



# THE PRICE IS RIGHT... OR IS IT?

The case for taxing plastic



RETHINK PLASTIC

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#### THE PRICE IS RIGHT ... OR IS IT? THE CASE FOR TAXING PLASTIC

A paper by the New Economics Foundation for Zero Waste Europe, Surfrider Foundation Europe, Friends of the Earth Europe, Environmental Investigation Agency and ClientEarth on behalf of the Rethink Plastic alliance



**RETHINK  
PLASTIC**

Rethink Plastic is the alliance of leading European NGOs working with European policy-makers to design and deliver policy solutions for a future that is free from plastic pollution.

We represent thousands of active groups and supporters in every EU Member State, and are part of the global Break Free From Plastic movement, along with over 1200 NGOs and millions of citizens worldwide

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## EXECUTIVE SUMMARY

The EU should actively consider an ambitious set of taxes on the use of plastic, to:

- 1 Reduce the **overall level of plastic use** in the economy
- 2 Incentivise **widespread reuse and recycling** of the plastic that is used

It is far off the pace in both areas. Plastic consumption has increased since the 1950s and is expected to double to over 600 million tonnes per year by the year 2038 – and around 70% of Europe’s plastic waste is still being sent to landfill or incinerated<sup>i</sup>. More ambitious policies are needed. Taxes on plastic could be a central part of a coordinated and harmonised EU response.

**The primary purpose of a plastic tax, in order to achieve the aims listed above, should be to change behaviour.** While in the short term a new tax could generate significant revenue, relying on this in the long term could lead to perverse consequences that drive policy-makers to oppose ambitious action to reduce usage.

**Tax design matters.** Essential principles for any tax are that:

- It works: the tax should trigger the behaviour change that was intended
- It is perceived to be ‘fair’: no-one should be unfairly discriminated against; the polluter should pay; and the tax should be socially progressive and transparent.

We sketch five possible types of plastic tax and explore their theoretical advantages and disadvantages. Taxes upstream (on production) are less likely to impact consumer behaviour, but are theoretically easier and less challenging to administer. A tax on monomer production from virgin feedstock (oil or bio-based), for example, could have a significant impact on new plastic demand across the economy assuming the costs are not simply absorbed by the industry. Taxes downstream (on consumption), meanwhile, help to change both individual behaviour and shape the public debate, but may do little to change the production methods of the industry.

**A suite of taxes may be needed.** It is not likely that a single plastics tax could by itself trigger the breadth of responses needed from producers and consumers, nor encourage both reductions in overall plastic and greater recycling.

**More economic research is now needed** to explore further the practicalities and design of a range of options. This should include modelling of how behaviour would be likely to change in response to different tax rates levied at different parts of the plastics chain, from production to consumption. It should be remembered that taxes are just one of a range of necessary economic and policy instruments that will need to be deployed to increase the sustainable production and consumption of plastic – most notably, regulation.

# 1. THE CASE FOR A TAX ON PLASTICS

There is a strong imperative for the European Union to actively consider an ambitious set of taxes on the use of plastic.

## The environmental imperative

The European Commission's 'Strategy for Plastics in a Circular Economy' (January 2018) calls for reductions in the overall amount of plastic being used, and increases in both the reuse and recycling of the plastic that remains. It notes<sup>i</sup> that:

Around **25.8 million tonnes of plastic** waste are generated in Europe every year, less than 30% of which is collected for recycling

Globally every year, up to **13 million tonnes of plastic** end up in the oceans, and plastic production and incineration causes approximately **400 million tonnes of CO<sub>2</sub>**

**Demand for recycled plastic is very low** and the "potential for recycling plastic waste remains largely unexploited".

In May 2018 the European Commission proposed<sup>ii</sup> to ban some of the single-use plastic products "*most often found on Europe's beaches and seas*", such as plastic cotton buds, cutlery, plates, straws and drinks stirrers. This is welcome, but falls short of addressing the true extent of our plastic addiction. As the single-use plastics proposal paper itself notes, marine litter results from the ubiquity of plastic in our economy and daily lives:

***"[marine litter is] linked both with the plastics value chain and market, and with individual behaviour and social trends... the wide availability of plastic, consumption trend for convenience, lack of incentives to ensure a proper collection and treatment of waste leading to poor management and insufficient infrastructure."***<sup>iii</sup>

Across Europe, citizens are becoming ever more concerned about the consequences for the natural world of our overuse of plastic. The November 2017 *Special Eurobarometer Survey 468* suggests that<sup>iv</sup>:



It is clear that more must be done to:

- Radically reduce the usage of plastic throughout our economy;
- Rapidly end the usage of the most immediately problematic types of plastic;
- Increase recycling.

### Towards a circular economy

The EU is already committed to moving towards a circular economy – defined as where *"the value of products, materials and resources is maintained in the economy for as long as possible, and the generation of waste minimized...[this] is an essential contribution to the EU's efforts to develop a sustainable, low carbon, resource efficient and competitive economy."*<sup>v</sup>

Yet on current trends, global production of plastic is set to double to over 600 million tonnes per year by the year 2038<sup>i</sup>. Building the circular economy will require ambitious and far-reaching proposals; a suite of measures is needed that targets both producers and consumers:

- **Producers:** The plastics industry is large, entrenched, and powerful. Neither Member States nor the EU institutions are doing enough to challenge the structural issues that result in wasteful, linear business models. A guiding principle for Europe has always been that the polluter should pay to cover the damage that they cause. Yet with plastics, this doesn't happen. Plastic is (too) cheap to make from scratch, to use, and to throw away.
- **Consumers:** Only the most organized and committed citizens would be able to eliminate plastic from their daily lives. The scope and extent of the permeation of plastic usage in everyday items, such as sanitary products and teabags is vast.

Europe has always prided itself on high environmental standards and international leadership. But the incentives are not right to properly change our addiction to plastics

throughout the economy: how much and what types we make; how much we use; and how much we throw away.

This paper makes the outline case for taxes on both the usage and production of plastics in the economy. It draws out the key issues that would need to be considered in the design of any such suite of taxes, and makes recommendations for next steps and further analysis.

It draws extensively from 'Research paper on a European tax on plastics' by Fundacio ENT<sup>vi</sup>, also commissioned by the Rethink Plastic alliance.

## 2. THE PURPOSE OF ENVIRONMENTAL TAXES

As with all taxes, it is important to be very clear *why* the tax in question is being introduced.

Environmental taxation is by definition a tax on an environmentally damaging activity or pollutant, which society would like to see reduced. These are usually introduced for one or more of the following reasons:

- *change behaviour* (e.g. in case of plastics, towards less usage of plastic) of consumers, citizens or business. This could have the effect of 'levelling the playing field' between plastic and other, less environmentally damaging materials.
- *'internalising' the damage caused by polluters* – moving the economic costs associated with environmental damage to the financial bottom line of the body whose activity causes those costs in the first place. Costs borne by society, such as ocean clean-up or climate damage, are 'external' to the business model of the polluter. This is fundamentally an issue of redistribution: moving the costs of environmental damage to those that cause it, rather than being borne by society as a whole;
- *raise revenue* for public spending by taxing the ongoing damaging activity.

Each of these three possible objectives has different, potentially conflicting implications for how the tax might be designed (see Table 1).

Table 1: the implications of different choices over the purpose of a tax

Objective	Implication	Challenge
<p><b>1</b> <b>Change behaviour</b></p>	<p>The tax should be set at a high enough level, or be in some other way designed, to ensure that people or business don't want to pay it, preferring instead to change what they buy, or reduce their overall consumption.</p> <p>If taken to the extreme, such a tax might seek to 'put itself out of business' by lowering the tax base, thus reducing revenues.</p> <p>Conversely, rather than taxing the damaging activity, tax reductions or exemptions can be provided for non-damaging activity. Tax policy can therefore be a 'carrot' as much as a 'stick', depending on design.</p>	<p>Such taxes are often designed to start slowly and rise over time – such as the landfill taxes that exist in many Member States. This is to provide long-term certainty. But it requires 'staying the course'.</p> <p>As such, these taxes in particular require multi-year political leadership to introduce and maintain; they will be fiercely resisted by well-organised and powerful lobbies.</p> <p>The tax must be kept under review to ensure that it is delivering the behaviour change expected.</p>
<p><b>2</b> <b>Internalise damage caused by polluters</b></p>	<p>Theoretically, the tax should be set at the level that reflects the cost of, for example, cleaning up after damage caused. This is so-called 'Pigouvian' taxation; in principle, environmental damage can continue if those that cause the damage are happy to pay the tax.</p>	<p>Working out the cost of the damage caused per taxable unit can be almost impossible to do accurately. Estimates of the 'cost' of a tonne of carbon to the global economy can vary hugely. What is the 'cost' to society of damage to species or habitats from marine litter, for example? Or more broadly, the costs of the impacts on the wider complexity of life in the ocean?</p> <p>It is worth noting that all taxes are likely to also lead to behaviour change, even if that is not the primary objective. It would be important therefore to monitor and minimise potentially harmful effects – for example, people may pollute more because they feel that the imposition of a tax gives them the 'right' to do so.</p>
<p><b>3</b> <b>Raise revenue</b></p>	<p>Policy makers will need to be able to predict with relative accuracy what tax receipts may be from one year to the next.</p> <p>If the purpose is to raise significant money on an ongoing basis, then all incentives push policy-makers not to set the tax at a level that may mean people change behaviour too far or fast.</p>	<p>This creates an inherent incentive to set taxes at a low level, and to continue the underlying damaging activity.</p>



The objectives in Table 1 are not necessarily mutually exclusive: taxes ultimately aimed at helping to phase out damaging activity by a particular date could raise significant revenue in the short term provided that they rise over time, and that this is planned for. It is the case that tax rates could be increased over time so that overall revenues remain broadly constant, despite people using less plastic. But this is not tenable in the long-run; there is likely to be a trade-off between maintaining revenues as tax rates rise, and the incentive to use less plastic grows ever stronger. There is thus a potential conflict in tax design between an aspiration to create a new, stable revenue stream (#3), and one to rapidly phase out the damaging activity that revenue stream is based upon (#1).

### Implications for an EU tax on plastic

We assume that existing and proposed EU commitments such the Plastics Strategy and the Circular Economy imply that the principal objective of any new tax on plastic should be to encourage both:

- reductions in the overall usage of plastic across the economy
- the plastic that is being used to be increasingly reused or recycled.

These are both principally measures aimed at changing behaviour (objective #1).

In January 2018, Budget Commissioner Günther Oettinger appeared to suggest that a new tax on plastic could raise significant revenues to help fill the gap in the EU budget caused by Brexit. It is not clear how this tallies with the EU's wider objectives for reducing plastic use, building the circular economy, and cutting marine litter.

Strategically therefore, taxing plastic use should not principally be thought of as an opportunity for revenue raising. Indeed to do so could create a perverse incentive to hold back the ambition of other measures such as single-use plastic regulation. Taxation should be explicitly designed to discourage and reduce plastic use, not normalise it on account of the revenues it might bring in.

## 3. PRINCIPLES FOR GOOD ENVIRONMENTAL TAXATION

Having decided on the purpose of the tax, it is important to ensure that it meets two key principles:

### It works

The tax should be targeted and effective. It should understand what price signals it wants to send, to whom, and that it will have the desired effect in practice.

It is unlikely that any 'one' tax will be enough to both change consumer behaviour and to incentivize circular production methods by producers. The chain of plastics manufacture, usage and disposal contains many different actors (see Chart 1). If the objective is a reduction in the amount of plastic from the EU that ends up in the environment, then we therefore need to understand *which* change in the behaviour of *whom* will be necessary to bring that about. We will need to consider, for example: is the primary task to change how our products are made, or to alter the price signals that affect what we buy and use? Or both?

A central economic concept is that of 'incidence' – where the tax lands. There is a difference between the 'statutory incidence' of the tax (the primary economic agent upon whom the tax is levied) and the 'effective incidence', which is who actually pays the tax in practice. For example, the statutory incidence of a tax on the carbon content of fuel is likely to be on firms generating electricity. In this example, electricity generators may be able to pass on the costs of any tax in full to the consumer; the consumer, therefore, bears the effective incidence. If the original purpose of the tax was to change the behaviour of the electricity generators away from high-carbon fuels, but they are in practice able simply to absorb the tax and pass it on 'invisibly' in bills to consumers, then the tax isn't working as expected. The size of the tax, on what it is levied, and how easy it is to change behaviour are all hugely important factors in the effective incidence of a tax.

Taxes aimed at changing behaviour should also be designed to ensure that that behaviour change is actually possible and relatively easy. It is worth noting that the future imposition of a tax or regulation can itself act as a spur to innovation in alternatives – for example, higher energy prices have been shown to induce the development of energy efficient technologies<sup>vii</sup>.

### It is perceived to be 'fair'

The political reality of taxation is that it creates winners and losers, and new taxes are not often popular – although plastic bag charges across Europe have largely been shown<sup>viii</sup> to be popular once introduced. This is to an extent unavoidable, particularly if the purpose of the tax is to disincentivise particular activity that currently takes place. Careful tax design, implementation and engagement can help to minimize any sense of 'unfairness'.

The perception of 'fairness' is hugely important for the political economy of any new tax. But 'fairness' is a subjective and loaded term, and largely unhelpful in itself as a principle for tax design. Instead, we should look at four distinct elements of what this might mean:

#### *i) Equitable: No-one is unfairly discriminated against*

Clear communication on the purpose of the tax, who it is being levied upon and why, and what they can do to ensure they do not need to pay it, are essential. In general, people that pay the tax should perceive that everyone is being treated the same by any new tax. The exception, of course, is if treating some people differently – for example, manufacturers of plastics – is precisely the point.

In the case of a plastic tax, different types of tax (for example, on production or consumption) will have big implications for who appears to 'win' and 'lose'. A tax on the usage of plastic by consumers will have a far broader base than a tax on producers – which would be disproportionately concentrated within particular Member States or localities. In 2016 almost 80% of the demand for resins came from Germany, Italy, France, Spain, the UK, Poland, Belgium, Luxembourg and the Netherlands<sup>ix</sup>.

It is also important not to appear to be simply hitting domestic production with a tax that international competitors do not need to pay to sell their products in domestic markets. Border tariffs may need be considered, although this depends heavily on the design and application of the tax.

*ii) 'Polluter pays': the tax targets those that cause the problem, not those that don't*

The 'polluter pays' principle recognizes that those that cause environmental damage should be held responsible for dealing with its impact. Taxes aimed at changing behaviour should be primarily targeted at the behaviours that are the most damaging.

Plastic waste is an environmental crisis, and linear business models that produce untenable amounts of plastic are bad for competitiveness and economic resilience. What is 'fair' for any individual must be balanced against what is needed to serve the longer-term interests of people and the planet.

True fairness in tax design, therefore, is about balance: weighing the impact on individual actors against the effectiveness of, and need for, the tax for the broader benefit of all.

*iii) Progressive: the overall impact of the tax and supporting measures falls more on the rich than the poor*

Attention should be paid to the distributional impacts of any new tax.

Taxes on consumption are often regressive – that is, people on lower incomes will pay a higher proportion of the tax relative to their incomes than those on higher incomes. It may not be easily feasible to ensure that any individual tax measure is progressive in and of itself, but changes to other parts of the tax system could be introduced to keep the overall impact of tax broadly progressive.

*iv) Transparent: the tax operates as people expect, and people understand it*

If the purpose of a tax is to send a long-term signal to the market or consumers, taxes should not be hiked without warning, and nor should clearly signposted planned tax rises be delayed or scrapped. This is particularly important for taxes that seek principally to change the behaviour of companies or consumers. People should understand why something is being taxed, who pays it, and why.

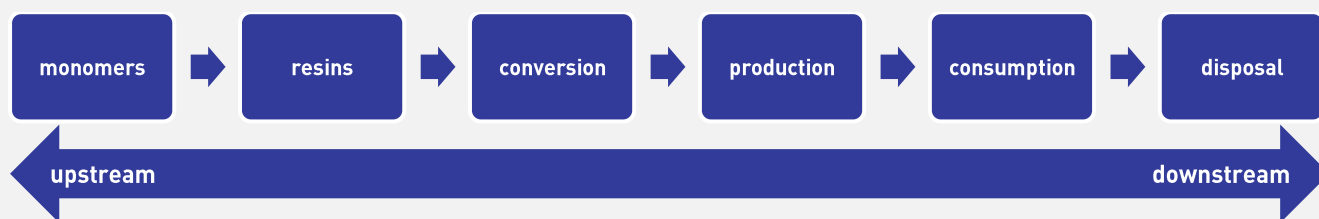
Any revenue raised from the tax could be clearly ring-fenced ('hypothecated') to a specific spending priority, to increase public support. In the case of a 'green tax', this might be a complementary 'green' spending initiative, such as proposals to use the proceeds of carbon taxes to support subsidies for renewable energy or the installation of energy efficiency measures in the homes of the fuel poor<sup>x</sup>.

## 4. WHERE TO LEVY A PLASTICS TAX

A tax could be levied at many different parts of the plastics production, conversion, consumption and waste chain (see Chart 1):

- a) the production of the initial **monomers**, such as ethylene, propylene or benzene, from crude oil or bio-based feedstock<sup>1</sup>
- b) the processing of those monomers into plastic **resins** (also called polymers) such as polyethylene. Recycled plastic generally re-enters the chain at this stage. This is the first part of the chain that can be generally considered as "plastic"
- c) The process of the **conversion** of resins, through industrial processes, into finished plastic
- d) The **production** of goods containing or entirely made from plastic
- e) The purchase and **consumption** of those goods
- f) The **disposal** of those goods.

*Chart 1: a schematic of the plastics chain*



All else being equal, taxes levied upstream are less likely to impact final consumer prices and behaviour. The sheer number of economic transactions between producers and final consumers means that there are more opportunities for the 'effective liability' (see section 3) of the tax to be borne by company shareholders and workers along the chain, rather than the final consumer. This may still lead to behavioural change and a reduction in plastic use, for example through reduced business investment and growth in affected

<sup>1</sup> The position of the Rethink Plastic Alliance is that bio-based plastics are not a solution to the problem of our overuse of plastics and plastic pollution; the only difference between bio-based plastics and conventional fossil-based plastics is what they are made of – bio-based plastics still rely on resources and energy to produce and have the same end of life issues as conventional plastics.

sectors. But it is a fundamentally different mechanism to that which would reduce plastic use by consumers due to higher prices. It also has different political implications.

There is no one single plastics problem. Thus in practice 'a plastics tax' may actually be a suite of taxes, each designed differently to elicit different behavioural responses from different actors in the chain. Reducing overall plastic demand is a fundamentally different approach to encouraging greater recycling and reuse.

The critical issue therefore is to be clear on what is intended to be achieved. Different parts of the chain could be taxed, depending on what particular behaviour, and from whom, we were seeking to incentivise. We examine five possibilities in Table 2. These are by no means exhaustive, but have been chosen to illustrate the advantages, risks, and likely impact of different design choices.

Table 2: Example applications of a plastic tax and potential impacts

	Purchase of monomers	Sale of non-recycled resins	Purchase of non-recycled resins	Purchase of final products (all plastic)	Purchase of final products (specific types)
<b>Statutory incidence (where is the tax levied?)</b>	Industry: Plastic manufacturers  Levied by weight or value of monomers purchased.	Industry: Plastic manufacturers.  Levied by weight or value of resins sold.	Industry: Converters  Levied by weight or value of resins purchased.	Consumers  Levied per product, or by the weight of the plastic in the product.	Consumers  Levied by product.
<b>Objective</b>	<b>Reduce consumption of plastic throughout the economy</b> by raising the cost of its principal input.  Tax could be differentiated between monomers produced from virgin and recycled feedstock <sup>2</sup> .	<b>Incentivise plastic production from recycled resins</b> (supply 'push'), and thus increase demand for recycled plastic (relative to non-recycled).	<b>Incentivise the manufacture of goods using plastic from recycled resins</b> (demand 'pull' from converters), thus increasing final consumption of recycled plastic.	<b>Discourage the purchase of (all) plastic items</b> (demand 'pull' from consumers) in favour either of 'going without' or switching to non-plastic alternatives.	<b>Discourage the purchase and manufacture of particular plastic items</b> while creating demand for alternatives.
<b>Advantages</b>	<b>Could have a significant impact on plastic demand if the costs are passed up the supply chain to manufacturers and consumers.</b>  Applied upstream: few economic actors. Easy to administer.	<b>Increases demand from plastic manufacturers for recycled plastic, potentially minimizing waste to landfill and incineration.</b>  Applied relatively upstream with a larger (than monomers) but still relatively small tax base. Easy to administer.	<b>Increases demand from converters for recycled plastic, potentially minimizing waste to landfill and incineration.</b>  Sends clear signals upstream about the need for more circular business models.  A larger tax base than manufacturers, but relatively easy to	<b>Shapes the decisions of consumers, changing perceptions about the need for plastic in the economy.</b>  Does not require tariffs and exemptions.  Could be refined to exempt recycled products, or exempt particular types of plastic that may be too complex to be in scope at first.  Highly visible and likely to be extensively debated in public,	<b>Can be targeted at particular usages of plastic</b> and have rapid results, as has been seen with the success of plastic bag charging schemes.  Does not require tariffs or exemptions.  Can act as a gateway – the first step towards increasing awareness of the breadth of plastic use in the economy.  Relatively easy to administer.

<sup>2</sup> As the chemical recycling of plastics is an energy intensive process its merits would need further life-cycle analysis assessment.

	Purchase of monomers	Sale of non-recycled resins	Purchase of non-recycled resins	Purchase of final products (all plastic)	Purchase of final products (specific types)
		Reduces demand for oil-based virgin plastic downstream. Incentivises 'circular' production.	administer, as the tax base is well defined. Reduces demand for virgin feedstock derived monomers.	Highly visible and likely to be extensively debated in public, so potentially triggering behavioural changes in consumers by this alone.	Relatively easy to administer. Availability or necessity of alternatives less likely to be a problem.
<b>Disadvantages</b>	<p><b>Higher risk of the tax being absorbed by profits along the supply chain; potentially raising revenue, but not changing behaviour.</b></p> <p>80% of monomer demand in the EU comes from just 9 Member States, so strong opposition could be expected.</p> <p>May require complementary trade arrangements to avoid simply swapping domestic production for imports.</p> <p>Monomers are not yet plastics; this is not technically a plastics tax, but is in practice essentially a fossil fuel tax.</p>	<p><b>Does not necessarily reduce overall demand for plastic in the economy.</b></p> <p>80% of plastics production is in 9 EU Member States only: strong opposition.</p> <p>Assumes sufficient recycled plastic is available.</p> <p>Requires complimentary trade arrangements.</p> <p>High risk of tax being paid, rather than recycled plastic used, if not at a high enough rate. Risk of tax being absorbed throughout supply chains.</p>	<p><b>Does not necessarily reduce overall demand for plastic in the economy.</b></p> <p>Requires traceability or certification of provenance of resins.</p> <p>Requires complementary trade arrangements to ensure imported goods cannot undercut those produced domestically.</p>	<p><b>By itself, does nothing to increase demand for recycled resins upstream.</b></p> <p>Would need to be calibrated to reflect that most products contain, but are not necessarily 100%, plastic. Products that are entirely made of plastic, i.e. plastic packaging, would be easier to define than others.</p> <p>Very large number of agents involved: administratively complex.</p> <p>If exemptions were to be made for recycled plastic then this could require additional certification and complexity.</p> <p>Alternatives likely to be more readily available for some products than others.</p>	<p><b>Only tackles the most 'fashionable' or easy to target usages of plastic, but does nothing about less easily definable plastic use through the economy.</b></p> <p><b>By itself, does nothing to increase demand for recycled resins upstream.</b></p> <p>May be simpler and more effective simply to ban these items, as has been proposed for some items by the European Commission in May 2018 (see section 5)</p>

## 5. KEY ISSUES

The following points are central to the further development of any plastic tax(es).

- **What are the key points of intervention for each intended outcome?**

The analysis in this paper, and the existing commitments of the European Union’s Plastics Strategy and Circular Economy ambitions, suggest two distinct possible purposes for any plastic tax:

- Reduce the overall level of plastic use in the economy - progressively eliminating the least ‘necessary’ plastic;
- Incentivise more reuse and recycling of the plastic that is used to reduce both waste and our usage of fossil fuels and natural resources.

As Table 2 shows, this may be achieved not through ‘one’ tax, but a combination: changing the behaviour and incentives of both producers and consumers will need different approaches.

Table 3 sets out four types of different plastic tax that could be considered:

*Table 3: examples that demonstrate the different typologies of tax*

Purpose	Production	Consumption
Discourage overall usage of plastic in the economy	Taxes on the purchase or sale of all monomers or resins, provided it can be ensured that the tax is not simply absorbed into the cost of production	Visible taxes on the purchase of all, or a diversity, of plastic items
Discourage particular usages or types of plastic	Taxes on the purchase of resins from virgin (oil or bio based) feedstock rather than recyclates.	Taxes on discretely defined products such as single-use plastics or packaging.

- **How will consumers or producers respond to the imposition of any tax?**

What will happen to the tax when it is levied? Will it be passed on to consumers, if levied on producers? What behaviour change would in practice be likely to result?

The next step is more detailed research to understand how best to design any suite of taxes to deliver the behaviour change required, and to understand the limitations of taxation versus other measures such as regulation (see below).



Three economic concepts are key:

- i. *Elasticity*: how resilient demand for a good is in the face of price rises. The less 'elastic' demand is for a product, the higher its price will need to rise in order to reduce its usage.
  - ii. *Substitutability*: Elasticity will be affected by whether there is something else that can be done instead, and the cost of that alternative. This will vary significantly throughout the plastics chain.
  - iii. *Incidence*: the difference between where the tax is statutorily levied and where the final economic cost is borne (see section 3). This is affected by a range of factors: the marginal rate of the tax, the structure of the given market, and both the elasticity of demand and the availability of alternatives within that market.
- **What are the limitations of taxes, versus other measures?**

As Table 2 shows, there are both advantages and disadvantages to different approaches to taxation. Taxes may indeed not always be the most efficient or politically feasible solution. Tax design can be complicated, particularly if the ambition is to set a marginal rate of tax high enough to change behaviour but not too high to cause an untenable political backlash.

It may be simpler in many cases simply to regulate the behaviour that we wish to prevent, particularly where the target is clear and the behaviour is particularly damaging. This is indeed the approach being proposed by the European Commission in its proposal to ban some of the most common single-use plastic items and tackle others using other regulatory measures (section 1).

Other measures would almost certainly be needed alongside any tax on plastic. As Fundació ENT notes:

"Any action in relation to plastic taxes should be compatible with other regulatory or economic measures already in place (such as Extended Producer Responsibility for certain uses like packaging or tyres, deposit-return schemes ensuring high capture rates, etc.)... plastic tax could possibly foster an improvement in the performance of some of these schemes, as it would be more attractive to capture high quality materials for the recycling markets."<sup>vi</sup>

- **Should the tax be levied at the EU, or member state level?**

The Commission's current plastic tax proposals:

In May 2018 the European Commission's proposal for the new 7-year Multiannual Financial Framework included <sup>xi</sup> a tax on the amount of non-recycled plastic packaging waste in each Member State, at a rate of €0.80 per kilo. The broad intention of this tax appears to be that Member States will increase their efforts to boost recycling, which at the headline level is to be welcomed. But Member State governments may respond in

different ways; some may focus only on increasing post-consumer recycling, while others could introduce measures on producers, including taxation. The proposals miss the chance to harmonise incentives on producers. This is a barrier to the effective functioning of the internal market and an inadequate level of ambition<sup>xii</sup> in the light of Europe's own ambitions for coherence and leadership on the circular economy.

Some EU Member States are considering or already taking bespoke measures to charge for or tax plastic usage. The 2015 EU Plastic Bags Directive, for example, has led to significant reductions in the usage of plastic bags in many countries<sup>xiii</sup>.

There is a strong case however that the cohesion of the internal market requires agenda-setting and harmonisation at the EU level. Article 115 of the Treaty on the Functioning of the EU allows<sup>xiv</sup> the European Council to both harmonise Member States' rules on 'indirect taxation' (such as VAT and excise duties), and issue directives for new legislation to ensure other taxes aid the effective functioning of the internal market.

As any taxes on plastic production would possibly need to be accompanied by tariffs on import, to guard against simply switching domestic plastic manufacture for imports, it is also entirely consistent for them to be considered, harmonised and mitigated against at the EU level.

In reality, as unanimity is needed by the Council to progress such a measure, this will take time. Member states should continue to explore and develop their own plastic tax proposals – not least because the more they can be shown to work, and to be popular, domestically, the greater the momentum will be triggered for harmonization across the internal market at the EU level.

## 6. CONCLUSIONS

This paper has explored the imperative both for radically reducing our dependence on plastic throughout the economy, and increasing recycling and reuse.

- **Tax can play a strong and central role** in a far more ambitious, coherent and harmonised approach to moving the EU to a circular and far less damaging economic model.
- All good tax design starts from absolute clarity on purpose; for a plastics tax, we argue that this should **principally be to change behaviour**, not to raise revenue.
- **Changing behaviour must be done fairly**, which hugely improves the feasibility and political economy of any tax. An extensive period of tax design and implementation would be needed, ensuring primarily that any tax – or set of taxes – was actually changing behaviour(s) as intended, and that it was operating equitably, transparently and in a way that is generally perceived to be fair.
- **A suite of taxes may be needed**. The plastics ‘chain’ is long and complex. Behavioural changes from both producers and consumers are needed, moving both to using less plastic overall and radically increasing the reuse and recycling of the plastic that is used. There is very unlikely to be ‘one tax’ that can meet all of those objectives. A tax could be levied at any point from the initial **production** of monomers, through to the sale or purchase of plastic resins through to final **consumption**. The closer to the consumer any tax is levied, the more visible it is, and the less likely to be simply absorbed within the supply chain; however, the more administratively complex, and potentially politically contentious, it may become. Taxes could also be levied on particular usages of plastic, such as existing carrier bag charges, although regulation may be a more effective lever.
- If plastics taxes are to be taken forward as a matter of policy, then urgent **further economic research** is needed to enable policymakers to develop the tax(es) with a deeper and more detailed understanding of issues raised in this paper. This includes how in practice the behaviour of producers or consumers may respond to any new taxes, where in the supply chain to levy the tax; and how to ensure that the tax is effectively born by the actors that are intended. Policymakers should also consider whether measures such as regulation or a bans may be a more effective intervention than taxation.

As citizen concern about plastic pollution continues to rise, it is likely that Member States will respond by continuing to unilaterally develop their own economic incentives. Over time this could risk the coherence of the internal market.

The EU should broaden the scope of ambition of the tax on non-recycled plastic packaging waste in the Multiannual Financial Framework to include the active investigation of, and a call for evidence on, a harmonised approach to the taxation of plastic production and consumption. This should be part of reassessing the full range of economic and policy drivers that are needed radically to accelerate the move to a circular economy, focusing principally on how to reduce the amount of new plastic created in the first place.

## REFERENCES

- <sup>i</sup> European Commission (January 2018), 'A European Strategy for Plastics in a Circular Economy', [https://eur-lex.europa.eu/resource.html?uri=cellar:2df5d1d2-fac7-11e7-b8f5-01aa75ed71a1.0001.02/DOC\\_1&format=PDF](https://eur-lex.europa.eu/resource.html?uri=cellar:2df5d1d2-fac7-11e7-b8f5-01aa75ed71a1.0001.02/DOC_1&format=PDF)
- <sup>ii</sup> European Commission (May 2018), 'Single-use plastics: New EU rules to reduce marine litter', [http://europa.eu/rapid/press-release\\_IP-18-3927\\_en.htm](http://europa.eu/rapid/press-release_IP-18-3927_en.htm)
- <sup>iii</sup> European Commission (May 2018), 'Proposal for a Directive of the European Parliament and of the Council on the Reduction of the Impact of Certain Plastic Products on the Environment', <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=COM:2018:340:FIN>
- <sup>iv</sup> European Commission (November 2017), 'Summary: Special Eurobarometer 468: Attitudes of European Citizens towards the environment', [https://data.europa.eu/euodp/data/dataset/S2156\\_88\\_1\\_468\\_ENG](https://data.europa.eu/euodp/data/dataset/S2156_88_1_468_ENG)
- <sup>v</sup> European Commission (December 2015), 'Closing the loop: an EU action plan for the Circular Economy', [https://eur-lex.europa.eu/resource.html?uri=cellar:8a8ef5e8-99a0-11e5-b3b7-01aa75ed71a1.0012.03/DOC\\_1&format=HTML&lang=EN&parentUrn=COM:2015:614:FIN](https://eur-lex.europa.eu/resource.html?uri=cellar:8a8ef5e8-99a0-11e5-b3b7-01aa75ed71a1.0012.03/DOC_1&format=HTML&lang=EN&parentUrn=COM:2015:614:FIN)
- <sup>vi</sup> Fundacio ENT (forthcoming), 'Research paper on a European tax on plastics', via <http://www.rethinkplasticalliance.eu>
- <sup>vii</sup> Grantham Research Institute on Climate Change and the Environment (2014), 'The impacts of environmental regulations on competitiveness', [http://www.lse.ac.uk/GranthamInstitute/wp-content/uploads/2014/11/Impacts\\_of\\_Environmental\\_Regulations.pdf](http://www.lse.ac.uk/GranthamInstitute/wp-content/uploads/2014/11/Impacts_of_Environmental_Regulations.pdf)
- <sup>viii</sup> Susana Ferreira et al (2007), 'The Most Popular Tax in Europe? Lessons from the Irish Plastic Bags Levy', *Environmental and Resource Economics* 28(1): 1—11, at [https://www.researchgate.net/publication/5146973\\_The\\_Most\\_Popular\\_Tax\\_in\\_Europe\\_Lessons\\_from\\_the\\_Irish\\_Plastic\\_Bags\\_Levy](https://www.researchgate.net/publication/5146973_The_Most_Popular_Tax_in_Europe_Lessons_from_the_Irish_Plastic_Bags_Levy)
- <sup>ix</sup> Plastics Europe (2018): 'Plastics – the Facts 2017'. <http://goo.gl/AoZSJd>
- <sup>x</sup> For example, as called for by the Energy Bill Revolution campaign, <http://www.energybillrevolution.org/>
- <sup>xi</sup> [http://europa.eu/rapid/press-release\\_IP-18-3570\\_en.htm](http://europa.eu/rapid/press-release_IP-18-3570_en.htm)
- <sup>xii</sup> Rethink Plastic Alliance (May 2018), 'Press Release: new tax on non-recycled plastic packaging waste will fail to address the plastic pollution crisis', at <http://tinyurl.com/RPAreaction>
- <sup>xiii</sup> Earth Policy Institute (2014), 'Plastic Bags': [http://www.earth-policy.org/datacenter/xls/update123\\_all.xlsx](http://www.earth-policy.org/datacenter/xls/update123_all.xlsx)
- <sup>xiv</sup> European Commission, 'The Lisbon Treaty and tax legislation in the EU', [https://ec.europa.eu/taxation\\_customs/general-information-taxation/eu-tax-policy-strategy/lisbon-treaty-tax-legislation-eu\\_en](https://ec.europa.eu/taxation_customs/general-information-taxation/eu-tax-policy-strategy/lisbon-treaty-tax-legislation-eu_en)