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Competition and investment in telecommunications: Does competition have the same impact on investment by private and state-owned firms? ☆

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ABSTRACT

The liberalization of telecommunications is largely based on the premise that increasing competition will encourage investment. The hypothesis that liberalization promotes investment has received the most empirical support in recent research. However, a key question that has been largely ignored in the literature is whether competition has the same impact on investment by private and state-owned firms. We conduct an empirical study of the infrastructure investment of 20 incumbent telecommunications operators in OECD countries between 1994 and 2008, and we conclude that greater competitive pressure fosters infrastructure investment by state-owned incumbents but reduces investment by private incumbents.

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1. Introduction

Regulation of the telecommunications industry has undergone fundamental transformations over the past 25 years. Although regulated monopolies have long been regarded as the most efficient way to provide telecommunications services, some countries undertook a set of reforms in the mid-1980s to remove barriers to entry, promote competition, and privatize state-owned incumbents. Since the 1990s, this movement, commonly known as "liberalization" or "deregulation," has spread to most OECD countries (see, e.g., Waverman and Sirel, 1997).

These reforms are largely based on the premise that more competition encourages investment and innovation.

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However, this hypothesis remains controversial. On the one hand, defenders of the Schumpeterian assumption believe that market concentration is the price to pay for encouraging investment. On the other hand, it is also argued that competitive pressure can create incentives for investment (see, e.g., the Schumpeterian effect versus the "escape-competition" effect in (Aghion et al., 2005)). Although the literature on the relationship between competition and investment is particularly abundant, no general conclusion has emerged from these empirical studies, and the impact of competition on investment seems to depend crucially on the industry and the type of firm (see, e.g., Ahn, 2002).

In practice, liberalization policies typically aim to promote competition but do not always go so far as to privatize state-owned incumbents. For instance, the European directives that govern the regulation of telecommunications in the European Union Member Countries do not set any requirement with regard to privatization, but they precisely define the policies designed to accelerate competition. Thus, among telecommunications operators, we can identify fully private companies, partially privatized firms, and firms that are still operated by the government, based on the share of government ownership.[1]

The impact of liberalization on investment in telecommunications (and more generally in network industries) has been investigated empirically by some recent works. No consensus has emerged from these studies, but the hypothesis that liberalization encourages investment seems to have received the most support. In addition, a central question of whether competition has the same impact on investment by private and state-owned firms has largely been ignored by the literature.

The first reason that the impact of competition may differ between private and state-owned firms is that these different types of firms do not have the same objectives. The assumption that private firms maximize their profits—or at least that the shareholders of these firms are interested in profit maximization—is a cornerstone of microeconomics. The objectives of state-owned firms, however, are modeled in more diverse ways. Some papers assume that state-owned firms maximize welfare (see Shirley and Walsh, 2000, pp. 15–19 for an overview of this literature), whereas others (in particular in the literature on mixed oligopoly) assume that such firms maximize a weighted sum of the consumer and producer surpluses, and still others model the objective of state-owned firms as maximizing a mix of social welfare and politicians' private benefits (e.g., Shapiro and Willig, 1990). Based on these assumptions, many theoretical and empirical papers have investigated whether private or state-owned firms are the most socially efficient given a wide range of market failures. However, to the best of our knowledge, no study examines how the impact of competition on investment varies across private and state-owned firms.

The assumption that a change in the intensity of competition will not produce the same effects on investment by private and state-owned firms because they have different objectives can be illustrated as follows. Schumpeterian models of innovation emphasize that greater competition intensity reduces investment by private (profit-maximizing) firms because it lowers post-investment prices and profits (Aghion et al., 2005). Assuming that the investment decisions of state-owned firms are based on welfare maximization, such models would conclude that greater competition intensity increases investment by state-owned firms because it increases post-investment welfare.[2]

The second reason why competition may not have the same impact on investment by private and state-owned firms is that the nature of the relationship between shareholders and managers differs between the two types of firms. Many papers have analyzed whether managers are more efficiently monitored by private shareholders or by policymakers and have examined the impact of privatization on firms' operational efficiency (see Vickers and Yarrow, 1991). Moreover, following Leibenstein (1966), many authors have emphasized that competition reduces managerial slack and improves firms' operational efficiency. There is also some empirical evidence that the impact of privatization alone is less than that when it is combined with pro-competitive regulation (see, e.g., Li, 2008; Wallsten, 2001; Zhang et al., 2008). However, the extent to which improved operational efficiency affects firms' investment behavior is rarely analyzed in this literature (see, however, Jensen, 1986, and Stulz, 1990). Furthermore, to the best of our knowledge, whether the improvement in operational efficiency resulting from competitive pressure is stronger in private or in state-owned firms has not been documented.

Although the impact of competition on investment may differ between private and state-owned firms (at least for the two reasons mentioned above), this effect has not been analyzed in the literature. In this paper, we address this issue empirically. We focus on infrastructure investment by 20 incumbent telecommunications operators between 1994 and 2008. The remainder of this paper is organized as follows. Section 2 reviews the literature. Section 3 describes the methodology and variables used in our empirical study. Section 4 presents our main findings. Section 5 concludes and discusses the policy implications of our results.

2. Literature review

Several studies have investigated the impact of liberalization on the performance of network industries, and some of them include investment among the performance indicators. Table 1 provides an overview of the main empirical findings on the relationship between liberalization and investment. Overall, the literature suggests that

[1] The United States v. AT&T antitrust lawsuit led to the divestiture of the American Telephone and Telegraph Company in 1984 (see Datta, 2003). However, unlike the US, the other OECD countries did not split their incumbent vertically to promote competition.

[2] In contrast, models based on the "escape competition" effect (see Aghion et al., 2005) would conclude that greater competition intensity results in greater investment by private firms and less investment by state-owned firms because it reduces pre-investment profits and increases pre-investment welfare, respectively.

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