

# Pollution Control in a Transition Economy: Do Firms Face Economies and/or Diseconomies of Scale?<sup>1</sup>

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## Abstract

We empirically assess whether firms face economies and/or diseconomies of scale with respect to air pollution control by evaluating the effects of production on firmlevel air emission levels using a panel of Czech firms during the country's transitional period of 1993 to 1998. By estimating a separate set of production-related coefficients for each individual sector, the analysis permits economies/diseconomies of scale to differ across sectors. More important, the analysis allows these scale effects to vary over time, which seems critical in the context of a transition economy, as the Czech government was tightening air protection policies by imposing more stringent emission limits and escalating emission charge rates. To assess whether these tighter policies expanded economies of scale, the analysis controls for heterogeneity across individual firms by examining intrafirm variation in emissions and production.

## Abstrakt

Empiricky posuzujeme, zda mají firmy výnosy z rozsahu ve výrobě vzhledem k emisím a odhadujeme vztah mezi výrobou a emisemi s využitím panelových dat českých podniků z let 1993 až 1998. Odhadnutím separátních regresních koeficientů pro každé odvětví analýza umožňuje porovnat výnosy z rozsahu mezi sektory. Výnosy z rozsahu se též mohou měnit v čase, což je důležitá dimenze v transformačních ekonomikách, kdy docházelo ke zpřísnění emisních limitů a nárůstu poplatků za znečištění. Abychom posoudili, zda přísnější emisní limity měly vliv na výnosy z rozsahu, bereme explicitě do úvahy heterogenitu firem pomocí vnitropodnikové varice v emisích a ve výrobě.

*Keywords:* Czech Republic, environmental protection, pollution, production, economies of scale

*JEL codes:* D21, D62, Q53

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