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Revenue Services and Environmental Taxes: a Comparative Study of the Irish and South African Approaches to a Levy on Plastic Bags

BY
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1. INTRODUCTION

This paper examines a levy on plastic bags introduced in Ireland in 2002, and a comparable measure phased in by South Africa from 2003. It looks at the approach taken by the Revenue in each case, and isolates key influences on the policy formation process. It assesses the effectiveness of each measure as an environmental tax, in terms of the potential to achieve a double dividend for the economy. It describes difficulties encountered in the introduction and implementation of the levies, and suggests refinements to improve the effectiveness of such levies if introduced in other jurisdictions.

General trends in taxation in Europe, according to the European Environment Agency¹, show that labour taxes are increasing, capital taxes are falling, and environmental tax revenue is relatively stable, while at the same time “green tax reforms’ are being introduced in several European countries in an effort to use the new stream of revenue to reduce labour taxes. The agency contends that environmental taxes are an effective way of tackling pollution issues, and recommends an increase in their use, in part by expanding the tax base to target previously untaxed pollutants.

The lightweight plastic shopping bags commonly used in Ireland up to 2002 and South African up to 2003 were neither biodegradable nor substantially reusable, and so the environmental threat they posed constituted a significant negative diseconomy, not associated with more durable, reusable bags. The levies introduced in Ireland on 4th March 2002 and South Africa on 9 May 2003 sought to reassign the wider social cost of this environmental hazard to those taxpayers responsible for placing plastic bags in the waste stream. At the same time, the levies were intended to raise revenue, which could be used to reduce distortionary taxes on labour and capital. In effect, they aimed to achieve a double dividend for society.

The paper is set out as follows. Section two discusses research on the influence of taxes on taxpayer behaviour, to provide a framework within which to evaluate the levy. Section three reviews the theory on environmental taxes, describes the double

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1 The European Environment Agency, “Environmental taxes – Implementation and Environmental Effectiveness” (1996) Environmental issue report no. 1 at page 3

dividend hypothesis, and briefly reviews studies in this area. Section four sets out the background to the introduction of the tax in Ireland, the alternatives considered by the government at the time, and the details of the levy as introduced. Section five mirrors this process for South Africa. Section six seven concludes, suggests refinements on the taxing mechanism and suggestions for its smoother implementation in other jurisdictions.

2. THE INFLUENCE OF TAX

A key question in tax research is whether or not taxes can influence behaviour. Proponents of tax neutrality would argue not alone that they do not, but also that they should not. Tax neutrality is often cited as a goal of reform legislation, yet tax systems are rarely neutral. Mintz² states:

Governments rarely try to achieve [tax] neutrality ... they purposely try to influence investment behaviour by giving special exemptions or deductions

Governments continue to use the tax system, not only as a source of revenue, but also as a tool to influence taxpayer behaviour, despite the associated costs. Norregaard and Owens³ observe:

There has recently been a shift from interventionism to neutrality, in part reflecting a growing scepticism about the ability of governments to 'pick winners' and an increased awareness that the cost of incentives in terms of revenue foregone may exceed the extra investment generated by these subsidies. Nevertheless, governments continue to subsidise particular activities and sectors.

Scholes and Wolfson⁴ identified three non-neutral aims in the design of a tax system.

"Among other things, taxes are designed to (1) finance public projects ... (2) redistribute wealth ... and (3) encourage a variety of economic activities that are deemed to be in the public interest.

Environmental taxes place a particular emphasis on the third of these objectives, seeking to change taxpayer behaviour so as to minimise activities deemed harmful to the environment. The reactions of taxpayers to tax changes, and the degree with which they conform to policy objectives, are therefore of particular interest for environmental taxation policy. Maydew⁵ notes that:

Empirical estimates of the extent to which various tax regimes affect behaviour is ... central to understanding whether and how much those tax regimes generate deadweight costs

2 J. Mintz, "The corporation tax: a survey" (1996) *Fiscal Studies*, 16, 4 at page 41

3 J. Norregaard and J. Owens, "Taxing profits in a global economy" (1992) *The OECD Observer*, at 36.

4 M. Scholes and M. Wolfson, "Taxes and Business Strategy – a planning approach" (1992) Prentice Hall, at 4

5 E. Maydew, "Empirical tax research in accounting: a discussion", (2000) SSRN working paper, (subsequently published in *Journal of Accounting and Economics*, 31) at 7

Many environmental taxes aim to reduce an output that is not directly measurable, such as carbon emissions, but are levied on a more convenient, but not always perfectly correlated proxy, such as petroleum sales. The plastic bag levy is different, in that consumption of the product is measurable, and is close to the target of the tax, plastic bags entering the waste stream. This provides an interesting quasi-experimental setting in which to evaluate the effectiveness of this sort of tax.

3. ENVIRONMENTAL TAXES AND THE DOUBLE DIVIDEND

This section initially looks at environmental taxes, how they have been categorised, and the factors influencing their successful implementation, before going on to discuss in more detail the idea of the double dividend hypothesis.

3.1 Environmental Taxes

Environmental taxes may be categorised either by target or by purpose. For example, Ecotec (2001)⁶ identifies nine classes of environmental taxes, targeting respectively air emissions, water abstraction, waste water, pesticides, fertilizers, landfill, aggregates, packaging and batteries. By contrast, the European Environment Agency⁷ categorises environmental taxes into three main types by purpose:

- cost-covering charges – e.g. designed to cover the costs of environmental services and abatement measures, such as water treatment (user charges) and which may be used for related environmental expenditures (earmarked charges):
- incentive taxes – designed to change the behaviour of producers and/or consumers: and
- fiscal environmental taxes- designed primarily to raise revenues.

They note that very often a single tax can serve a mix of these three functions. Most green taxes include at least some element of incentive effect in their design, and so by definition are not neutral, as they seek not only to raise revenue, but also to directly influence taxpayer behaviour, to the benefit of the environment.

The European Environment Agency goes on to include a checklist for successful implementation of environmental taxes⁸. The principal points are: detailed advance studies on the likely impact of the tax; extensive consultation with fiscal authorities, stakeholders and the public; recycling of the revenues to taxpayers or related sectors; an increasing incentive effect over time and in-built evaluation measures. If these are met, the agency contends that the tax should reassign the cost of pollution from society as a whole to those responsible for the problem, bringing the private cost of negative externalities up to the level of the social cost. This is the essence of the “polluter pays” principle.

6 Ecotec, “Study on the Economic and Environmental Implications of the Use of Environmental Taxes and Charges in the European Union and its Member States”, April 2001, at page 3

7 The European Environment Agency, n 1, at 2

8 The European Environment Agency, n 1, at 10

3.2 The Double Dividend

Arthur Pigou (1877–1959) developed the concept of a “national dividend” as a monetary measure of aggregate economic welfare⁹. He noted that an increase in production of a given good can have effects external to the producer, and that these externalities can be negative or positive. Common examples are respectively a polluting factory, which damages the local environment, creating negative externalities in the surrounding community, or a lighthouse, which is useful to all ships, including those who have not paid for it, and so enjoy a positive externality at no cost. Pigou argues¹⁰ that positive externalities persist where there is no efficient way of charging the beneficiaries for the spillover effect they enjoy, while negative externalities will persist as long as there is no impediment, since the cost accrues to a non-contracting party.

The national dividend is defined as being maximised when negative externalities are eliminated. Pigou proposes that this can be achieved by what has become known as a Pigouvian tax. This is a levy on products or transactions that produce negative externalities, calculated to bring the private cost up to the social cost, and to compensate wider society for the negative externality. This encapsulates the “polluter pays” principle, that the costs of environmental damage should be paid for by the polluter, rather than the taxpaying public.

Within this framework, a levy imposed only on those lightweight plastic bags that pose a pollution threat is a fair tax. The argument is that the tax removes a previous implicit subsidy by society for the environmental damage they cause, and levels the playing pitch for producers of competing, more socially responsible products. Such a levy also raises revenue for the government, which should allow it to reduce other taxes that create distortions. The most common examples of distortionary taxes given in the literature are payroll taxes, which reduce the incentive to work, and capital taxes, which dampen the incentive for enterprise. If a Pigouvian tax can raise sufficient revenue to allow the government to reduce labour and capital taxes, the argument goes that it will yield a “double dividend”: first by eliminating the negative externality, and secondly by allowing distortionary taxes to be reduced. The overall effect of the switch from labour or capital taxes to Pigouvian taxes may be revenue-neutral, but the improved efficiency of eco-taxes constitutes a “second” dividend, in addition to the improvement in the environment.

Recently considerable doubt has been cast on the validity of the double dividend hypothesis. Arguably, a Pigouvian tax will increase the cost of the product or service on which it is levied, and this cost will be passed on to the ultimate consumer, negating the effect of any increase in welfare arising from the removal of distortionary labour or capital taxes¹¹. This counter-argument has been challenged

9 His work in this area was based in part on that of Alfred Marshall (1842–1924) and Henry Sidgwick (1838–1900). See Y. Yoshino, “An Essay on Pigouvian Externality” (2001) University of Virginia Working Paper, for more discussion.

10 In A. Pigou, “The Economics of Welfare: 4th Edition” (1932) London, Macmillan.

11 As reported in I. Parry, “The Double Dividend: When You Get it and When You Don’t” (1998) presented at the US National tax Association Meetings, Austin Texas.

by researchers such as Schleiniger¹² using newer models that incorporate the short-run public perception of tax savings as disproportionate to price changes.

A second counter argument says that for the second dividend of improved efficiency in the tax system to be achieved, the tax raised must be passed costlessly to government and back again to those who bear the social cost of the pollutant. This recycling must be achieved without contributing to tax distortions in labour or capital markets. Effectively, the revenue raised by the Pigouvian tax must be greater than any tax interaction effects. This is clearly problematic, but may be less of an issue where the revenue raised from the Pigouvian tax is small relative to that raised by distortionary taxes it aims to replace. Kerr¹³ notes, “tax interactions are only really critical where the anticipated tax is large”

One difficulty with these discussions is that analysts have defined the second dividend in many different ways¹⁴, which has led to some confusion. There is broad agreement on the availability of the first dividend of environmental improvements. Goulder¹⁵ takes the view that the preoccupation with determining the extent of the second dividend arises from uncertainty about the magnitude of the first. He defines three forms of the double dividend as follows: for weak-form to be achieved, it must be shown that recycling the revenues from Pigouvian taxes is more efficient than returning them to taxpayers in cash. In the intermediate form, it is theoretically possible to identify a tax so distortionary that its substitution by Pigouvian taxes would improve the efficiency of the overall tax system. Finally, if the strong form holds, substituting most taxes by Pigouvian taxes would improve the efficiency of the tax system. Goulder reviews the literature and finds widespread evidence of the weak form, and mixed results for the stronger forms. He concludes that more research should be focused on the first environmental dividend¹⁶. This gap could be addressed in part by a study of the Irish levy on plastic shopping bags, since any reduction in the pollutant in response to the tax is directly measurable. This makes the tax an interesting case study of the first part of the double dividend.

4. THE IRISH SITUATION

This section sets out the background to the tax in Ireland, gives details of how the levy was implemented, and assesses its potential for a double dividend.

4.1 Background to the tax in Ireland

The main environmental issues facing Ireland at the end of the 20th century were extreme traffic congestion in urban centres, haphazard development of one-off rural

12 R. Schleiniger, “Money Illusion and the Double Dividend in the Short Run” (2001) University of Zurich Working Paper No. 93.

13 S. Kerr, “Ecological Tax Reform” (2001) Report Prepared for the New Zealand Ministry of the Environment, at 9

14 See L. Goulder, “Environmental Taxation and the Double Dividend: A Reader’s Guide” (1995) *International Tax and Public Finance*, 2 and R. Patuelli, E. Pels, and P. Nijkamp, “Environmental Tax Reform and Double Dividend” (2002) Tinbergen Institute Discussion Paper, for discussions on this aspect.

15 Goulder, n 14

16 Goulder, n 14, at 176 “Research that helps establish the environmental benefits associated with various environmental tax options will have considerable value to policy analysts”

housing, resistance to the tolling of roads, illegal dumping, low level of recycling, and surface water issues arising from intensive agriculture. Despite an international reputation as a rural country with a clean environment, Ireland remained largely dependent on landfill for waste disposal throughout the 1990s. This led directly to problems such as water contamination and visual damage to the landscape.¹⁷

The landfill problem was growing. Almost 2.3 million tonnes of household and commercial waste were produced in Ireland in 2000 – an increase in excess of 60 per cent in five years. In 2000, 87.8 per cent all household and commercial waste was disposed of by landfill, with only 12.2 per cent being recycled. At this time, plastic accounted for about 15 per cent (by weight) of landfill waste¹⁸. However lightweight plastic bags were identified as a particular problem, the plastic commonly used in lightweight shopping bags does not degrade in a natural environment even where it is disposed of in landfills, and produces toxic gas when incinerated. These bags are also prone to wind dispersal. This produces a danger to farm animals and wildlife, as well as visual pollution, which threatens tourism. All of these factors led to lightweight plastic bags being identified as a priority for elimination.

In 1999, the Irish government commissioned a study¹⁹ to examine use of plastic shopping bags in Ireland, and their effect on the environment. The report assumed that consumptions levels proxied litter levels, so a reduction in levels of use would result in a corresponding reduction in plastic bags entering the waste stream. It examined existing trends and initiatives designed to reduce plastic bag use, weighed the environmental cost of plastic and paper shopping bags, and evaluated a number of alternatives designed to reduce the number of plastic bags ending up in the waste stream.

Five categories of alternatives were put forward as possible solutions. These were levies at various points in the life cycle of bags, producer responsibility initiatives such as return schemes, other regulatory measures such as banning or public education, voluntary measures and increased resources for dealing with the problem of plastic litter after it occurs.

At this time, the three major national supermarket chains offered incentives to customers to reduce plastic bag usage. Two offered a reasonably priced durable branded shopping bag with a lifetime guarantee while the third chain ran a return scheme, whereby 0.1p was donated to charity for each lightweight bag reused. The former scheme had very limited uptake, while the latter led to a reuse level of only 0.5 per cent of the chains annual plastic bag consumption. This is in line with experiences in the UK of voluntary reuse schemes. The lack of success was attributed by the Fehily report²⁰ to consumer apathy and the free and convenient availability of lightweight plastic bags. Traditionally, Irish or UK supermarkets have not supplied paper shopping bags, and no charge was generally made for the lightweight plastic equivalent.

17 See <http://www.epa.ie> for an extensive discussion on the problems of landfill in Ireland

18 Fehily Timoney & Company, "Consultancy Study On Plastic Bags" prepared for the Irish government, in association with Aspinwall and company, January 1999.

19 Fehily, n 18

20 Fehily, n 18

Table 11: Qualitative Assessment of Policy Instruments (Fehily n 18, at 73)

	Relative Effectiveness (benefits)				Costs (economic and environmental)			Practical Implications
	Reducing Bag Consumption	Reducing quantity of waste going to landfill	Reducing litter problems	Secondary Environmental Impacts	NET social cost of waste avoided	Relative change in employment	Relative change in employment	
Relative Importance of criteria	Medium	medium	high	medium	High	high	High	
1. Fiscal Measures:								
Levies on domestic production	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Levies on import	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Levies on wholesale supply	Medium	Low	Medium	Medium (2)	Low	(-) Low (3)	Low (4)	
Levies at the point of sale	High	Low	High	Medium (2)	High (1)	(-) Low (3)	High (4)	
2. Producer Responsibility:								
Collection & take back schemes	Low	Low	Low/Medium	Nil/Low	High (5)	(+) Medium	Medium	
Deposit / refund schemes	Low	High	High	Nil/Low	High (6)	(+) Medium	High	
3. Other regulatory measures:								
Prohibition on some types of bags	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Public education	Low	Low	Medium	Nil	Nil	(-) Low	Low	
Controls on composition	Nil/low	Nil/low	High	Medium (7)	Low	(+) Low (8)	Low	
4. Voluntary measures	Low/medium	Low/medium	Nil/Low	Nil	Medium	(-) Low	Low	
5. Street cleaning & bin management	Nil	Low/medium (9)	Medium (10)	Low/Medium (11)	High	(+) Medium	Low	
1. Assumes a high number of outlets covered by the regulation								
2. Indirect impact of paper bags								
3. Reduction in plastic bag output to some extent offset by increase in output of paper bag manufacturers								
4. Assumes limited exemptions to retail outlets								
5. Requires investment in collection facilities in stores as well as transportation of recovered materials								
6. Same as for collection & take back schemes, except financed by consumer								
7. Could lead to a slight increase in paper bag use with knock on environmental consequences								
8. Most jobs likely to be generated outside Ireland –e.g. US								
9. Depends if recovered material is recycled or not								
10. Intuitive assessment								
11. Additional energy consumed in collection vehicles.								

Based in part on this experience, the report concluded that a levy would be the optimum solution. This could have been imposed on production, import, wholesale, point of retail sale, or disposal of plastic bags. Levies on import were considered likely to fall foul of EU regulations²¹ prohibiting any internal tax on imports in excess of that levied on equivalent products produced domestically. This problem could have been circumvented by imposing an equivalent levy on Irish-made bags, or by collecting the tax at the point of supply to retailers. Such supply side solutions, while straightforward to administer, were expected to be less efficient in reducing plastic bag consumption, as it was anticipated that many retailers would opt to absorb or indirectly pass on the cost, and continue to supply free bags to customers. The point of sale levy has the advantage of overtly implementing the “polluter pays” principle, and this factor was thought to outweigh any complexities in administration.

The first recommendation was for a point of sale levy of at least 3p, just under 4c. It was accepted at the time that the availability of alternatives was critical to the success of the measure. The use of any alternative to the lightweight freely supplied plastic bag would require a shift in consumer behaviour; at very least a degree of pre-planning which had previously been absent. This was considered difficult to achieve, as a previous government report²² had found that a significant majority (69 per cent) of all Irish shoppers reported that they never brought their own shopping bag on shopping trips. It was anticipated that the success of any policy to reduce plastic bag consumption would hinge on the availability of substitutes for lightweight plastic bags, their cost and efficiency.

Not all of the alternatives are obviously preferable from an environmental perspective. Life Cycle Assessment (LCA) challenges the assumption that paper bags provide an environmentally preferable alternative to plastic. LCA analysis considers all emissions generated from activities over the entire life cycle of a product, starting from the procurement of raw materials, through manufacture, utilisation and disposal. While paper biodegrades easily, it is more expensive to produce, transport and store. Many studies²³ conclude that a switch from plastic to paper bags would not result in any environmental benefit. However, in general LCA does not take into account visual pollution or the long life of plastic in landfill. These are difficult factors to model, absent direct information on how packaging actually enters the waste stream, but they are significant in the case of lightweight plastic bags.

From a retailer’s point of view, the free supply of paper bags was found to be twice as expensive as plastic bags²⁴. For the user, various factors, including ease of use, strength, and reusability are also compromised in the switch to paper. These factors were noted by the Fehily report, but largely not addressed by the regulations subsequently introduced. The report²⁵ also noted that:

21 which call for imports from EU countries to have parity with domestically produced products

22 *Report on Attitudes to the Environment* (ESRI, 1994)

23 Examples of studies comparing the LCA of paper and plastic bags include The University of Winnipeg 1991, Fankling Associates 1990 and Pre Consultants 1996, all of which are referenced in Fehily, n 14.

24 From Fehily, n 18. This is particularly notable where small amounts are purchased. Strong paper bags without handles were found to be more expensive than the ordinary paper bags and those with a handle cost anything between 25–50 per cent more.

25 Fehily, n 18, at 59

The objective of the point of sale levy is to reduce the use of plastic bags. The costs of these measures will be shared by consumers who still wish to pay the higher price for the plastic bags, and the plastic bag supply industry. To the extent that the reduction in plastic bags is compensated by an increase in paper bags, some of this reduction will be offset by benefits of increased output in the paper bag industry.

Fullerton et al²⁶ note that many environmental taxes are, for ease of administration, levied on an input or output which is highly correlated with pollution, rather than on the pollutant itself. For example, US taxes, which aim to reduce vehicle emissions, are levied instead on the purchase of gasoline, because it is unfeasible to tax the emissions themselves. They note that a true Pigouvian tax is strictly a tax on the pollution itself, and that the degree to which such taxes “miss the target” reduces their efficiency.

As Oates²⁷ observed:

A tax on the output or profits of a polluting industry is not, in general, a good substitute for a tax on the offending activity itself

The inefficiency in the levy on plastic bags is relatively slight. It is levied directly on the offending material (lightweight plastic bags), although imposed at the point of sale rather than the point of entry into the waste stream. It aims to reduce the inappropriate disposal of bags by reducing overall usage.

4.2 The Levy in detail

The Waste Management (Environment Levy) (Plastic Bag): Regulations, 2001 were signed into law in December, 2001, introducing a levy of €0.15 at the point of retail supply of most lightweight plastic shopping bags. At the time, the stated purpose was less to generate revenue, than to change consumer behaviour. However, shortly after its introduction, revenues were found to be high, and the potential to achieve a double dividend became clear. At the time of the introduction, an intense advertising campaign was also undertaken, concentrating on the promotion of reusable bags. The date for implementation was set for 4th March 2002, to follow by two months the introduction of the Euro, allowing retailers sufficient time to prepare. Money raised from the Levy was allocated to an Environment Fund, to be used to support appropriate waste management, litter and other environmental issues.

The Levy applies to all plastic bags appropriate for use by customers at the point of retail sale, subject to certain exemptions. These are:

- i) Plastic bags used exclusively to contain fresh food products such as meat, fish, poultry, fruits, nuts or vegetables, confectionary, dairy products, cooked food and ice, provided that they conform to certain size guidelines.
- ii) Plastic bags used in duty free shops.

26 D. Fullerton, I. Hong and G. Metcalf, “A Tax on Output of the Polluting Industry is not a tax on Pollution: The Importance of Hitting the Target” (1999) NBER-FEEM Conference, Milan.

27 W. Oates, “Green Taxes: Can We Protect the Environment and Improve the Tax System at the Same Time?” (1994) address to the 64th Annual Meeting of the Southern Economic Association, Orlando, Florida, at 919

- iii) Durable plastic bags designed for reuse, which are sold to customers for at least 70 cent each.

Retailers are obliged under law to pass on the full amount of the Levy to the customer as a specific charge, and to remit the tax collected by them to the Revenue Commissioners every three months. No VAT is charged on the levy, and it must therefore be itemised separately on any receipt issued to the customer. Retailers are obliged to keep records of the numbers of exempt and taxable plastic bags in stock on the 4th of March, and those in each category bought and sold in each accounting period.

A national poster and leaflet advertising campaign was undertaken by the government in early 2002 to heighten awareness of the aims of the levy. A more detailed document was later issued to the retailers, informing them of their obligations. In interviews with the author, retailers reported that the advertising was extremely effective and achieved what it set out to do. The public was well informed and aware of the levy before its introduction, and retailers had relatively little explaining to do. They were in general less happy with the information provided to them on how to implement the levy.

Revenues from the levy are paid into an environmental fund to be managed and controlled by the Minister for the Environment and Local Government. The fund may only be applied for designated purposes, selected on environmental grounds. This practice of designating a stream of tax revenue to specific purposes is known as earmarking, and is generally good way of generating support for a new tax. In some situations, as pointed out by Markandya²⁸, earmarking can effectively be the price of public acceptance of and compliance with a new levy. Earmarking also ties in with the strictest interpretation of the “polluter pays” idea, in that the cost of rectifying environmental damage is literally met by taxes raised directly from the process of pollution. However opponents of the practice²⁹ argue that by siphoning off the income from a Pigouvian tax for environmental spending, the opportunity to realise the welfare gains from revenue recycling is lost. However, if the environmental projects funded by the new levy would otherwise have been financed from the general pool of tax revenue, there may still be scope for a reduction in distortionary taxes, which in turn would generate a second dividend.

4.3 Evaluating the implementation

In general, the implementation of the levy was smooth. IN particular the advertising campaign undertaken by government was very effective, with the use of lightweight plastic bags being considered undesirable by most shoppers within weeks of the levy’s introduction. Killian (2003) reports a high level of customer satisfaction with the levy, particularly in rural areas where free durable alternatives are more likely to be available. Based on survey data, the level of the tax did not appear to be an issue with shoppers. While a substantial minority would favour an outright ban on

28 A. Markandya, “Environmental Taxation: A Review of OECD Country Experience and Prospects for Economies in Transition” (1993) Development Discussion Paper 471, Harvard Institute for International Development, Harvard University.

29 Opposition to earmarking is also widespread. See Oates, n 27, at 920 or Markandya, n 28, at 8 for discussions

lightweight plastic shopping bags, over 80 per cent of those surveyed a year after its introduction regarded the levy as “a good idea”, and reported high levels of compliance by retailers.

4.4 Achieving the first dividend

For the first dividend to be achieved there must be a reduction in the numbers of lightweight plastic bags entering the waste stream, and no increase in use of environmentally damaging alternatives. The Fehily report³⁰ assumed that any reduction in use would result in a reduction in bags entering the waste stream. If this is accepted, then the levy certainly achieved a significant reduction in lightweight plastic bag waste. The levy generated income of €9.6 million in the ten-month period following implementation. This represents a levy charged on 65 million plastic bags, or an annualised figure of 75 million. Since previous annual consumption of plastic bags was estimated at 1.26 billion³¹, this represents a reduction in consumption of 94%. Perhaps equally importantly, the surveys show an attitude shift on behalf of users, with most consumers and retailers reported a dramatic reduction in use.

The impact on the environment of the alternatives used also needs to be considered. Where cardboard boxes are passed on to customers, this re-use of a product that would otherwise immediately enter the waste stream has no adverse environmental impact. By contrast, Life Cycle Assessment of paper bags shows them to be only marginally more eco-friendly than the lightweight bags they replace. Durable bags have a low environmental impact, provided they are reused often, but there is no satisfactory way of measuring the degree of reuse. Nevertheless, a switch has been made from lightweight plastic bags to a range of alternatives, most of which have lower impact on the environment, and none of which have greater. It follows therefore that the first environmental dividend has been achieved.

4.5 Achieving the second dividend

For the second dividend to be achieved, the net revenue from the levy must be sufficient to permit reduction of distortionary taxes. The Revenue Commissioners incurred costs of €1.56 million in setting up and advertising the levy, and collected €9.6 million by the end of 2002. On the first anniversary of the introduction of the levy, the Department of the Environment estimated that the annual receipts net of ongoing administration costs would amount to €8m³². Arguably, future revenue may be lower, due to the change in consumer behaviour. In that respect, the levy may represent something of a windfall gain for the exchequer. Clearly, however, revenue is raised which could be used to reduce distortionary taxes.

A second condition for achievement of the second dividend is the recycling of these revenues, so as to permit a reduction in taxes on labour and enterprise. The revenue from the plastic bag levy goes to an “Environment Fund” under the control of the Minister for the Environment. Of the €8 million net revenue raised in 2002, two thirds was allocated for the establishment of four new government boards³³. It is

³⁰ Fehily, n 18.

³¹ Fehily, n 18, at 6

³² DoE press release, 4th March, 2003, available online at <http://www.environ.ie/press/press.html>

³³ €5.27 million went to establish the National Waste Management Board, the Recycling Consultative Forum, the Core Prevention Team and the Market Development Group.

not clear that these would have been funded from general tax revenue if the Environment Fund had not been available, and so the second dividend of a potential reduction in other taxes cannot be demonstrated.

A third condition for the second dividend to be achieved is that the revenue from the tax must outweigh costs incurred in its collection. This study shows that both consumers and retailers suffer an ongoing welfare cost as a result of the levy. Employment has also been lost in the domestic plastic bag manufacturing industry. Immediately prior to the introduction of the levy, the Fehily report³⁴ identified three major domestic manufacturers of plastic bags. One firm³⁵ was forced to close with the loss of 23 jobs, citing a reduction in orders following the announcement of the levy in September 2002³⁶. One³⁷ has since closed for unrelated reasons, while the third, Shabra Ltd, has had no loss of employment³⁸. There has, of course, been a corresponding increase in the consumption of paper bags, although since production is spread among many smaller firms, the effect of the increased output on domestic employment is unclear. These costs are difficult to quantify, and make the achievement of the double dividend questionable, regardless of the amount of revenue raised, or the use to which it is put. Given these costs, and the fact that the revenue is ring-fenced for an environment fund, which does not appear to produce savings in previous government expenditure, it is difficult to argue that the double dividend was achieved in this case.

5. THE SOUTH AFRICAN SITUATION

This section sets out the background to the tax in South Africa, gives details of how the levy was implemented, and assesses its potential for a double dividend.

5.1 Background to the tax in South Africa

South Africa is a country with many environmental problems, the legacy of many years of apartheid, intensive mining, aggressive industrialisation, population growth, urbanisation, social inequality and the AIDS pandemic. The focus in South Africa has been meeting basic human needs of housing, water supply, electrification, health and education. Environmental issues, while critical, have not been the top priority of government. The widening gap between rich and poor has brought its own problems. The more affluent sectors of society use more resources, while the poorer landless people cause environmental damage through informal settlements, overgrazing, and removal of vegetation.

Even within this context, litter comprising plastic shopping bags was a priority, for the reasons outlined earlier. While air pollution might arguably pose a greater threat to human and animal health in South Africa, plastic bags were a more visible form of pollution, particularly in townships and informal settlements where access to waste

³⁴ Fehily, n 18.

³⁵ The Donegal firm *EPI Teo*

³⁶ Sunday Business Post report, December, 2002

³⁷ Paclene Ltd.

³⁸ In an interview with the author in January 2002 Shabra Ltd said they had reduced production of lightweight plastic bags by approximately approx 50 per cent, adapted to the market, and now supply "re-usable green bags".

disposal services were often limited. This visibility issue was cited by Jerry Lengoasa, chief director of the environmental quality and protection division at the Department of Environmental Affairs and Tourism as a key motivation for their elimination³⁹. However, with more urgent demands on strained resources, tackling the problem was a challenge to the government. The initial approach by Environmental Affairs minister Valli Moosa an outright ban on the lightweight plastic bags, which were commonly 15 microns in thickness. These were the most prone to wind dispersal, and least suitable for reuse and recycling. The ban permitted only bags of a thickness greater than 30 microns to be imported or supplied by retailers from 1 January, 2000, with the threshold rising to 80 microns by June 2001.

The ban drew heavy criticism from the plastics industry, then estimated to be worth R440-million a year, sustaining more than 50 companies, employing over 4,000 people⁴⁰ in an economy with a massive unemployment problem. The companies made the case that they were not equipped to switch to manufacturing bags of 80 micron or more, which would make retrenchments inevitable if the ban were imposed. In written submissions to government and a public hearing on the proposed regulations in October 2000, they proposed a number of alternative solutions. Most favoured a ban on lightweight imports, a deposit and return scheme, and an awareness-raising campaign. One firm suggested the use of larger, and therefore fewer bags, another suggested putting resources into increased waste management. All objected strongly to the increased thickness, and only one firm, which already produced bags of 30 microns in thickness, suggested a levy on producers to fund a recycling programme.

While most parties to the discussions accepted that the litter generated from plastic bags was a problem, particularly in rural areas, the case was strongly made in South Africa, a sizable majority of consumers are without private transport, making plastic bags the most efficient way for them to carry goods home.

Retailers also objected strongly to the regulations, saying that the increased costs would be passed on to the consumers, and would be a burden on the poorest in society. For example Pick n' Pay, a leading supermarket chain, said the increase from the current 17 micron bag to an 80 micron bag would increase packaging costs from 27 million rand to 400 million rand annually for Pick n' Pay, and that this cost would be passed on by increasing the price of foodstuffs. They also said that while they were willing to sell more durable bags, they were not prepared to implement a buy-back scheme at their stores, as it would be too costly. Other arguments raised by retailers included the difficulty in policing the ban, particularly in the large informal sector, and the unilateral manner in which the regulations were drawn up, without consultation with the main parties.

Trade Unions also objected, mainly on the grounds of the job losses in the plastics manufacturing and retail sector that seemed inevitable based on submissions from the firms concerned, but also on the basis of higher food prices and inflation affecting the poor in society disproportionately.

39 Environmental Affairs and Tourism Portfolio Committee public hearings on plastic bag regulations, 27 October, 2000, available online at <http://www.pmg.org.za/docs/2000/viewminute.php?id=29>

40 Source: Sunday Times report, November 2001, available online at <http://www.sundaytimes.co.za>

Commentators such as Dr. Peter Ryan from the University of Cape Town's FitzPatrick Institute recommended instead some means of forcing retailers to charge for the use of plastic bags.

Forcing shops to provide thicker plastic bags will cost the consumer and environment more because thicker bags use more raw materials, create more pollution during production, cost more to distribute, and take longer to break down
(Sunday Times, 2002, 13)⁴¹

This combined opposition made the outright ban initially attempted impossible to implement. By 2002, the government had shelved efforts to enforce it, and instead began to draw up plans for a levy to reduce the use of lightweight plastic bags.

5.2 The levy in detail

From 9 May, 2003, a levy following many aspects of the Irish model was introduced on a consensus basis in South Africa. The levy varied with the size of the bag. A large 24-litre bag commonly used at supermarkets, cost 46c. A medium-sized 12-litre bag cost 31c and a smaller eight-litre bag cost 25c. VAT was imposed in addition to the levy bringing the costs to the equivalent in euro of 6.5c, 4.5c and 3.5c⁴² respectively. Approximately 0.25c from each levy paid was earmarked to the setting up of a special S.21 (not for profit) Company with the aim of promoting and supporting recycling initiatives.

The levy was introduced through agreement⁴³ of the main stakeholders as perceived by government at the time: retailers, the plastic bag industry, organised labour and government. The two primary concerns apparent from the initial agreement are continuity of employment and damage to the environment.

It was agreed that the levy would apply to bags of less than 30-micron thickness with a 20% tolerance for the first five years. There were additional stipulations on the amount of overprinting that was permitted, taking into consideration the ease of recycling of the ink used. The aim was to rise to a threshold of 80 microns over five years. Retailers undertook not to retrench till-packers for at least five years to maintain employment in this sector, while the new S.21 Company undertook to employ approximately 200 people, and to endeavour to stimulate up to 4,000 new positions in the recycling industry.

A major non-governmental actor in the negotiations leading up to the agreement was the Congress of South African Trade Unions (COSATU). Their concerns were centred on job losses and the impact of the levy on the poorest in South African society. In May, 2003 they issued a statement welcoming the levy, particularly noting the potentially positive impact on employment due to increased recycling, and the fact that retail prices could fall since they will no longer need to subsidise the bags previously supplied free to consumers.

In October 2003, the government proposed a new levy on the wholesale of plastic bags of R10 a kilogram, which was heavily criticised by COSATU as being excessive. This was amended in June 2004 to a flat levy of 3c per bag, regardless of size.

41 Sunday Times, 17 August, 2000. Available online at <http://www.sundaytimes.co.za>

42 using the exchange rate at the time of writing

43 Signed at Sandton, Johannesburg on 26 September, 2002

5.3 Evaluating the implementation

Some retailers who had objected strongly to the original ban, such as the large supermarket chain Pick 'n' Pay bought into the spirit of the agreement, selling durable "Green Bags" originally patented by a leading Irish supermarket chain the previous year following the implementation of the Irish levy. These bags are now in widespread use in South Africa, and as in Ireland, are used by shoppers in a wide range of shops although branded with the "Pick n Pay" logo. Use of new lightweight bags fell by 80% to 90% in the first three months, and anecdotal evidence was reported in the national media that fewer cows were reported to provincial agriculture authorities in the Northern Cape as bloating and dying after eating litter⁴⁴.

Several difficulties also immediately became apparent with the introduction of the levy on 9 May, 2003. Only those major retailers that were party to the negotiations are agreement imposed the levy, while others, notably a nationwide chain called "Mr. Price", opted to supply a durable branded bag free of charge to consumers. This did not contravene the earlier ban on lightweight bags, but was certainly at odds with the spirit of the agreement. This made implementation of the levy more difficult for some competing retailers, and was criticised strongly by government at the time

By refusing to be transparent about the cost of the bags, Mr Price denies consumers the choice accorded to them by the agreement of either to purchase the bags or not" said the Minister. "The truth of the matter is that Mr Price chooses to be dishonest by giving the false impression that it gives plastic bags for free when it actually continues to hide the price in the items they sell⁴⁵

The retailers in question took legal advice, and found that the legislation did not require them to charge for bags. Accordingly they began to use the supply of free bags to competitive advantage. This led to other department stores diluting their compliance by charging only for bags supplied with grocery purchases, and supplying free bags for clothing and hardware customers. Some categories of retailer, such as takeaway foods, remain in blanket contravention of the voluntary levy, simply ensuring that their bags are of the minimum acceptable thickness of 30 micron. Legislation to close this loophole is to be introduced with the 2004 annual budget in June 2004.

Secondly, the reduction in use of lightweight plastic bags was far in excess of the expectations of the plastic bag industry, and job losses resulted. It was reported in April 2004 that up to 500 workers had been retrenched⁴⁶. While the reduction in litter has been welcomed, the job losses cause concern, and there is increased pressure on the new S.21 Company to counterbalance this effect by accelerating job growth in the recycling industry.

5.4 Achieving the first dividend

The use of lightweight plastic bags has certainly fallen, although estimates as to the degree vary widely. The most commonly used alternatives are the durable Green Bags

44 Du Toit, (2003): Du Toir, J, Sunday Times, 17 August, 2003

45 Department of Environmental Affairs press release, 2 July, 2003

46 Wendy Knowler, writing in Cape Argus, April 29th, 2004.

similar to those used in Ireland, and cardboard boxes are widely re-used in some sectors, such as fruit and vegetables. While some sectors such as take away foods and the informal sector remain noncompliant, the evident reduction in the use of lightweight plastic bags and the increase in use of alternatives with a lower impact on the environment on average leads to the conclusion that that the first environmental dividend has been achieved.

5.5 Achieving the second dividend

For the second dividend to be achieved, the revenue from the levy must outweigh costs incurred in its collection, be sufficient to permit reduction of distortionary taxes, and must be recycled to achieve this aim. At the time of writing, regulations to collect the levy are still being formed, so the revenue and associated costs cannot be estimated yet. Critical to the success will be the new S.21 Company, and the role it takes in promoting recycling in South Africa.

6. CONCLUSION AND AVENUES FOR FUTURE RESEARCH

Initially it must be acknowledged that this paper is primarily a case study on the effectiveness of the two levies, with a view to establishing whether similar measures could be implemented, possibly with improvements, in other jurisdictions.

Both of the levies have achieved a high level of public acceptance, in both rural and urban locations, and across age and gender barriers. There is a high degree of compliance in a wide range of retailers, despite the low level of audit and inspection. Public attempts at social norming by the Revenue Services in Ireland around the implementation were critical to its success, and made the implementation easier for traders. The fact that the retailers were perceived not to benefit directly from the levy also eased implementation. The use of lightweight plastic bags has fallen dramatically, and so it is clear that the first dividend has by and large been achieved in Ireland, and to a lesser extent in South Africa.

Some things could have been done more effectively. Of the points on the checklist for successful implementation of environmental taxes referred to earlier, the plastic bag levy in both jurisdictions fails on early consultation with stakeholders, built-in evaluation measures and, arguably, recycling of revenues⁴⁷. Retailers bear most of the burden of implementing the levy, and suffer a substantial, if unquantified welfare cost in the process. In Ireland they were not involved in designing the levy, or in drawing up the information that was issued to retailers. In South Africa they were more involved although only after the failure of the initial ban, which helped with implementation. Monitoring of implementation has been minimal. Relatively little analysis has been done on the environmental damage caused by alternatives to the lightweight plastic bag, and there is little public awareness that paper bags could be equally costly to the environment in the long run. Only in South Africa was the issue of ink printing on plastic bags addressed in a constructive way. The ring fencing of

47 The European Environment Agency, n 1 at page 10. The principal points are: detailed advance studies on the likely impact of the tax; extensive consultation with fiscal authorities, stakeholders and the public; recycling of the revenues to taxpayers or related sectors; an increasing incentive effect and in-built evaluation measures.

the tax into an environment fund in the case of Ireland, and a S.21 company in the case of South Africa, effectively limits the achievement of a double dividend.

However, while the second dividend was not achieved, it may have been achievable. Had the revenue raised not been ring-fenced, it could have been used to reduce slightly the distortionary taxes present in either of the tax systems. If the use of environment fund or the S. 21 Company can reduce the need for other taxes to be raised, it is possible that these distortions can be reduced. This will be critical in determining if some degree of the second dividend can be achieved in the future.

The common experience of South Africa and Ireland has some lessons for other jurisdictions considering such a tax. In particular, it underlines the importance of ensuring that all possible stakeholders are involved in the process from an early stage; that the public is educated on the aims of the levy, and that some clear mechanism for collecting the tax and imposing penalties for non-compliance is put in place at an early stage.