Regulation, enforcement, and entry: Evidence from the Spanish local TV industry☆

Mitsukuni Nishida *, Ricard Gil

The Johns Hopkins Carey Business School, United States

ABSTRACT

Although we have many tools to understand the effect of regulation on firm entry, we know little about the importance of actual regulation enforcement. For this purpose, this paper uses data from Spain's local television industry from 1995 through 2001, which provide a unique opportunity for examining how firms' profitability changes with the introduction of regulation and a posterior liberalization. During this period, the local television industry transitioned from a state of alegality (no regulation in place) to being highly regulated and finally to being informally deregulated. Using a firm entry model from Bresnahan and Reiss (1990, 1991a,b), we estimate local TV station entry thresholds by number of entrants across years. We find the entry threshold in 1998 increased relative to the thresholds in 1995 and 2001, suggesting that entry was less attractive during the period when the local TV industry was highly regulated. We decompose the entry thresholds into the fixed costs and variable profits, and find the fixed-cost ratios increase in 1998 and stay constant in 2001. Meanwhile, we find an increase in the variable-profit ratios in 2001. These findings suggest that the informal deregulation did not invalidate the regulation introduced in 1995 on the cost side. However, the deregulation seemed to have an impact on variable profits through how local TV stations competed.

© 2013 Elsevier B.V. All rights reserved.

1. Introduction

The role of market regulation has generated much attention in economics (Peltzman, 1989; Stigler, 1971). Because regulation will ultimately affect welfare, correctly interpreting and measuring the impact that regulation has on market outcomes is undoubtedly important.[1] Nonetheless, the literature has placed little attention on enforcement and its role on the impact of regulation. Focusing on enforcement is equally important because government may not enforce the regulation to the degree it is formally announced. Even the legislation of market regulation that is clearly stated and understandable to industry participants does not guarantee the government will literally interpret and enforce regulation (Carlton and Picker, 2007). Rather, several factors can prevent the government from implementing the regulation as law and enforcement may work as competing and yet complementary mechanisms.[2]

Although we have many tools to help us understand the effect of regulation on firm entry, we know little about the importance of enforcement in explaining the impact of regulation in an industry, in part because the degree of law enforcements is often not observable. As a result, most of the evidence on the influence of politics on the implementation of regulation is anecdotal. The goal of this paper is to document and infer from data through an entry model the subtle interactions between regulation, its implementation, and market entry.

For this purpose, we use Spanish local television censuses to investigate the case of the Spanish local television industry from 1995 to 2001. These data provide a unique opportunity to examine how local TV stations' profitability changes with regulation and its enforcement for two reasons. First, the industry went through several different regulation statuses within a relatively short period of time. For instance, up to 1995, Spanish local TV stations had no legal status, meaning the law did not recognize or protect them. Therefore, their activities were neither legal nor illegal. This came to an end when the Spanish parliament approved the first law of Spanish local TV in late 1995 and planned to

[1] See Armstrong and Vickers (1993) and Vickers (1995) as examples of theoretical literature that provides case-specific predictions about the relation between regulation and market outcomes.

[2] Some examples are political connections to ruling parties, corruption within a government, or exogenous shocks on the budget, among others.

implement it in 1996. The law mandated no more than two local stations were allowed in each city, which might have affected the fixed costs of entry. Later, this law was reformed and the industry formally liberalized in 2002, which might have affected fixed costs and variable profits through price competition and product differentiation. Second, we observe changes in ruling political parties during those data years, which affected how the government enforced the regulation. Even though the 1995 law was passed by left-winged Partido Socialista Obrero Español (PSOE hereafter) party, the right-winged Partido Popular (PP hereafter) obtained power by weak majority in 1996 and strong majority in 2000. As its perspective of the 1995 law was opposite to PSOE's and PP believed the Spanish local television industry should be liberalized, it immediately began a process of "silent" deregulation.[3]

The unique features of the data set allow us to investigate the impact of the different changes in regulation on the firms' profitability through fixed costs, variable profits, and market size. For instance, that silent deregulation started in 2000 might have changed TV stations' profitability through lowering entry costs and invalidating the restriction on the "number of firms" per city imposed by the 1995 regulation. On the other hand, the deregulation since 2000 may have only impacted profit margins because of the formation of new networks among stations. Although some anecdotal evidence and descriptive statistics are available to us, the results remain suggestive, and in no case conclusive, because these two conflicting views coexist.

To answer these questions, this paper estimates an entry model that quantifies the changes across years in variable profits and fixed costs of entry in response to changes in the regulation status. Ideally, we would like to utilize station-level detailed data on costs, prices, and revenues to infer the change in the profitability of firms. However, obtaining such information is often challenging in practice due to data limitations. Instead, we employ the methodology from Bresnahan and Reiss (1990, 1991a,b), which allows us to estimate the entry threshold with mostly publicly available data, such as the number of firms and demographics at the market level. By estimating the entry threshold, which measures the minimum market size necessary to support a given number of stations in each point in time, we can learn about the profitability of firms, namely, markups and the fixed costs of firms that justify the observed market structure.

We estimate the model separately for 1995, 1998, and 2001 to compare how these entry thresholds change from a situation in which no regulation was in place to a conservative regulation and its posterior liberalization. We observe an increase in the entry threshold in 1998 for any number of firms relative to the thresholds in 1995 and 2001. This pattern suggests that entry was less attractive in 1998 when the Spanish local TV industry was heavily regulated. To investigate the sources of these changes in entry threshold in 1998, we decompose the entry thresholds into the fixed costs and variable profits. We find that in 1998 and 2001, the ratios of fixed costs of the second and later entrants relative to the fixed costs of the first entrant are higher than the ratios in 1995. This empirical pattern is consistent with the view that even after the deregulation period since 2000, the policy of no more than two stations was in effect. Meanwhile, we observe upward changes in the variable-profit ratios in 2001. This shift in variable-profit ratios might be associated with the deregulation in 2000 in how stations competed against each other, through product differentiation given more flexible network formation. In a nutshell, our estimates suggest that regulation enforcement made station entry less attractive and it influenced profitability of stations through both demand and cost sides.

This paper is related to the empirical literature that examines the relation between regulation and competition in various industries. See for example Joskow (1973) and Samprone (1979) in the property and liability insurance industry, Klein (1990) in the railroad industry, and Joskow (1980) and Fanara and Greenberg (1985) in the health industry. Others have focused their research on the effect of regulation on firm entry including Griffith and Harmgart (2008), Schaumans and Verboven (2008), Cohen and Mazzeo (2010), Suzuki (2010), Datta and Sudhir (2013), Ryan (2012), or Nishida (2013).[4] In particular, Bresnahan and Reiss (1987) examine entry threshold across industries and relate observed differences to variation in regulation. Our paper follows their same purpose holding industry institutions constant and studying a period of time in that the Spanish local television industry experienced several changes in regulation. Lastly, this paper is linked to a narrower literature that studies telecommunication industries such as Berry and Waldfogel (1999, 2001), Goolsbee and Petrin (2004), Baker and George (2010), Crawford and Yurukoglu (2012), or Gil and Ruzzier (2012).

To the best of our knowledge, the closest papers in topic and goal are Danzon and Chao (2000), Schaumans and Verboven (2008), and Xiao and Orazem (2011). Danzon and Chao (2000) find that regulation undermines competition across generic competitors in the pharmaceutical industry by examining price competition in this industry in seven different countries with different types of regulation. Our paper differs from theirs in that we estimate entry thresholds in three different years that differ in regulation status to evaluate how changes in regulation and its implementation affect market entry through the changes in fixed costs and variable profits. Schaumans and Verboven (2008) analyze the restricted entry in pharmacies and physicians under the assumption that the entry restrictions are strictly binding. By contrast, our paper builds on a free-entry model and interprets the impact of regulation on the number of stations through estimated parameters in fixed cost and variable profit equations. We do so because, as we observe later, the entry restrictions are not always binding as the authorities may not have fully enforced the regulation. Finally, Xiao and Orazem (2011) use the model in Bresnahan and Reiss (1994) to differentiate sunk costs from fixed costs by pooling observations from multiple periods, and study the nature of competition in US broad-band industry. By estimating the entry model separately across years, we focus on the intertemporal changes in entry thresholds across three regulation statuses.

The paper is organized as follows. Section 2 describes the institutional details of the Spanish local TV industry and the introduction and change of regulation. Section 3 presents the data. Section 4 develops the empirical specifications. Section 5 presents the parameter estimates. Section 6 relates the estimated model to the changes in the regulation status across years. Section 7 concludes.

2. Local TV regulation in Spain

This section builds on information obtained in personal interviews with industry managers and previous work (Gil and Riera-Crichton, 2011; Gil and Ruzzier, 2012). Television stations operate through a slot in the frequency spectrum that they must purchase or rent from another entity (television or radio station for example) or win through public contest (from the government). They maximize profits in two ways: selling content to TV viewers in exchange of subscription fees, or selling advertising space to product sellers. Because consumer value advertising-free content and advertisers value the number of television viewers, stations maximize profits choosing accordingly the amount of advertising and their subscription fee. Most stations choose to advertise and broadcast their content and only fewer choose to collect revenue only through subscription fees from viewers (pay-per-view stations).[5]

Stations carefully choose the content of their programming to attract both viewers and advertisers. In this industry, programming content is important because it differentiates stations from others. Other factors that play an important role are whether the station is private

---

[3] Scholars have called this deregulation process silent because the formal deregulation did not occur until December 2002.

[4] For a complete reference on this topic, see Ferrari and Verboven (2010).

[5] See Tables A1 and A2 in Appendix B.