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Climate Policy and Efficiency: Lessons from the Transport Industry

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Sweden's goal of net zero emissions by 2045 puts strong pressure on an industry that accounts for around 30 percent of national emissions, with heavy trucks responsible for about one fifth. Alongside the carbon tax, increasing blends of biofuels became the central policy instrument from the early 2000s onward, both substituting for fossil emissions and pushing up fuel costs. The 2018 blending mandate (*reduktionsplikt*) cemented a rising share of biofuels toward 2030, but the sharp reduction in 2024 has reshaped market conditions and raised questions about long-term predictability of environmental policy.

This report analyzes how fuel prices impacted by the carbon tax and biofuel blending have affected the structure, productivity, and emissions of trucking firms during 2007–2020. Unique truck-level panel data are linked to trucking firms to measure how fuel costs steer vehicle utilization, productivity, and emissions intensity. The approach addresses a central question: do higher emissions costs lead to more efficient resource use and lower emissions, or do they suppress investment and growth?

The results clearly indicate that market-based instruments work. The climate-policy component of the diesel price rose by more than 60 percent and was the main driver of pump price increases—a price signal that stimulated efficiency improvements. At the same time, firms' productivity rose markedly while carbon intensity fell by around 23 percent. Despite growing transport volumes, total emissions declined by around 5 percent.

The transition was largely carried by the bigger players. The largest trucking companies increased productivity by around 37 percent and cut carbon intensity by around 30 percent, while smaller firms were affected less but followed the same direction. Improvements were driven primarily by more efficient logistics, route optimization, and heavier vehicles, rather than mergers or higher market concentration.

The interpretation is that pricing emissions—through the carbon tax and biofuel requirements—can raise efficiency even in the short term, without micromanaging technological choices. Firms are given the freedom to find cost-effective solutions, which support productivity gains and emissions reductions. However, abrupt policy shifts, such as the rapid lowering of the blending mandate, risk undermining investment incentives and creating stop-go dynamics in the transition.

Against this backdrop, the study yields four policy implications.

- Ensure long-term, predictable rules so that investments in technology, logistics, and more efficient vehicle fleets actually happen.
- Keep market-based instruments as the foundation of the policy toolbox—they provide clear incentives while leaving room for innovation.
- Safeguard the ongoing structural shift in which more productive firms drive emissions reductions; any support should target transition and efficiency, not the preservation of low productivity.
- Prepare the sector for the EU's new emissions trading system for road transport (ETS 2), which will gradually raise the cost of fossil fuels.

In sum, experience from the trucking industry shows that climate policy need not conflict with competitiveness. On the contrary, clear price signals can drive both productivity and emissions reductions—provided the policy framework is stable and long-term.

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