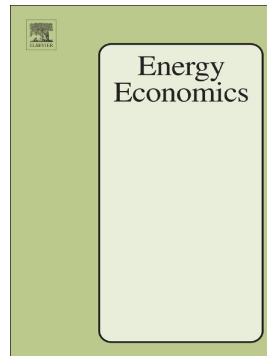


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The Rebound Effect in Swedish Heavy Industry

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# The Rebound Effect in Swedish Heavy Industry<sup>1</sup>

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## Abstract

Energy efficiency improvement (EEI) benefits the climate and matters for energy security. The potential emission and energy savings due to EEI may however not fully materialize due to the rebound effect. In this study, we measure the size of rebound effect for fuel and electricity within the four most energy intensive sectors in Sweden – pulp and paper, basic iron and steel, chemical, and mining. We use a detailed firm-level panel data set for 2000–2008 and apply Stochastic Frontier Analysis (SFA) for measuring the rebound effect. We find that neither fuel nor electricity rebound effects fully offset the potential energy and emission savings. Among the determinants, we find  $CO_2$  intensity and fuel/electricity share to be useful indicators for identifying firms with higher or lower rebound effect within each sector.

Keywords: Energy efficiency improvement; Rebound effect; Stochastic Frontier Analysis.

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