



Competition and labor productivity in India's retail stores



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ABSTRACT

Using newly available data compiled by the World Bank's Enterprise Surveys, we analyze the relationship between competition and output per worker for retail stores in India. The OLS and IV regressions show a significant positive relationship between competition and output per worker. There is also considerable scope for pro-competitive reforms with 62 percent of the surveyed stores reporting facing no significant competition. According to our conservative estimates, pro-competitive reforms could improve labor productivity by as much as 36 percent of its current level.

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1. Introduction

The World Bank's Enterprise Surveys conducted a survey of 1948 retail stores in 16 states and 41 cities of India in 2006. The survey shows that 62 percent of the retailers do not face any significant competition in the product market (henceforth, competition). Exploiting existing variation in the level of competition in these data, we find a strong positive effect of greater competition on labor productivity or output per worker. On the conservative side, results show that greater competition in the sector could increase labor productivity among retail stores by 36 percent. We believe that this is an important finding given that the retail sector in India contributes about 14 percent to the national GDP and is the second largest employer after agriculture providing 10 percent of all jobs.

Existing work (reviewed below) on the nexus between competition and performance for the retail sector is restricted to a handful of developed countries. Evidence for the developing countries is rare or almost non-existent. Even for the case of developed countries, studies that do exist suffer from a number of limitations. For example, many of the studies analyze how productivity of retail stores is affected by entry of new large stores under the assumption that entry of large retail firms increases competition in the sector (see for example, [Foster, Haltiwanger, & Krizan, 2006](#); [Maican & Orth, 2012](#); [Schivardi & Viviano 2011](#)). However, the link between entry of large retail firms and competition in the retail market is typically not empirically verified ([Koster, van Stel, & Folkeringa, 2012](#); [Carree & Thurik, 1994](#)). In fact, [Koster et al. \(2012\)](#) find evidence of greater competition due to new entry in the manufacturing sector but not in the services sector. Another problem is that the bulk of retailing in developing countries like India is dominated by small sized retailers, especially in the relatively smaller

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cities. Hence, it is not clear to what extent predictions based on the pro-competitive effects of the entry of large stores are relevant for the developing world.

Nevertheless, broad principles highlighted in the literature that link competition and productivity as well as their empirical verification serves to inform and motivate the present study. At the theoretical level, the literature is marked by a general belief that competition in the product market is good for the productivity of the firm (Djankov & Murrell, 2002; Aghion & Griffith, 2005; Holmes & Schmitz, 2010; Syverson, 2011; Pavcnik, 2002; Bloom, Draca, & Reenen, 2011). There are two general mechanisms through which competition affects productivity of the firms and industry—Darwinian selection or industry rationalization and X-inefficiency. According to Darwinian selection, greater competition moves market share toward more efficient (less costly) producers, shrinking relatively high-cost firms, sometimes forcing their exit, and opening up room for more efficient producers. It also raises the productivity bar that any potential entrant must meet to successfully enter. The X-inefficiency argument is associated with higher productivity following greater competition among existing firms. That is, heightened competition can induce firms to take costly productivity raising actions such as greater managerial effort and product innovation that they may otherwise not. Besides raising producers' own productivity levels, this effect of competition leads to aggregate productivity growth via the "within" component (see for example, Syverson, 2011; Djankov & Murrell, 2002).

Empirical studies on the relationship between competition and productivity (reviewed below) are diverse not just in terms of the country but also the industry. Studies range from the iron-ore sector to retailing. Nevertheless, these studies serve as a useful guide and motivation for the present study since the underlying forces that drive the competition-productivity nexus are common across industries and countries. For example, reviewing a number of case studies that focus on specific industries and economies, Syverson (2011, page 352–353) states: "... these detailed case studies appear emblematic of much broader competitive effects that act across numerous industries and economies." Of course, quantitatively, the strength of the relationship between competition and productivity is likely to vary, being strong in some countries and industries and weak in others. This is confirmed in the existing literature that shows mixed results for the competition-productivity relationship. We provide a few examples from the literature to illustrate the point.

In an influential study, Schmitz (2005) finds that productivity of iron ore producers in the US increased dramatically in the early 1980s when they faced stiff competition from abroad (Brazilian producers) for the first time. The study attributes the improvement in productivity to better X-efficiency of existing firms—cost reductions obtained by drastic changes in production operations such as loosening the strict work rules. It is plausible that higher competition may have resulted in similar cost reductions and productivity improvements in India's retail sector. The present paper attempts to shed light on the issue.

Another study, Pavcnik (2002), looks at how trade liberalization during the 1970s affected productivity growth in Chilean manufactures. The study finds that sectors facing new import competition saw faster productivity growth than sectors producing primarily non-tradables. Further, the study points out that the industry-level gains from higher import competition were driven by both, the Darwinian selection effect as well the X-efficiency effect. Among others, Bloom et al. (2011) find roughly similar results for twelve European nations facing increased competition due to China's entry into the WTO. The extent to which the X-inefficiency and/or Darwinian selection effects highlighted in the above studies apply to India's retail sector remains an important gap in the literature. The present paper attempts to take one step towards filling this gap.

Focusing on the retail sector, Schivardi and Viviano (2011) exploit regional differences in entry barriers in the retail sector in Italy. The underlying motivation for this study is that high entry barriers reduce competition in the sector, thereby lowering the performance of the retail stores. The study looks at a number of performance measures including labor productivity (sales per worker). It finds strong evidence that higher entry barriers reduce labor productivity in Italy's retail sector. Maican and Orth (2012) use data on all retail food stores in Sweden to measure the impact of increased competition from the entry of large stores on incumbent store's productivity. The study finds robust evidence of an increase in productivity of incumbent stores following entry by large stores. At a broad level, these studies serve as a motivation for exploring the relationship between competition and labor productivity in India's retail sector.

In addition, a number of studies have shown that increased competition through, for example, the entry of large retail stores, tends to lower profit margins and retail prices and also improve the quality of services provided by retail stores (see for example, Freeman, Nakamura, Nakamura, Prud'homme, & Pyman, 2011; Matsa, 2011; Igan & Suzuki, 2012; Basker, 2005). While empirical verification is required, these changes are most likely to be associated with higher productivity of the retail stores, implying a positive link between competition and productivity in the retail sector. Also see for example, Parente and Prescott (2000), Galdon-Sanchez and Schmitz (2002), Dunne, Klimek, and Schmitz (2009), Syverson (2004), de Loecker (2009), and Fabrizio, Rose, and Wolfram (2007) for additional results linking productivity and competition in various sectors. Holmes and Schmitz (2010) provide an excellent survey of these and other related studies.

It is important to note that the micro or retail store level data we use is a pure cross-section. Information on the entry and exit of retail stores is not available in the data we use or outside. Even information on various cost elements such as the stock of inventory maintained by the stores is also not available. Due to these data limitations, it is beyond the scope of the present paper to suggest whether our results for the competition-productivity relationship are driven by Darwinian selection or X-inefficiency or some other possible mechanism. Theoretically, our results are consistent with either or all these mechanisms at play. A richer data than the one currently available on retail stores in India would be needed to distinguish between the mechanisms listed above. This is a fruitful area for future research.

Another strand of the literature focuses on the determinants of competition and we draw on this literature to generate exogenous variations in the level of competition for the instrumental variables estimation strategy. Studies show that price

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