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The effects of economic reforms on manufacturing dualism: Evidence from India

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ABSTRACT

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Dualism is a pervasive feature of the manufacturing sectors of less-developed countries, with large differences in productivity between the informal and the formal sectors. Policy distortions are viewed as an important factor behind the prevalence of manufacturing dualism. We examine whether tariff reforms, industrial de-licensing and the withdrawal of reservation of products for small firms implemented since the mid-1980s have had any effects on efficiency differentials between informal and formal firms in Indian manufacturing. We find strong evidence that economic reforms have exacerbated dualism by increasing the productivity differentials between the more efficient formal firms and the less efficient informal firms. *Journal of Comparative Economics* **41** (4) (2013) 1240–1262. SJMSOM, Indian Institute of Technology Bombay, Mumbai, India; Centre for Multi-Disciplinary Development Research, Dharwad, India; IDPM, University of Manchester, UK.

1. Introduction

Dualism is a pervasive feature of the manufacturing sectors of most developing economies. Typically the manufacturing sector in these economies has a large low-productivity informal sector, where most firms reside, along a relatively small high-productivity formal sector, comprising fewer firms (Little et al., 1987; Bourguignon and Morrison, 1998; Temple, 2005; World Bank, 2005). The informal sector comprises around two-thirds of non-agricultural employment and about a quarter of non-agricultural output in Africa and Asia[1] (Charmes, 2000, 2006), and in spite of strong economic growth in several African and Asian countries in recent years, the persistence in the size of the informal sector along with large differences in productivity and earnings between the informal and formal sectors has remained a matter of policy concern (ILO, 2002; WTO, 2009).

Persistence of manufacturing dualism has strong negative implications both for efficiency and equity in the economy (Mazumdar and Sarkar, 2008). The existence of a large low-productivity informal sector alongside the high-productivity formal sector can act as a constraint to the growth of aggregate productivity in the economy (Temple, 2005). At the same time,

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[1] The contribution of informal economy to GDP in Africa is as high as 59% in Zimbabwe to 28.4% in South Africa. The figures for Asia are 53% for Thailand and 11.3% for Japan. The contribution is highest in case of Georgia – 67.3% (Schneider 2002).

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sharp differences in earnings between workers in the informal and formal sectors lead to a high level of income and asset inequality, which may worsen further if the process of economic growth is biased towards the growth of the formal sector (in terms of productivity and capital accumulation) rather than the informal sector (WTO, 2009).

While the determinants of the persistence of manufacturing dualism is not well understood, it is commonly believed that an important factor behind the prevalence of dualism is the policy regime, and that trade and industrial policies that inhibit competition and technological change may exacerbate dualism, especially if they are protective of the formal sector or constrain the growth of the informal sector (Little, 1987; Gang, 1992; Tybout, 2000). Economic reforms that allow for a level playing field between the informal and formal sectors may therefore act as a significant positive force in reducing dualism (World Bank, 2005). However, it is not clear if this will indeed be the case if economic reforms provide a more favourable environment for the more well-resourced larger firms in the formal sector to expand and reap economies of scale, to obtain best-practice technology, and to seek market opportunities overseas as compared to less well resourced smaller firms in the informal sector. Therefore, whether economic reforms help reduce manufacturing dualism or exacerbate it is an empirical question.

In this paper, we examine the effects of economic reforms on manufacturing dualism, which we take to mean the existence of productivity differentials between informal and formal manufacturing firms. We are specifically interested in the technical efficiency levels of formal and informal manufacturing firms and the effects of economic reforms on these efficiency levels. We measure efficiency using the stochastic frontier analysis (SFA) method pioneered by Aigner et al. (1977). Technical efficiency captures the extent to which firms in the manufacturing sector are producing the maximum possible output, for a given bundle of inputs, in a given industry, and improvements in technical efficiency of the average firm imply a higher level of output being produced on average, for a given level of inputs in that industry (Kumbhakar and Lovell, 2000).

The country we study is India, where there is a long history of manufacturing dualism (Little et al., 1987) and where about 80% of manufacturing employment and 17% of manufacturing output is in the informal sector (NCEUS, 2007). It is commonly believed that the dualism evident in the manufacturing sector was a legacy of a set of economic policies that provided protection to the larger manufacturing firms from external competition via an import substituting industrialization policy regime and also made it difficult for new firms, whether domestic or foreign, to enter the formal sectors of industries through a strict licensing policy (Panagariya, 2008). At the same time, small firms (which were mostly in the informal sector) were protected via a small scale sector reservation policy which did not allow larger firms to produce specific products that were seen as the domain of small firms (Mohan, 2002). This led to an industrial structure where both very small and very large firms were present in the same industry, with significant productivity differences between the informal and formal sectors (Kochhar et al., 2006; Mazumdar and Sarkar, 2008). In the early 1990s, with the advent of major economic reforms, industrial licensing was abolished in majority of industries, followed by a second wave of de-licensing in the mid 1990s. India has also witnessed rapid trade liberalisation since 1991, where there was a significant reduction in tariffs on most commodities (Sen, 2008). The trade reforms were particularly targeted to the manufacturing sector which was among the most protected in the developing world prior to the 1990s (Bhagwati and Srinivasan, 1975). The reservation of industries for the small sector was also gradually phased out since the mid 1990s. These reforms were mainly in product markets and varied substantially over time and across industries. Thus, they provide us a unique empirical context to evaluate the effects of economic reforms on efficiency differentials between informal and formal firms. Existing studies do not provide an unambiguous answer on the impact of these reforms on efficiency of formal and informal manufacturing firms, and whether there has been a widening or narrowing increasing efficiency gap between the more efficient formal firms and the less efficient informal firms following these reforms (Kathuria et al., 2010).[2] We construct a composite reform variable that captures the key sets of product market reforms enacted in India since the late 1980s, which are de-licensing, de-reservation and tariff reforms, and test for its effect on efficiency differentials between formal and informal firms, as well as examining the effects of each of the product market reforms on these differentials separately.

We use a very rich data-set which combines large representative surveys of informal firms with the census-cum-sample data on formal manufacturing firms. The data are pooled cross-sections of firm-level data, available quinquennially, beginning in 1989–1990 and ending in 2005–2006. We employ stochastic frontier analysis to obtain firm level measures of technical efficiency. Since the location of the firm, especially around the threshold size, either in the formal or in the informal sector is not random but depends on firm choice, a comparison of efficiency levels between firms in the informal and formal manufacturing sectors without addressing the endogeneity of firm location would not be appropriate. Such a comparison would bias upwards the efficiency levels of formal manufacturing firms if these levels depended on the firm being located in the formal sector. Our stochastic frontier analysis corrects for this selection bias, using a methodology proposed by Greene (2010). We find strong evidence that economic reforms have helped the productivity of Indian manufacturing firms to increase across both the formal and informal sectors, the increase being more for the formal sector firms. Economic reforms have caused an increase in manufacturing dualism in India by increasing efficiency differentials between formal and informal firms.

The rest of the paper is in five sections. In the next section, we provide a brief discussion of the Indian policy regime pertaining to the manufacturing sector and how these reforms may have affected the efficiency levels of formal and informal

[2] De Vries et al. (2012) find evidence of increasing dualism in the Indian manufacturing sector, using employment survey data rather than the firm-level data we use in this paper in the post-1993 period, though they do not explicitly test for the effect of reforms on manufacturing dualism.