Is R&D in China's Coal and Iron Ore Mining Industry Effective?

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[**Abstract**]

Due to the fast economic growth, China has become a major consumer of such natural resources as coal and iron ore. From 1996 to 2010, China's real GDP grows at an annual rate of 9.87 per cent on average, and in the same period the production of coal and iron ore grow at an annual average rate of 6.01 and 10.8 per cent respectively. In contrast, the imports of coal and iron ore grow at an annual rate of 55.56 and 20.64 per cent respectively. Therefore domestic production does not appear to meet the appetite of the economy. In this context, it is worthwhile to examine the production of coal and iron ore in details.

One important aspect of the production is R&D. R&D activities are often viewed as a knowledge production process, where such observable resources as R&D personnel are used to produce unobservable knowledge which in turn increases the growth, productivity, profitability, or stock market value of a firm or industry.

Given the importance of R&D in the production, this paper explores the impacts of R&D on firm labour productivity, profitability, and market share in the coal and iron ore mining industries. Using a recently developed coarsened exact matching technique carried out over a comprehensive firm level data set from 2005 to 2007, we find that R&D exerts significant impacts in both industries. In the coal mining industry, the R&D firms have significantly higher levels of labour productivity and sales than their non-R&D control firms, with the difference being 0.27 and 0.03 per cent respectively. In the iron ore mining industry, the labour productivity, sales, and market share of R&D firms are 0.39, 0.03, and 0.03 per cent higher than the non-R&D control firms. The significant impacts of R&D to some extent justify policies that encourage firms to conduct R&D.

[**Key Words**] R&D, Productivity, Coal Mining, Iron Ore Mining, China

[**JEL Classification**] D22, O32, L20