

Implementing extended producer responsibility: the case of Sweden's car scrapping scheme

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Abstract

This article examines the consequences of implementing extended producer responsibility (EPR). The analysis identifies to what extent EPR creates economic incentives, and what the financial consequences are. The case of car scrapping in Sweden is used as an example. EPR gives rise to two responsibilities; the consumer has the responsibility to return the product, the end-of-life vehicle, and the producer has the responsibility to handle the end-of-life management. EPR implicitly assumes that consumers will fulfil their responsibility without any economic incentive. This has no empirical support in the literature. The consumers will bear the costs associated with dismantling although the producer is responsible for the payment. This responsibility gives rise to a major future financial liability.

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1. Introduction

The consumption based society of today gives rise to several environmental problems. One such problem arises when complex durable goods are worn out. The continuously increasing number of goods results in an increasing amount of waste. Among the group of complex durable goods one stands out, the car. In the European Union, approximately 17 million vehicles were produced per year during the years 2000–2002 [1]. Those 17 million give rise to many different environmental concerns. This makes the car a suitable object to study.

Sweden, Norway and Iceland have relatively long histories of car scrapping schemes.¹ In 1991, the European Commission initiated a working group concerning end-of-life vehicles (ELVs) [2]. The objective of this working group was to find consensus solutions for

handling the final disposal of the ELVs in the European Union. Induced by this process, Germany and the Netherlands introduced national ELV schemes during the 1990s, although they advocated a solution at the European level to prevent competitive disadvantages for their domestic car industries [3].

The purpose of this paper is to show how extended producer responsibility (EPR) affects the markets for worn out products. EPR is the principle that the producers should be responsible for the environmental impact of their products throughout the product life cycle. The focus of this paper is on how the existing car scrapping systems, aimed at creating economic incentives and financing end-of-life management, are affected by EPR. The question is whether the implementation through economic policy instruments will promote achievement of environmental goals.

The analysis evaluates the issue of to what extent EPR creates economic incentives and what the financial consequences are? The aim of the article is to use neoclassical microeconomics and take the economic agents as a point of departure in order to sort out how

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¹ All three countries have systems that date back to the 1970s.

agents are likely to react to policy instruments. The article does not take the operational side of dismantling and recycling, i.e. reverse logistics, into consideration.² These aspects are beyond the scope of this article.

To what extent can EPR replace old car scrapping systems? As a point of departure, the Swedish system and its objectives are described. A review of the theory and history behind EPR is given. The choice of car scrapping in Sweden as a case when studying EPR is based primarily upon two reasons. Firstly, vehicles have the advantage of being a registered durable good. Secondly, Sweden has a relatively long history of a functioning car scrapping system and the implementation of the EU directive started early compared to other member states in the EU.

2. Extended producer responsibility

An awareness of a more extensive and complex environmental concern has been recognised quite recently. It is based on the idea that in order to avoid negative effects, environmental concern should be considered already in the design process of a product. When producers are made responsible through EPR, the idea is to create an economic incentive to make them take this aspect into consideration.

EPR is a principle widely used as a basis for government policy aimed at reducing waste and the environmental impact of the end-of-life disposal of products.³ EPR is a logical extension of the “polluter pays principle” (PPP), which is an economic principle defined as:

The principle to be used for allocating costs of pollution prevention and control measures to encourage rational use of scarce environmental resources and to avoid distortions in international trade and investment. . . this principle means that the polluter should bear the expenses of carrying out the above-mentioned measures decided by public authorities to ensure that the environment is in an acceptable state. In other words, the cost of these measures should be reflected in the cost of goods and services which cause pollution in production and/or consumption [6].

Many countries have committed themselves to the PPP by different agreements. EPR is a strategy to internalise the environmental costs into the market price. The environmental goal underpinning EPR can be considered *dynamic* since it is expected to have an environmental impact on a product throughout the whole life cycle. OECD [7] has defined EPR as:

The principle that manufacturers and importers of products should bear a significant degree of responsibility for the environmental impacts of their products throughout the product life-cycle, including impacts [from]. . .the selection of materials, the. . .production process, and. . .from the use and disposal of the products.

Note that the implementation of EPR demands some type of *policy instrument*. EPR itself can be considered an environmental *strategy*. The choice of policy instruments defines the character of the implemented EPR (see Table 1 for examples of policy instruments).

The efficiency of EPR is dependent upon the choice of policy instrument. The different characteristics can be classified into five types of EPR, as summarised in Fig. 1.

Informative responsibility implies a responsibility to provide information about the product and its environmental effects. This responsibility is based both on legal requirements and the producer’s dependence on goodwill.

Physical responsibility means that the producer is required to physically handle the end-of-life management.

Economic responsibility is when the producer covers the whole or an extensive part of the cost associated with the end-of-life management.

Liability implies that the producer is responsible for all damages that a good causes during its life cycle.

Owner responsibility is a subset of all the other responsibilities. Owner responsibility arises when the producer keeps the legal ownership of the good. One obvious example is leasing.

2.1. The EU directive

In the EU, ELVs are a prioritised waste stream and are managed on the basis of economic EPR. In 2000,

Table 1
Examples of policy instruments

Types of policy instruments	Examples
Administrative	Prohibition Regulations Take-back responsibility Recycling targets
Economic	Taxes Fees Deposit–refund systems Product disposal charge
Informational	Information Research and development
Agreements	Social contracts Gentlemen’s agreement

² For a review of the theory and literature, see [4,5].

³ Other expressions for the principle are “product stewardship” or “product take-back”.

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