

Waste Policy: A Public Choice Analysis

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Abstract

How society should deal with industrial and household waste has become an important policy problem. In recent years, several types of public policies to reduce waste disposal and to increase recycling have been considered and implemented. A rich set of economic and public policy thoughts has been devoted to the waste management problem, but little contributions has taken a public choice approach. Nonetheless, waste and other environmental policies are in the hands of the public sector and it involves collective decision making. In this paper we emphasise that political institutions must be taken into consideration when explaining public policies. Public Choice approach is a useful tool explaining some important features of decision taking by governments in the apparent pursuit of social welfare, environmental quality and economic sustainability.

1. Introduction

One of the most popular definitions of Economics says that “Economics is the study of how people and society choose to use scarce productive resources with alternative uses to produce various commodities and distribute these goods to various members of society for their consumption”. This is the classic definition of Economics formulated by Lord Lionel Robbins (1932) in his famous book: *An Essay on the nature and significance of Economic Science*.

The economic problem is how to use limited resources. Scarcity and the need to choose among alternative uses are the two main characteristics in the concept of Economics. Nevertheless, our problem is that waste is not scarce. Economists do not feel comfortable with a commodity whose problem is not scarcity but rather abundance. The volume of urban and industrial waste has

risen substantially, with the continued increase in packaging and consumption associated to economic development. In the last decades, taking out trash has become a major headache for local governments (Keeler and Renkow, 1994).

The question is quite complicated, and it involves environmental, engineering, economic and political dimensions. Economic literature on waste has focused on two main fields: on the one hand, the theoretical problem of inefficiency in the allocation of the resources when market failures take place, and, on the other hand, the more entrepreneurial problem of waste management; that is, how to collect, to haul and to process waste efficiently and how to finance these activities. In the last decades, waste management policy has shifted from improving environmental standards of waste disposal facilities to minimising the amount of waste sent for disposal and to increase recycling.

2. Waste and market failures.

The economic literature, from the market failures perspective, deals little with waste policy, but mainly refers to environmental problems. However, urban and industrial waste can be considered as a particular case of environmental pollution.

A first approach starts from the work of Arthur Pigou (1920), so the problem can be presented in terms of social costs. Industrial production and consumption of packed commodities are waste generating activities. Firms and consumers take their decisions according their own benefits and costs. Maximising behaviour rules show that they will try to equate their marginal private costs to their marginal private benefits, without taking into account the costs of collecting and managing the waste they generate. As a consequence, the social costs are higher than the social benefits. An excess of production or consumption activities occurs, and, consequently, an excess of waste takes place.

Waste is an unpleasant byproduct of the production process or of consumption, and it is viewed as an externality demanding to be internalised.

The social cost approach justifies the intervention of government to close the gap between social and private costs¹. The classic proposals dealing with negative externalities becomes a useful guide for waste policy.

We find two main ways of direct public intervention. The first one is to regulate those activities that produce negative externalities. Regulation can reduce negative externalities by establishing limits on production or consumption volumes, raw materials, production processes or packaging conditions which try to reduce the waste generation, to reduce the harmful of waste or to facilitate the recycling of waste. The problem is that the regulation can be a significant source of monopolistic economic rents that finally produce a worse outcome in terms of economic efficiency.

In order to correct the market failures, a second way consist in modifying the costs or the benefits of the activities that produce externalities through taxes and subsidies. The aim of the so called “*pigouvian taxes*” is to approach the private costs to the social costs by increasing the private costs, as a way to internalise the externalities. An efficient tax per unit must be equal to the difference between the marginal social cost and the marginal private cost.

An alternative approach suggests that market forces would be able to deal efficiently with the problem of social costs. From this perspective, regulation, taxes and other corrective measures may well produce more harm than the original deficiency². In sharp contrast to Pigou’s assertion that “no invisible hand can be relied to produce a good arrangement of the whole from a combination of separate treatment of the parts...” (Pigou 1920, p. 195), the Nobel laureate Ronald Coase opened up a new way analysing the problem of externalities. The “*Coase Theorem*” (Coase 1960) asserts that if property rights are well defined and the parties can transact at low

¹ “It is therefore necessary that an authority of wider reach should intervene to tackle the collective problems of beauty, of air and light, as those other collective problems of gas and water have be tackled” (Pigou 1920, p. 195)

² Buchanan and Stubblebine (1962) stressed the difference between “relevant externalities”, where the cost of corrective action is less than the anticipated gains, and those they called “irrelevant”, meaning that the cost imposed on third parties were less than the cost of government intervention.

cost, externalities can be internalised through negotiation among the private parties, without needing a public coercive mechanisms³.

3. Economic prescriptions on waste policy

Since the environmental revolution that began in the late 1960s, environmental economic literature has mainly dealt with the development of analytical tools in order to correct market failures where private agents do not take into account the social costs (Baumol and Oates, 1975).

Many regulatory and non regulatory policies were grounded on the pigouvian analysis of externalities. From this perspective, waste policy initiatives have been studied and applied to various industrial hazardous waste, and also some attention has been paid to the significant problem of residential solid waste.

Initially, the economic literature on waste policy mainly dealt with the problem of efficiency of waste management. For many years, the problem was how to make more efficient collecting, hauling and managing solid waste. More recently, the attention has moved from minimising the costs of waste management alternatives —landdisposal, incineration and recycling— to the environmental and sustainability questions. Thus, waste management has shifted from improving environmental standards of waste disposal facilities to minimising the amount of waste sent for disposal and to increase recycling. The rise of the land prices, the local opposition to new landfill construction and the increasingly stringent environmental regulations have made the traditional solid waste disposal more and more expensive and recycling has become a more interesting alternative (Keeler and Renkow, 1994). The new aim is to manage waste in a manner that it will protect the environment and the public health, and that it will conserve resources.

³ Obviously, in many cases transaction costs are neither nil nor irrelevant, but the Coase theorem can be useful as a guide for establishing public policies which look in a new way at the institutional market mechanisms, and which are more efficient than the Pigouvian taxes or regulations.

Traditionally, the policy locus of waste management was largely the local government. Collecting household waste was considered as a local public good. The question was mainly to determine the volume of public expenditures devoted to this service. The municipal authorities have to decide how to collect and to haul the waste and what to do with it (land disposal, incineration or recycling), and how to finance those activities.

But these activities generate significant externalities. In addition to requiring valuable land space, the management of waste releases numerous pollutants to the air, to the water and to the soil. These externalities exceed the municipal sphere in such a way that the central governments began to regulate these activities. Then, waste management became a problem shared both by the central government and the municipalities: the central government regulating the conditions of the activities to make it more safe and healthy and to reduce the externalities, and the municipalities managing directly the collection and the treatment of waste. The externalities of hazardous waste disposals (including nuclear ones) spill over the local dimension, and therefore require a national waste regulatory policy or even, in some aspects, a supra-national policy, as in the European Union.

In the case of the integrated market of the European Union, the problem acquires a new dimension. To the extent that the environmental and waste regulations affect the costs of industries and the competitive conditions of the firms, harmonisation of the regulatory policies becomes necessary.

The new emphasis on waste reduction has increased the attention paid to the role of household decision making⁴. Until recently, this question deserved little attention because waste collection and disposal had been often financed either by property taxes or by modest fixed taxes that are not related to the volume of waste generation (Morris and Holthausen, 1994).

In recent years, several types of public policies to reduce solid waste disposal and to increase recycling have been considered

⁴ Studies of the price and income effects on solid waste collection and disposal services were initiated with the raising of environmental concerns in the 1970s about open landfills and increasing cost of alternative disposal methods.

and implemented⁵. A large part of environmentalists, engineers and economists agree on a waste management hierarchy. The hierarchy ranks waste management methods prescribing that it is best to reduce the generation of waste at the source, then to recycle and compost what cannot be reduced, and, finally, to incinerate or landfill the remainder⁶.

This hierarchy has received a widespread support from environmentalists, but it is difficult to reach an agreement with industrial groups and elected officials on how to reduce waste generation and how to increase recycling. Moreover, some critics have attacked the hierarchy and its extensive reliance on reduction at the source and recycling as misguided and expensive.

4. Waste policy and Public Choice

In the last decades, environmental economic literature has risen sharply, but the number of articles that take a Public Choice approach are much fewer in number, and few of them deal specifically with waste policy (Yandle, 2001, p. 590). Nonetheless, we can find substantial insights offered by these contributions. After all, any waste policy, as a public policy, involves a collective decision making. Public Choice approach explains some important features of public decision making processes.

Public Choice analysis has an obvious linkage that connects it to the traditional Economics of market failures. But in the economic analysis of externalities, the legal and political institutions that force economic agents to take into account the

⁵ Some policies rely on fees, including deposit/refunds and “advance disposal fees”, product taxes intended to discourage consumption of disposable goods (Palmer, Sigman and Walls, 1997).

⁶ The new waste management hierarchy has been widely assumed by the European Union. The Community strategy for waste management was first drawn up in 1989. The Commission outlined the main point of that strategy namely: - Prevention or reduction of waste at source as the highest priority. - Promoting recycling. - Harmonising standards for incineration and landfill. - Tightening up on existing rules on the transport of waste. - Cleaning up sites that have been polluted by waste.

costs of their actions were largely overlooked or not fully understood.

The previous discussion has focused almost exclusively on economic efficiency. It is assumed that public interest guides the behaviour of governments. However, the demands of special interest groups for government favours, putting pressure on decision makers—including legislative body and public officials—can not be set aside. To the extent that politics enter, the normative assumption of social welfare maximisation must be replaced by a positive analysis of political choice.

Public Choice Theory is useful both in positive and in normative analysis of public policy. Positive theory explains policies as a result of the political decision making process, and normative analysis suggest institutional design and rules in order to improve the performance of public institutions and public policy.

Anthony Downs, James Buchanan, Gordon Tullock and Mancur Olson established the Public Choice foundations to be applied in the analysis. Downs (1957) placed political decisions making in an economic context and analysed some of the difficulties that emerge when votes replace price mechanism. Buchanan and Tullock (1962, 1975) apply the individualistic methodology of the market to collective decision making and provide explanations of how the rules of majoritarian politics can impose high costs on minorities. Rejecting the notion that political behaviour is explained by a public interest theory, they assume that self-interest is a better explanation of the political behaviour. This assumption means that self-interest motivated politicians dominate the political process. And Olson (1965) introduced the role of organised interest groups in political decision making.

As in the market decisions, political agents have the same incentives as other normal human beings. They are motivated to improve their own wellbeing, which generally means keeping their elected or appointed public-sector jobs while maximising expected lifetime earnings. With the significant increase of people's concern on environmental and waste management that brought massive government intervention in markets, Public Choice theory provides an analytical framework to explain political action, predict outcomes and analyse their implications.

In order to minimise waste production and recycling, waste management policy has changed towards a closed substance cycle. The sphere of the waste policy is no longer the production of a public local good, but it has been moved to the much more wide field of the regulation of industrial production processes and household behaviour. From this perspective, it is not Welfare Economics which can explain to us the environmental and waste policies but Public Choice, whose field of study is the political process of the elaboration and the establishment of the rules, the decision making mechanisms and the political negotiations conceived in an exchange contest.

Even if we agree with the new waste policy hierarchy, the problem remains unsolved. Which is the best policy in order to reduce the waste generation at the source?

A wide regulation on production and packaging (in some cases jointly with voluntary reduction by industry) aims to ensure that packaging is made compatible with environmental requirements and is easily recoverable. Regulation on waste disposal and on sanitary landfills, minimum recycle laws and incentives to the competitiveness of the recycling industries complete the framework of the new waste policy. These evidences suggest that the new waste policies are mainly grounded on regulatory measures.

But Public Choice Theory shows us how regulation generates monopolistic opportunities to obtain economic rents⁷. Therefore, economic agents will have incentives to assign economic resources to influence political decisions, which give them either a monopolistic position or some advantages on competitors.

Rent Seeking Theory explains this kind of behaviour which always is a waste of resources (Buchanan, Tollison and Tullock, 1980). Outcomes generated by the political process are conditioned by special interest pressures explained by rent seeking and bureaucratic behaviour. In a political system where vote determines outcomes, special interest groups have operational incentives to

⁷ Buchanan and Tullock (1975) argued that a competitive industry has something to gain from federally mandated pollution restrictions. The industry can be cartelized.

seek favour or rules in the resulting political economy. Interest groups that have something to gain —be they environmentalists, industrialists or members of the bureaucracy— will organise their efforts to communicate their demands to the members of the legislature. Each organised interest group will spend resources to influence the regulatory process. Some will seek to deflect costs, others will seek to impose costs on competitors in the hopes of gaining additional profits or rents⁸.

Empirical studies show that environmental and other regulations provide identifiable benefits to special interest groups, which include industrial firms, environmentalists and others who can appropriate gains from government intervention. (Pashigian 1985, Hird 1993, Dalton, Riggs and Yandle 1997, Yandle 2001). These evidences suggest that a waste policy grounded on regulation may be misguided and does not contribute to the economic efficiency. The theory suggests that we should not expect efficiency to be the driving force that determines political outcomes. The greater the political involvement in allocating a given resource, the less efficient the outcomes will be.

Waste is a byproduct of consumption or production activities that has a positive supply at a price equal to zero and that (even when waste can be recycled and can be obtained from it valuable goods) there is not enough demand for it at this zero price. Waste has not a market price and market is not able to allocate waste (mainly because environmental property rights are not well defined). However, market criterions could be useful in order to draw a more efficient waste policy.

Regulation can be substituted by economic incentives in accordance with the “polluter pays” principle. Obviously, governments must prohibit the uncontrolled discarding, discharge and disposal of waste. The costs of waste management can be internalised assuring that all holders of waste shall hand them over to private or public collection agencies or manage it themselves in compliance with safety requirements. A way to promote waste

⁸ On the other hand, politicians are noticed of the fact that they are able to obtain rents by announcing regulations that special interest groups will try to deflect or to soften. McChesney describes this strategy as “rent extraction” whereby the politicians receive “money for nothing” (McChesney 1997)

reduction and recycling is to ensure that the costs of disposal of waste were borne by its holder, who will hand his waste over to a collector, or else the cost will be borne by the producer who had generated the waste.

REFERENCES

Baumol, William J. and Oates, Wallace E. (1975) *The theory of Environmental Policy*, Englewood Cliffs, NJ.: Prentice-Hall.

Buchanan, James M.: and Stubblebine, W. Craig (1962), "Externality", *Economica*, 29, 371-384.

Buchanan, James M.; Tollison, Robert D. and Tullock, Gordon (eds.) (1980) *Towards a Theory of the Rent-Seeking society*, College Station: A&M University Press.

Buchanan, James M. and Tullock, Gordon (1962) *The calculus of Consent: Logical Foundations of Constitutional Democracy*, Ann Arbor: University of Michigan Press.

Buchanan, James M. and Tullock, Gordon (1975) "Polluters' profits and political response: direct controls versus taxes" *American Economic Review*, 65, 139-147.

Coase, Ronald H. (1960), "The problem of social cost", *Journal of Law and Economics*, 3, 1-44.

Dalton, Brett A., Riggs, David W. And Yandle, Bruce (1997) "The political production of Superfund", *Eastern Economic Journal*, 30, 110-121.

Downs, Anthony (1957), *An Economic Theory of Democracy*, New York: Harper & Row.

Hird, J. A. (1993), "Congressional voting on Superfund: self-interest or ideology?" *Public Choice*, 77, 333-357.

Keeler, Andrew G. and Renkow, Mitch (1994), "Haul Trash of Haul Ash: energy Recovery as a Component of Local Solid Waste

Management”, *Journal of Environmental Economics and Management*, 27, 205-217.

McChesney, Fred S. (1997), *Money for Nothing: Politicians, Rent Extraction, and Political Extortion*, Cambridge, MA: Harvard University Press.

Morris, Glen E. and Holthausen, Duncan M. (1994), “The Economics of Household Solid Waste Generation and Disposal” *Journal of Environmental Economics and Management*, 26, 215-234.

Olson, Mancur (1965) *The logic of Collective Action: Public Goods and the Theory of Groups*, Cambridge, MA: Harvard University Press.

Palmer, Karen; Sigman, Hilary and Walls, Margaret (1997), “The Cost of Reducing Municipal Solid Waste”, *Journal of Environmental Economics and Management*, 33, 128-150.

Pashigian, B. Peter (1985), “Environmental regulation: whose interests are being protected?”, *Economic Inquiry*, 23, 551-584.

Pigou, Arthur C. (1920), *The Economics of Welfare*, London: Macmillan.

Robbins, Lionel (1932), *An Essay on the nature and significance of Economic Science*, London: Macmillan.

Yandle, Bruce (2001), “Public Choice and the environment” in Shughart, William f. And Razzolini, Laura (eds.), *The Elgar Companion to Public Choice*; Cheltenham: Edward Elgar.