

Abstract

This thesis employs a parametric input distance function that incorporates both desirable and undesirable outputs to provide a more complete representation of the production technology. Based on the Shephard (1970) theory of duality, we derive the shadow prices of undesirable outputs in the Czech energy sector on the data over the period 2002 – 2007. The medians of our shadow prices estimates are 8374, 1198, 2805, 6051 and 8549 € per ton of PM, SO₂, NO_x, CO and VOC, respectively. We decompose shadow prices estimates and test the hypotheses that the marginal abatement cost decline over time; that marginal abatement cost rise with the declining emission level; and that marginal abatement cost rise with declining emission rate.

Key Words: shadow prices, distance function, undesirable outputs, marginal abatement cost

JEL classification: C61, D24, Q53