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Direct Regulation and the Private Energy-Efficiency Gap: Firm-Level Evidence from a Large-Scale Mandatory Energy-Efficiency Obligation

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Extended Abstract

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Abstract Summary

We study firm responses to a large-scale mandatory energy-efficiency regulation in the Netherlands that required firms to implement all energy-saving measures with a payback period of five years or less. Using administrative compliance data on 10,805 firms and over one million mandated investment opportunities, we document substantial non-adoption of measures the regulator has classified as privately profitable, consistent with the presence of a private energy-efficiency gap. Firms implement approximately 70% of applicable measures on average, while classifying only 1.5% as economically infeasible, suggesting that internal frictions rather than insufficient returns drive non-adoption.

We show that compliance is primarily determined by firm scale, asset intensity, and internal liquidity, rather than by cash flow or leverage. This indicates that readily available internal funds, not overall financial health, constrain adoption. Within firms, behavioral measures are 8–14 percentage points more likely to be implemented than capital-intensive investments that satisfy identical payback criteria, suggesting that internal financing constraints and organizational frictions are the primary mechanisms.

Linking compliance to outcomes, we find no evidence that mandated adoption reduces firm profitability. Implementation is positively associated with subsequent return on assets over both one-year and three-year horizons. Using a triple-difference specification that exploits variation in pre-policy exposure across zip codes and compares firm energy use to household energy use as a within-zip-code placebo, we further document relative declines in business energy consumption in more exposed areas following the regulation's introduction.

These findings suggest that the energy-efficiency gap reflects internal organizational and financing frictions rather than economic infeasibility, and that the competitiveness concern historically associated with direct regulatory mandates finds no empirical support in our

data. Direct regulation can complement price-based instruments in closing the private energy-efficiency gap without imposing measurable costs on firm performance.

Presenting Author Biography

Robin Litjens is a Professor at Nyenrode Business University. His research examines how regulation and institutional environments shape firm behavior, with a focus on investment decisions, financial reporting, and the real effects of enforcement.

His work has been published in leading journals, including *Management Science* and *European Accounting Review*, where he studies topics such as investor attention, institutional quality, and the influence of regulatory enforcement on firm-level outcomes.

Dr. Litjens holds a PhD from Nyenrode Business Universiteit and is a certified public accountant (RA). He was affiliated with Tilburg University and has professional experience in the accounting sector, including KPMG.