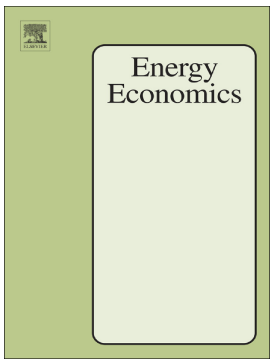

Energy Price, Energy Efficiency, and Capital Productivity: Empirical Investigations and Policy Implications

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Energy Price, Energy Efficiency, and Capital Productivity: Empirical Investigations and Policy Implications

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Abstract

The immediate effect of carbon pricing policy is to raise energy costs, which in turn reduces energy consumption either through induced capital under-utilization or investments in new energy-efficient capital. The latter mechanism, which implies improvements in energy efficiency, is realized in the long-run while the former, which has implications for capital productivity, tends to occur in the short-run. We employ panel vector auto regressions as well as co-integration and error correction techniques to identify these short- and the long-run relationships including their differences across Canadian industries.

Key words: Energy intensities Capital productivity Energy Price Panel Structural VAR Panel Error-Correction

1. Introduction

Following the signing of the Paris Agreement, climate change policy actions are ratcheting up in Canada. The province of Alberta introduced a carbon tax of $20 per tonne on January 1, 2017, and it will increase to $30 per tonne by 2018. British Columbia has a revenue-neutral carbon tax system which started at a $10 per tonne in 2008 and gradually rose to $30 per tonne in 2012. Quebec has cap and trade scheme in place since 2013 while Ontario joined the carbon exchange market, the Western climate initiative, on January 1, 2017.