



Packaging waste recycling in Europe: Is the industry paying for it?



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ABSTRACT

This paper describes and examines the schemes established in five EU countries for the recycling of packaging waste. The changes in packaging waste management were mainly implemented since the Directive 94/62/EC on packaging and packaging waste entered into force. The analysis of the five systems allowed the authors to identify very different approaches to cope with the same problem: meet the recovery and recycling targets imposed by EU law. Packaging waste is a responsibility of the industry. However, local governments are generally in charge of waste management, particularly in countries with Green Dot schemes or similar extended producer responsibility systems. This leads to the need of establishing a system of financial transfers between the industry and the local governments (particularly regarding the extra costs involved with selective collection and sorting). Using the same methodological approach, the authors also compare the costs and benefits of recycling from the perspective of local public authorities for France, Portugal and Romania. Since the purpose of the current paper is to take note of who is paying for the incremental costs of recycling and whether the industry (i.e. the consumer) is paying for the net financial costs of packaging waste management, environmental impacts are not included in the analysis. The work carried out in this paper highlights some aspects that are prone to be improved and raises several questions that will require further research. In the three countries analyzed more closely in this paper the industry is not paying the net financial cost of packaging waste management. In fact, if the savings attained by diverting packaging waste from other treatment (e.g. landfilling) and the public subsidies to the investment on the “recycling system” are not considered, it seems that the industry should increase the financial support to local authorities (by 125% in France, 50% in Portugal and 170% in Romania). However, in France and Portugal the industry is paying local authorities more than just the incremental costs of recycling (full costs of selective collection and sorting minus the avoided costs). To provide a more definitive judgment on the fairness of the systems it will be necessary to assess the cost efficiency of waste management operators (and judge whether operators are claiming costs or eliciting “prices”).

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1. Introduction

Waste is defined by the Waste Framework Directive (75/442/EEC), as “any substance or object which the holder disposes of or is required to dispose of”. This Directive was last amended in 2008 (2008/98/CE) but the definition of waste remained the same. With the amount of waste accumulating in dump sites, European Union (EU) authorities realized that new waste management strategies were required to protect the environment and public health. However, due to the many tasks involved (e.g. collection, transportation, sorting, storing, treatment and/or final disposal), the several origins of waste (e.g. households, small and medium-sized businesses, healthcare premises, industry and agriculture) and the vast array of stakeholders (e.g. local and national authorities, manufacturers, packers and fillers, retailers and citizens/customers), waste

management is a fairly complex issue (Walls, 2005; Lavee, 2007). In 2010, the EU member states produced over 252 million tons of municipal solid waste,¹ representing around 502 kg *per capita* (Eurostat, 2012).

The rise in the rate of waste production over the last decades has had strong implications in the European waste management policy (e.g. see Bailey, 1999). In fact, European member states have been dedicating special attention to diverting waste from landfills. The particular case of packaging waste was emphasized due to the escalating tipping fees, the environmental impacts of landfilling this type of material (e.g. a significant portion of packaging waste is non-biodegradable) and the possibility of using this waste as a resource (avoiding the consumption of raw material).

¹ “Municipal waste consists, to a large extent, of waste generated by households, but may also include similar wastes generated by small businesses and public institutions and collected by the municipality” (Eurostat, 2012).

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Since the publication of Directive 94/62/EC on packaging and packaging waste (PPW), practically all member states have been undertaking major investments in their recycling systems (e.g. in selective collection and sorting equipment and infrastructure). One should note, however, that some countries already had national legislation on recycling/recovery of packaging waste (e.g. Germany was the forerunner on producer responsibility schemes). Furthermore, the particular case of Denmark, where no Extended Producer Responsibility (EPR) system is enforced and a deposit system runs for beverage packaging, should also be highlighted.

According to the EPR principle (an overriding principle of the PPW Directive), all economic operators placing packaging on the market are responsible for their management and recovery (OECD, 2001). In addition to the possibility of developing their own packaging waste management system (this must be approved by each National Waste Authority) to comply with the recycling and recovery targets laid down by the European law, producers of packaging waste can transfer their responsibility to another entity (e.g. a Green Dot company). Traditionally, Green Dot companies are created as an initiative of the industry (e.g. see ARGUS, 2001). In general, these entities are responsible for managing the logistic chain of packaging waste. The producers of packaged products pay a financial contribution for their packaging and, in return, transfer away their responsibility to manage and recover the waste (and, in most cases, they earn the right to put a “Green Dot” trademark on their packaging).

Although the ultimate goal (the recovery and recycling targets as described in the PPW Directive) is similar for all member states, the operational strategies for achieving the targets vary considerably from country to country (European Commission, 2006). Taking this into account, this paper looks into the institutional frameworks and recycling systems of five European countries, namely, France, Germany, Portugal, Romania and the UK. Currently on different “maturity stages”, these five cases are representative of the overall reality in the European Union. Most countries have publicly-owned utilities responsible for the collection, sorting, treatment and final disposal of urban waste (including packaging waste). Municipalities or regional authorities are generally in charge of waste management. These public authorities might, nevertheless, contract out these services. In any case, the ultimate responsibility lies with the public sector (as the provider of this essential service, Okuda and Thomson, 2007).

Usually, the waste management operators receive a financial support from the Green Dot company to compensate for activities such as selective collection and sorting. The unit values of the financial support and the overall functioning of the systems are often prone to some criticism (Cruz et al., 2012). To address this issue, we carry out an economic analysis on the costs and benefits of recycling in France, Portugal and Romania for the year 2010. By comparing and contrasting the costs and benefits undertaken by waste management operators in these countries, we are able to assess whether the net costs of the recycling system are being covered by the industry and to find out who is paying for the incremental costs of recycling (either the industry, i.e. the consumer, or the local authorities, i.e. rate-payers or tax-payers). As discussed in the following section, due to the competitive nature of the recycling schemes in Germany and the UK, it was not possible to obtain reliable data regarding financial costs and benefits of recycling for these countries.

It is interesting to note that while the PPW Directive urges the industry to be responsible for their packaging end-of-life, the polluter-pays principle is often not followed when income from local taxes is used to finance waste management. In other words, whereas the costs of recycling packaging waste ought to be included in the retail price of the products (and that exact moment of taxation in the life cycle of a product can have an impact on con-

sumer behaviour), the same diligence is not forced upon all member states when it comes to mixed waste management pricing.

The paper is organized as follows: after this introduction the main figures of packaging waste recycling are presented in the second section. The broad description of the national EPR schemes for the five countries studied is provided in the third section. The methodological approach adopted in the estimation of the costs and benefits of recycling for France, Portugal and Romania (which have similar EPR schemes) is introduced in the fourth section. The fifth section contains the results, their discussion and some normative stances that derive from the analysis. The concluding remarks are presented in the sixth and final section.

2. Packaging waste recycling in numbers

A generalized drop in landfill capacity combined with a high volume of household waste in Europe led to a “silent revolution” of EU waste legislation starting in the 1970s (Hansen et al., 2002). The waste hierarchy (prevention, reuse, recycling, energy recovery, and, at last, disposal) was first introduced by the Waste Framework Directive (1975). It was also during this decade that several important concepts, such as the “polluter pays” principle, were set as major guidelines of the EU waste management policy. However, it was in the 1990s (and early 2000s) that several decisive Directives were published to frame waste management in Europe. The PPW Directive (94/62/EC) was perhaps the one that had higher impacts both for the industry (manufacturers, packers, fillers, etc.) and waste management operators. The development of this piece of legislation was, to a great extent, influenced by the German Packaging Waste Ordinance (Eichstadt and Kahlenborn, 2000). Indeed, the PPW has two main drivers: (1) reduce the impact of packaging waste on the environment, while (2) ensuring the functioning of the European market (both of packaged products and of packaging waste). The first version of the Directive (published in 1994) stated that, by the end of 2001, all countries should, at least, have recovered 50% (with a maximum of 65%) and recycled 25% (with a maximum of 45%) of all packaging waste. The minimum recycling rate for each type of material was 15%. The PPW Directive and the targets set for all member states were updated in 2004 (Directive 2004/12/EC). According to this version (currently in force), by the end of 2008, the member states should have recovered a minimum of 60% by weight of packaging waste, whereas the recycling targets for each material were 60% by weight for glass, paper and board, 50% by weight for metals, 22.5% by weight for plastics and 15% by weight for wood (the overall target for recycling was 55%, with a maximum of 80%).

The maximum recovery and recycling rates were set to avoid distortions of the internal market and not hinder compliance by other member states (caps can be exceeded if provisions are taken to prevent this). There were also exceptions to the deadlines mentioned above for Greece, Ireland and Portugal (mainly due to their specific features, such as the large number of small islands or the presence of rural and mountain areas). For these three countries the 2001 targets should be attained by the end of 2005, while the 2008 targets should be attained by the end of 2011. The new European member states were allowed to postpone the targets of PPW Directive.²

The variation of municipal solid waste production in European countries is substantial, ranging from 304 kg *per capita* in Latvia up to 778 kg *per capita* in Cyprus (2010 data). For the countries analyzed in this paper, the municipal solid waste generated per

² No later than 31 December 2012 for the Czech Republic, Estonia, Cyprus, Lithuania, Hungary, Slovenia and Slovakia; 31 December 2013 for Malta and Romania; 31 December 2014 for Bulgaria and Poland; and 31 December 2015 for Latvia.

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