

Technology, price instruments and energy intensity: A study of firms in the manufacturing sector of the Indian economy

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Abstract

We identify factors influencing energy efficiency and the role of price instruments such as tax and technology use in reducing energy intensity at the firm level. We use data from 2001 to 2015 for India's manufacturing sector from the Centre for Monitoring Indian Economy. Our result strongly suggests that R&D and productivity have a positive impact on achieving energy efficiency. In such a case, at least one-to-one correspondence between the tax and energy intensity may help promote renewable energy use if they are subsidized and allowed to come under the provision of tax credit or tax exemption. Since price instruments do not produce any revenue recycling effect, policymakers can trade-off between increasing corporate tax and generating employment. Therefore, environmental regulations should strictly relate to increase energy efficiency and bring the manufacturing sector out of the *productivity dilemma*. Also, as evidence from the empirical analysis, there is an urgent need to substitute vintage capital with new capital and better technology. In addition to the existing liberalization policies, the Government must design green domestic policies for the manufacturing sector and map them with FDI and trade. As the polluted firms are energy-intensive, "Performance, Achievement and Trade" (PAT) policies need to focus on these firms.

Keywords: Energy Efficiency. Technology. Productivity Dilemma.

JEL Classification: L60. O44. O30. Q41. Q48.