Environmental Externalities and Regulation Constrained Cost Productivity Growth in the U.S. Electric Utility Industry(*)

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Abstract

This paper measures and decomposes total factor productivity growth (TFP) for U.S. electric utilities, accounting for the production of multiple outputs, and rate of return regulation. Following the work of Ball et al. (2005), who developed the standard Malmquist Cost Productivity index, we develop the cost index for a rate regulated firm. Comparing the regulated and standard indices helps determine how regulation affects TPF. Using a 1992-2000 panel of 34 investor-owned utilities, empirical results show that technological change, and improvements in technical efficiency, contributed to positive productivity growth. Allocative and scale inefficiency reduced the rate at which productivity growth occurred.

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