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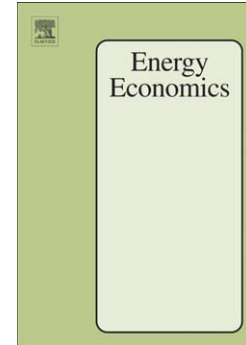
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Persistent and transient productive inefficiency in electricity distribution

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Abstract

The productive efficiency of a firm can be decomposed into two parts, one persistent and one transient. This distinction seems to be appealing for regulators. During the last decades, public utilities such as water and electricity have witnessed a wave of regulatory reforms aimed at improving efficiency through incentive regulation. Most of these regulation schemes use *benchmarking*, namely measuring companies' efficiency and rewarding them accordingly. Focusing on electricity distribution, we sketch a theoretical model to show that an imperfectly informed regulator may not disentangle the two parts of the cost efficiency. Therefore, the regulator may fail to set optimal efficiency targets, which also undermines quality. We then provide evidence on the presence of persistent and transient efficiency using data on 28 New Zealand electricity distribution companies between 2000 and 2011. First, we estimate a total cost function by means of traditional stochastic frontier models for panel data. These come up with an estimation of the persistent part or the transient part of the cost efficiency. Finally, we use the more recent generalized true random effects model that allows for the simultaneous estimation of both transient and persistent efficiency. We also find some evidence that persistent efficiency is associated to higher quality, and wrong efficiency targets are associated to lower quality compliance.

Keywords: cost efficiency, regulation, persistent and transient productive efficiency, electricity distribution.

JEL classification: C1, C23, D24.

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