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Managing innovation under competitive pressure from informal producers☆

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ABSTRACT

The existence of a large informal sector may be a factor constraining formal firms' choices of innovation strategies in many developing countries. This paper addresses this issue and studies the impact on innovation of competition against firms in the informal sector. Using the World Bank's Enterprise Survey data from a sample of African and Latin American countries, we find that the marginal impact of informality on innovation by formal firms decreases with the intensity of competitive pressure from informal firms, consistent with an inverted-U relationship between propensity to innovate and competitive pressure from firms in the informal sector. This pattern arises even after controlling for the number of competitors, suggesting that the pressure that informal firms exert on formal firms go beyond a mere increase in the number of competitors.

1. Introduction

Developing countries are characterized by institutional, cultural and other contextual factors that impose an effective constraint on the activities of firms (Michalopoulos and Papaioannou, 2015; Zhou and Peng, 2012). In particular, the presence of a large informal sector (Lewis, 1954; Webb et al., 2009) which sometimes actually introduces a divide that gives rise to a dual economy (Huber, 1985), largely conditions formal firms' strategies. The International Labor Organization defines "informal economy" as "all economic activities by workers and economic units that are –in law or in practice– not covered or insufficiently covered by formal arrangements" (Williams and Lansky, 2013).

Although so far relatively unexplored, the study of the consequences of informal economic activity arises as a new frontier in the field of Management, see for instance McGahan (2012), Webb et al. (2013), Bruton et al. (2012), Birkinshaw et al. (2014), or Godfrey (2011) for recent contributions to the discussion of this topic. Specifically, McGahan (2012) argues that formal and informal firms should be studied together, since they compete for the same customer and resources. In fact, the OECD Global Forum on Competition (OECD, 2009) claims that informal firms, while being less efficient than formal firms, usually fail to comply with economic regulations and tax obligations, allowing them to steal market share from formal firms. Furthermore, the study of informal activity yields important insights in areas such as the boundaries of the firm, diversification, dynamic capabilities, absorptive capacity, the resource-based view, property rights, governance, stakeholder theory, organizational legitimacy, disruptive technology, and innovation (McGahan, 2012).

Thus, the inclusion of informality challenges established theoretical frameworks with empirical implications that are yet to be discussed. The presence of informal firms conditions the traditional view in business strategy regarding the building of barriers to competition, constraining the creation of sustained competitive advantages. This study precisely explores the impact of informality on formal firms' resource allocation in innovation activities, a factor that is largely recognized as a crucial component of a competitive advantage (Danneels, 2002; Porter, 1990). Using The World Bank's Enterprise Survey data, we test whether competitive pressure from informal producers indeed affects the likelihood of formal firms introducing new products and processes, and we discuss the potential implications of these results for the design of business strategy and public policy. We find evidence of a decreasing marginal

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effect on innovation of the intensity of competitive pressure from informal firms, consistent with the inverted-U relationship between competitive pressure and innovation in Aghion et al. (2005). We go beyond their analysis by showing that the effect of informality is present even after controlling by the overall degree of competition, as well as observable firm characteristics. Hence, the presence of an informal sector constitutes a relevant contextual factor shaping innovation strategy, effectively altering the potential payoff from innovation and thus, formal firms' incentives to introduce new products and processes.

The rest of the paper is organized as follows: Section 2 discusses previous contributions to the literature. Section 3 introduces the different hypotheses tested in the empirical section. Section 4 describes the data used in this paper. Section 5 presents the econometric analysis of the data. Section 6 discusses the implications of the findings for policy and strategy design. Finally, Section 7 presents some concluding comments.

2. Literature overview

The tradition in the research on determinants of innovation is founded on seminal contributions such as Schumpeter (1942) or Arrow (1962), relating innovation to firm size and market structure. Regarding the specific issue of competitive pressure and innovation, theoretical predictions are quite sensitive to modelling assumptions, see surveys in De Bondt and Vandekerckhove (2012), Gilbert (2006), or Vives (2008). In fact, early theoretical contributions predict a negative relationship between the intensity of competition and innovation (Schumpeter, 1942), while the empirical literature finds a positive relationship (Bloom et al., 2016; Nickell, 1996). Some other contributions find an inverted-U relationship between competition and innovation (Levin et al., 1985; Scott). An influential analysis is Aghion et al. (2005), who find an inverted-U relationship between competition and innovation: innovation is lowest among monopolistic firms and among those that face intense competition in the industry. However, despite the large number of theoretical and empirical studies on the effect of competition on innovation, no consensus has been reached.

While in developed countries, most competitors are other formal firms, in developing countries many formal firms compete directly against informal producers, which differ from formal firms. La Porta and Shleifer (2008) or La Porta and Shleifer (2011) find that informal firms are much less productive than small formal firms, in terms of sales per worker. Funkhouser (1996) finds that the mean education level in the formal sector is substantially higher than in the informal sector. Amaral and Quintin (2006) propose a model with managers that differ in their skill levels, thus generating a formal sector that is skill intensive. The interaction between the formal and informal sectors also has effect on country-level productivity (Acemoglu et al., 2007) and whether resources are misallocated (Bartelsman et al., 2013; D'Erasmo et al., 2013; Hsieh and Klenow, 2009; Restuccia and Rogerson, 2013). All this points at the relevance of the study of informal firms and their interplay with formal firms.

From the perspective of the resource-based view of the firm (Barney, 1991; Penrose, 1995; Wernerfelt, 1984), innovation is essential in the resource and capability-building process that creates a sustained competitive advantage. However, the development of these valuable, rare, hard to imitate and organizationally embedded resources and capabilities is very much context-specific. Indeed, many developing countries are characterized by material financial, and human resource scarcity, which effectively constraints firms' choices of strategies, and ultimately performance. For instance, Pansera and Owen (2015) study resource-constrained innovation in Bangladesh, see also Baker and Nelson (2005), Gibbert et al. (2007), or Keupp and Gassmann (2013). A key driver of contextual factors is the institutional setting. Institutional theories consider that the institutional environment effectively constraints firms' actions (Dunning and Lundan, 2008; Peng et al., 2009). In this line, (Meyer and Peng, 2005, 2016) argue that in developing economies institutional factors are more likely to change and thus, firms' decisions are more likely to be context-specific than in developed countries, which are characterized by more stable institutions. This is even more evident in the case of countries with lowest income levels, as those in Sub-Saharan Africa, and in this line Zoogah et al. (2015) argue that institutions and resources are relevant in studying Management in Africa. The presence of institutions may constrain formal firms' choices by means of the persistence of mandatory cultural practices, which could perpetuate phenomena such as clientelism or corruption. These contextual factors may affect firms' innovation decisions (Egbetokun, 2015; Tigabu et al., 2015), or even country-level innovation strategy (Amankwah-Amoah, 2016). There is a close interconnection between institutions and the informal sector, in the sense that the informal sector may be in part explained by the country's institutional setting, and, conversely, the presence of an informal sector may affect institutional efficiency.

3. Hypotheses

We now proceed to present the hypotheses that will be tested empirically using the Enterprise Survey data. We distinguish between the direct effect on innovation of the measures for competitive pressure from informal producers and the moderating role of other variables on this relationship.

3.1. Effect of informality on innovation

Formal firms operating in a context where informal firms are widespread are likely to be negatively affected by the operations of informal firms. While sometimes the informal sector itself has been a source of innovations (Bhattacharyya et al., 2010; Prahalad, 2005; Radjou et al., 2012), and some examples may be found where formal and informal firms collaborate for innovation (George et al., 2012; von Hippel, 2005), informal firms typically disrupt formal firms' innovation practices. This negative effect may have different channels. First, formal and informal firms compete for the same customers and resources (McGahan, 2012). Regarding access to inputs such as human capital, the presence of a large informal sector may also introduce a distortion in the process of skills accumulation, since the ready availability of jobs in the informal sector, which typically require low skills, may discourage the accumulation of human capital, thus making this factor more scarce.

The other channel by which informal producers may affect formal firms' innovation decisions is via competition in the product market. By their very nature, informal firms face lower entry costs than formal firms, since they are less affected by regulatory burdens imposed on formal firms (Djankov et al., 2002; McKenzie and Seynabou Sakho, 2010). Therefore, the presence of informality is likely to increase the number of competitors for a firm's product. Theoretical predictions and empirical evidence on the relationship between competitive pressure and innovation are mixed. While a number of studies suggest that competition among producers decreases incentives to innovate (Aghion and Howitt, 1992; Grossman and Helpman, 1993; Spulber, 2013), other contributions find a positive effect of competition on innovation and productivity (Blundell et al., 1999; Galdón-Sánchez and Schmitz, 2002; Symeonidis, 2002). This disparity of results is not surprising, since on the one hand, competitive pressure induces the firm to further differentiate, what we can refer to as escape competition effect. However, on the other hand, it reduces the return from innovation, or rent-dissipation