



# Assessing instruments for mixed household solid waste collection services in the Flemish region of Belgium

Xavier Gellynck\*, Pieter Verhelst

*Department of Agricultural Economics, Ghent University,  
Coupure Links 653, B-9000 Ghent, Belgium*

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## Abstract

Instruments to reduce waste can be divided into three groups: first, pecuniary incentives; second, service level; finally, measurements stimulating prevention and waste reduction. Also specific characteristics of the community determine the amount of waste generated. We evaluate whether findings in literature on effectiveness of policy measures are valid for Belgium, specifically for the Flemish region. The policy mix instituted by the Flemish authorities in the ‘implementation plan household waste 2003–2007’ and implemented by local authorities, is assessed. Multiple regression analysis identifies those measurements having the greatest impact on household solid waste.

We found an income elasticity of 0.326. Also the provided service level has a significant impact. Pecuniary incentives are effective instruments in reducing waste, with a price elasticity of  $-0.139$ . Furthermore, a higher percentage of direct costs, directly attributable to waste services, borne by households, reduces waste. A consequent implementation of the ‘polluter pays’ principle proves to be effective.

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\* Corresponding author. Tel.: +32 9 2645923; fax: +32 9 2646246.

*E-mail address:* [Xavier.Gellynck@ugent.be](mailto:Xavier.Gellynck@ugent.be) (X. Gellynck).

## 1. Introduction

The Sixth Environment Action Programme of the European Commission (EC, 2002) recognizes that a healthy environment is essential to long term prosperity and quality of life. However, future economic development and increasing prosperity will put pressure on the planet's capacity to sustain demand for resources or to absorb pollution. Waste volumes are predicted to continue rising unless remedial action is taken. Therefore society must work to de-couple environmental impact and degradation from economic growth. Waste prevention is and will be a key element. The amount of waste for final disposal has to be significantly reduced. Further measures are required to encourage recycling and recovery of wastes.

Council Directive 91/156/EC (EC, 1991) urges the European Member States to take appropriate measures to encourage the prevention and the reduction of waste production and its harmfulness. The recovery of waste by means of recycling, re-use or reclamation or any other process with a view to extracting secondary raw materials or the use of waste as an energy source are promoted. Member States have to take the necessary measures to ensure that waste is recovered or disposed of without endangering human health and without using processes or methods that could harm the environment or the resources of future generations. In order to realise these objectives a waste management plan has to be drawn up, including appropriate measures to encourage rationalization of the collection, sorting and treatment of waste. In the Flemish region of Belgium the government has adopted the 'implementation plan household waste 2003–2007' to comply with the Council Directive (OVAM, 2002).

## 2. Waste management instruments

There is a vast literature that can be used to evaluate the effectiveness of instruments used by public authorities aiming at reducing the amount of mixed household solid waste, encouraging the amount being recycled and on other factors influencing the amount of waste produced. In the 'implementation plan household waste 2003–2007' mixed household solid waste consists of mixed household waste collected through kerbside collection, bulky household waste and municipal waste such as street-cleaning residues, waste from markets and fly-tipping (OVAM, 2002). This definition is used as case reference point. Assimilated (light commercial) waste is similar in composition to household waste and includes most commercial wastes (Wilson et al., 2001), but is considered in a specific implementation plan (OVAM, 2000). Mixed household solid waste is referred to as waste throughout the paper.

Table 1 summarizes the existing literature with respect to the effects of pecuniary instruments in reducing the amount of waste. The context, including the availability and cost of alternative disposal options, is important to community response to introduction of or changes in the use of pecuniary instruments. The mentioned price and income elasticities have to be interpreted with care.

### 2.1. Pecuniary incentives

Three groups of studies can be distinguished. A first group of studies focuses on the effectiveness of pecuniary instruments in reducing the amount of waste, going from a

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