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Book of abstracts**

**Comparative analysis of referral and drug costs at the level of specialty: General
medicine and geriatrics**

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Health Policy

The aim of this paper is to compare a sample of English General Practitioner (GP) units at the Geriatric and General Medicine specialty level in terms of their referral and drug prescription costs. The cost comparison is done on a contextualized basis, where we use some proxy variables to account for the severity of the health conditions of inpatients and outpatients, and to account for the need of GPs incurring drug prescription costs. We use Data Envelopment Analysis (DEA) to compute cost efficiency measures of GP units and to decompose these measures into technical and allocative components. In addition, we also identify further sources of cost inefficiency related to prices. The results reveal a varying potential across GP practices for cost savings through volume reductions, switching between referral types and drugs and through seeking better unit cost profiles. This offers the potential to transfer cost saving practices from benchmark to other GP practices by type of savings available.

Stochastic frontier analysis of quality-adjusted cost-efficiency:

Alex van Heezik, David HOLLANDERS, Hans de Groot

Water and Waste Management

This paper models cost-efficiency in waste collection management in the Netherlands between 2005-2008, using data on Dutch municipalities. With both translog cost functions and stochastic frontier analysis cost-efficiency in the waste management is estimated. The panel-data structure allows disentangling time-effects from cross-level effects, simultaneously estimating both. A first extension considers quality-adjusted prices by incorporating service level and environmental effects. A second extension of the model addresses the potential endogeneity of the decision of municipalities to contract out waste collection and which price system to use. These extensions contribute to the cost-function literature, which is dominated by estimation of simple cost-functions under the assumption of exogenous regressors, see also the overview of Bel and Warner (2008). Waste management is a large and important sector, see OECD (2000). In many developed countries, including the Netherlands, government has a legal obligation to collect waste. Furthermore it is a large sector with in the Dutch case over 100 firms, 600 municipalities -which are responsible for waste collection- and yearly costs summing up to two billion euros. The efficiency effects of three types of variables are estimated. The first category consists of covariates that are directly influenceable by municipalities. These include the decision to contract out waste collection (to either a private or public company), which collection method (f.e. frequency) to use and how to use price incentives to stimulate inhabitants to separate waste. The second type of regressors are not directly influenceable by municipalities but are affected by government policy, in particular the degree of market competition in the waste collection sector. There is a trade-off here between scale economies, exploitation of which leads to some market concentration, and avoiding market power, which calls for a substantial number of waste collection firms (see Dijkgraaf and Gradus (2005)). These scale economies are determined by relating costs to the number of inhabitants. The third category consists of control-variables that for all practical purposes cannot be influenced by policy, such as density of the population, region, average income of inhabitants and number of people per household. The first preliminary results show that costs vary substantially across municipalities. Costs per inhabitant are positively and significantly related to the volume of waste treated. Furthermore, urban areas have higher costs, and contracting out waste collection hardly has an effect on costs. The final results will be related both to the substantial and evolving international literature on efficiency in the waste management sector and to the discussion on cost-efficiency, quality, privatization and innovation in the public sector, as the results are relevant for both.

Bel, G. and M. Warner (2008), 'Does privatization of solid waste and water services reduce costs? A review of empirical studies', *Resources, Conservation and Recycling* 52, pp. 1337-1348. Dijkgraaf, E. and R. Gradus (2005), 'Collusion in the Dutch waste collection market', *Local Government Studies*, 33, pp. 573-588.

OECD (2000), *Competition in Local Services: solid waste management*.