Evaluating the efficiency of municipalities in collecting and processing municipal solid waste: A shared input DEA-model

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Abstract

This paper proposed an adjusted “shared-input” version of the popular efficiency measurement technique Data Envelopment Analysis (DEA) that enables evaluating municipality waste collection and processing performances in settings in which one input (waste costs) is shared among treatment efforts of multiple municipal solid waste fractions. The main advantage of this version of DEA is that it not only provides an estimate of the municipalities overall efficiency but also estimates of the municipalities’ efficiency in the treatment of the different fractions of municipal solid waste (MSW). To illustrate the practical usefulness of the shared input DEA-model, we apply the model to data on 293 municipalities in Flanders, Belgium, for the year 2008.

Keywords: Municipal solid waste; Cost efficiency; Data Envelopment Analysis.

JEL-classification: H41; H50; Q53; Q58

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