competition across markets and years to identify a negative causal effect in station-level data from the Spanish local TV industry between 1995 and 2002. This industry during this period is particularly attractive because regulation was introduced at the end of 1995 that arguably raised entry costs. Additionally, national election results in 1996 and 2000 generated variation in regulation enforcement according to the ruling party at the municipal level, which is arguably orthogonal to a station's decisions on content production.

To the best of our knowledge, this paper is the first to document a causal effect of competition on vertical integration: we find that more competition (through reduced entry barriers and a larger number of rival firms) leads firms to reduce vertical integration. Additional results show stations located in larger markets are on average more likely to produce their content in house than stations

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[31]Similar to our paper, Nickerson et al. (2001) examine how market position (akin to our market structure) affects firms' decisions to vertically integrate or disintegrate in Japanese international courier services, and emphasize fit among strategic choices.

in smaller markets, and that private stations outsource more than their public counterparts.

Finally, we also provide evidence that suggests a complementarity between outsourcing, broadcasting time at the station level, and high-quality general content. In our setting, because entry lowers advertising revenues for all involved, managers must increase broadcasting time while keeping quality and budget constant. This strategy lowers the percentage of in-house-produced content while increasing the number of broadcasting hours and the presence of outsourced content such as movies, high-quality documentaries, and TV shows.

Traditional theories of the firm, such as TCE and PRT, focus on a single transaction as the unit of analysis and discuss the optimal organizational arrangement for that transaction (the vertical-integration margin), but do not consider multiple transactions at a time or a change in the number of transactions (the output margin) – as would be the case when a firm is not only changing its sourcing strategies, but also expanding its final output altogether (as we have shown).[32] Although both margins could be at work at the same time, we would need something like program-level sourcing data to disentangle them, which is not available. We believe further research into this interesting topic is warranted.

Our findings are also relevant to managers and practitioners in media and elsewhere for a variety of reasons. First, our analysis can provide firms with a competitive advantage. The role that price and advertising strategies play in competitor entry is well known, but the literature has largely ignored the importance of vertical integration and outsourcing adjustments by incumbent companies when competition increases. Although devoting lots of resources to internal production may buffer sudden changes in the competitive environment, overinvestment may also be a costly strategy when the risk of late adaptation is too prominent.

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[32] The "taking-the-transaction-as-the-unit-of-analysis" problem is a repeated critique of TCE (and PRT). See, e.g., Holmström and Roberts (1998, p. 77): "[T]aking the transaction as the unit of analysis runs into problems when one starts to consider the costs of bureaucracy and hierarchy more generally, because these costs quite clearly relate not to one single transaction, but to the whole collection of transactions that the hierarchy covers."

Second, our empirical results underscore the importance that changes in the regulatory framework can have on the internal organization of firms as well as their make-or-buy decisions. Changes in regulation might not only increase or soften competition by affecting the number of competitors, but may also affect their identity, ownership structure, and governance. Changes in the internal organization of a firm of this nature have a direct impact on the firm's ability and willingness to compete aggressively in the product market. Therefore, managers must be able to understand the limits and constraints posed by their own structure, those of their competitors, and those dictated by regulation, in a way that they can strategically respond to entry and keep their competitive advantage.

In summary, in this paper, we have linked changes in regulation to changes in market competition, and studied how the latter affects organizational structure. Although not addressed in this paper, research has recently identified competition-induced organizational change as an important driver of widely documented, large, and persistent differences in firm-level productivity (see Syverson, 2011). Therefore, understanding product market competition as a driver of integration decisions has important implications for managers considering the productivity consequences of government interventions in markets (Mullainathan and Scharfstein, 2001; Syverson, 2011). How our results extend to other industries, however, must await future research.

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Figure 1. Timing of Elections, Regulation Changes and Data Collection

1980-93	1994	1995	1996	1997	1998	1999	2000	2001	2002

DEC 1995 LAW PASSED
MAR 1996 ELECTION

MAR 2000 ELECTION

DEC 2002 LAW PASSED

1996 CENSUS COLLECTED

1999 CENSUS COLLECTED

2002 CENSUS COLLECTED

NO REGULATION

REGULATION BY LAW

"DE FACTO" DEREGULATION
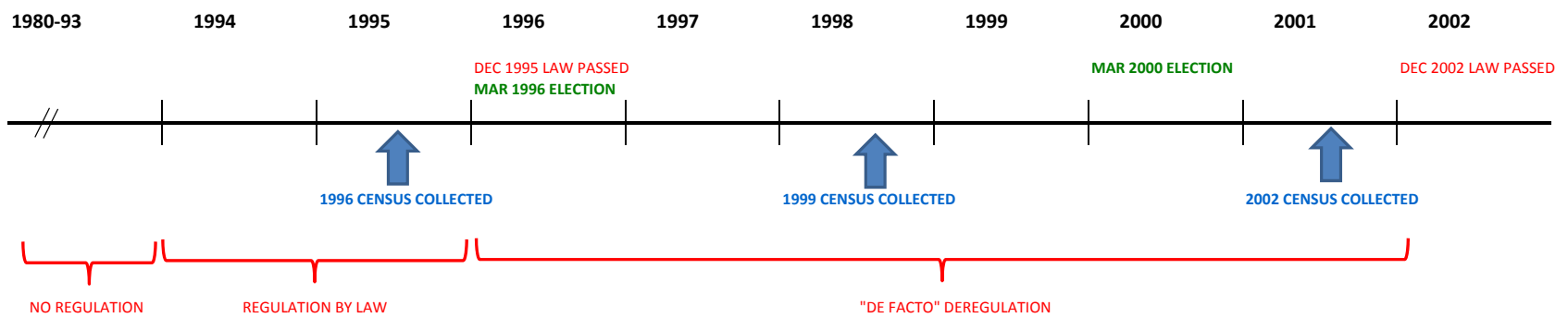
Figure 2. Average Marginal Effects by PP Town (90% CIs)
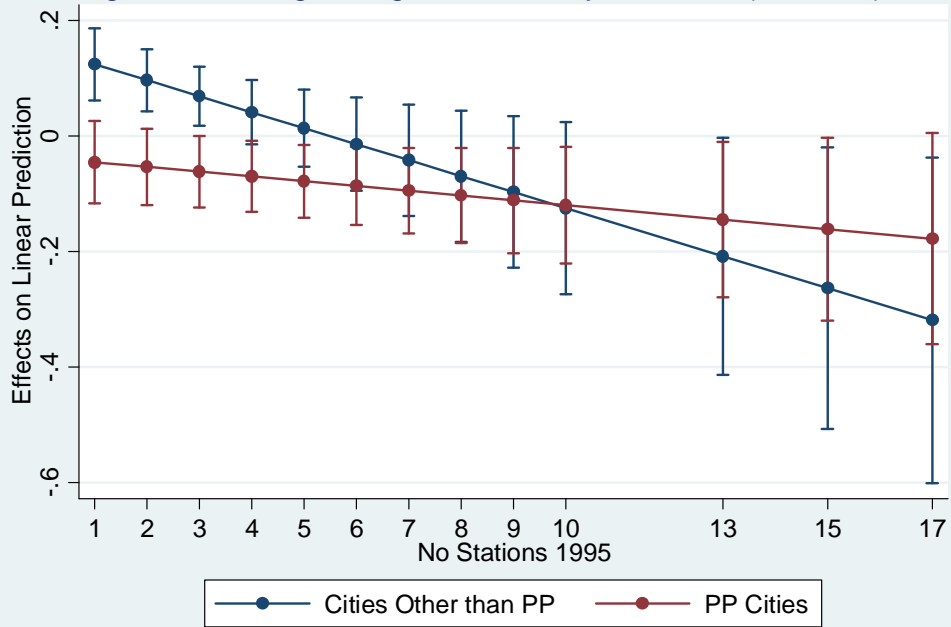
Table 1. Summary Statistics

Variable	Obs	Mean	Std Dev	Min	Max	1996	1999	2002
% Content In-house	1187	0.69	0.30	0	1	0.69	0.72	0.67
						(0.27)	(0.29)	(0.31)
Population (000s)	1172	150.23	431.38	1.08	3016.79	184.75	134.96	151.88
						(481.53)	(432.86)	(416.14)
No Stations Comp	1187	4.42	3.32	1	17	3.23	3.77	5.19
						(3.29)	(2.81)	(3.47)
In-house Hours	1067	62.41	49.51	0	168	46.46	53.35	72.85
						(36.32)	(43.42)	(53.98)
Weekly Hours	1067	101.26	61.83	1	168	78.44	84.73	119.70
						(53.71)	(59.41)	(60.52)
Adv Prices	761	11770.2	17507.7	0	130000	11705.73	11882.08	11707.22
						(19050.18)	(17904.06)	(16704.38)
Belongs to Network?	1187	0.60	0.49	0	1	0.73	0.53	0.61
						(0.45)	(0.50)	(0.49)
Private?	1167	0.80	0.40	0	1	0.80	0.78	0.81
						(0.40)	(0.41)	(0.40)
Over 30% PP Votes?	1172	0.30	0.46	0	1	0.39	0.28	0.29
						(0.49)	(0.45)	(0.45)
PP Max Votes?	1172	0.41	0.49	0	1	0.23	0.42	0.45
						(0.42)	(0.49)	(0.50)
PSOE Max Votes?	1172	0.35	0.48	0	1	0.54	0.31	0.33
						(0.50)	(0.46)	(0.47)
CiU Max Votes?	1172	0.06	0.23	0	1	0.06	0.07	0.04
						(0.24)	(0.26)	(0.21)

This table shows summary statistics of all variables used in this paper and across years. Advertising prices are measured in pesetas
(1 Euro = 166 Pesetas). The dummy "Over 30% PP Votes?" measured in 1995 (1991 municipal elections results).
The data set contains 158 observations for 1996, 421 for 1999 and 593 for 2002 with % Content In-house and population information.

Table 2. DiD for 1996 to 1999 with Various Fixed Effects

Var:	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	% Content In-house						
Post Law?*Over 30% PP?	-0.128**	-0.126**	-0.143***	-0.143	-0.182	-0.182*	-0.189**
	(0.050)	(0.050)	(0.050)	(0.094)	(0.167)	(0.098)	(0.075)
Over 30% PP Votes?	0.026	0.051	0.091*				
	(0.044)	(0.043)	(0.052)				
Post Law?	0.068**	0.061**	0.071**	0.050	0.105	0.105	0.086
	(0.031)	(0.031)	(0.032)	(0.063)	(0.109)	(0.064)	(0.053)
Population (m)		0.002	-0.008	7.460	6.080	6.080	1.710
		(0.016)	(0.026)	(28.500)	(9.440)	(5.540)	(1.320)
Belongs to Network?		-0.042	-0.022	-0.076	-0.011	-0.011	0.020
		(0.026)	(0.027)	(0.071)	(0.138)	(0.081)	(0.051)
Private?		-0.142***	-0.096***	-0.005	0.026	0.026	-0.148
		(0.027)	(0.025)	(0.055)	(0.150)	(0.088)	(0.129)
Constant	0.681***	0.814***	0.752***	-0.364	-0.252	-0.522	0.457*
	(0.028)	(0.034)	(0.036)	(4.248)	(1.399)	(1.058)	(0.272)
Province FE	No	No	Yes	No	No	No	No
City FE	No	No	No	Yes	No	No	No
Station FE	No	No	No	No	Yes	Yes	Yes
Sample	All 1996 and 1999 obs	All 1996 and 1999 obs	All 1996 and 1999 obs	All 1996 and 1999 obs	All 1996 and 1999 obs	Only obs both 1996 and 1999	Only obs both 1996 and 1999 or 2002
Observations	579	574	574	574	574	197	277
R-squared	0.02	0.07	0.26	0.73	0.91	0.72	0.68

Note: DiD regressions with observations from 1996 and 1999, before and after regulation change.
Robust standard errors in parentheses clustered at the city level. *** p<0.01, ** p<0.05, * p<0.1.

Table 3. 2SLS Results for % Content In-House with 1999-2002 Data Set

	(A)	(1)		(B)	(2)
Sample			1999-2002		
	1st Stage	2SLS		1st Stage	2SLS
Dep Var:	**No Stations**	**% In-House**		**No Stations**	**% In-House**
No Stations Comp		-0.041**			-0.048*
		(0.019)			(0.029)
Population (m)				4.241***	0.211*
				(0.171)	(0.129)
Belongs to Network?				-0.455	-0.0343
				(0.296)	(0.029)
Private?				0.747**	-0.115***
				(0.298)	(0.040)
PP Max Votes?	0.8560			-0.116	
	(0.694)			(0.494)	
PSOE Max Votes?	-0.651			-0.686**	
	(0.443)			(0.424)	
CiU Max Votes?	-1.750***			-1.422***	
	(0.463)			(0.427)	
Constant	4.557***	0.881***		4.020***	0.994***
	(0.244)	(0.080)		(0.411)	(0.105)
Observations	1,014	1,014		995	995
R-squared	0.06			0.34	
F Excl Instr	11.63			7.20	

Note: Columns (A) and (B) are first-stage regressions of (1) and (2) respectively.
Instrumental variables are dummies for whether PP, PSOE or CiU were the political
forces with the maximum amount of votes in the 1991 election (for census year 1996),
the 1995 election (for census year 1999), and the 1999 election (for census year 2002).
Clustered standard errors in parentheses at the city level. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table 4. DiD and 2SLS Results for In- house and Total Weekly Hours on Air and Advertising Prices per Station

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Sample	1996-1999	1996-1999	1999-2002	1999-2002	1996-1999	1996-1999	1999-2002	1999-2002	1996-1999	1996-1999	1999-2002	1999-2002
	DiD	DiD	2SLS	2SLS	DiD	DiD	2SLS	2SLS	DiD	DiD	2SLS	2SLS
Dep Var:	Total Number of Weekly Hours On Air				Number of In-House Weekly Hours				Advertising Prices			
Post Law?*Over 30% PP?	25.58**	24.55			3.72	6.05			-1373	-2944		
	(10.81)	(17.82)			(6.76)	(13.80)			(3755)	(7081)		
Over 30% PP?	-10.22				4.02				363			
	(10.73)				(5.97)				(3173)			
Post Law?	-4.05	6.96			5.08	14.09			924	2050		
	(6.38)	(12.14)			(4.58)	(10.24)			(2060)	(4604)		
No Stations Comp			22.39***	18.91**			14.38***	13.90**			-640	-3178*
			(7.34)	(7.59)			(4.48)	(5.74)			(1440)	(1900)
Population (m)	17.72**	-2464.02		-59.63*	17.75***	-1363.05		-37.16	9503.4***	-9777		24538***
	(8.62)	(4555.70)		(33.55)	(6.76)	(3704.21)		(25.53)	(2378.50)	(1543141)		(8088.5)
Belongs to Network?	5.27	-3.86		17.79**	2.94	-6.26		17.77***	673	2224		-4732**
	(5.84)	(14.36)		(7.79)	(4.40)	(12.47)		(5.85)	(1918)	(5400)		(2149)
Private?	27.15***	-0.05		26.99**	10.28*	-8.99		2.50	4483*	6140		5251*
	(6.67)	(27.67)		(10.86)	(5.70)	(28.14)		(8.82)	(2420)	(5746)		(2857)
Constant	57.21***	476.30	-0.47	-6.93	33.17***	277.73	-3.21	-7.46	5678**	6302	14639**	21234***
	(8.17)	(735.50)	(30.33)	(27.40)	(5.81)	(610.93)	(18.74)	(20.06)	(2767)	(264581)	(6519)	(7383)
Fixed Effects	Province	City	No	No	Province	City	No	No	Province	City	No	No
Observations	529	529	963	944	506	506	908	892	397	397	661	646
R-squared	0.22	0.76	.	.	0.19	0.71	.	.	0.17	0.61	.	.

Clustered standard errors in parentheses at the city level. *** p<0.01, ** p<0.05, * p<0.1.

Appendix

Table A1. Station Entry Between 1996 and 2002

	(1)	(2)
Dep Var:	ln(1+ # en)	ln(1+ # en)
PP Max Votes?	0.284***	0.284***
	(0.064)	(0.064)
Population (m)	0.661***	0.662***
	(0.1466)	(0.1472)
Constant	0.416***	0.415***
	(0.020)	(0.020)
Year FE	No	Yes
Observations	1,614	1,614
R-squared	0.32	0.32

Note: Observations are at the city level. We define entrant as a station entering after 1996. The dummy "PP Max Votes?" takes value 1 if PP was most voted party in the previous municipal election (1995 and 1999 elections for 1999 and 2002 census observations respectively). Standard errors in parentheses clustered at the city level.
*** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table A2. OLS Regressions of % Content In-House on Number of Stations Broadcasting into a City

	(1)	(2)	(3)	(4)	(5)
Dep Var:	% Content In-house				
No Stations Comp	-0.001	0.001	0.009*	0.007	-0.001
	(0.004)	(0.005)	(0.005)	(0.008)	(0.008)
Population (m)	0.017	0.008	-0.025	0.397	-0.600
	(0.018)	(0.020)	(0.028)	(0.445)	(0.480)
Belongs to Network?	-0.019	-0.014	0.006	0.017	-0.016
	(0.022)	(0.022)	(0.022)	(0.039)	(0.053)
Private?	-0.161***	-0.163***	-0.128***	-0.086*	-0.167
	(0.023)	(0.023)	(0.022)	(0.047)	(0.118)
Constant	0.832***	0.822***	0.761***	0.673***	0.922***
	(0.025)	(0.026)	(0.031)	(0.076)	(0.134)
Year FE	No	Yes	Yes	Yes	Yes
Province FE	No	No	Yes	No	No
City FE	No	No	No	Yes	No
Station FE	No	No	No	No	Yes
Observations	1,152	1,152	1,152	1,152	1,152
R-squared	0.05	0.06	0.18	0.61	0.90

Robust standard errors in parentheses clustered at the city level.
*** p<0.01, ** p<0.05, * p<0.1

Table A3. Summary Statistics PP and non-PP cities

	PP cities (89)	Non-PP cities (126)	Differences
Population (000s)	287.27	114.85	172.42**
	(75.07)	(20.27)	(67.49)
Unemployment	4.93	5.4	-0.48*
	(0.17)	(0.19)	(0.27)
Unemployment/Pop	0.23	0.23	0.005
	(0.04)	(0.03)	(0.05)
Market Quota/Pop	2.51	2.47	0.035
	(0.02)	(0.03)	(0.04)
Phones per person	387.5	380.71	6.79
	(8.25)	(10.97)	(14.79)
Vehicles per person	542.83	509.16	33.68*
	(12.91)	(12.76)	(18.67)
Cars per person	416.41	377.163	39.25**
	(11.55)	(10.27)	(15.60)
Bank Office per person	0.95	0.84	0.11**
	(0.02)	(0.03)	(0.04)
Mall Surface per person	141.69	103.44	38.26
	(23.56)	(21.06)	(31.94)
Population Growth	0.034	0.031	0.002
	(0.005)	(0.01)	(0.01)

*** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table A4. Time Trends in Demographic Variables & Cohort Trends in Station Characteristics

Dep Var:	(1) ln(Pop)	(2) ln(Mkt Quota)	(3) ln(Autos)	(4) ln(Bank Off)	(5) ln(1+Mall)	(6) ln(1+PopGrowth)	(7) % Content In-House	(8) Private?	(9) Network?
PP Max Votes?	-246.3	-235.5	-220.7	-230.9	-640.7	3.623	10.52	-1.458	11.87
	(173.8)	(173.5)	(179.0)	(175.8)	(415.5)	(2.7)	(15.6)	(18.3)	(24.3)
PP Max Votes?*Year	0.124	0.118	0.111	0.116	0.322	-0.002	-0.005	0.001	-0.006
	(0.087)	(0.087)	(0.090)	(0.088)	(0.208)	(0.001)	(0.008)	(0.009)	(0.012)
Year	-0.071***	-0.077***	-0.043	-0.074**	-0.112	0.008***	-0.010**	-0.004	0.016**
	(0.0)	(0.0)	(0.0)	(0.0)	(0.1)	(0.0)	(0.0)	(0.0)	(0.0)
Constant	151.4***	158.2***	95.68*	149.8***	227	-15.20***	20.30**	9.666	-31.91**
	(54.7)	(55.2)	(56.6)	(57.3)	(162.5)	(1.1)	(9.3)	(12.6)	(13.4)
Observations	2475	2475	2475	2474	2475	2475	1111	1168	1418
R-squared	0.12	0.12	0.13	0.13	0.10	0.11	0.02	0.05	0.02

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A5. DiD and 2SLS Results for % In-house Weekly Hours on Air Using All Controls Available

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	DiD	DiD	DiD	DiD	DiD	DiD	DiD	2SLS	2SLS
Dep Var:	**% Content In-house**								
Post Law?*Over 30%	-0.113**	-0.107**	-0.133***	-0.13	-0.14	-0.14	-0.188**		
	(0.052)	(0.050)	(0.050)	(0.099)	(0.169)	(0.099)	(0.075)		
Over 30% PP?	0.00689	0.0236	0.0937*						
	(0.047)	(0.044)	(0.053)						
Post Law?	-0.0287	-0.00476	0.0820*	0.214	0.168	0.168	0.221***		
	(0.039)	(0.040)	(0.045)	(0.140)	(0.236)	(0.139)	(0.082)		
No Stations Comp								-0.0804**	-0.0566
								(0.041)	(0.040)
Population (m)		-1.65	-24.79	5.701	-10.608	-10.608	4.427*		2.045***
		(1.101)	(1.133)	(44.446)	(38.326)	(22.499)	(2.454)		(0.606)
Belongs to Network?		-0.0315	-0.0199	-0.0834	-0.0114	-0.0114	0.0173		-0.0425
		(0.026)	(0.028)	(0.071)	(0.168)	(0.099)	(0.055)		(0.031)
Private?		-0.120***	-0.0947***	0.00298	-0.045	-0.045	-0.129		-0.133***
		(0.027)	(0.026)	(0.062)	(0.167)	(0.098)	(0.149)		(0.034)
% Unemployment	-0.0308***	-0.0235***	0.00448	0.0672	0.0315	0.0315	0.0484*	0.00351	0.00105
	(0.008)	(0.008)	(0.011)	(0.051)	(0.086)	(0.051)	(0.027)	(0.013)	(0.012)
Purchasing Power	-0.00045	0.00046	-0.0001	-0.00272	-0.00121	-0.00121	-0.000528	0.000273	-0.00062
	(0.0004)	(0.0005)	(0.0005)	(0.0047)	(0.0056)	(0.0033)	(0.0008)	(0.0005)	(0.0004)
# Phones	0.000003	0.000002	0.000003	0.000016	0.000031	0.000031	0.000001	-0.000003	-0.000004**
	(0.000002)	(0.000002)	(0.000002)	(0.000029)	(0.000042)	(0.000024)	(0.000002)	(0.000002)	(0.000002)
# Motor Vehicles	-0.000001	-0.000002	-0.000007	-0.000072	-0.000011	-0.000011	0.000003	0.00001*	0.000008
	(0.000004)	(0.000003)	(0.000004)	(0.000087)	(0.000132)	(0.000077)	(0.000017)	(0.000007)	(0.000007)
# Cars	0.000001	0.000002	0.000006	0.000082	0.000007	0.000007	-0.000007	-0.000011	-0.000006
	(0.000003)	(0.000003)	(0.000005)	(0.000104)	(0.000155)	(0.000091)	(0.000021)	(0.000007)	(0.000006)
# Bank Offices	-0.000027	-0.000142	0.000122	-0.001830	-0.002710	-0.002710	0.000761	-0.001400	-0.000152
	(0.001)	(0.001)	(0.001)	(0.007)	(0.013)	(0.008)	(0.001)	(0.001)	(0.001)
Mall Surface (000s)	-0.000044	0.000233	0.000511	0.000197	0.000638	0.000638	-0.000951	0.001680	0.000897
	(0.001)	(0.001)	(0.001)	(0.003)	(0.006)	(0.004)	(0.001)	(0.001)	(0.001)
City Growth	0.0401	-0.0423	-0.129	-0.12	-1.085	-1.085	-0.249	0.547	0.419
	(0.221)	(0.211)	(0.213)	(0.731)	(1.907)	(1.119)	(0.438)	(0.363)	(0.354)
Constant	0.913***	0.968***	0.738***	0.287	1.324	1.532	-0.0386	0.925***	0.981***
	(0.062)	(0.062)	(0.079)	(4.201)	(3.683)	(2.784)	(0.561)	(0.093)	(0.089)
Province FE	No	No	Yes	No	No	No	No	No	No
City FE	No	No	No	Yes	No	No	No	No	No
Station FE	No	No	No	No	Yes	Yes	Yes	No	No
Sample	All 1996 and 1999 obs	All 1996 and 1999 obs	All 1996 and 1999 obs	All 1996 and 1999 obs	All 1996 and 1999 obs	Only obs both 1996 and 1999	Only obs both 1996 and 1999 or 2002	All 1999 and 2002 obs	All 1999 and 2002 obs
Observations	579	574	574	574	574	197	277	1,014	995
R-squared	0.07	0.10	0.27	0.74	0.92	0.75	0.70		

Clustered standard errors in parentheses at the city level. *** p<0.01, ** p<0.05, * p<0.1.

Table A6. DiD for 1996 to 1999 - Robustness Checks

	(1)	(2)	(3)	(4)	(5)	(6)
Dep Var:	% Content In-house					
Post Law?*Over 30% PP?	-0.184*	-0.179	-0.173*	-0.147**	-0.172	-0.167***
	(0.095)	(0.110)	(0.100)	(0.057)	(0.111)	(0.045)
Over 30% PP Votes?				-0.668		0.120***
				(0.749)		(0.044)
Post Law?	0.0885	0.0982	0.112*	0.064*	0.074	0.112***
	(0.066)	(0.072)	(0.063)	(0.037)	(0.071)	(0.028)
Population (m)	34.223	19.571	5.835	8.754	3.674	0.039
	(27.563)	(32.013)	(25.462)	(17.051)	(30.470)	(0.027)
Belongs to Network?	-0.058	-0.080	-0.025	-0.076*	-0.016	0.019
	(0.096)	(0.091)	(0.107)	(0.043)	(0.117)	(0.027)
Private?	0.002	0.008	-0.020	-0.002	0.006	-0.087***
	(0.068)	(0.067)	(0.082)	(0.033)	(0.071)	(0.025)
Constant	-5.571	-1.048	0.056	0.746**	0.314	0.541***
	(5.064)	(2.898)	(2.800)	(0.344)	(3.211)	(0.043)
Fixed Effects	City	City	City	City	City	Province
Sample	Only obs both 1996 and 1999	Only obs both 1996 and 1999	Only obs both 1996 and 1999	All 1996 &1999 obs	Only obs both 1996 and 1999	All 1996 & 1999 obs
Obs Unit & Correction	Station, Sample A	Station, Sample B	Station, Sample C	Station, Heckman	City	City, Heckman
Observations	190	179	191	1,534	277	1,063
R-squared	0.67	0.70	0.68		0.82	

Notes: DiD regressions with observations from 1996 and 1999, before and after regulation change. Sample A restricts all observations to be in the same support of treated stations, sample B restricts all obs to be in the common support of treated and control stations, and sample C only restricts according to population. Heckman correction in columns (4) and (6) is done using other demographic variables such as purchasing weight of the city, mall space, motor vehicles, bank offices, and survival profiles of each station. Robust standard errors in parentheses clustered at the city level. *** p<0.01, ** p<0.05, * p<0.1

Table A7. 2SLS Results for % Content In-House with 1999-2002 Data Set - Robustness Checks

	(1)	(2)	(3)	(4)	(5)	(6)
Dep Var:	% In-House					
No Stations Comp	-0.054*	-0.049	-0.046	-0.046	-0.165**	-0.155***
	(0.031)	(0.035)	(0.032)	(0.028)	(0.067)	(0.059)
Population (m)	0.2490	0.500	0.349	0.189	0.737**	0.583**
	(0.171)	(0.433)	(0.288)	(0.122)	(0.3310)	(0.2480)
Belongs to Network?	-0.048	-0.052	-0.037	-0.026	-0.120**	-0.107**
	(0.032)	(0.036)	(0.031)	(0.028)	(0.058)	(0.051)
Private?	-0.105**	-0.128***	-0.122***	-0.113***	-0.065	-0.085
	(0.041)	(0.035)	(0.038)	(0.039)	(0.065)	(0.056)
Mills Ratio				-0.112**		-0.179**
				(0.056)		(0.086)
Constant	1.018***	0.997***	0.983***	1.057***	1.403***	1.473***
	(0.110)	(0.121)	(0.111)	(0.111)	(0.224)	(0.234)
Obs Unit & Correction	Station, Sample A	Station, Sample B	Station, Sample C	Station, Heckman	City	City, Heckman
Observations	973	932	975	995	734	734
F Excl Instr	6.73	3.73	5.15	7.19	3.51	3.99

Note: First-stage regressions of all specifications are omitted in interest of space. First-stage R-squared and F-statistics are reported for each specification. Instrumental variables are dummies for whether PP, PSOE or CiU were the political forces with the maximum amount of votes in the 1991 election (for 1996), the 1995 election (for 1999), and the 1999 election (for 2002). Sample A restricts all observations to be in the same support of treated stations, sample B restricts all obs to be in the common support of treated and untreated stations, and sample C only restricts according to population. Mills ratio was calculated through Heckman correction in columns (4) and (6) using other demographic variables such as purchasing weight of the city, mall space, motor vehicles, bank offices, and survival profiles of each station.
Clustered standard errors in parentheses at the city level. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Figure A1. Barcelona TV Schedules Same Week 1995, 1998 and 2001

MON 5/29/1995
18:30 NEIGHBORHOOD NEWS
19:00 INTERVIEW PROGRAM
19:30 TALK SHOW
20:00 CITY NEWS 1
21:00 MUSIC SHOW*
21:30 CITY NEWS 2
22:00 NEIGHBORHOOD NEWS
22:30 TALK SHOW
23:15 SPORTS TALK SHOW
0:00 CITY NEWS 3

TU 5/30/1995
18:00 MUSIC SHOW
18:15 MOVIE REVIEWS
18:30 NEIGHBORHOOD SPORTS
18:45 NEIGHBORHOOD NEWS
20:00 CITY NEWS 1
20:30 INTERVIEW CITY MAYOR
21:00 NGO PROGRAM
22:00 NEWS
22:30 SPORT NEWS
23:00 DEBATE
0:00 CITY NEWS 2
0:30 INTERVIEW CITY MAYOR

WED 5/31/1995
19:00 CITY ROUTES
19:30 NEIGHBORHOOD NEWS
20:00 CITY NEWS 1
21:00 CITY CELEBRITIES
21:30 CITY NEWS 2
22:00 NEIGHBORHOOD NEWS
22:30 NEGHBORHOOD SHOW
23:00 CITY LABOR MARKET
0:00 CITY NEWS 2
0:30 CITY AT NIGHT

THU 6/1/1995
18:30 NEIGHBORHOOD NEWS
19:00 MOVIE IN ENGLISH*
19:30 NEIGHBORHOOD SHOW
20:00 CITY NEWS 1
20:30 NEIGHBORHOOD NEWS
21:00 AMERICAN FOOTBALL
21:30 CITY NEWS 2
22:00 NEIGHBORHOOD NEWS
22:30 LOCAL MOVIE INDUSTRY
23:00 MUSIC SHOW
23:30 LOCAL TALK SHOW
0:00 CITY NEWS 3
0:30 METAL ROCK SHOW*

FRI 6/2/1995
19:45 CAR REVIEWS
20:00 CITY NEWS 1
20:30 Informatiu Les Corts
21:00 MOVIE REVIEWS
21:30 CITY NEWS 2
22:00 NEIGHBORHOOD NEWS
22:30 COMIC BOOK REVIEW
22:45 WHAT'S NEW IN VHS
23:00 DEBATE
0:00 CITY NEWS 3
0:30 CITY STREETS
0:45 ALTERNATIVE SHOW

SAT 6/3/1995
17:15 LOCAL FOLK DANCE
18:00 AMERICAN FOOTBALL
18:30 LOCAL DEBATE
19:00 MUSIC SHOW
19:30 COMIC BOOK REVIEW
19:45 FORMULA RC
20:00 CITY NEWS 1
20:30 ART SHOW
21:30 CITY NEWS 2
22:00 CITY ROUTES
22:30 OUR CITY
22:45 ECOLOGY PROGRAM
23:15 FASHION MAGAZINE
0:00 CITY NEWS 3

SUN 6/4/1995
17:15 DEBATE
18:15 CULTURAL CROSSROADS
18:30 INSIDE BRITAIN
19:00 DO AS YOU PLEASE
20:00 CITY NEWS 1
20:30 DDD
21:00 CAR REVIEWS
21:15 VHS
21:30 CITY NEWS 2
22:00 MOVIE REVIEWS
22:15 MUSIC SHOW
22:30 MONTHLY PROGRAM
23:00 NIGHT SHOW
23:30 CITY NIGHT SHOW
0:00 CITY NEWS 3

MON 6/1/1998
9:00 HOLA BARCELONA
9:30 AGENDA (ENGLISH)
10:00 NEWS
10:05 AGENDA/MAGAZINE
13:35 NEIGHBORHOOD NEWS
13:47 NEIGHBORHOOD NEWS
14:00 MIDDAY NEWS
14:30 AGENDA/MAGAZINE
15:00 NEWS
15:05 AGENDA/MAGAZINE
16:35 MOVIE*
19:35 AGENDA/MAGAZINE
21:00 NEWS
21:05 INTERVIEW
21:30 EVENING NEWS
22:00 NEW RELEASES
22:30 MUSIC NIGHT DOC
23:00 MUSIC NIGHT DOC
0:15 EXPERIMENTAL SHOW
0:20 CLOSING CREDITS
0:25 SCREEN SAVER

TU 6/2/1998
8:00 HOLA BARCELONA
8:30 AGENDA (ENGLISH)
8:35 HOLA BARCELONA
9:00 NEWS
9:05 AGENDA/MAGAZINE
13:35 NEIGHBORHOOD NEWS
13:47 NEIGHBORHOOD NEWS
14:00 MIDDAY NEWS
14:30 AGENDA/MAGAZINE
15:00 NEWS
15:05 AGENDA/MAGAZINE
21:00 NEWS
21:05 INTERVIEW
21:30 EVENING NEWS
22:00 NEW RELEASES
22:30 ART DEBATE
0:00 EXPERIMENTAL SHOW
0:05 CLOSING CREDITS
0:15 SCREEN SAVER

WED 6/3/1998
8:00 HOLA BARCELONA
8:30 AGENDA (ENGLISH)
8:35 HOLA BARCELONA
9:00 NEWS
9:05 AGENDA/MAGAZINE
13:35 NEIGHBORHOOD NEWS
13:47 NEIGHBORHOOD NEWS
14:00 MIDDAY NEWS
14:30 AGENDA/MAGAZINE
15:00 NEWS
15:05 AGENDA/MAGAZINE
21:00 NEWS
21:05 INTERVIEW
21:30 EVENING NEWS
22:00 NEW RELEASES
22:30 DOCUMENTARY
0:10 EXPERIMENTAL SHOW
0:15 CLOSING CREDITS
0:20 SCREEN SAVER

THU 6/4/1998
8:00 HOLA BARCELONA
8:30 AGENDA (ENGLISH)
8:35 HOLA BARCELONA
9:00 NEWS
9:05 AGENDA/MAGAZINE
12:30 AGENDA (ENGLISH)
13:35 NEIGHBORHOOD NEWS
13:47 NEIGHBORHOOD NEWS
14:00 MIDDAY NEWS
14:30 AGENDA/MAGAZINE
15:00 Noticies
15:05 AGENDA/MAGAZINE
19:30 AGENDA (ENGLISH)
19:35 AGENDA/MAGAZINE
21:00 NEWS
21:05 INTERVIEW
21:30 EVENING NEWS
22:00 NEW RELEASES
22:30 DEBATE
23:40 EXPERIMENTAL SHOW
23:45 XAT TV (WEB DEBATE)
SCREEN SAVER

FRI 6/5/1998
8:00 HOLA BARCELONA
AGENDA (ENGLISH)
9:00 NEWS
9:05 AGENDA/MAGAZINE
12:30 AGENDA (ENGLISH)
12:35 MAGAZINE
13:35 NEIGHBORHOOD NEWS
13:47 NEIGHBORHOOD NEWS
14:00 MIDDAY NEWS
14:35 AGENDA/MAGAZINE
19:30 AGENDA (ENGLISH)
19:35 MAGAZINE
21:05 INTERVIEW
21:30 EVENING NEWS
22:00 NEW RELEASES
22:30 MOVIE NIGHT*
0:15 EXPERIMENTAL SHOW
0:20 CLOSING CREDITS
0:30 SCREEN SAVER

SAT 6/6/1998
9:00 HOLA BARCELONA
9:30 AGENDA/MAGAZINE
9:35 AGENDA/MAGAZINE
14:00 MIDDAY NEWS
14:30 AGENDA/MAGAZINE
14:35 AGENDA/MAGAZINE
21:30 EVENING NEWS
22:00 MOVIE NIGHT*
23:45 HOME VIDEOS
0:15 CLOSING CREDITS
0:20 SCREEN SAVER

SUN 6/7/1998
9:00 HOLA BARCELONA
9:30 AGENDA/MAGAZINE
9:35 AGENDA/MAGAZINE
10:00 NEWS
10:05 AGENDA/MAGAZINE
14:00 MIDDAY NEWS
14:30 AGENDA/MAGAZINE
14:35 AGENDA/MAGAZINE
15:00 NEWS
15:05 AGENDA/MAGAZINE
15:30 AGENDA/MAGAZINE
15:35 AGENDA/MAGAZINE
16:00 NEWS
16:05 AGENDA/MAGAZINE
21:00 NEWS
21:05 AGENDA/MAGAZINE
21:30 EVENING NEWS
22:00 SPORTS NEWS
22:40 SPORTS DOCUMENTARY
23:40 SPORTS NEWS
0:20 CLOSING CREDITS
0:30 SCREEN SAVER

MON 5/28/2001
9:35 MAGAZINE
13:00 SPECIAL DOCUMENTARY
14:30 MIDDAY NEWS
15:05 MAGAZINE
19:15 SPECIAL DOCUMENTARY
21:05 INTERVIEW
21:30 EVENING NEWS
22:04 WEATHER NEWS
22:05 NEW RELEASES
22:35 LIVE MUSIC
23:10 MUSIC SHOW

TU 5/29/2001
9:05 MAGAZINE
13:35 NEIGHBORHOOD NEWS
13:47 NEIGHBORHOOD NEWS
14:00 MIDDAY NEWS
14:35 MAGAZINE
21:05 EVENING NEWS
22:05 NEW RELEASES
22:35 TALK SHOW
0:10 EXPERIMENTAL SHOW
0:15 DAILY SCIENCE

WED 5/30/2001
9:05 MAGAZINE
13:35 NEIGHBORHOOD NEWS
13:47 NEIGHBORHOOD NEWS
14:00 MIDDAY NEWS
14:35 MAGAZINE
15:35 LIVE MUSIC
16:05 MAGAZINE
21:05 INTERVIEW
21:30 EVENING NEWS
22:05 NEW RELEASES
22:35 NIGHT DOCUMENTARY
23:00 NIGHT DOCUMENTARY
23:50 SHORT MOVIES*

THU 5/31/2001
9:05 MAGAZINE
13:35 NEIGHBORHOOD NEWS
13:47 NEIGHBORHOOD NEWS
14:00 MIDDAY NEWS
14:35 MAGAZINE
21:05 INTERVIEW
21:30 EVENING NEWS
22:05 FLASH FLASH BOX
22:35 DEBATE
0:05 EXPERIMENTAL SHOW
0:10 XAT BTV
0:25 CLOSING CREDITS
0:30 SCREEN SAVER

FRI 6/1/2001
9:35 MAGAZINE
10:00 CITY HALL SESSION
14:00 MIDDAY NEWS
14:35 MAGAZINE
20:00 NEWS
20:05 FLASH FLASH BOX
20:35 MAGAZINE
21:05 INTERVIEW
21:30 EVENING NEWS
22:05 NEW RELEASES
22:35 NIGHT DOCUMENTARY
0:20 EXPERIMENTAL SHOW

SAT 6/2/2001
9:35 NEWS (FOREIGNERS)
13:35 NEWS (FOREIGNERS)
14:00 MIDDAY NEWS
14:30 MAGAZINE
21:00 EVENING NEWS
22:05 ART SHOW
22:35 MOVIE*
0:05 HOME VIDEOS
0:30 CLOSING CREDITS

SUN 6/3/2001
9:35 NEWS (FOREIGNERS)
10:05 MAGAZINE
13:35 NEWS (FOREIGNERS)
14:00 MIDDAY NEWS
14:35 MAGAZINE
19:30 AGENDA (ENGLISH)
19:35 MAGAZINE
21:00 EVENING NEWS
22:05 SPORT NEWS
22:05 SPORT DOCUMENTARY
23:00 SPORT DOCUMENTARY