



Policy implications of the Implementation of Pay-As-You-Throw System for Municipal Waste

Findings and recommendations from the ENTITLE FP7 SSH research project (www.politicalecology.eu/)

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INTRODUCTION

Waste management has major ecologic and economic implications for municipalities

Municipal waste management is generally the item on which town councils spend most resources. Therefore, a wide range of tools needs to be used, including public investment, local regulations and communication campaigns, to obtain ever improving results in waste prevention, selective waste collection and reducing landfill waste. The use of tax instruments in the area of waste management is an increasingly popular option to create incentives that help to achieve better prevention and selective waste collection results, ensure appropriate allocation of waste management costs, and guarantee that waste charging is effective.

PAYT as ecologic-economic instrument for waste management

At local level, the main economic instrument that is available are waste charges. In the past, waste charges in many countries and regions such as Catalonia were conceived without incentives in mind. However, in other countries, pay-as-you-throw (PAYT) systems are commonly used. Such systems enable the real production of waste in each home or business to be calculated, and the charge is determined by the amount and type of waste that is thrown away. Thus, PAYT systems promote waste prevention and recycling and enable the 'polluter pays' principle to be applied.

Based on our research this brief proposes policy recommendations to provide local authorities with more information about these systems and to describe the basic steps needed for their implementation at municipal level.

KEY OBSERVATIONS

PAYT is widespread in USA and many European countries such as Switzerland and Germany but not in Spain

The first PAYT schemes have been in operation in the USA since the start of the twentieth century. Such schemes became more widespread from the 1970s onwards, particularly in California, Michigan, New York and Washington. Currently, over 7,000 US towns have deployed PAYT schemes, which is almost a quarter of the total number of municipalities and population of the United States. PAYT are used in 30 of the 100 largest municipalities in the country. The operation of these schemes is particularly notable in large cities such as Seattle (Washington), San José (California) and Vancouver (Canada).

Subsequently, the scheme began to spread to almost all European countries. It is extremely widespread in Switzerland and the Northeastern area of Germany (Reichenbach, 2008), as well as in the rest of Germany, the north of Italy, Denmark and the Netherlands. Some examples of European cities that have introduced these schemes are Berlin, Brussels, Munich, Vienna and Dublin. In most cases, PAYT has been implemented in the context of selective door-to-door collection.



In Europe, the most common model is pay-per-bin, although there has been a sharp increase in the use of the chamber system especially in densely populated areas (Reichenbach, 2008). This scheme is common in German cities, such as Dresden, Heidelberg, Hamburg, Berlin, Freiburg and Düsseldorf. To date, there have only been a few cases in which pay-as-you-throw schemes have been implemented for household and commercial waste in Spain.

In focus: What is Pay-As-You-Throw (PAYT)?

A Pay-As-You-Throw System is based on the application of a mechanism by which the user of the waste collection service pays a waste charge according to their real waste generation and the waste management service that is used.

Such schemes incorporate the 'polluter pays' principle into the waste charge. Consequently, residents or businesses who make an effort to reduce their waste and separate it correctly are rewarded.

Therefore, PAYT systems encourage the participation of residents and businesses to meet waste policy objectives, through the creation of an economic incentive that consists in establishing a link between waste charge payment and the amount and type of waste that is generated.

To a great extent, this incentive is determined by selecting a taxable base, that is, the waste fraction (e.g. packaging waste, organic waste, and refuse) that will be liable to charge. If a charge is put on refuse, the incentive is both to reduce waste and to participate in selective waste collection. Another option is to lay a charge on both refuse and a recyclable fraction such as packaging waste, which has a high potential for waste prevention.

RECOMMENDATIONS FOR POLICY-MAKERS

Taxing refuse is a good incentive for waste reduction

Taxing refuse is an incentive to reduce waste and to participate in selective waste collections. Consequently, a charge should always be imposed on this fraction. However, if a charge is only put on refuse, which is a relatively small percentage of the waste that is generated, the rate of the charge for the variable part of the waste charge will have to be quite high to collect a significant proportion of the revenue, and this could lead to a high risk of fraud.

Waste charges should also include other waste fractions such as recycled waste

Therefore, in general, charges should also be levied on another fraction. The packaging fraction is that which can be reduced the most by changes in habits. It is one of the most difficult fractions to recycle, so it may be a good idea to impose a charge on it. Organic fraction is the heaviest. However, if households were charged for this fraction, recycling could be discouraged.

In addition, it is difficult to reduce organic waste. However, this is an option that should be considered for commercial waste generators, as the volume of organic waste that is generated and the properties of its constituents mean that it has to be collected frequently, which increases the cost of the service provision. Consequently, a charge should only be levied on organic fraction at commercial level. It is not advisable to levy a tax on paper, cardboard or glass, as this could discourage recycling.

In general, when a PAYT system is introduced with door-to door collection, the maximum number of fractions should be collected on the doorstep, to reduce the number of waste loophole options and to make the system more robust and visible. Chamber systems are another, more complex alternative that can be used to introduce pay-as-you-throw schemes in situations where there is no door-to-door collection.

In our research, we have investigated Torrelles de Llobregat (Catalonia, 2003, subsequently withdrawn), Esporles (Mallorca, 2009), Argentona (Catalonia, 2010), Rasquera and Miravet (Catalonia, 2011). If we consider the waste collection methods that are currently used in the case of Catalonia, the most suitable PAYT systems for implementation in the near future are those that fit the logistics of door-to-door collection. These include: pay-per-bin with an individual tally or predetermined frequency, pay-per-bag, and bin identification and weighing systems. The recent increase in the number of towns that have adopted door-to-door collection systems, which are now in operation in over 90 Catalan towns, provides an excellent opportunity to introduce PAYT systems.

Our research has the following **implications for policy makers**.

First, the different factors contributing to the total waste collection costs in the different quarters can be addressed in the design of a two-component charge system. An equal cost per unit can be established to design the variable part of the charge whereas the fixed part of the charge could vary according to considerations of environmental justice. In this way, dwellings in different geographical situations (e.g. single houses areas) or urban structures with different types of PAYT systems could have different fixed parts.

Second, municipalities may propose different prices for the different fractions within the unit pricing scheme (particularly, residual waste and packaging), although this will increase the complexity of charge calculation. One benefit of pricing different fractions is that waste contamination will decrease and waste quality will increase.

Third, as a social justice measure, policy makers may make distinctions (or give advantages) to certain income groups. A possible way of compensating families with children or poor people is to offer them a reduced fixed part of the unit pricing charge, to preserve the incentive effect of waste reduction of the variable part.

Fourth, governmental institutions at the national/regional level may identify the most viable candidates for unit pricing. Furthermore, they may provide funding to encourage communities to develop their own unit pricing schemes, or use unit pricing as a community development goal to augment social coherence. A combination of community renaissance with bottom-up multi-stakeholder processes may be a direction that future unit pricing initiatives should aim.

Drawing on our study, we conclude that community involvement and social capital contributes to the acceptance of unit pricing. Furthermore, two aspects seem to trigger the operationalization of the polluter pays principle at the national/regional level in waste management. First, public authorities have to guarantee that there is an appropriate allocation of responsibilities across the waste management system. This means that each actor involved in waste generation should be allocated the waste he/she is responsible for. The chain of activities that leads to waste generation involves citizens (as consumers) but also producers, distributors and retailers. Second, national/regional institutions have to ensure, that an appropriate allocation of costs, which should guarantee that citizens are not charged for the waste and related servicing costs they are not responsible for. Government institutions should aim on avoiding waste tourism and avoiding that people in high density urban areas have to pay for higher servicing costs of low density areas. Moreover, our findings suggest that the environmental justice of a unit pricing scheme will be determined by:

- (i) its degree of equity of costs (applying social principles and social welfare),
- (ii) its degree of equality of opportunity (equal treatment of citizens in terms of access to the system and benefiting from its incentives), and
- (iii) intergenerational equity.

RESEARCH PARAMETERS

Objectives of research

This research explores the political ecology of the adoption of PAYT waste management schemes and, more precisely, it investigates environmental conflicts and environmental justice issues related to the implementation of these schemes. Thereby the policies and processes underlying the transformation from a flat rate system towards a PAYT scheme, generally based on door-to-door separate waste collection, are examined. This investigation mainly builds on case studies in Spanish municipalities that have implemented unit pricing waste management charges. We investigate how related policies and processes driven by the municipalities embody principles premised on fundamental environmental concerns of inter- and intragenerational justice. We analyze the key means through which these principles have been translated to restructure local waste management practices. We reflect on the implications of this study for the implementation of unit pricing waste policies and on the criteria to be considered for the prevention of environmental distribution conflicts as well as to advance environmental justice. We argue environmental activists had been the key player for the success of PAYT. PAYT schemes has a double-fold result: the reduction of waste generation as well as recycling, and a fair allocation of costs.

Scientific approach/ methodology

Building on qualitative/quantitative case studies in Spanish municipalities Torrelles de Llobregat, Esplugues, Argentona, Miravet and Rasquera the research explores the impacts of unit-pricing on local communities. More specifically the research investigates the community-based implementation of a unit pricing measure in Esplugues, a rural amenity in the north of Palma de Mallorca, Balearic Islands, Spain. In 1992 one of the biggest incinerators of Spain was built just 10km away from the town. Against the expansion of its burning capacity in 2007, a grass roots organization campaigned for putting in force an economic incentive and counteract the political economic decision of having incineration as main driver of the waste management in the Island.

Building on literature on environmental justice and ecological distribution conflicts

Our research reviews debates on unit pricing schemes considering the concepts of equity (e.g. Anderton et al. 1994) as well as environmental justice (e.g. Martinez-Alier 2001; Schlosberg 1999) and examines both the distributive and procedural elements of waste management decision processes in the Spanish context. This study discusses process components of unit pricing that might promote more fair and equitable decisions as well as barriers to their adoption.

Particularly, in southern European countries there has been a lot of resistance and conflict around several waste management projects such as the construction of incinerators, which often led to a delay or withdrawal of projects. Typical reasons of failure were that (i) public participation was left out of the project initial stage, so public confidence in government ability had been declining; (ii) public antipathy results from emotive stimulation and/or mental fears rather than scientific evidence; and (iii) indirect socio-economic factors (Kikuchi and Gerardo 2009). Hence waste management is increasingly related to environmental conflicts, which result from intricately intertwined economic, political, and cultural processes predominantly in urban environments. In our case study in Esplugues (Mallorca) a bottom-up initiative has implemented PAYT particularly as a response to a conflict around the overcapacity incinerator and related high price waste charges on the island. Thereby it has reduced both waste and costs for the municipality.

Further reading

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PROJECT IDENTITY

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