



Prevention policies addressing packaging and packaging waste: Some emerging trends



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ABSTRACT

Packaging waste is a major issue in several countries. Representing in industrialized countries around 30–35% of municipal solid waste yearly generated, this waste stream has steadily grown over the years even if, especially in Europe, specific recycling and recovery targets have been fixed. Therefore, an increasing attention starts to be devoted to prevention measures and interventions. Filling a gap in the current literature, this explorative paper is a first attempt to map the increasingly important phenomenon of prevention policies in the packaging sector. Through a theoretical sampling, 11 countries/states (7 in and 4 outside Europe) have been selected and analyzed by gathering and studying primary and secondary data. Results show evidence of three specific trends in packaging waste prevention policies: fostering the adoption of measures directed at improving packaging design and production through an extensive use of the life cycle assessment; raising the awareness of final consumers by increasing the accountability of firms; promoting collaborative efforts along the packaging supply chains.

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1. Introduction

Packaging waste has become a major issue for several countries: “Packaging waste is a growing and important waste stream, which accounts for between 15% and 20% of total municipal solid waste in different countries” (OECD, 2011: 131). The quantities of packaging waste produced by the EU15¹ have grown almost steadily from the Nineties until 2007, when the economic and financial crisis has contributed to a significant drop down for a couple of years (Eurostat, 2014c). In 2011 the average citizen in the EU27² generated 159.4 kg of packaging waste (around 31% of the municipal solid waste: EEA, 2013), while in the EU15 the amount of packaging waste generated was 176 kg/capita (as of 2010) (EEA, 2012a; Eurostat,

2014a,b). In other industrialized countries such as the US, Australia or Canada, packaging waste followed similar trends and represents around 30–35% of municipal solid waste yearly generated (EPA, 2013; OECD, 2013a).

Socio-economic features, such as higher incomes, urbanization dynamics, changing in lifestyles and consumption patterns, smaller households, the move towards smaller pack size have been identified as determinants of the growing volumes of packaging waste (EUROPEN, 2013; WPO, 2008). At the same time, waste management policies and environmental sustainability have become inter-linked elements. The principles and mechanisms that frame waste regulations are key in successfully protecting ecosystems from excessive resource extraction and limiting the impact from harmful substances on the environment and human health.

In order to better manage this particular waste stream, two decades ago the European Union has introduced the Directive on Packaging and Packaging Waste (94/62/EC). This policy strategy defined specific objectives in terms of packaging waste management (e.g., quantitative targets for packaging recycling and recovery) and environmental protection, harmonizing national regulations concerning packaging and packaging waste (Bailey, 1999; Buclet and Godard, 2001), and contributing to the enforcement of the Extended Producer Responsibility (EPR) mechanism (Lazarevic et al., 2012; Massarutto, 2014). Moreover, it first promoted the

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¹ The EU15 comprises the following 15 European countries: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, and the United Kingdom.

² The EU27 comprises the following 27 European countries: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, and the United Kingdom.

so-called “waste hierarchy” (Bartl, 2014; Wilson, 1996), which is a priority order in the different waste management alternatives, where waste prevention is given higher ranking than reuse, recycling, recovery, and disposal (Article 1 of the Directive 94/62/EC: European Parliament and the Council, 1994). As a response, over the years European countries implemented legislations and organizational solutions in terms of packaging recycling and recovery systems. Even if these systems have been successful in reaching the quantitative targets imposed by the Directive 94/62/EC, increasing the rate of recycling and reducing the amount of waste landfilled, they have not been sufficient to handle the problem of the increasing packaging waste generation. In these regards, the European Environmental Agency has recently stated that: “neither decoupling waste generation from economic growth nor the EU policy objective of waste prevention has as yet been accomplished for this waste stream.” (EEA, 2012b).

In other words this strategy has failed in developing effective source reduction initiatives and innovations throughout the packaging supply chain. Prevention of waste, and prevention of packaging waste in particular, has demonstrated to be much more complex than recycling or recovery, since it entails the adoption of life cycle thinking and requires profound changes in our pattern of production, consumption, and distribution (EC, 2006; Manfredi et al., 2011).

More recently, through the adoption of the Waste Framework Directive 2008/98/EC (WFD), the EU has further stressed the attention to environmental protection and resource efficiency, in the attempt to effectively decouple economic growth from waste production (Mazzanti and Zoboli, 2008). This policy has established waste prevention as the “prime goal of current waste legislation in Europe” (Bartl, 2014: 2) making the waste hierarchy legally binding for Member States and promoting a more holistic approach to waste management. The need for a primary focus on waste prevention is further underlined by the Article 29 of the WFD, which asks each of the Member States to establish national programs to this purpose by December 2013 (European Parliament and the Council, 2008). Nevertheless, each nation maintains a certain level of autonomy in developing its own regulatory model and set of measures to meet the Directive objectives. Actions, for example, can be taken at different steps of packaging life cycle (design and production, or use), be voluntary or mandatory, engage different stakeholders (producers, users, consumers, etc.). It is therefore of interest to analyze the different organizational approaches and actions undertaken by Member States, and to compare them with other countries/states that are moving towards the packaging waste prevention goal, but under different regulatory and governance conditions.

The purpose of this exploratory paper is to provide a first review of the state of the art of packaging waste prevention policies at the global level. It results from a research project carried out for about two years with the aim of reviewing and comparing packaging waste prevention policies adopted and implemented in different countries/states, and analyzing the main responses adopted by firms operating along the packaging supply chain (e.g., producers, users, or retailers).

The outline of the paper is as follows. Section two presents the literature review and introduces the relevant research questions. Sections three discusses the methodology and the activities carried out during the research. Section four analyzes the main results and the last section draws brief conclusions and implications.

2. Literature review and research questions

According to their scope, we found multiple perspectives in the way academic contributions approach the issue of packaging waste

prevention. A first stream of literature includes papers that analyze and evaluate the efficiency of waste management regulations and prevention in general (Bartl, 2015; Buclet and Godard, 2001; Cossu and Masi, 2013; Cox et al., 2010; Mazzanti, 2008; Hoogmartens et al., 2016; Niza et al., 2014; Takatsuki, 2013; Wilson et al., 2012; Zorpas and Lasaridi, 2013). What progressively emerges is that, in order to build a sustainable society (Takatsuki, 2013: 2146), “[a]fter a long phase in which the main indicator, if not unique, of the systems efficiency has been the level of recycling to be achieved “at all costs”” (Cossu and Masi, 2013: 2546), a partial view where recycling is always the best solution should be abandoned: “A sole calculation of recycling rates does not consider the aspects of quality and efficiency. European waste management should place greater emphasis on waste prevention...” (Bartl, 2015: 2). However, we have identified very few studies focusing specifically on packaging waste policies. A certain attention on this topic was raised by the Germany Packaging Ordinance and the foundation of the national compliance scheme,³ the *Duales System Deutschland* (Biddle, 1993; Matten, 1996; Neumayer, 2000; Winn and Angell, 2000), and by the enforcement of the European Packaging Directive 94/62/EC (Bailey, 1999, 2000; Eden, 1997; Gehring, 1997; Golub, 1996; Nunan, 1999; Vigileos and Powell, 1997). These articles examine the effect of packaging regulations on the implementation of waste management systems, the foundation of the national compliance schemes, the development of new organizational capabilities, and the formation of networks of actors. At the same time, the first environmental effects of the enforcement of these new regulations were not so remarkable because of the time and efforts needed to change the prevailing waste management system based on landfill. In the last decade the relation between regulations and packaging waste has encountered a limited interest among scholars. Some recent publications have investigated the impact of policies on packaging waste optimization with a focus on the effectiveness of national measures (da Cruz et al., 2014b; De Jaeger and Rogge, 2014; Røine and Lee, 2006; Rouw and Worrell, 2011; van Sluisveld and Worrell, 2013) and on specific regulatory measures such as eco-taxation (Cela and Kaneko, 2013) and financial transfers between the industry and the local governments responsible for separate collection (Cabral et al., 2013; da Cruz et al., 2014a; Marques et al., 2014; Rigamonti et al., 2015). Nevertheless, none of the studies reviewed adopts a comparative approach confronting country-specific policy measures and conditions with regard to packaging waste prevention.

A second area of research addresses the relation between waste production and GDP growth. These studies aim at analyzing the effectiveness of waste policies through the environmental Kuznets Curve (Grossman and Krueger, 1991; Kuznets, 1955) as a baseline, and testing hypotheses with econometric modeling. According to these scholars scarce evidence of delinking as an effect of waste management regulations and policy tools exists (Mazzanti and Zoboli, 2005). Only a relative decoupling⁴ has been reported by some studies investigating the broad spectrum of households, municipal or industrial waste (Mazzanti, 2008; Mazzanti and Zoboli 2008; Sjöström and Östblom, 2010). Considering the issue of packaging waste, except for Rouw and Worrell (2011), van Sluisveld and Worrell (2013), and Worrell and van Sluisveld (2013) focused on the packaging policies in the Netherlands, no specific paper has been found in our review. In the Netherlands case, even

³ The compliance schemes are responsible, at the national/local level, for the achievement of the recycling and recovery targets established by the packaging waste policies and support firms in their efforts. See, on this topic, European Environment Agency (2005).

⁴ “Decoupling is said to be relative when the growth rate of the environmentally relevant variable is positive, but less than the growth rate of the economic variable” (OECD, 2002: 1).

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