

Part 5: EPR and the Cost-sharing Issue

Chapter 1

SEGMENTED SOCIETY: EXTENDED PRODUCER RESPONSIBILITY AND THE COST-SHARING ISSUE

by

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1. Introduction

In waste administration of today, the responsibility of producers to carry out recycling and appropriate waste disposal is expanding, at least in developed countries. By the Product Liability Law, rules have been already established as an institution to define the circumstances and the kind of responsibilities that producers should take for damages occurred during the consumption process of their products. In the discipline of waste management policy, it has been proposed as an idea to hold producers responsible for implementing recycling and appropriate disposal of the discard products, even when consumers found no defects in the products during the consumption process. Many countries have introduced this idea as practical institutions, as so-called Extended Producer Responsibility (hereinafter referred to as EPR).

In this article, the background for introducing EPR is overviewed in relation with “Segmented Society”(after-mentioned), and issues of sharing responsibilities emerging from the introduction of EPR, as well as the issue of cost sharing which arises as a new subject, are examined.

2. Formation of Segmented Society

The characteristics and the aims of EPR are to 1) shift the municipalities' responsibilities for waste disposal (a part or all of physical responsibilities and financial responsibilities) to the producers in the upper stream of the product chain, and to 2) give incentives to the producers to take environmental conservation into consideration when designing their products. From the standpoint of viewing the physical responsibility as an inherent characteristic of EPR, among the three methods of EPR defined by OECD (2001), "product take-back requirement" and "performance standards" will be taken into consideration in this article, excluding "economic instruments".

Now, let us examine why it is necessary to expand the responsibility of the producers to the products discarded after consumption. It is definitely because of the significant increase in the amount of waste generation and its deleterious effects. In order to clarify the effectiveness and issues related to EPR, it is important to properly understand an economic mechanism where such tendency has developed.

Mass waste-producing and throwaway society is a reality existing as a result of the market's evaluation and adjustment under current social regimes. In a society like this, we are facing problems such as shortage of disposal site and environmental damage caused by waste disposal.

However, simply recognizing that the problem is the reality existing as a result of the market mechanism is not enough to find a proper solution. What is more important is to pay attention to the mechanism where the function of the market mechanism works to create the waste problems, In other words, it is necessary to focus on the "process" of adjustment made by the market mechanism.

Given that there is a flow of goods such as production, distribution, consumption, disposal and waste treatment, currently production is carried out by producers, distribution by distributors, consumption and disposal by consumers, and waste management of municipal waste is conducted by public sector.

In the process of production, distribution, consumption, disposal and waste management, what is the principle that each unit follows in their decision-making process as an economic agent? The producers' priority in production is not to make waste processing easier. Needless to say, it is rational to think that they make decisions in such a way to maximize the profit and minimize the costs of their production. It should be reasonable to say that they

choose returnable bottles or one-way containers based on the same criterion of judgment. The distributors should make the same kind of judgment as the producers.

With regard to the consumption and the waste disposal by the consumers, while there are some movements or notions to review the recent throwaway-life style, the general standard has been to seek for convenience and low price so that their degree of satisfaction are maximized. In other words, consumers have also been acting without giving consideration to waste disposal.

Now, let us consider the performance standards of the public sector, which exists in the final point of the flow of goods. While many municipalities recently started to conduct sorted collection and recycling of valuable resources, it had been their basic principle to appropriately manage the wastes, viewing its quality and quantity as given. In other words, they had been focusing on implementing the appropriate management of generated waste, without causing interference with the actions made by the producers, the distributors and the consumers. It has been already made clear that this system of the public sector has reached the limit.

In each process of production, distribution, consumption and disposal, each economic agent make decisions of their actions based on their own principles such as profit maximization, cost minimization or utility maximization. As long as the public sector does not make any interference with these decision-making processes, the adjustment by the market mechanism works to create a system where production, distribution, consumption and disposal are done without giving consideration to the waste management, thus establishing a socioeconomic system with mass waste production.

That is to say, though the flow of goods is consecutive, the economic agents concerned in the process is segmentalized and making individual decisions based on their own preference, without pondering whether it is socially desirable. This is the reality of the economic society of today. Consequently, the socioeconomic system as a whole is vastly deviated from the social optimum, generating significant social costs or social loss, particularly in the waste management process. Let us call a society with such socioeconomic system a “Segmented Society” (Ueta, 1992).

3. EPR and Reallocating Responsibilities of Appropriate Waste Disposal and Recycling

The socioeconomic system is segmentalizing the product chain and keeping the system of production, distribution, consumption and disposal that

goes without considering about the waste management. Now, the task is to establish a system where each economic agent makes decisions in consideration of appropriate waste disposal and recycling, so that the impact on the environment could be reduced and the recycling of resources is enhanced. In order to do so, it is necessary to integrate the segmented socioeconomic system. In this context, the question we have to ask is what would be the meanings and effects of EPR.

Under the segmented socioeconomic system, the producers, the distributors and the consumers remain unaware of the issues such as environmental pollution, destruction of nature and regional conflict brought by mass waste generation, therefore, they have no incentive to change the mass waste-producing and throw-away industrial structure and life-style. With regard to general goods and services, as long as the market mechanism as an automatic adjustment structure functions properly, consumers can gain necessary information to change their performance by recognizing the increase or decrease of demand and supply caused by price fluctuations as signals. The price signals persuade, or rather, economically force the producers and the consumers to change their performances. By contrast, in the segmented socioeconomic society, agents concerning the process of production, distribution and consumption behave individually based on their own principle, thus making the public sector solely responsible for the treatment of mass waste generation. There is no system to communicate the issue of waste problem and the relevant costs to all of the concerning agents, thus making no signals or incentives for each agent to change their performances.

These signals and incentives are not self-generating and need to be created institutionally. The most fundamental and plain way is to reallocate the responsibility of conducting waste management taken solely by the local municipalities, so that the above-mentioned signals and incentives would work appropriately. The damages and costs resulting from mass waste generation and its deleterious effects have been entirely borne by the public sector and local residents near the concerning facilities in the final point of the product chain. In order to reallocate such damages and costs to the upper stream of the product chain, various methods can be assumed including making a product charges or charging for hazardous substances found in the products. As described in the definition of EPR by OECD (2001), the most apparent characteristic of EPR is that, while the responsibility for processing the discarded products after its life cycle has been conventionally taken by local municipalities, EPR reallocates the responsibility by holding the producers responsible for the appropriate treatment and recycling of the products.

The question we have to ask here is what would be changed by reallocating the responsibility from the local municipalities to the producers. There are many common characteristics in the contents of the responsibility for the appropriate waste management conventionally borne by the local municipalities, and the responsibility for the appropriate waste management and recycling that EPR imposes on the producers. However, in the strict sense, they are different in many cases, therefore, it is necessary to carry out specific examination on case-by-case basis, as it is not suitable to discuss this issue by and large. Let us now suppose that the content of the responsibility is equally the appropriate waste management. In this case, what would be the meaning of shifting the responsibility from the municipalities to the producers? Since the waste disposal conducted at the cost of public sector will be covered by the private sector, it means a significant difference in relation with the primary payer of the costs for waste management. The term “primary defrayer” indicates that the costs arising from the responsibility given to the producers may shift to other party. Consequently, it is important issue that who will be the ultimate payer as a result of the shift. This issue will be described in detail later.

Now, let us consider what impact would it have on efficiency by changing the allocation of responsibilities for waste treatment. Under a circumstance where Coase’s theorem (Coase, 1960) apply, it has been said that changing the initial allocation of responsibilities would have no impact on the efficiency, since negotiations would be carried out between the concerning¹ agents. However, from the viewpoint of efficiency, shifting the responsibility of waste management from the municipalities to the producers has a meaning that goes beyond the circumstance assumed in Coase’s theorem. What is important is to note that the meaning is not only to change the allocation of responsibilities concerning waste management, but also to integrate the segmented socioeconomic system that has been a factor to produce mass waste disposal. By shifting the responsibility, the producers would incorporate the losses the costs resulting from mass waste generation to their own economic calculation for the production. As a result, they would have incentives to minimize such damages and costs and to improve their product design or selection of materials so that they would be more environmentally sound products. Which is to say, the change in sharing of responsibilities institutionally creates incentives to fundamentally remove the causes of mass waste generation, and in that context, it contributes to realize dynamic efficiency.

1. More thorough investigation is necessary with regard to relationship between efficiency and laws or rules concerning responsibilities. See Mishan (1981) for the sharpest criticism for Coase’s discussion.

The second characteristic of the sharing of responsibilities in relation with EPR is that the reallocation of the responsibilities includes two kinds of responsibilities, namely a physical responsibility that is to actually implement the appropriate waste disposal and recycling, and a financial responsibility to bear the relevant costs. When we compare EPR with other economic measures for implementing waste management, such as emission charges and product charges, EPR can be characterized by the fact that it imposes specific engagements regarding the appropriate waste disposal and recycling as the physical responsibility. In general, an economic measure would give incentives to the agent that is regulated by the measure, but the agent would be able to decide their responses on their own. On the contrary, as EPR specifically regulates what should be done with regard to the appropriate waste disposal and recycling as the physical responsibility, the agent subject to EPR do not have any choice whether to fulfil the physical responsibility or not. They would only be allowed to consider how efficiently (*e.g.* cost efficiency) they could achieve the imposed physical responsibility. In this sense, it is possible to regard EPR as a kind of direct regulation. For example, when a numerical target is set as a recycling rate,² it would be a direct regulation and it could be regarded as a mandatory recycling system. In this case, the recycling rate is set as a target without giving consideration to the efficiency, at least in the context of static efficiency. Therefore, it is not efficient from a general economic point of view. The intension of setting such numerical target is rather to have it act as a trigger in creating technological innovation to achieve the target, so that the costs to comply with the target shall be balanced out. By emphasizing the physical responsibility, it becomes easier to demonstrate a clear principle for determining the direction of the technological innovation, therefore, it is all the more important to present a precise target. It should also be noted that if we try to achieve the same effect by imposing tax, the tax rate could become quite high and cause too much burden.³

4. EPR and the Issue of Cost Sharing

Primarily, EPR is a concept to reallocate the physical responsibility concerning waste disposal, however, it also reallocates the financial responsibility, as it involves the issue of sharing the costs that arises anew. When the responsibility shifts from the local municipalities to the producers, it means that the primary of the costs for the appropriate waste disposal and

^{2.} German Packaging Ordinance is a typical example.

^{3.} In regard to this point, it is necessary to conduct strict comparative examination with so-called policy mix, such as combining tax imposition and subsidization.

recycling changes from the public sector to the private economic agents. In general, few people would object to the promotion of recycling in principle. However, when it comes to realizing the idea, it tends to be difficult because of the new issue of cost sharing, in either case of introducing EPR or other public policies. The agent that becomes responsible for the financial responsibility must bear additional costs, therefore, when the change brought by the reallocation is quite drastic, it could be difficult to reach an agreement on the introduction of the policy. This matter of cost sharing often becomes a controversial point among the concerning agents, and there are several theoretical and political issues involved. In this article, the discussions are focused on the issues in relation to EPR and PPP (Polluter Pays Principle).

The first question we have to ask here is whether it is possible to say that EPR is an applied form of PPP. PPP is regarded as a fundamental principle in the issue of cost sharing concerning environmental policy measures, however, we need to clarify whether it follows from this that EPR is created as a result of applying PPP to the waste problems. Turner (2000) describes “green dot” system in Germany as a system established as “an attempt to make polluter pay”, thus regarding EPR as an applied form of PPP.

When it comes to actually applying PPP, there are considerable controversial issues such as what kind of cost should be included in the scope of PPP, or what should be done when the polluters are not in bankruptcy. However, the most important point in relation with EPR is the question of who is the polluter. When we regard EPR as an applied form of PPP, who would be the polluter? In relation with EPR, the polluter is not the direct emitter of wastes. It is rather the agent who is able to integrate the agents acting individually under the segmented socioeconomic system by controlling the product chain, thus reducing the social costs and losses generated by the current product chain. The polluter in EPR is the agent who is able to reduce the social costs generated by the product chain; in other words, it is the agent who is capable of playing a decisive role in controlling the product chain.

The same argument is developed by OECD; by taking as an example the pollution problem of automobile exhaust, OECD (1992) also argues that the polluter should be described as an economic agent who has a decisive role in pollution problems and capacity to perform most efficiently in the pollution chain, rather than an agent who directly emits the pollution, taking into consideration economic efficiency and facility in administrative management.⁴

⁴. The author was given instruction on this point by Mr. Yosuke Asaki, in the doctoral program of Graduate School of Economics, Kyoto University.

It follows from the above discussion that the polluter in EPR is not the direct emitter of wastes, but it is the agent who created the structure of mass waste generation, by not utilizing their capacity to control the product chain. When we consider the reason why they did not use their controlling power, it must be because the system of sharing the responsibility was not established in such a way to enhance them to do so. It means that we are facing an issue of choice with regard to the methods of sharing the responsibilities for the appropriate waste disposal and recycling. From this viewpoint, it is possible to say that EPR is an institutional policy measure that places responsibilities to the agent who has the controlling power, so that they would actually exercise the ability. At the same time, the rules regarding sharing of responsibilities will be an institutional foundation for creating a recycling-oriented society, where the abatement of waste generation, promotion of reuse and recycling are incorporated within the society.

Now, some references to several remaining issues should be made.

The first issue is to investigate the concepts of controllability of the product chain and the agent's controlling power more thoroughly. Various indexes can be supposed, such as technological capacity for recycling, exclusive possession of knowledge and information and options in product design. In general, it is the final producers that have such abilities, however, examinations on possible exceptions should be carried out with regard to the contents and the conditions of the exceptions.

Secondly, it requires some consideration whether it is appropriate to regard the agent who has the controlling power as the same agent who is capable of conducting optimum control of the product chain, including waste treatment, at the minimum cost. If so, it seems possible to utilize the concept of "cheapest cost avoider" (Calabresi, 1970), a concept proposed in relation with a compensation system for traffic accidents, to have a similar formulation for the agent who has the controlling power. If not so, more specific definition would be required to clarify the cases where they would not be regarded as the same.

Thirdly, it is necessary to define both the positive aspects and problems of separately discussing the issue of allocation of responsibility (the physical responsibility in EPR) and the issue of cost sharing (Hosoda, 1999). By separating these two issues variety of the options for the institutional design of EPR significantly increases; therefore it is evident that more flexibility would be secured in the establishment of the institution. However, when separating the issues of allocation of the responsibilities and cost sharing, it should be carefully examined whether the result would be the same with the case when they are not separated, with regard to the structures of incentives and allocation

of the responsibilities. This point is in relation with the issue of shifting the costs and its incidence. More specifically, it means that even when both the physical and financial responsibilities are imposed on the producers at the same time, these responsibilities may still be shifted to the consumers, suppliers of raw materials and laborers through the market mechanism. It may be possible to minimize the needs to make the shift itself by technological innovation, however, with regard to which of the above cases would emerge to what extent, it should be examined on a case-by-case basis, as it depends on the market structure of the concerning product, as well as on the conditions of the industrial organizations. In addition, the consequential result would not be the same with the case where only the physical responsibility was reallocated and the relevant costs are imposed on the other agent. Accordingly, even if the physical responsibility is imposed on an agent who has the controlling power and we separate the issue of cost sharing from the issue allocation of responsibilities, it still remains as an important issue of the institutional design to define an agent as the primary of the costs.

5. Conclusion

EPR is not a definitive concept yet, however, it is a very attractive concept as it institutionally creates dynamic movements of the producers in order to contribute to the establishment of a recycling-oriented society. While it is still in a developing stage as a policy measure, it has already been introduced in many countries and there is increasing number of actions taken as experimental approach. It is necessary to implement an ex post evaluation of such experimental approach and existing institutions, in order to evolve the institutions and the policy measures relevant to EPR, as well as to keep making efforts to clarify the position of EPR within the system of public policy which aims to contribute to the establishment of a recycling-oriented society.

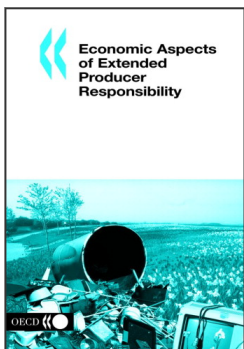
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