

Factors Affecting Cost Efficiency of Municipal Waste Services in Tuscan Municipalities: An Empirical Investigation by Accounting for Different Management

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Abstract : This paper aims at investigating the effect of ownership in the efficiency assessment of municipal solid waste management. In doing so, the Data Envelopment Analysis meta-frontier approach integrating unsorted waste as undesirable output was applied. Three different clusters of municipalities have been created on the basis of the ownership type of municipal waste operators. In the second stage of analysis, the paper investigates factors affecting efficiency, in order to provide an outlook of levers to be used by policy and decision makers to improve efficiency, taking into account different management models in force. Results show that public waste management firms have better performance than mixed and private ones since their efficiency scores are significantly larger. Moreover, it has been demonstrated that the efficiency of waste management firms is statistically influenced by the age of population, population served, municipal size, population density and tourism rate. It evidences the importance of economies of scale on the cost efficiency of waste management. This issue is relevant for policymakers to define and implement policies aimed to improve the long-term sustainability of waste management in municipalities.

Keywords : data envelopment analysis, efficiency, municipal solid waste, ownership, undesirable output

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