



DYNAMIX policy mix evaluation



Reducing plastic bag use in the UK and Ireland

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1 Resource/Issue

Name of resource targeted (or focus of the case study, if the policy mix is broader than the specific resource(s) we have decided to analyse).

This case study focuses on policies to reduce consumption of plastic bags, specifically plastic carrier bags.

2 Geographical area of policy mix coverage

Country name, and region or city if appropriate (if policy mix is applied regionally or locally)

This study covers policies at country level in the UK (England, Scotland, Wales, and Northern Ireland) and Ireland, in the context of policy at European level where relevant.

3 Policy context

Plastic carrier bags are widespread, often free, visually intrusive, persistent once littered, and often excluded from recycling schemes. As a symbol of disposable consumerism, policies to address them also have a role in raising environmental awareness more generally.

The plastic carrier bags used by shoppers across Europe are light, inexpensive and convenient. However, the use of plastic carrier bags entails negative environmental externalities (littering, ocean contamination, other environmental pollution, health hazards, etc.) that are not taken into account in the prices paid by retailers or end users.

Although they account for only a small percentage of plastic waste by weight, plastic carrier bags are used in huge numbers in Europe, sometimes only once, and are often given away free by supermarkets and other shops. This leads to excess use. The lightness and mobility of plastic carrier bags also makes them more likely to end up as litter, and once littered they are visually intrusive and persistent, particularly in the marine environment. As well as environmental impacts on biodiversity, littered plastic carrier bags have a high economic cost for industries such as tourism and for municipalities charged with clean-up operations.

The vast majority of plastic carrier bags in Europe today are made from naphtha, a by-product of oil refining. Plastic carrier bags can also be made of bio-based materials or a blend of bio-based and oil-based polymers. Bio-based plastics can be either biodegradable or non-biodegradable. Plastic carrier bags can also contain nitrocellulose resin or polyamide resin, organic pigments, plasticisers, additives, pigments and glue.

In this case study, “single-use” plastic carrier bags are the thin-walled, lightweight plastic carrier bags used to carry goods from supermarkets and other shops and often provided free of charge. They are single-use in the sense that they are usually only used for one shopping trip, though they are often reused for some other purpose such as to hold household waste. Single-use plastic carrier bags are usually made of high-density polyethylene (HDPE).

Some plastic carrier bags are designed to encourage high levels of reuse by incorporating greater thickness and/or more robust, durable materials. Such “multiple-use” or reusable plastic carrier bags are usually made of low-density or linear low-density polyethylene (LDPE/LLDPE), with a glossy appearance, or polypropylene (PP), a polymer that resembles canvas in appearance. Multiple-use plastic carrier bags are sold at supermarket cash registers rather than given away.

3.1 Needs assessment: The environmental problem / resource challenge

What is the environmental problem/concern (consider both quantity and quality), e.g. soil erosion, excessive use of non-renewable or renewable resources and the crossing of environmental thresholds/tipping points for impact, resource scarcity concerns?

Are there any economic or social problems related to the issue and environmental problems – e.g. is there important price volatility, (risk of) unavailability of resources for the economy or society?

Who is the target group affected that have been, are or will be beneficiaries of the policy response?

A number of life-cycle assessments (LCAs) of plastic carrier bags have been carried out, the main conclusions of which are that the overall life-cycle impact of plastic carrier bags depends on their thickness, whether and how often they are reused and what happens to them at end of life. Some of the main impacts of plastic bags across their life cycle depending on the type of bag are set out below:

- Due to their light weight and cheap price (often given away for free), single-use plastic carrier bags are far more likely to be littered than multiple-use bags, and are by far the biggest cause of litter.
- Apart from litter, the environmental impact of plastic carrier bags is dominated by extraction of materials and production phases.
- At end of life, energy recovery can be as environmentally friendly as recycling while landfill is generally the worst option. Recycling can reduce the need for virgin material, while energy recovery allows the energy stored in plastics to be used to generate electricity or heat. Plastic carrier bags in landfill can take decades or longer to degrade, depending on the type of bag and conditions at the landfill site.
- There is no ideal type of carrier bag for all impact categories as each has advantages and disadvantages.

- Whether bio-based polymers are an improvement depends on whether the shift to new materials is combined with a behavioural change and improved end-of-life management.
- Biodegradable plastic carrier bags do not last as long in the environment as non-biodegradable bags. However, they only degrade within a reasonable time if disposed of in appropriate conditions.
- Plastic bags with recycled content generally represent a significant improvement over other types of bags.
- Reuse is key to reducing the environmental impacts of any kind of bag. As long as multiple-use plastic carrier bags are used a sufficient number of times, they may be the best environmentally.

The results of LCAs must be treated with a degree of caution as a variety of methodologies and environmental parameters are used. That said, the conclusions above seem robust across studies and reinforce the waste hierarchy set out in the Waste Framework Directive: Prevention, Reuse and Preparation for Reuse, Recycling, Recovery and Disposal. All bags can be optimised at each level of the hierarchy over their life cycle: increased reusability, reduced materials and energy consumption in production, use of recycled and (some) bio-based materials, suitability for recycling, measures to reduce litter etc.

Litter is perhaps the most important environmental impact associated with the use of plastic carrier bags, and it is not always taken into account in LCAs. Plastic carrier bags are very mobile due to their lightness so they can easily escape containment (bins, trucks, landfill sites). They persist in the environment for a long time and substantial quantities are accumulating in natural habitats worldwide. On land, conventional plastic carrier bags can last as litter for two years or longer before disintegrating, depending on their composition and environmental conditions. Additives in plastic carrier bags can contaminate soil and waterways, and be ingested by animals. Of particular concern are emerging problems in the marine environment such as the giant masses of plastic waste known as “plastic soup” discovered in the oceans. The share of the problem that can be attributed to consumption of plastic carrier bags in the EU is as yet unclear.

3.2 Policy context and policy needs

What policy challenge(s) did the problem pose and what policy challenges does it still pose?

What is the policy context related to the policy mix being evaluated? What policies have been put in place to address the issues, what policies are currently in place and which ones are already foreseen for future introduction (e.g. to address past, existing and future objectives)?

What sort of policy response did (and does) the problem call for?

Plastic carrier bags are considered packaging and are therefore covered by the Packaging and Packaging Waste Directive. Plastic carrier bags can only be put on the market if they comply with EU requirements for the minimisation of packaging, limitation of hazardous substances and suitability for reuse and recovery, including recycling, energy recovery, composting and biodegradation. Member States must also regulate packaging

and packaging waste without introducing measures that prejudice the free movement of goods on the internal market. The introduction of an outright ban on plastic bags by a single state would be an unlawful distortion of the market unless it could be justified on specific grounds. Despite general provisions relating to packaging materials, there are currently no specific provisions related to plastic carrier bags in EU legislation.

National measures implementing the Packaging Directive often fail to adequately address the specific issue of plastic carrier bag litter and improper treatment as in some countries there are no collection and waste treatment schemes specific to plastic carrier bags. Nevertheless, some Member States have implemented various actions to reduce the use of plastic carrier bags as discussed in this case study.

Production of plastic carrier bags and employment

The market value of EU plastic carrier bag production is estimated at around EUR 2 billion. Plastic carrier bags are also a valuable material for recyclers.

European producers face competitive pressure from cheaper producers in China and elsewhere for all types of carrier bag, especially for the thinnest single-use plastic carrier bags but also for multiple-use plastic and even paper and textile bags. For the production of thinner HDPE bags, less material is needed, a simpler production process is possible and cheaper prices can be offered by Asian producers. At the other end of the scale, the production of PP bags involves weaving and sewing, which is done manually. EU producers cannot compete with the labour costs of their Asian counterparts in this domain. LDPE plastic carrier bags, on the other hand, are produced almost entirely by machines, which keeps labour costs relatively low. In addition, as most machines used for the production of LDPE bags are developed and manufactured in Europe, European manufacturers have a strategic and competitive advantage over Asian producers. The EU may also have a comparative advantage in bio-based and biodegradable plastics as biodegradable plastic carrier bags are currently produced in a number of European countries including Italy (which may have influenced their decision to ban other types of bags).

Other economic and social aspects

Most people consider even small amounts of litter unpleasant. Litter impairs quality of life, contributes to a feeling of insecurity, and damages the image and reputation of urban areas, countryside, beaches and seas. Use of plastic carrier bags also imposes an economic cost.

In many countries, tourism is vital to the livelihoods of local people and the revenues of national administrations. The negative economic impact of visible plastic carrier bag litter on coastal and inland areas in terms of lost tourist revenue is one of the main motivations for municipalities to remove beach litter and for policy makers to limit use of plastic carrier bags. Regularly removing beach litter can cost municipalities less than the reduction in revenue that would result from taking no action.

Discarded plastic carrier bags may also represent a cost to fishing and other maritime activities based on time and money wasted cleaning, disentangling, etc.

Plastic carrier bags have arguably facilitated a more convenient shopping experience for consumers. Yet in countries and regions that have introduced strong policies to reduce single-use plastic carrier bag use, such initiatives have proved popular. Indeed, many people prefer to use multiple-use carrier bags made of plastic or other materials and few are willing to pay for single-use plastic carrier bags in countries where levies have been introduced.

3.3 Historical performance and projections into the future: Insights on decoupling

What has been the trend vs. GDP (or other economic performance metrics, such as sectoral growth) and what type of decoupling has been achieved?

Any projections or estimates on decoupling based on current trends and policies are subject to significant uncertainty due mainly to the incompleteness of the available data. Nevertheless, we can say that while the UK and Ireland have made some progress in reducing use of plastic carrier bags, the situation is not improving fast enough to avoid environmental impacts over the coming years. As referred to in section 7, absolute decoupling was achieved, particularly for the case of Ireland as numbers of plastic bags used dropped even as the economy grew robustly until 2007.

Most plastic carrier bag production by weight is multiple-use bags, whereas single-use bags dominate in terms of units. Although there is a lack of data, the thinnest HDPE plastic carrier bags are said to be almost all imported, while many LDPE bags are made in Europe. The number of plastic carrier bags used in the EU was around 99 billion in 2010, or around 198 bags per person.¹

In the UK, around 8 billion single-use bags were used in 2010. That is up from 7.6 billion in 2009 but down from an estimated 13.3 billion in 2006. The number of multiple-use bags used is estimated to have been rising, from around 250 million in 2006 to and around 500 million in 2010. These figures are based on monitoring of the voluntary agreement by UK retailers themselves.

In Ireland, the tax in 2002 resulted in a very rapid and steep drop to 21 bags per capita in 2003 (equivalent to around 84 million bags). That figure crept back up gradually over a period of very strong economic growth to reach 33 bags per capita in 2007. At that stage the tax was increased from EUR 0.15 to EUR 0.22 (and economic growth stalled), with the result that bags per capita fell back to 18 by 2010. These figures are from the Litter Ireland monitoring system (www.litter.ie) and the Department of Environment (private written communication).

As most of the environmental impacts of plastic carrier bags (except litter) occur during the material extraction and production phases, those environmental impacts would also remain relatively stable or increase slightly. Nevertheless, in some Member States, consumption of single-use plastic carrier bags is expected to increase because of stronger GDP growth and lack of strong policies – those countries may experience greater environmental impacts as a result. Consumption of multiple-use plastic carrier bags should also rise slightly at EU level due to policies already in place in some Member States.

¹ BIO analysis based on various sources by Member State.

It is difficult to identify clear trends in plastic carrier bag litter but there is little or no evidence of a long-term decline. The picture is complicated by inadvertent littering (e.g. escape from landfill), clean-up activity, sinking, ingestion and break-up into microplastics. Estimates of the share of plastic carrier bags that end up as litter range from 2-10 %. The share of plastic carrier bags in the EU that ends up as litter is expected to remain stable.

However, due to their persistence in the environment, especially the marine environment, that means that the environmental impacts of littered plastic carrier will continue to worsen. More fish, birds and other wildlife species will be entangled and undergo external and internal injuries. Particles will reduce in size as weathering and disintegration takes place, increasing the surface area and the possibility of chemical transport and the potential for ingestion by a wider range of biota. An increase in the stock of plastic carrier bag litter also implies higher public spending on clean-up activities and losses to the tourism industry.

4 Drivers affecting change: resource use / environmental issues

What are the drivers affecting resource use (driving demand for the resource and leading to resource overuse) or other environmental impacts?

Market failure

Low consumer awareness: Consumer awareness of the problem of litter and the overall environmental benefits of reusing plastic carrier bags and switching to multiple-use plastic carrier bags is still low, especially in Member States that do not yet have strong policies in this area.

Consumer behaviour: Consumer trends towards eating lunch at places of work or education, eating away from the home and greater use of public spaces (Switzerland Federal Office for the Environment 2011) increase the demand for light weight, low (or zero) cost and convenient plastic carrier bags.

Retail practices: Retailers are not encouraged to limit the use of plastic bags because they are inexpensive and provide a service to their customers (according to some, unilaterally reducing such a service might have a negative impact on their sales).

Low prices and non-internalisation of external costs: The use of plastic carrier bags also entails negative environmental externalities (littering, ocean contamination, other environmental pollution, health hazards for human and animals, etc.) that are not included in the prices paid by retailers and end users.

Low level of recycling: Even though they are recyclable, the thinness and light weight of plastic carrier bags mean they do not have a high recycling value. Collection and transportation is not very profitable even if the bags are compacted and washing them requires large volumes of water.

Regulatory failure

Regulatory failure occurs when the wrong regulation is used to tackle a given type of market failure, or when it is badly implemented. It can occur at both EU and Member State levels. Failures to implement and enforce the existing legislative framework governing packaging and packaging waste are key drivers of the problem.

At **EU level**, plastic carrier bags are considered packaging following a ruling of the European Court of Justice (ECJ, Case C-341/01) and are therefore covered by the Packaging and Packaging Waste Directive, a 'harmonising' Directive subject to Article 95 of the Treaty. According to this article, Member States must regulate packaging and packaging waste without introducing measures that prejudice the free movement of goods on the internal market. Therefore, measures to address the problem of plastic bags cannot include outright bans that hinder the free movement of goods such as that being implemented in Italy, but only less restrictive measures such as economic and voluntary instruments.

Additionally, the Packaging Directive adopts a flexible approach to the waste hierarchy: it does not prioritise reuse over recycling and leaves it up to Member States to encourage energy recovery when it is preferable to material recycling for environmental and cost-benefit reasons. Hence, the Packaging Directive is not in total coherence with the hierarchy set out in the Waste Framework Directive (WFD).

At **Member State level**, policies to reduce landfill use may be poorly enforced and appropriate infrastructure is often lacking. The Packaging Directive only states that Member States have to ensure that systems are set up to provide for the return, collection, reuse and recovery of used packaging. National measures implementing the Packaging Directive fail to address the specific issue of plastic carrier bag litter and improper treatment since in some countries no collection and waste treatment schemes specific to plastic bags are in place.

5 Situation/trend prior to introduction of policy mix

Information on the baseline situation before the policy mix was introduced.

Prior to the introduction of plastic bag taxes and voluntary targets, there were no policies in the UK or Ireland aiming specifically to reduce the use of single-use plastic carrier bags. Ireland was a pioneer in the use of a tax, introducing it in 2002, before any other Member State.

6 Description of policy mixes

This section presents the main policy mix that will be the focus of this ex-post assessment.

Objective of policy mix: In both the Ireland and UK contexts, the main objective of a tax per plastic bag such as those in Ireland and the UK is to reduce litter, by reducing the number of units consumed. By contrast, the objective of a weight-based tax such as in Denmark is to reduce the volume of plastic overall, whether through reducing the number of units consumed or through light-weighting (making plastic bags thinner). Thus the focus in the UK and Ireland has been primarily on reducing litter rather than resource efficiency, even if resource efficiency is improved as a co-benefit.

Lifecycle focus of the policy mix: The focus of policies to address the impacts of plastic carrier bags is on the use phase of the life cycle. This is in line with the waste hierarchy (prevention).

Sector covered: Policies to reduce the numbers of plastic bags used tend to focus on the retail sector, in particular supermarket carrier bags. For example, voluntary agreements look to include the major supermarket retailers. Certain types of bags may be excluded from the policy mix for various reasons, e.g. food safety (butchers) or security (airports).

Scale of application of policy mix: In general, policies are designed and implemented at national level (in the case of the UK, this currently includes Wales and Northern Ireland and will in the future also cover England and Scotland). National policies should however be coherent with the policy framework of European Directives and Regulations (see below).

Implementing body: In the case of the tax in Ireland, it is implemented via the existing VAT systems. In the UK, the Waste Resources Action Programme (WRAP) has brokered a series of voluntary agreements with the retail industry.

This case study will look specifically at the use of taxes and voluntary targets in the UK and Ireland, but for context it is instructive to first have an overview of the policy mixes in place around Europe.

EU level

At EU level, the main elements of the policy framework are the Packaging Directive and internal market rules but there are other policies and initiatives that are relevant:

Table 1: Possible interactions of plastic bag policy with EU policies and initiatives other than the Packaging Directive and internal market rules (Bio Intelligence Service 2009)

Policy	Overall objective	Potential interaction with plastic carrier bags
Waste Framework Directive 2008/98/EC	Aims to protect human health and the environment against harmful effects caused by the collection, transport, treatment, storage and landfilling of waste.	Plastics typically make up a large proportion of the waste streams covered by the Directive. Includes an obligation for Member States to develop national waste prevention programmes.
Thematic Strategy on the Prevention and Recycling of Waste	Sets out guidelines for EU action and describes the ways in which waste management can be improved. The aim of the strategy is to reduce the negative impact on the environment caused by waste throughout its lifespan.	Under this Strategy, there is the potential to increase the recycling of plastic waste and thus its use as a resource and reduce the need for virgin resources.
Landfill Directive 99/31/EC	Sets a combination of intermediate and long-term targets for the phased reduction and pre-treatment of biodegradable waste going to landfill, as well as banning the disposal in landfill of certain materials.	The Directive influences the disposal of biodegradable plastics. The requirement for treatment or sorting of waste boosts recycling of plastics.
REACH Regulation, (EC 1907/2006) ²	REACH aims to lower levels of pollution and increase safety levels in relation to the use of hazardous chemicals.	Requires recycling firms to provide information on the types of chemicals included in their plastic recycle. Furthermore, the Regulation requires recycled plastics producers to register chemicals in the European Chemicals Agency database.

² Registration, Evaluation, Authorisation and restriction of Chemicals.

Policy	Overall objective	Potential interaction with plastic carrier bags
Regulation on plastic materials and articles intended to come into contact with food (EU 10/2011)	This is a new regulation, which came into force on 1 May 2011. It brings all six EU Directives and eight amendments on food contact plastics under one umbrella. The regulation includes basic rules of plastic materials and articles, union list of authorised substances and rules of migration testing.	Some types of plastic bag are intended for contact with meat, fresh fruit and vegetables.

Source: Author's compilation

National policies and initiatives

Member States have implemented various actions to reduce the use of plastic carrier bags. This non-harmonised approach could affect the functioning of the internal market regarding plastic carrier bags.

A variety of different tools are being used, ranging from voluntary agreements with the retail sector (e.g. UK) to the implementation of fiscal measures (e.g. Ireland, Denmark), to the outright ban of non-biodegradable carrier bags, as seen in Italy. Taxes and charges are sometimes accompanied by a threat of a ban in the event that particular targets for bag use reduction are not met. Charges may also be applied in tandem with voluntary agreements by industry to reduce bag consumption. Sometimes, effective voluntary action by retailers can forestall the need for mandatory legislative interventions (Strange 2011). A detailed list of legislation in Member States (other than the UK and Ireland) is provided in Annex, along with information on initiatives by companies, and the achieved or planned outcomes

Table 2: Voluntary initiatives by UK retailers to reduce plastic carrier bag use

Retailer	Target	Achieved outcomes
The Co-operative Group	Reduce the number of free single-use carrier bags by 50 % by May 2009 with a 70 % reduction planned for 2010.	
C&A	Reduce the use of plastic bags.	The use of plastic bags from recycled material increased by approximately 25 %, amounting to savings of 2 709 tonnes of plastic film.
Marks & Spencer	<p>In 2007, Marks & Spencer launched a goal of becoming a sustainable, carbon-neutral and zero waste-to-landfill business within five years ("Plan A").</p> <p>Plastic bags sold in M&S shops are almost entirely made from its own operational plastic waste.</p>	In three years, M&S managed to reduce the use of plastic carrier bags by 64 % in the non-food sector and by 81 % in food halls, which is 417 million fewer bags in 2009/2010 compared with 2006/2007. It achieved this by switching to exclusive use of fully recyclable plastic bags (LDPE instead of HDPE), charging GBP 0.05 per bag and encouraging reuse. By creating a closed recycling loop, M&S will soon be the first big EU retailer that does not send any operational waste to landfill. After two years, the money collected by Plan A outweighed the cost, thus enabling M&S to finance projects such as sea and beach clean-up.
IKEA	<p>In March 2007, IKEA set a goal of reducing its United States stores' plastic bag consumption by 50 %. IKEA charged for thin plastic bags and reduced the price of blue reusable PP bags in an effort to encourage shoppers to cut down on plastic bags.</p> <p>Shortly after, IKEA decided to phase out thin plastic carrier bags in certain locations. For example, all 15 UK IKEA stores are eliminating plastic bags.</p>	Results indicate that 92 % of IKEA customers went for the reusable bag over the pay-for-plastic option. Plastic bag usage dropped 95 %. Since the programme began in March 2007, IKEA has donated more than USD 300 000 from their disposable plastic bag sales to American Forests.

Retailer	Target	Achieved outcomes
Tesco	<p>Plastic bags have now been removed from view in all Tesco stores and are only made available if the customer needs them. The retailer has also installed plastic bag recycling units inside its stores. To reinforce this messaging Tesco has introduced signage both in store and in car parks to remind their shoppers to reuse their carrier bags. In addition, the company stocks a range of reusable bags and launched a limited edition designer range of reusable bags. Each bag was made from nine recycled plastic bottles with GBP 0.05 from every sale going to Marie Curie Cancer Care.</p> <p>The online arm of the company (Tesco.com) offers a bag-less delivery option and rewards customers with extra Clubcard Points if they choose to have their shopping delivered without carrier bags. Currently around half of customers choose this option.</p>	<p>Since the launch of Tesco's Green Clubcard Points scheme in August 2006, shoppers have significantly reduced the number of plastic carrier bags used. This has removed more than 3 billion bags from circulation and has rewarded customers with points for reusing their bags.</p>
Waitrose	<p>Between March and May 2008 Waitrose trialed a number of initiatives in four of its branches. The aim was to reduce the number of thin-walled plastic bags given away and involved: Removal of bags from view at main checkouts; Asking customers without their own bags if they would prefer to purchase a GBP 0.10 'bag for life'; Asking customers at basket checkouts if they needed a bag.</p> <p>Waitrose monitored the impact on the number of transactions, any increase in sales of their 'bags for life' and the decrease in the number of thin-walled carrier bags given away. As some customers use thin-walled carrier bags as bin liners, impact on the sales of bin liners was also measured to see if a reduction in thin-walled carrier bags would lead to an increase in sales.</p>	<p>During this three-month period, sales of 'bags for life' rose by approximately 100 % which then after four or five weeks started to fall, indicating that customers were reusing them. The number of thin-walled carrier bags issued fell between 45 and 60 % and there was no impact on trade or the sale of bin liners. Waitrose also collected customer feedback and found that customers were happy to reuse their bags but often forgot to bring them from the car into the store. Therefore the company introduced prominent signage at the store entrance as a reminder to customers.</p> <p>These successful trial initiatives formed Waitrose's national carrier bag strategy and have now been implemented across all 213 stores.</p>

Source: Author's compilation

Many other countries around the world have implemented policies to reduce the use of plastic carrier bags. Prohibitive legislation is more likely to be applied in poorer countries, where plastic bags and other waste items are more likely to clog drains and sewers, and where the risks for public health and the environment may be greater.

Ireland

A levy or tax was introduced in March 2002 on the purchase of plastic carrier bags in supermarkets, petrol stations and shops. It began at a rate of EUR 0.15 and was raised to EUR 0.22 on 1 July 2007.

The regulations do not distinguish between biodegradable plastic bags and other plastic bags, but exemptions are made for plastic bags for use with fresh fish, fresh meat and fresh poultry, if not exceeding 225 mm width, 345 mm depth, 450 mm length (including handle), as well as for fruits, nuts, sweets, ice cream, cooked items, milk products on board an aeroplane or ship, or when marked as reusable.

Proceeds from the tax are paid into an environment fund, which is used for financing recycling centres and other environmental activities such as cleaning up illegal landfill sites. Annual revenues have risen from around EUR 12-14 million to EUR 23.4 million in 2009. Collection and associated administration costs are low, at about 3 % of revenues.

In 2011, a provision was made in national legislation that sets a ceiling for the tax at EUR 0.70 and enables the tax to be amended once in any financial year.

The effects of the tax on the use of plastic bags in retail outlets and in the landscape were dramatic. Within five months of introduction, a 90 % reduction was achieved (Convery et al. 2007). At the same time, EUR 3.5 million was collected. In 2002, 328 bags per person per year were being used. This number was reduced to 21 within the year. However there was subsequently a gradual increase in plastic bag usage, to 30 bags per person/year in 2006. In response, the plastic bag tax was increased. This resulted in a decrease to 26 bags per person in 2008 and 18 bags per person in 2010. The aim of the increased rate was to keep the number of plastic bags per person to 21 or fewer. The share of plastic bags in litter pollution in Ireland has fallen from 5 % in 2001 to 0.25 % in 2010. These figures are from the Litter Ireland monitoring system (www.litter.ie) and the Department of Environment (private written communication).

There are currently no plans to increase the plastic bag tax further.

UK

The 2008 Climate Change Act provides conditions to allow the introduction of a general charge for plastic carrier bags. Until then there were no legal requirements on avoiding the use of plastic carrier bags, only voluntary agreements between the ministry responsible (Defra) and leading supermarket and department store chains.

A voluntary agreement between Defra and 21 large retailers had a target of a 25 % reduction in the harmful environmental impact of carrier bags between May 2006 and December 2008. The amount of virgin polymer was used as an indicator and reusable bags were included. The agreement included support for reuse of carrier bags, increased recycling and a reduction in the weight of carrier bags.

A second agreement followed with the target of a 50 % reduction by May 2009 compared to 2006. Seven supermarket chains participated.

The following agreement for 2010 (between the Scottish Government, Defra, the Welsh Assembly Government, and the Northern Ireland Department of the Environment with the British Retail Consortium (BRC) and its supermarket members) continued with the idea of further reductions, but did not set out concrete targets.

The agreements were mainly aimed at simple plastic carrier bags that customers can get for free in supermarkets. There are no penalties involved.

A variety of methods were used to cut use: some such as Marks and Spencer charge for bags, while others put signs in car parks reminding customers to reuse their bags. Others began giving out bags only when requested by customers.

Defra statistics show that in May 2006, 870 million thin bags were used in the participating supermarkets. In May 2009, this number was 452 million and in May 2010 it was 475 million. This is a reduction of around 45 % compared to 2006, i.e. short of the target.

Defra would like to achieve a 70 % reduction in the long term. Further plans, such as the introduction of a charge for thin bags, are still an option according to Defra but are not currently being pursued. The devolved administrations in Scotland, Wales and Northern Ireland can however implement their own measures on this issue.

Several towns and cities in the UK have banned plastic shopping bags. For example, the town of Modbury banned plastic bags in 2007 and Chesham launched the Plastic Bags Free Chesham Campaign in 2007.

Wales

On 1 October 2011, Wales became the first country in the UK to charge for single-use plastic carrier bags, with a charge of GBP 0.05 (EUR 0.06) being levied not only on those given out in supermarkets, but also clothes, books and other shops. According to Keep Wales Tidy, plastic bags comprised 2.7 % by weight of litter in Wales before the introduction of the carrier bag charge.

The charge means all retailers must charge customers GBP 0.05 for each single-use carrier bag. There are some exemptions for small paper or plastic bags used to package items such as loose food, seeds and plants. Originally, the plan was to introduce a charge of GBP 0.07 from April 2011. However, these plans were changed after lobbying from the British Retail Consortium (BRC) and others.

In 2009 the Welsh took home on average 273 carrier bags per household (more than 400 million thin bags in total) from the major supermarkets alone (Welsh Assembly 2010). The Welsh Assembly Government believed a GBP 0.05 charge would be high enough to encourage people to change their shopping habits, but not so high that it would deter impulse shopping or place a significant burden on shoppers who have forgotten their reusable bags.

In the summer of 2010, the Government was contemplating a charge of GBP 0.07 (EUR 0.08) per bag, but reduced this to GBP 0.05 (EUR 0.06) by the autumn. The idea of the charge was not simply to make people pay for carrier bags, but to encourage shoppers to make use of the bags they already have. To encourage shoppers to reuse bags, the

Assembly Government gave away free jute bags to the public. To receive a bag, people were invited to email their top tip for remembering to take a bag when shopping.

In a study for the Welsh Assembly, AEA listed a number of recommendations for the design of a national charging scheme. These were strongly influenced by the Irish experience, which had been a success. The recommendations included:

- an extensive country-wide awareness campaign, using a variety of communication channels to ensure the system and its objectives are understood
- early consultation of stakeholders, particularly retailers
- retail staff may need training to respond to customer queries or complaints
- regional support lines should be established for both customers and retailers
- bag specifications should be the same as those defined in the Irish legislation, though extended to include bags made from paper
- initial charge to be set around GBP 0.10 to 0.15 (EUR 0.12-0.18) per bag
- the charge is to be passed on to customers, and shown on receipts
- the charge is to be collected from retailers either using the system of VAT returns or through separate return to a designated body
- enforcement should rest with local authorities
- money raised is to be used for projects focused on sustainability in Wales
- the body or bodies chosen to allocate the money should exist already, removing the need for additional administration

Welsh Government research published nine months after the introduction of the charge shows it has helped to change behaviour significantly. The share who took their own bags on their last supermarket trip increased from 61 - 82 % six months after the compulsory fee came into force. The distribution of free carrier bags also fell dramatically – by up to 96 % in some retail outlets. Support for the tax has also increased to 70 % from 59 %, according to research by Cardiff University, which monitored attitudes to plastic bag use just before and six months after the introduction of the charge. The research, which used figures provided by retailers and the British Retail Consortium, also found that opposition to the charge had dropped to just 17 %. People generally said they are willing to pay a GBP 0.05 charge if the money goes to charity.

A year after the introduction of the charge, The Royal Society for the Protection of Birds (RSPB) and Keep Wales Tidy had received a combined EUR 1 million as a result of the charge.

Northern Ireland

It is estimated that 250 million single use carrier bags are used in Northern Ireland every year. On 14 January 2013, Northern Ireland's Assembly approved the idea of introducing a GBP 0.05 charge for single use carrier bags in shops and over the internet. It came into effect on 8 April 2013 and the proceeds of the charge are used by the Department of Environment to fund "environmental programmes and activities."

The charge will apply to plastic bags, but also to single-use carrier bags made of paper and plant-based material like starch because, "other alternatives to plastic bags can be equally damaging to the environment." Services, like shoe repair and launderettes, will not be subject to the tax. In addition, it will not apply if the goods are not sold, for instance if a single-use carrier bag is used for promotional or free items such as catalogues, samples and leaflets. Other bags are exempt based on grounds of hygiene and food safety, the

protection of both goods and consumers, and confidentiality in relation to prescription medicines.

The Environment Minister at that time said he hoped to see an 80 % reduction in the use of carrier bags as a result of the tax. The Minister also proposed that should the tax prove a success, he would increase the charge to GBP 0.10 and extend it to include low-cost reusable bags by April 2014.

Originally, a GBP 0.13 charge had been planned – the equivalent of the EUR 0.15 charge that Ireland introduced in 2002 – but this was later lowered to GBP 0.05. The Minister said he recognised that consumers will need time to change their behaviour and adjust to bringing their own bags when they shop, and he therefore proposed to discount the charge to GBP 0.05 in the first year, when the tax will only apply to single-use carrier bags.

However, the current Environment Minister has said the tax has already been successful and achieved an 80 % reduction, and that it will thus not be raised to GBP 0.10.

Scotland

Shoppers in Scotland use 1 billion carrier bags each year. In June 2012, the Scottish Government launched a three-month consultation on a range of proposals that included phasing out free carrier bags. The proposals are similar to the system brought in by the Welsh Government in October 2011. The consultation proposals included the following elements:

- A requirement for all retailers to charge for bags
- The requirement to include all thin/disposable carrier bags, regardless of material
- A minimum charge of GBP 0.05

According to the government, a GBP 0.05 tax would cut the numbers of bags by 80 % and could raise GBP 5 million, which would be donated to charities. If this proposal goes through, Scotland will be following Wales and Northern Ireland in forcing shoppers to pay for plastic bags.

Previously, in 2009, the Scottish Government launched a campaign to help retailers halve the amount of bags they hand out. The campaign ran on TV and radio, as well as in supermarkets and shops across the country. Research showed that 92 % of people think reusing carrier bags is good for the environment, but 59 % say they forget their reusable bags and have to take new ones at the checkout. 12 major retailers and almost 500 independent shops participated, potentially reaching millions of consumers, making it the biggest high street campaign ever undertaken by the Scottish Government. The Government's approach is based on the expectation that the consumer will also be the ultimate beneficiary of a reduction in bag use, with local authority waste management costs being reduced.

The Climate Change (Scotland) Act 2009 includes a provision that allows Scottish Ministers to make legislation requiring retailers to charge for bags. More specifically, Ministers may require retailers to:

- charge for carrier bags supplied at the place where the goods are supplied for the purpose of enabling the goods to be taken away or delivered

- apply the net proceeds raised by such charges to the advancement of environmental protection or improvement or to any other purposes that may be reasonably regarded as analogous.

In Scotland, retailers have made clear, and Government has accepted, that the focus should be on carrier bags generally and not only on plastic bags. Whilst plastic bags are worse in terms of litter, paper bags are said to be worse for the environment (as more resources are needed for their production and transport).

Retailers in Scotland will now start charging GBP 0.05 for bags in October 2014.

England

In September 2013, the coalition government announced that a GBP 0.05 charge for plastic bags will be introduced in England from autumn 2015. It will apply only to supermarkets and larger retail stores.³ Shops with fewer than 250 employees will be exempted from the charge. Proceeds from the charge will be donated to charities. The use of biodegradable shopping bags will be encouraged by exempting those bags which meet a yet-to-be developed manufacturing standard (ENDS Europe 2013).¹

6a. Supplementary context questions including elements pertinent to paradigm discussions in DYNAMIX

Timeline for the different phases of the policy cycle (i.e. rationale and objective-setting; appraisal; implementation and monitoring).

Description of the government in power during each of the three following policy phases: rationale and objective-setting; appraisal; and implementation and monitoring.

Does the mix contain policies that are unusual or not typical of the country/ies or regional/local administration that implemented it?

Names of resource efficiency concepts, terms, models, ranking/classification systems, accounting methods etc. used or relied upon in each of the three phases of the policy cycle: rationale and objective-setting; appraisal; and implementation and monitoring, and how they were used (e.g.: 'waste hierarchy' – used in objective-setting to link policy objectives to more desirable uses for waste).

Not available.

6b. Instruments and orientation of policy mix

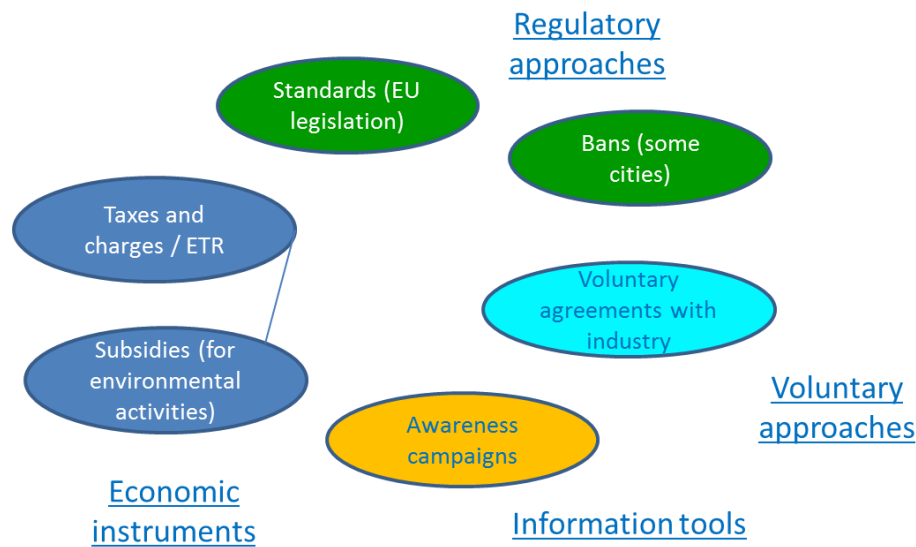
Instruments in the mix and whether one type of tool (i.e. regulatory, economic, information) is dominant.

For each instrument, what is its aim? What requirements does it place on relevant players (for example, phasing out a certain substance, meeting minimum recycling targets, etc.)? What reporting requirements exist?

³ BBC website, *Plastic bag charge to be introduced in England*, 14 September 2013, accessed at www.bbc.co.uk/news/uk-politics-24088523.

In Ireland, the tax is the only instrument, almost stand-alone apart from awareness campaigns around the time of its introduction. In the UK, the taxes being introduced are implemented alongside voluntary initiatives and awareness campaigns. In general, regulatory solutions (bans) are not preferred by most European policy makers, with economic tools (taxes), information (awareness) or voluntary initiatives being the favoured options.

Figure 1: Instruments in the plastic bags policy mixes

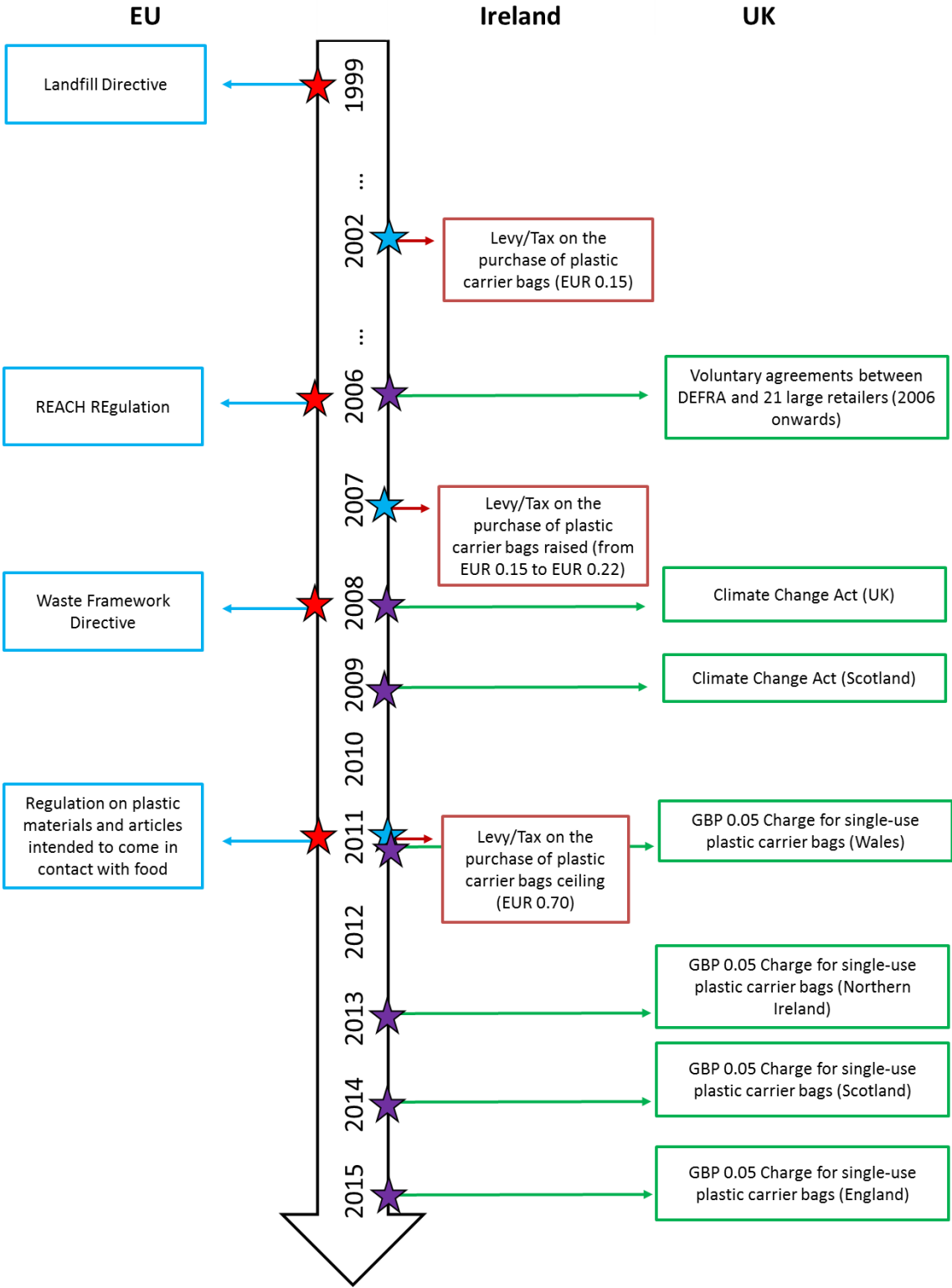


Source: Own compilation

6c. Evolution of policy mix

Evolution of the policy mix throughout its existence –details of the introduction of the first policy tool(s), then all subsequent relevant tools, and related revisions/reforms (e.g. progressive increases in rates applied through economic tools, broader extension of regulation requirements, etc.).

Figure 2: Evolution of Irish and UK policy mixes on plastic bags



Source: Own compilation

7 Evaluation of policy mix: effectiveness (environmental sustainability)

Does/did the policy mix result in a positive environmental outcome?

Were its stated objective(s) met? Were the instruments used sufficient to meet the objectives?

Did other, unforeseen/unintended positive outcomes or impacts (environmental, social, economic) result? Did other such negative outcomes or impacts result?

Were these objectives set at a level to meet environmental needs (e.g. avoid crossing environmental thresholds/tipping points or achieve more sustainable levels of resource use/extraction (e.g. maximum sustainable yield (MSY) in fisheries)?

Which sectors/actors were identified as having key impacts/influences on the problem/issue? (e.g. specific industrial/ business sectors, consumers, economy as a whole?) Did any of the instruments specifically target these key sectors/actors? Was there significant take-up/implementation of (voluntary) instruments by these sectors?

Was the policy mix applied to a sector previously not targeted by policies on the issue under question, or in a new area/issue – thereby aiming to stimulate change?

What were the anticipated and actual outcomes, impacts and effects of the policy mix on the behaviour of sectors and actors targeted? (e.g. reductions in emissions from industry, increased recycling rates, increase/decrease in certain product purchases, etc.).

Relationships between the instruments, identifying positive/negative influences on the overall policy mix or on key instruments in the mix, as well as any positive or negative impacts from changes to the mix (introduction or termination of instrument(s), increase or decrease in tax/levy/charge, etc.). Level of 'connectivity' (strong, weak) between each instrument and the primary one(s).

Are there any indicators, monitoring systems, review processes or other monitoring mechanisms in place to track progress?

It should be noted at the outset that the main aim of these policies has been to reduce litter (for both environmental and economic reasons), and only indirectly to improve resource efficiency as regards plastics.

Ireland

The primary purpose of the Irish plastic bag tax was to reduce the consumption of disposable plastic bags by influencing consumer behaviour, and on that measure it has been an outstanding success. The Irish case exhibits absolute decoupling as numbers of plastic bags used dropped even as the economy grew robustly until 2007.⁴

The most recent survey data available for 2010 shows that plastic bags constitute 0.24 % of litter pollution compared to an estimated 5 % prior to the introduction of the tax.

The plastic bag levy was increased from EUR 0.15 to EUR 0.22 in July 2007 in a bid to reduce littering further. There was a decrease in plastic bags as a percentage of the National Litter Composition from 0.32 % in 2008 to 0.24 % in 2009 (ACR+MED 2013).

UK

Table 3 below provides details from WRAP on progress made in the UK as a whole (figures include the overall number of carrier bags, not just thin bags).

Table 3: UK progress on overall carrier bag use, 2008-2011

2008	2009	2010	2011
-26 %	-48 %	Decreasing trend stops; use of thin plastic bags increases 5 % compared to May 2009.	Almost 8 billion single-use bags were used in the UK, or 128 per capita – a further increase of 5.4 % on the previous year.

Source: WRAP. 2010. « Voluntary Carrier Bag Agreement: Review of Supermarket Carrier Bag Use 2010 », presentation, and WRAP. 2011. « UK Supermarket Retailers Voluntary Carrier Bag Agreement: 2010 carrier bag use », presentation.

In 2011, In Wales, use fell by 22 % (compared to 2010), thanks to the charge introduced in October 2011. But in England use rose by 7.5 %, while Northern Ireland saw an 8.1 % rise.

Effects of policy on consumer behaviour

With single-use plastic carrier bags no longer available for free (or at all), consumers either come up with their own alternatives or use those proposed by retailers. In theory, policies to reduce the use of plastic carrier bags could lead to the use of less sustainable alternatives, which depending on the circumstances may include paper bags or cotton bags. However, such bags tend not to be distributed by supermarkets or other large retailers in Europe though paper bags are used by high-street boutiques such as clothing retailers. The most common response in Member States has been to switch to multiple-use plastic carrier bags.

Apart from switching, consumers find other solutions: filling bags closer to their capacity, shopping more locally, buying products with less packaging, using trolleys, backpacks or handbags to carry small numbers of items, etc. As well as reduced overall use, the

⁴ Annual average growth in real GDP of 5.7% between 2000 and 2007, see www.esri.ie/irish_economy/.

policies assessed in this case study would increase levels of primary reuse (reuse of plastic carrier bags for a second or third shopping trip).

Many single-use plastic carrier bags also undergo secondary reuse such as to replace bin liners. Policies to reduce the use of single-use plastic carrier bags can thus potentially result in increased bin liner sales. However, any increase in bin liner sales would be very small in comparison to the reduction in single-use plastic carrier bags.

It can be assumed that consumers either switch to multiple-use plastic carrier bags or reduce their consumption of carrier bags altogether. Therefore, reductions in the number of single-use plastic carrier bags are accompanied by a (smaller) increase in the use of multiple-use plastic carrier bags. As multiple-use bags are reused several times there will still be a significant net reduction in environmental impacts.

8 Evaluation of policy mix: efficiency (economic sustainability)

Is/was the policy mix considered cost-effective?

What has been the level of impact on resource use of the policy mix (the effect)?

What have been the costs of implementing the policy mix for target audience (e.g. business, households, etc.)?

What are the costs (financial, human) of implementing the policy mix for the implementing authority – i.e. the administrative/transaction costs?

Were sufficient resources made available to ensure an effective implementation of the policy-mix?

Was anything foreseen in the policy-mix to address competitiveness concerns (e.g. use of exemptions) or minimise transaction costs (e.g. thresholds below which monitoring wasn't required)?

Did the policy mix involve providing financial support (e.g. subsidies, low interest loans, tax breaks etc.) to key actors (e.g. sector, households, etc.)?

Did the measures generate revenues (e.g. in the case of taxes) and if so, was revenue recycled/re-injected into the economy, and to what levels and activities? Did revenue recycling have positive amplifying effects?

In synthesis - was the policy mix cost-effective?

What elements of the mix were (un)helpful in improving cost-effectiveness?

How was relative/absolute decoupling achieved?

Were resource limits or other thresholds taken into account and how were they addressed?

Administrative burden and tax revenues

A mandatory pricing measure involves a cost for national authorities in order to research and implement it. Suppliers and retailers face some initial costs associated with learning about the tax and stocktaking, or adjusting checkout counters to facilitate the use of

alternative or reusable bags. However, the cost savings for retailers in purchase and storage of plastic carrier bags should more than offset any additional costs. There would also be a cost to consumers, who would either need to purchase multiple-use bags or (much less often) pay the tax.

The amount of revenue generated would depend on the size of the tax and the extent to which it reduces the amount of plastic carrier bags purchased (the elasticity of demand). In Ireland, the tax yielded EUR 23.4 million in 2009. The Irish EPA reported that it raised EUR 3.45 million in its first three months.

Ireland's plastic bag tax revenue is earmarked to cover administration costs and for an environmental fund used to support waste management, litter cleanup and other environmental initiatives. The tax was so successful in reducing the use of plastic carrier bags that annual revenues from the tax were only around one tenth of the amount initially expected. Administration costs were very low, at about 3 % of revenues, because reporting and collection are integrated into the existing VAT system.

Retailers in Ireland who fail to implement the Levy Regulations correctly are liable on summary conviction to a fine not exceeding EUR 1 905 or to imprisonment for up to 12 months, or both or, on conviction on indictment, to a maximum fine of EUR 12.7 million, or to imprisonment for up to 10 years, or both. A system of daily fines applies where an offence continues to be committed after conviction i.e. up to EUR 254 per day for a summary conviction, or up to EUR 127 000 for conviction on indictment (ACR and (ACR+MED 2013).

A voluntary agreement such as in the UK would be less of a cost burden for government than a compulsory pricing measure or ban because as the initiative would be voluntary, enforcement and monitoring activities would not be necessary.

No information was found on the taxes recently proposed or introduced in the UK.

9 Evaluation of policy mix: welfare (social sustainability)

What social impacts have you found associated with the policy mix? E.g. jobs created, reduced health impacts, distributional impacts etc.

Were social aspects included in an ex-ante impact assessment of the policy mix if one was undertaken? What were these?

Has monitoring of social impacts been included in implementation, to identify actual effects compared to anticipated ones?

Was the policy mix designed to not be socially regressive? What measures were undertaken to ensure this?

Were equity concerns addressed and, in case of re-structuring of the economy/sector, measures in the area of reskilling of the workforce foreseen?

What other public acceptability elements were addressed or considered?

Plastic carrier bag producers and employment

Most plastic carrier bag producers are privately owned SMEs. The reduction or elimination of single-use plastic carrier bags could entail a significant decrease in activity for SMEs specialised in the production of plastic carrier bags. This implies that in EU countries that still produce single-use plastic carrier bags, companies could have to either close production lines or switch to producing multiple-use plastic carrier bags.

About 250-300 producers of plastic carrier bags in the EU employ 15 000-20 000 people. There are producers of plastic carrier bags present in the majority of Member States. No further information has been found for the UK but in Ireland, in 1999 (i.e. prior to the introduction of the tax), it was estimated that 79 % of bags consumed were imported. The remaining share was produced by just four domestic firms. One firm subsequently went out of business but it is not certain if that was directly a result of the tax (Fehily et al. 1999 cited in Convery et al. 2007).

As there are no commonly accepted definitions, and since many producers manufacture a range of bags, it is not possible to break down the number of producers by bag type. However, lower quality single-use HDPE bags tend to be imported from outside the EU, while EU producers tend to specialise in higher-value, thicker LDPE bags.

Producers of plastic bags in the UK or Ireland could be well placed to take advantage of a switch away from single-use plastic carrier bags. Those producers that do not already specialise in LDPE bags could switch after investing in new or adapted machinery. Smaller producers are likely to experience a more negative effect as they have less capacity to adapt. A transitional period would help in this regard.

The UK and Ireland should have more comparative advantage in higher unit value products than in the cheapest plastic carrier bags, for which economies of scale in production are key. However, this may not be true of all types of multiple-use plastic carrier bag. For example, woven PP may be more competitively produced in Asia due to the labour involved.

The specific producers affected by a policy and the extent of the impact will depend on the alternatives chosen by retailers and consumers. Depending on the design of the policy and consumer preferences, there could even be a net gain in employment in the UK and Ireland.

In the retail sector, small shops might be more severely affected than large ones because placing a price on plastic carrier bags might discourage impulse buying by “walk-up” customers. Such purchases may account for a smaller share of sales in larger retailers, who might also be better able to absorb any administrative burden. On the other hand, consumers are expected to rapidly adapt and find alternative means of carrying their purchased goods.

Opposition among industry to a tax on plastic bags is much stronger in the UK than it was in Ireland. However, the examples of Ireland and more recently Wales and Northern Ireland are changing views. In September 2012, the London parliamentary Assembly agreed unanimously on a motion that calls on Defra to “enact reserve legislation, part of the Climate Change Act 2008 that would force retailers to introduce a tax on all single-use plastic bags.” In the same month, a survey found that over half of English adults think that a GBP 0.05 charge is not unreasonable for England, and that 75 % would cut down on their bag use if one was introduced (ACR+MED, 2013). This is evident in the recently announced proposal to introduce a charge in England in 2015.

10 Overall assessment

What is your overall view on the success(es) or failure(s) of this policy mix?

How did the policy mix enable decoupling?

How could it have been improved to achieve its original objective(s) and to achieve absolute decoupling?

Improper handling and disposal of retail bags has been shown to harm the environment. Switching to paper, or biodegradable or compostable plastic bags has not been shown clearly to be the answer in all situations. The best solution depends on life-cycle assessments, and local behaviour and waste management facilities.

While all strategies to reduce the use of retail bags have merit, some are more effective than others. Although they initially pose an inconvenience for some consumers, bans produce the fastest results, closely followed by user fees and taxes. Voluntary efforts are more readily accepted by the retail industry and the public, but take more time to produce results. While voluntary efforts can be helpful in changing behaviour patterns, their effectiveness is dependent on the number of retail establishments participating. Public education is crucial to any approach, to illuminate the damage caused by thin bags, and the cost of undoing the harm, and to promote reusable bags. Collaboration with the retail sector is also essential.

The evidence provided in this case study from the Ireland and UK cases shows that taxes or levies have been very successful. It is worth noting that the apparent success of these policies could have been amplified by the general drop in purchasing power due to the economic crisis. Nevertheless, the tax in Ireland was successful even in a time of relatively robust economic growth (2002-2007). There seems to be a “short sharp shock” upon introduction of a tax (the steep drop seen in 2002), after which consumption may creep back up if the tax is not increased.

The general conclusions in the next section are also applicable to the UK and Ireland. As regards overall decoupling and resource efficiency, it should be noted that the main objectives of these policies are to reduce litter, and only indirectly to improve resource efficiency.

11 Relevance to the EU and transferability

Can the policy mix be applied at the EU level? Is it transferable to other Member States/countries?

What lessons are there that may be of general interest regarding policy mixes and what issues are there as regards transferability of the insights?

Although good progress has been made in some Member States, the use of single-use plastic carrier bags is still very high in Europe. As long as that is the case, litter for example will remain a worsening problem due to the lightweight, mobile nature of plastic carrier bags and their persistence in the environment.

Experience at Member State level does show that effective policy interventions exist. Yet there is no specific policy at EU level.

Voluntary approaches developed by policy makers and industry can be a pragmatic response to policy problems, as they aim to achieve sustainability in a more flexible way while taking into account concerns about industrial competitiveness and administrative burden. However, political will is needed and there is a significant risk that such agreements are later abandoned. Clear targets and good reporting are key, as well as consequences if set targets are not met.

Some voluntary approaches focus on reducing environmental impacts indirectly, for example by increasing the recycled or bio-based content of bags. However, a more direct approach is to focus on reducing the number of plastic carrier bags used, for example via a voluntary agreement by a significant share of the retail sector to stop providing single-use plastic carrier bags by a certain year.

Large retailers such as supermarkets are responsible for a large proportion of the consumption of plastic carrier bags and are more likely to be able to agree a voluntary approach than smaller shops, which are diverse and hard to monitor.

Pricing measures encourage reuse and help reduce littering by applying an economic incentive and raising consumer awareness. The free provision of plastic carrier bags to customers should no longer be allowed.

Levies should be passed on in full to the consumer as consumer-based levies are expected to yield bigger reductions in the number of plastic carrier bags used and littered than supply-side weight-based taxes. Member States can use the funds to enhance the environmental benefit by ring-fencing funds for litter clean-up activities, recycling and other environmental projects.

In principle, levies should be high enough to cover the environmental and social costs generated over the life cycle of a plastic carrier bag (including end-of-life management). In addition, in light of the principles of producer responsibility, the costs of collection and treatment of plastic carrier bags should be reflected in the price of the product. However, even a low price can have a big impact if customers see payment as a hassle or if use of plastic carrier bags becomes socially undesirable.

As well as setting an appropriate level, the price needs to be increased over time to avoid usage creeping back up. The primary goal should be to reduce the consumption of single-use plastic carrier bags by influencing consumer behaviour, rather than to raise revenue.

Pricing measures could be applied to all plastic carrier bags not just single-use, in order to encourage reduced use and greater reuse of all bag types and because in practice multiple-use plastic carrier bags are rarely distributed for free anyway.

It has been suggested that the provision of single-use plastic carrier bags could even be **prohibited at EU level**. A transitional period, for instance 18-24 months, would enable producers and distributors to adapt to the new rules. Bans usually specify a minimum thickness, ensuring that heavier, more durable (and therefore more likely to be reused) bags are still permitted.

Bans on single-use plastic carrier bags have been discussed in several Member States. Italy is the only Member State to have imposed a national ban on (non-biodegradable) single-use plastic carrier bags. However, a number of non-EU countries have also put in place similar bans. It appears that less developed countries in particular favour bans and

minimum thickness standards rather than market-based instruments, most likely due to ease of enforcement, inadequate waste collection and treatment systems, and the need to address chronic litter problems.

Bans are effective in terms of environmental impact but raise difficult legal issues. This option requires a change in the legal basis of the Packaging Directive in order to allow for preventive measures at source in cases of non-essential packaging products, with a high environmental impact and for which more sustainable alternatives are available.

Recommendations

A voluntary approach, would have the significant advantage of being simple to implement, while still achieving a substantial reduction in use. However, it is not an optimal solution in terms of environmental impacts as it would not ensure full market coverage and might not achieve a high level of compliance.

A ban at EU level would be extremely effective in reducing the use of single-use plastic carrier bags. However, it is a blunt instrument that gives little flexibility to producers, retailers or consumers. It could also conflict with internal market rules and international trade law. In any case, the decision would require unanimity and so is unlikely to be adopted.

The fact that many retailers still distribute plastic carrier bags for free is the main driver behind excess use and thus an important lever for change. Pricing measures have an almost immediate effect on consumer behaviour, while also preserving consumer choice to a greater extent and giving retailers more flexibility. Such measures have been very effective at Member State level.

The available LCA literature suggests that single-use plastic carrier bags are more environmentally harmful than multiple-use plastic carrier bags. Requiring that a price be placed on all plastic carrier bags would result in both a reduction in the use of plastic carrier bags overall and a shift from single-use to multiple-use plastic carrier bags.

A pricing measure allows government revenue to be raised. However, the price should be set high enough that only a modest amount of revenue is raised – enough to cover the administrative costs and fund some environmental projects with the surplus. The aim should be to reduce the use of plastic carrier bags and the price should rise over time to ensure this.

The most effective approach may be to combine a waste prevention target for plastic bags at EU level (monitored in the same way as other waste-related targets) with pricing measures at national level that would make it obligatory for shops to charge for plastic carrier bags. That would combine the political commitment and monitoring of an EU target with the flexibility and efficiency of pricing measures. Pricing measures are most appropriately implemented at national level but an ambitious EU level target could help raise awareness and ensure implementation. Member States could choose whether to apply a tax or voluntary initiatives or both, as long as they meet their target.

Such a policy mix may be preferable for a number of reasons. Pricing measures are highly effective at reducing the use of plastic carrier bags. However, as the level of the price is not specified but left up to Member States, this introduces a risk that the reduction achieved could be lower than expected. The combination with a waste prevention target at

EU level, however, would ensure that the prices set by Member States would be at least high enough to achieve the EU target. The greater policy certainty provided also helps producers and retailers to make any investments or changes in business practices that are required. The target would also help raise consumer awareness – a key success factor. Finally, as pricing measures affect consumer behaviour almost immediately, the target might be achieved earlier in the project period than if the target were introduced on its own. This means that the cumulative benefits in the long term would be even more positive.

Based on experiences in Europe and around the world, the result of such an approach would be a steep reduction in the use of single-use plastic carrier bags in the EU and associated environmental impacts. The evidence from Ireland and other countries mentioned earlier in this case study suggests that there would be an increase in the use of multiple-use plastic carrier bags (with a potential benefit for EU plastic carrier bag producers to the extent that these are LDPE rather than PP), and smaller increases in use of other carrier bags such as paper and cotton, and bin liners for domestic waste. Nevertheless, the overall effect would be positive on all indicators, including energy use and greenhouse gas emissions but especially for litter, where the absolute number of bags is the key indicator of the impact.

A co-benefit of policies to reduce the use of plastic carrier bags is greater awareness among consumers about litter and sustainability. Awareness campaigns in advance of the introduction of a policy are important, to ensure that the objective of the measure is well understood by consumers, and to highlight the availability of more sustainable alternatives to single-use plastic carrier bags.

Finally, as there is little official data on use of plastic carrier bags, new data collection procedures should be put in place. Further LCA work would also be helpful in refining the options and monitoring progress over time.

12 Stakeholder contribution

What insights did stakeholders provide?

Private written communication in the text (page 16).

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14 Annex

Table 4: Initiatives to reduce plastic bag use in EU Member States⁵

MS	Existing or planned legislation to avoid the use of plastic carrier bags	Voluntary initiatives	Achieved or planned outcomes
AT	Austria has no legislation in place to address the issue of plastic bags, nor a national recycling scheme. However, the Greens intend to promote voluntary agreements with supermarket chains and in January 2011, the environment minister published a five-point plan to reduce the use of plastic bags.		
BE	There is a federal environmental tax on single-use plastic carrier bags. The packaging tax, introduced in May 2007, sets a charge of 3 EUR/kg for the distribution of plastic carrier bags used for carrying goods purchased from retailers. Article 6(3) of a Regulation of 27 June 1996 contains the legal provisions on avoiding the use of plastic carrier bags. The regulation is not yet in force in the Walloon region. Any reduction in the use of plastic carrier bags in the Walloon region is therefore on a voluntary basis or as a result of other legislation.	<p>Belgian authorities have had a voluntary agreement with retailers for 15 years where customers are charged a fee for the purchase of plastic carrier bags. Proceeds from the fee go to Fost Plus - a plastic collection and recycling firm. There is no national scheme for separate recycling of plastic bags.</p> <p>The retailers' association Comeos produced a Plan to reduce the use of plastic carrier bags in retail, which has been in place since 2003. Members committed to reducing "single-use" plastic bags by 20-25</p>	<p>In Flanders, the Comeos voluntary agreement led to an 80 % reduction in disposable plastic carrier bags between 2003 and 2009.</p> <p>In Wallonia, the plan has led to a 60 % reduction in disposable plastic bags for the period 2007-2010 compared to 2003.</p> <p>The 2010-2013 retailers Plan targets a 90 % reduction compared to 2003 in terms of</p>

⁵ This table is based on a range of sources, notably a document prepared by the Austrian Federal Ministry of Agriculture, Forestry, Environment and Water Management, communications with national authorities and Strange, K. (2011).

MS	Existing or planned legislation to avoid the use of plastic carrier bags	Voluntary initiatives	Achieved or planned outcomes
		% by 2006 and by 60 % by 2009.	tonnage/revenue. By 2011 an 86 % reduction had been achieved.
BU	<p>In March 2011, Bulgaria's Ministry of Environment proposed the use of economic measures to limit the use of plastic bags. A tax on polyethylene (PE) bags with a thickness of less than 15 microns came into effect on 10 October 2011. The tax is paid per item by those who place plastic carrier bags on the Bulgarian market and retailers pass the fee on to customers. The proceeds of the tax are ring-fenced for waste management projects.</p> <p>The tax is set to increase each year, from EUR 0.08 initially to EUR 0.28 in 2014. In 2012 the Ministry of Environment and Water extended the tax to bags thicker than 15 microns. Compostable and biodegradable bags are excluded.</p>		The tax on thin plastic carrier bags is expected to result in a reduction of 30 % of carrier plastic bags consumed.
CY	No measures in place. Proposals to make all bags biodegradable and to prohibit supermarkets from giving away free plastic carrier bags were rejected in 2008.		
CZ	<p>Since 2011, free distribution of plastic carrier bags is banned but it is up to retailers how much they charge.</p> <p>The Czech Environment Ministry considers conventional plastic carrier bags containing additives to be problematic because a relatively large amount of plastic waste recycling is carried out in the Czech Republic. Labelling is therefore now being considered.</p>		
DE	No specific legislation. The problem is regarded as having been solved by packaging legislation.	Supermarkets voluntarily charge for plastic bags. Most German supermarkets charge between EUR 0.05 and EUR 0.10 per	

MS	Existing or planned legislation to avoid the use of plastic carrier bags	Voluntary initiatives	Achieved or planned outcomes
		"single-use" bag, depending on the type of bag.	
DK	<p>There has been a charge for plastic and paper carrier bags (with a volume of at least 5 litres) since 1993. The charge depends on the weight and material. On average it is 0.5 DKK per plastic bag (this charge is equal to 10 DKK/kg for paper bags and 22 DKK/kg (around €3) for plastic bags). It is up to individual businesses to decide whether or not they in turn charge their customers for the bags (generally between 1.5 DKK and 3 DKK). As the cost can be absorbed in the cost of products, consumer behaviour change is not the direct target as in Ireland.</p>	<p>Many municipalities, organisations and businesses encourage the use of reusable bags.</p>	<p>The environmental authorities do not have precise data on the number of carrier bags used. However, after the introduction of charges, the total use of plastic to make carrier bags fell from just under 18 750 tonnes in 1993 to around 7 750 tonnes in 1999. By 2009, use had crept back up to around 8 950 tonnes.</p> <p>According to environment authority data, carrier bags have become thinner since the introduction of charges,⁶ and are made out of reusable (thick) material, so that their energy value can be used when burnt in incinerators.</p> <p>Use of paper and plastic bags is estimated to have fallen by two-thirds (Scottish Government 2005).</p>

⁶ BIO estimate is that average weight may have reduced by up to one third since 2003.

MS	Existing or planned legislation to avoid the use of plastic carrier bags	Voluntary initiatives	Achieved or planned outcomes
EE	<p>Under the current legislation, plastic carrier bags are considered to be part of packaging, so it is the duty of the producer (person who places the packaging on the market) to organise collection and arrange for recovery or recycling. If recovery or recycling targets are not met, the producer must pay a packaging tax for the amount it is below the target.</p> <p>The Estonian Green Party initiated draft legislation in 2010 to implement a new tax on plastic carrier bags.</p> <p>The draft suggested a tax of EUR 0.20 per plastic bag over 20 cm x 30 cm in size (with handles) bought in retail. Under the new government it has been increased to EUR 0.35.</p>	<p>In retail, bags are sold for around EUR 0.10, so are not free. In this way, the bulk use of these bags can be monitored to a certain extent. Reusable bags are promoted by media campaigns, as well as in other ways.</p>	<p>A tax of EUR 0.20 on top of the average price of EUR 0.10 would mean that the number of plastic bags sold would decrease quickly, like in Ireland. However, an evaluation of the policy has not yet been carried out.</p>
EL	<p>There is no legislation to reduce the use of plastic carrier bags.</p>	<p>Plastic bags are free everywhere in Greece, apart from Lidl. Since 2008, some supermarkets have made reusable shopping bags available but with limited success because thin plastic carrier bags are still distributed without charge.</p> <p>Some municipalities (e.g. Athens), districts (e.g. Samos) and large supermarkets have introduced biodegradable shopping bags.</p>	
ES	<p>In transposing the Waste Framework Directive, Spain envisages the following reduction in plastic bag use compared to 2007:</p> <ul style="list-style-type: none"> - 60 % fewer plastic carrier bags by 2013; - 70 % by 2015; - 80 % fewer plastic carrier bags by 2016. <p>From 2018, the use of plastic carrier bags should be stopped</p>	<p>There have also been voluntary agreements in Spain since at least 2008. The main retail associations signed up to voluntary agreements with the regional public authorities to promote the prevention and more sustainable use of carrier bags</p>	<p>One of the best examples is <i>Pacto por la Bolsa</i> in Catalonia, signed in 2009. Its target was a reduction of consumption of “single-use” bags by 50 % by 2012. By 2010, a reduction of 40 % had been</p>

MS	Existing or planned legislation to avoid the use of plastic carrier bags	Voluntary initiatives	Achieved or planned outcomes
	<p>completely, except for plastic bags for meat, fish and freezer products (with a high water content), as no equivalent alternative to plastic bags has yet been found. In addition, from 1 January 2015, a message about the harmful environmental impacts of plastic carrier bags must be printed on all bags.</p> <p>The Andalusia region agreed a charge for the use of plastic carrier bags in June 2010, which came into force on 1 May 2011. It provides for a charge of €0.05 per plastic carrier bag in 2011, rising to €0.10 per plastic carrier bag in 2012.</p> <p>The Spanish body for standardisation and certification (AENOR) has made a standard on reusable PE carrier bags (UNE 53942 - 2009), guaranteeing their use at least 15 times.</p>	<p>among consumers.</p> <p>Some large supermarket chains now either charge for plastic carrier bags (Día) or pay a small amount back (around EUR 0.10) if the customer does not take any plastic carrier bags (Eroski Group).</p>	<p>achieved.</p>
FI	<p>No legislation specifically targeting plastic carrier bags.</p>	<p>Almost all supermarkets sell durable bags, paper bags and plastic bags. Some public institutions and private companies provide free multiple-use cloth bags.</p>	
FR	<p>In 2005, France adopted a law banning the sale of non-biodegradable plastic bags by 2010 but the text was never applied since it was deemed to be in breach of certain provisions of the Packaging Directive. The 2010 budget (<i>Loi de finances rectificative pour 2010, article 47</i>) instead set up a tax on non-biodegradable "single use" plastic carrier bags of 10 EUR/kg (around EUR 0.06 per bag), which will be applied from 1 January 2014. This is set out in Article 266, as amended, of the general tax code book '<i>Code des Douanes</i>'. Biodegradable bags made from a minimum of 40 % renewable resources would be exempt.</p>	<p>Until now, supermarket chains have had sole responsibility for reducing the number of plastic carrier bags.</p> <p>Since 1996, E.Leclerc has progressively replaced free thin plastic bags with biodegradable, reusable and cotton carrier bags. The supermarket chain has reduced the number of plastic carrier bags distributed to consumers from 1 billion in 1995 to 50 million in 2005. By 2005, 94 %</p>	<p>The tax is intended to reduce the use of free thin plastic carrier bags to as close to zero as possible. In past years, increased provision of reusable carrier bags has succeeded in considerably reducing the excessive provision of free thin plastic bags in France's supermarkets.</p> <p>The number of thin plastic carrier</p>

MS	Existing or planned legislation to avoid the use of plastic carrier bags	Voluntary initiatives	Achieved or planned outcomes
		<p>of its costumers owned one or more reusable bags. Other chains have followed its example and some have voluntarily started charging for plastic bags.</p> <p>The FCD retail federation made a commitment to reduce plastic carrier bag use in 2003 and aims to completely phase out thin plastic carrier bags by the end of 2011.</p> <p>Carrefour aims to completely end free provision by 2012.</p> <p>Corsica banned plastic carrier bags in 2003. A referendum was organised that proposed three options for the replacement of conventional plastic carrier bags: large reusable plastic bags costing EUR 1, paper bags sold for EUR 0.08, or bio-based bags sold between EUR 0.05 and EUR 0.14 depending on their size. The majority (61 %) opted for the reusable plastic bag sold for EUR 1.</p>	bags used in France decreased from 10.5 billion to 1.5 billion from 2002 to 2009.
HU	It is reported that there is a national recycling scheme in place.	Some supermarkets voluntarily charge for plastic bags.	
IT	Italy has taken the most drastic action of any EU Member State so far, in its Law of 27 December 2006, No 296, Article 1, paragraphs 1129, 1130 and 1131.		The goals are to reduce CO2 emissions, protect the environment and support the agricultural sector

MS	Existing or planned legislation to avoid the use of plastic carrier bags	Voluntary initiatives	Achieved or planned outcomes
	<p>Paragraph 1129: In order to reduce the amount of CO₂ emissions to the atmosphere, improve environmental protection and support the agri-industry on biomaterials, in 2007 a national pilot programme was launched for the gradual reduction of carrier bags placed on the market that are not biodegradable under the EU criteria defined in law, and the technical conditions adopted at EU level.</p> <p>Paragraph 1130: In accordance with paragraph 1129 (...) the programme is aimed at establishing measures to be gradually implemented at national level to achieve the ban on placing carrier bags on the market that are non-biodegradable and that do not fulfil the technical and legal biodegradability criteria adopted at EU level.</p> <p>The ban came into force on 1 January 2011 and does not provide for any specific penalties for infringements. It applies to all product sectors and all types of non-biodegradable carrier bags. Reusable plastic bags are exempt.</p> <p>Shops and supermarkets will only be able to provide customers with the plastic bags remaining in their stockrooms, giving them to customers free of charge; and only until 31 August 2011 in supermarkets and 31 December in smaller shops.</p> <p>The Italian ban was announced without notifying the EC. On 5 April 2011, Italy gave notification of a draft law defining the scope of the ban on the marketing of non-biodegradable shopping bags. It also contains provisions related to penalties. The Commission has sent a detailed opinion to the Italian authorities. This kind of ban is a breach of the Packaging and Packaging Waste Directive, as well as internal market rules. The Commission is preparing its response.</p>		<p>with the commercialisation of bio-based materials. A drastic reduction in the number of non-biodegradable plastic bags in favour of the use of reusable bags and shopping bags is expected, along with a corresponding increase in number of bags made of biomaterials from biodegradable and compostable material.</p>

MS	Existing or planned legislation to avoid the use of plastic carrier bags	Voluntary initiatives	Achieved or planned outcomes
LT	In Lithuania, there is no legislation or planned legislation to ban plastic carrier bags.	Most distributors voluntarily do not use plastic carrier bags.	
LU	No legislation specifically targeting plastic carrier bags.	<p>A voluntary agreement is in place between the Environment Ministry and Valorlux (association of producers and importers of packaging material) regarding the sale of the multiple-use “Eco-sac” carrier bag.</p> <p>The voluntary agreement has a target of a market share for multi-use carrier bags of at least 51 %. This agreement was first made with food and DIY shops.</p> <p>The first agreement was made in 2004, the second in 2006, and the third in 2008. It is applicable throughout the country. There is no provision for penalties. An annual inspection is carried out by a commission made up of the CLC trade association, Valorlux and the Environment Ministry.</p> <p>The initiative is expected to be continued; the next stage will include bakeries/patisseries and bookshops, followed by butchers, art and craft suppliers, pharmacies, shoe and leather shops. This will probably be accompanied by printed advertising, as some chains have begun to sell their own “eco” carrier bags.</p>	<p>The system is self supporting, and in addition, each year two studies are undertaken, financed by the sale of multiple-use carrier bags.</p> <p>2002: 71 million “single-use” plastic carrier bags</p> <p>2004: 55 million plastic carrier bags (Introduction of eco-bags)</p> <p>2007: 11 million plastic carrier bags (significant fall following introduction of a voluntary charge of €0.03 per bag)</p> <p>2009: 6.5 million plastic carrier bags</p> <p>Between 2003 and 2009, it was possible to reduce the amount of plastic carrier bags from 599 tonnes to 134 tonnes, preventing 465 tonnes of plastic waste.</p>

MS	Existing or planned legislation to avoid the use of plastic carrier bags	Voluntary initiatives	Achieved or planned outcomes
LV	<p>The Latvian Environment Ministry states that each year around 20 tonnes of plastic bags have to be disposed of. Taxes were therefore introduced on the use of plastic carrier bags that the retailer must pay. A tax rate of 0.80 LVL/kg is applied to plastic bags weighing more than 0.003 kg (the weight of 1 000 bags exceeds 3 kg).</p> <p>Since 2009, there are three categories of environmental levy: EUR 0.02, EUR 0.14 or EUR 0.15 per plastic carrier bag. There is also labelling (printed) on plastic carrier bags, and penalties for breaches of the conditions. In 2010 the law was amended again to prevent carrier bags without handles from being exempt from the environmental levy.</p>	<p>Supermarkets now only offer plastic carrier bags for a charge.</p>	<p>No information on results has been found.</p>
MT	<p>Charges for plastic bags were introduced in 2005:</p> <p>Biodegradable: 0; Degradable: EUR 0.14; Plastic: EUR 0.16.</p>		<p>A decrease of 5 million plastic bags was recorded in the first five months of 2005. There has also been improved traceability and monitoring of the production of plastic carrier bags.</p>
NL	<p>In the Netherlands there is no specific legislation regarding plastic carrier bags.</p> <p>Since 1 January 2008, packaging importers, producers and purchasers pay a packaging tax, with different tariffs for each type of material. For plastic packaging such as plastic carrier bags, the tariff is currently EUR 0.47/kg. To encourage the use of biodegradable carrier bags a tariff of EUR 0.08/kg is applied.</p> <p>Finally, plastic waste has been collected separately in all 430 Dutch municipalities and towns since 1 January 2010.</p>	<p>Voluntary agreements in the retail sector mean that supermarket customers have not received most types of plastic carrier bags for free since the mid-1990s and today pay around EUR 0.20 per bag. In many shops there are “bag bins” where used bags can be deposited and used again by other customers. The retail sector recently announced that the smaller, translucent bags will not be offered free either.</p>	<p>The Dutch Environment Ministry could not give details of the overall amount of plastic carrier bags placed on the market, or possible trends since the introduction of the legislation. They simply emphasise that currently 50-70 % of plastic waste in Dutch households is recovered, and the measures put in place in the Netherlands in the last 20 years have led to a reduction in</p>

MS	Existing or planned legislation to avoid the use of plastic carrier bags	Voluntary initiatives	Achieved or planned outcomes
			the use of plastic carrier bags approaching the situation of Ireland.
PL	Polish law does not have a specific regulation concerning plastic carrier bags. Such regulations are currently not planned to be introduced in the near future although a tax was considered in 2010 but subsequently dropped.		
PT	<p>Portuguese legislation promotes the following measures:</p> <ul style="list-style-type: none"> • Provision of biodegradable bags • Provision of reusable bags at affordable price • Environmental awareness of employees and consumers to promote the use of alternatives to plastic bags that are environmentally responsible; • Promotion of environmental awareness campaigns among consumers, aimed at the separation of waste at source and the appropriate referral within the existing legal systems management; • Adoption of one of the following economic mechanisms to encourage a reduction in the use of plastic bags: Levying a charge for the supply of plastic bags; Applying a discount on the price of goods sold to consumers desisting entirely from taking free plastic bags 		The proposal sets a 90 % reduction target for the provision of thin-walled plastic bags at wholesalers and supermarkets by 2017 against a 2007 baseline, with intermediate targets of a 30 % and 60 % reduction by 2013 and 2015.
RO	<p>Government Regulation No 25/2008 (published in Gazette No 628 of 29 August 2008) entered into force on 1 January 2009.</p> <p>Introduction of a tax of EUR 0.5 for each non-biodegradable plastic carrier bag placed on the market. In 2010, the tax was cut to EUR 0.25 and applies to bags from non-renewable sources.</p>		There is no data available to quantify the decline in use of plastic bags since the introduction of the tax, though the Romanian association of Solid Waste Management reports that

MS	Existing or planned legislation to avoid the use of plastic carrier bags	Voluntary initiatives	Achieved or planned outcomes
			according to unofficial sources the decrease was 6-10 % that year.
SE	No measures planned. Producers are responsible for collection and disposal and pay a disposal charge which is recovered through the price of the bag. Plastic bags could (theoretically) be collected at plastic bottle collection points.	<p>Supermarkets pass the cost of disposal on to the consumer: a plastic bag costs €0.17-0.30.</p> <p>Swedes like to buy €0.50 plastic bags (almost twice as expensive) which are printed with the logo of an NGO or a local sports team. That organisation then receives 50 % of the proceeds.</p> <p>The Swedish retailer Hemköp has introduced bags made of renewable materials (sugar cane). The material can be recycled like conventional PE.</p>	Pricing under the current regulation is intended to reduce the use of plastic bags and to support the use of multi-use fabric bags. However, no data on the results achieved has been found.
SK	In Slovakia there is no legislation on the avoidance of plastic carrier bags and none is currently planned.	Some food stores (Billa, Hypernova and Kaufland) no longer give out plastic bags for free, but sell them.	
SI	Starting in 2011, Slovenia has been running a special environmental tax on retailers and implementing changes to packaging regulations in parallel. The tax on plastic bags that is passed on to customers: EUR 0.50 for bags made from at least 5 % plastic; EUR 0.40 for bags made from more than 95 % biodegradable material; EUR 0.20 for bags made from more than 95 % textiles.		

Table 5: Voluntary initiatives by retailers in EU Member States to reduce plastic carrier bag use

Retailer	Target	Achieved outcomes
El Corte Inglés (Spain)	Implement biodegradable bags (compostable bags that can be transformed into fertilizer) in certain areas of El Corte Inglés' activities and various types of reusable bag for general use in every department.	Requirements included in the National Waste Plan (PNIR): 6 % reduction in first year. More than 30 % achieved by 2009. Report: Consumption of plastic bags was 7.6 % lower in 2009 than in 2007.
ANCC/Coop Italia (Italy)	Eliminate the use of disposable plastic bags.	Many other solutions proposed: reusable bags in different materials and biodegradable plastic bags that can also be used for waste separation in the home.
APED (Portugal)	Renewal of APED's "green bag".	The "green bag" is a reusable plastic bag that can be replaced at no additional cost. The customer pays for the bag only once. The damaged plastic bags are collected and recycled. Report: In 2009 the amount of reusable carrier bags sold was 2 % (1 678 000) lower than in 2008.
Leroy Merlin (Spain)	Increase sales and availability of biodegradable and reusable bags in every shop.	In 2009, Leroy Merlin Spain sold 111 000 reusable bags and 6 500 biodegradable bags.
Carrefour (France)	Eliminate the use of free disposable checkout bags and promote the use of reusable carrier bags.	The number of free plastic disposable checkout bags was reduced from 6.1 billion in 2005 to 3.7 billion in 2009 (a reduction of 39 %, or 59 % per unit of sales).
Delhaize (Belgium)	Ban all plastic non-reusable carrier bags at supermarket checkouts in Belgium and strongly promote reusable alternatives.	The number of non-reusable carrier bags per store transaction decreased by 17 % in Delhaize Belgium between 2006 and 2007. Alfa-Beta introduced biodegradable bags and launched reusable bags.

Retailer	Target	Achieved outcomes
Wal-Mart	In October 2010, Wal-Mart launched a pilot project in three stores in California, which stopped selling thin plastic carrier bags. Instead, the Wal-Mart stores started offering small, lightweight reusable PP bags for 0.15 USD along with larger bags for 0.50 USD. Wal-Mart claims that each reusable bag offsets the use of 75 plastic bags. Wal-Mart's global strategy and target is to reduce plastic carrier bag waste at their stores around the world by an average of 33 % per store by 2013 using a 2007 baseline.	If this goal is achieved, Wal-Mart estimates that there would be a reduction in plastic bag waste by the equivalent of 9 billion bags, which would avoid the production of 290 kt of greenhouse gases and prevent the consumption of the equivalent of 678 000 barrels of oil every year. To achieve this target, Wal-Mart is giving out fewer plastic bags, offering reusable ones and helping consumers recycle their existing bags.

¹ ENDS Europe. 2013. "England to introduce plastic bag charge from 2015", 16 September 2013.