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Journal of Policy Modeling 34 (2012) 755–766

Journal of Policy Modeling

www.elsevier.com/locate/jpm

Who extracts minerals more efficiently—Public or private firms? A study of Indian mining industry

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Received 28 September 2011; received in revised form 18 December 2011; accepted 20 February 2012
Available online 10 March 2012

Abstract

Most of the developing countries across the world have opened up their mining industry for private sector participation since late 1980s with a view to increase the overall efficiency of the mineral extraction. But are the private mining firms really efficient than the public sector firms? In such a context this paper compares the extraction efficiency of public and private mining firms in India by assessing their Total Factor Productivity (TFP). The study reveals that TFP levels of private firms are significantly higher than that of public firms in metallic, non-metallic and coal mining sectors. TFP levels of private firms in non-metallic sector are almost double that of public firms. Similarly, private firms in metallic and coal mining industry are one and half times more productive than public firms. In such a context, we can suggest that private participation in the mining industry may boost the overall productivity of the sector.

JEL classification: G32; L16; D24; L71

Keywords: Firm ownership; Total Factor Productivity; Mining industry

1. Introduction

Most of the developing countries across the world have opened up their mining industry for private sector participation since late 1980s with a view to increase the efficiency of mineral extraction. The participation of private players is expected to increase production and overall

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doi:10.1016/j.jpolmod.2012.02.005

productivity[1] of the mining sector directly and indirectly. It is presumed that private firms are more efficient than their public sector counterparts and their participation will bring in more capital, better technology and superior managerial skills, thus raising the overall productivity of the sector. The participation of private players is supposed to increase competition in the sector and hence inefficient public firms will attempt to raise their productivity levels.

But are the private mining firms really more efficient than the public sector firms? This paper examines this question in the context of Indian mining industry. Thus, the study can suggest whether the ongoing attempt of the government of India to woo private investment into the mining sector will raise the overall efficiency of the sector. For this purpose first of all we shall compare the TFP levels and growth rates of public and private firms in the four sub-sectors—metallic, non-metallic, coal and petroleum. Second, we shall compare the TFP levels and growth rates in the pre- and post-liberalisation periods.

The rest of the paper is organised as follows. Section 2 provides a critical review of economic literature that examines the relationship between firm ownership and productivity. Section 3 explicates the methodology and data sets used for the study. The results of the analysis are presented in Section 4. Section 5 highlights the summary of findings and concludes.

2. Firm ownership and productivity: insights from literature

The economic literature on firm ownership and productive efficiency is highly divided. While one section of the economic literature highlight the superiority of private firms over public firms (Li & Xia, 2008; Majumdar, 1998; Sheshinski & Lopez-Calva, 2003; Stiglitz, 1988), the other section opposes this view (Caves & Christensen, 1980; Karas, Schoors, & Weill, 2008). This section presents a summary of the selected literature on the effect of firm ownership on productivity. The public choice theory provides two explanations—incentives problem and the agency problem—for the productivity differences. Stiglitz (1988) attributes the inefficiency of public-sector enterprises (PSEs) to lack of two incentives: organisational and individual. Unlike the managers of private enterprise (PEs), managers of PSEs do not show much concern about the bankruptcy or the competitiveness of their companies. The losses of PSEs are very often adjusted through budgetary support. Moreover, the objective function of the PSEs is distorted by political interference (Sheshinski & Lopez-Calva, 2003). At individual level, pre-determined pay scales and fixed tenures do not provide much incentive to increase the efficiency of the managers and workers of PSEs.

The inefficiency of PSEs is further explained by the agency problem. PSEs suffer more from the agency problem than PEs because of the lack of a clear definition of ownership or a large number of owners—their resources belong to all the citizens of a country. Managers possess better information about a firm than its owners(s). In the absence of a proper incentive structure or monitoring by the owner(s), managers misuse their status for personal gain at the expense

[1] Raising the productivity level of the mining industry is crucial, given its distinct character. Mining is more prone to diminishing returns and increasing costs. For example, the cost of production increases substantially as the depth of mines increase. Geological characteristics also play an important role in determining productivity. Therefore, the traditional view was that productivity in the mining industry was largely determined by geological characteristics and the production cycle. However, many later studies have countered this view and emphasised the role of technology and innovation in attaining higher productivity (see Aydin & Tilton, 2000; Tilton & Landsberg, 1999). A number of productivity analyses for the mining industry have been carried out by the Centre for Study of Living Standards, Ontario, Canada. For example, see Smith (2004).