

‘Market failure’ arguments are a poor guide to policy

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Abstract

‘Market failure’ is frequently offered as a justification for government intervention in the economy. Proponents of interventions can point to almost limitless examples of markets which do not meet all the criteria for Pareto optimality and argue that government taxation, subsidies or regulation can perfect them, maximising social welfare. But comparing market outcomes with an unattainable and unidentifiable ideal is not useful in a world of imperfect knowledge and government failure. It is better to compare market outcomes against realistic alternatives. Furthermore, even within the market failure paradigm, concepts such as ‘public goods’ and ‘negative externalities’ are routinely misunderstood and inconsistently applied. This leads to predictably poor policy outcomes.

KEYWORDS

externalities, government failure, market failure, public goods

JEL CLASSIFICATION

D61; D62; D72

1 | INTRODUCTION

‘Market failure’ is constantly used by capitalism’s critics as justification for government spending, taxes, and regulation. In policy areas ranging from schooling to the consumption of sugary drinks, claims that uncontrolled markets fail to achieve socially optimal outcomes empower

An earlier version of this article was published as a Policy Analysis paper by the Cato Institute.

advocates of various government policies to argue that intervention is economically necessary and beneficial. Yet there is a gap between how market failure is used in public debate and how modern academic economists think about the efficacy of markets.

Advocates of intervention often implicitly define market failure using the theoretical framework presented in introductory economics textbooks.¹ Markets are said to fail if they are not perfectly competitive, with prices equating to the marginal cost of production. This broad analysis is widely accepted by policymakers, too; a UK government document states that

Economic efficiency depends on a number of key assumptions: markets being complete, markets being perfectly competitive, and all agents in the market making decisions based on full information. If any of these assumptions do not hold true, the market allocation of resources will not be efficient. (Department of Energy and Climate Change/Department for Environment, Food, and Rural Affairs, 2009, p. 12)

Given that few markets can ever approach this ideal, market failure defined thus is ubiquitous and the scope for government intervention unlimited. Most commonly, markets are said to underprovide public goods and fail to account for how production or consumption affects third parties (which economists refer to as positive or negative externalities). I concentrate on these issues in this article.²

Proponents of intervention jump from diagnosis to the assumption that government can correct market failures by providing goods or services or by imposing taxes, regulations, bans or mandates. Indeed, thinking of market failure as an aberration from perfect competition implies that markets can be perfected through targeted intervention. The expansive definition of market failure is thus crucial in justifying interventionist policies.

But academic economists have long recognised the inadequacy of this framework. Models of perfect competition are not, in fact, guides to the real world. They can sometimes be useful for heuristic purposes, allowing comparison of real outcomes against some imagined ideal. But finding deviations from some imagined perfect world is not reason enough for intervention.

One reason for this is 'government failure'. Just as perfect competition is unrealistic, believing markets to be perfectible by intervention requires highly questionable assumptions to be made about government. To identify and account for market failures requires policymakers to be rational, consistent, fully informed,³ and not self-interested or beholden to vested interests, but focused solely on maximising social welfare. Clearly, these assumptions rarely if ever hold.

Often, too, bad outcomes arise not because markets fail but because they are absent. Clear property rights and contracts can open the way for mutually beneficial trade. The Nobel Prize-winning economist Ronald Coase (1960) famously observed that, absent transaction costs, externality problems could be traded away in markets. His work had two implications. First, simply taxing or subsidising various activities based on who caused them would often not lead to efficient results. Second, rather than trying to replicate some theoretical ideal market through taxes or subsidies, governments should assess means of reducing transaction costs. Only if this proves difficult or does not work at all should direct interventions be used. Even then, careful cost-benefit analysis should try to find the intervention with the biggest net social benefits.

Accordingly, economists today broadly understand market failure in a simpler way: "the failure of the market to bring about results that are in the best interests of society" (Marciano & Medema, 2015, p. 1). As the economist and libertarian theorist David Friedman has written, there are situations in markets where "individual rationality does not lead to group rationality" (Friedman, n.d.). To spell this difference out clearly: On the one hand, the definition of market

failure often used by policy advocates judges markets against a theoretical world of perfect competition. On the other hand, good economic analysis now compares outcomes from an intervention against actual realistic alternatives, rather than an “unattainable and unidentifiable ideal” (Pennington, 2017, p. 9).

Sadly, public debates are still dominated by the rudimentary understanding of market failure and the belief that government can easily correct market inadequacies. The remainder of this article identifies six specific, yet common, misuses of the concept of market failure in public debate, focusing on public goods and externalities.

2 | WRONGLY DESCRIBING ALL GOVERNMENT-PROVIDED GOODS AS ‘PUBLIC GOODS’

One type of potential market failure involves public goods. Economists define these goods as having specific characteristics (Samuelson, 1954). First, they are non-rival in consumption, meaning use by one person does not prevent or restrict use by others. Second, they are non-excludable, meaning it is impossible to prevent someone from using the good once it has been produced. Textbook examples are missile defence systems and radio signals. In both cases, once provided, it is difficult to stop any one individual from enjoying the benefits of either (‘non-excludable’). Also, one person’s protection from a missile defence system or reception of a radio signal does not ‘use up’ defence or radio signals, meaning others do not have less access (‘non-rival’).

In the conventional market-failure paradigm, a public good may constitute a market failure because, although the community would be better off if it were produced, it would likely be under-provided in a free market. People have an incentive to ‘free ride’ by consuming the good without paying, enjoying the benefits of provision at no cost. If most people behave like this, not enough will voluntarily be spent on the good’s provision.

Yet in public debate the term ‘public good’ is often used to refer to government-provided goods and services that do not possess these clearly defined characteristics (Goldin, 1977). Libraries, museums, highways, and even school and higher education, for example, have all been variously described as public goods, but are clearly either rival, excludable, or both.⁴

Entry to libraries and museums, for example, can be denied to those who refuse to pay or register. Beyond a certain capacity, the cost base of the museum and congestion within it increase as the number of visitors rises, meaning consumption at any given time becomes rivalrous. One might have to queue either to enter an exhibition or to get close enough to enjoy an attraction, as anyone who has visited the Louvre in Paris in peak hours to see the *Mona Lisa* will attest. While there may be other theoretical justifications for government support for the arts, the argument that museums and libraries are public goods in the economic sense is unconvincing.

Highways and bridges likewise suffer from the congestion problem beyond a certain point, and the existence of toll roads and road or congestion pricing systems around the world shows that access can be restricted and the ‘user pays’ principle imposed. In Virginia in the United States, for example, the Dulles Greenway opened in 1995, having been financed entirely privately. The toll lanes on Washington’s I-495 Capital Beltway were financed overwhelmingly by private investment (Edwards, 2013). The UK’s M60 toll motorway was similarly built and financed by the private sector, albeit to government specification.

Claims made by US Senator Bernie Sanders (FeelTheBern.org, 2019) notwithstanding, education and schooling clearly do not possess either characteristic of a public good. As the Cato Institute’s Corey DeAngelis (2018) has outlined, putting an additional child into a classroom or university not only necessitates new resources, but also reduces the amount of personalised

education time a teacher or tutor can grant to each child. One can exclude someone who fails to pay or fails to adhere to the conditions required to be taught within a school or college.

That is not to say that no goods exist that meet the public-good criteria. Knowledge itself can be non-rival and non-excludable, at least in theory. Although most knowledge accrues as a kind of side effect or externality arising from business ventures, it has been argued that some components of scientific know-how might be under-provided in a free market, given that innovators or inventors are unable to capture the rewards associated with their research (Kealey, 2013). This is discussed in greater detail in section 3. Very large national parks might be another example of a good that gets close to fulfilling these characteristics, although even here it is possible to put fences around them.

Yet it is clear that politicians and commentators frequently mislabel goods currently provided by government, or which they desire to be provided by government, as public goods. In part this might just be because non-economists use the term incorrectly. But another explanation has been offered by Frances Woolley (2006). She explains that, because of the non-excludability characteristic, determining whether something is a public good is really a question of whether the technology exists to make a good or service excludable. For instance, because governments have been unable or unwilling to enforce exclusion for some goods or services in the past, this is often taken as indicative of the impossibility or undesirability of doing so. In other words, as Woolley (2006, p. 3) says, because “actual exclusion is so much easier to conceptualize than hypothetical excludability”, many wrongly presume that government-financed goods provided free of charge are innately public goods.

One can certainly argue that some goods and services have social benefits beyond the private benefits to individuals, and thereby make the case for taxpayer support because of these supposed positive externalities (see later sections). But public goods have specific characteristics. Very few goods that government provides are public goods. And just because the government does not impose exclusion for various goods, that does not mean that it *cannot* exclude.

By misusing the concept of public goods, the public is misled into believing the government must provide a wide range of goods, and that these should be provided free at the point of delivery, even when this makes little sense economically.

3 | IN PRACTICE, MARKETS CAN OFTEN FIND WAYS TO PROVIDE PUBLIC GOODS

Even goods with the apparent characteristics of being non-rival and non-excludable (public goods in the economist's sense) are often, in reality, delivered by private market activity. Consider television transmission signals picked up by aerials. Signals used to be transmitted free-to-air via broadcast towers, meaning one person watching TV didn't affect the ability of others to do so. Also, it was difficult to prevent someone with an aerial connected to a TV from tuning in. Terrestrial television could therefore have been argued to be non-rival and non-excludable – a true public good. The case for public broadcasting was therefore strong according to the market-failure paradigm.

And yet markets found ways to deliver seemingly adequate TV (and radio) broadcasts without extensive government provision. One method was to tie in the costs of the transmission either to the purchase of the TV itself or to a receiver. This roughly approximated the users of the service paying the price associated with its delivery. Alternatively, TV and radio have been funded via advertising revenues, with companies willing to shoulder the costs of service to reach TV and radio audiences with their product messages (Demsetz, 1970).

As new technologies, such as digital decoders, have proliferated, the transaction costs involved with individual contracting and tailored television packages have fallen substantially.

TV providers are now able to exclude non-paying customers easily. As a result, television is better thought of as a 'club good' (Buchanan, 1965). It is still non-rival at the point of consumption, but the service can be restricted to paying customers via subscription or pay-per-view requirements. As a result of these technological developments, public-service broadcasters such as the United Kingdom's BBC have shifted from justifying their government subsidy by saying they are a public good to emphasising the supposed external benefits from their output. This is a completely different argument.

A similar example of private activity delivering a seemingly non-rivalrous and non-excludable good was documented in a classic paper by Ronald Coase (1974). He examined the history of British general navigation lighthouses, which economists before and afterwards held up as an example of a classic public good. Coase's research found that through the late eighteenth and nineteenth centuries large numbers of lighthouses were, in fact, built privately. The funding stream for lighthouses came from dues on per-voyage payments for all vessels arriving at or departing from ports in Britain (with limits applied after a certain number of journeys) or annual payments for other types of vessels for which per-voyage payments were impractical.

In more recent years, there has been some intellectual push-back against Coase's view. David van Zandt's research showed that while English lighthouses were indeed privately owned, building them required government permission, and their viability was dependent on government-bestowed monopoly privileges and government-mandated fees (van Zandt, 1993). Yet whether this proves lighthouses would not be provided independently of government, or simply reflects the historical role government had actively decided to play, is an open question.

Evidence on the private operation of the world's first modern lightship suggests the latter. The *Nore*, which ultimately became a series of lightships, was first launched in 1732 to mark a dangerous sandbar, also known as the Nore, where the England's River Thames meets the North Sea. In a recent article, Rosolino Candela and Vincent Geloso (2018) showed that the *Nore* originally operated privately, profitably, and without the need for government enforcement on payments. The pair argue that private provision was subsequently crowded out by the public authority responsible for lighthouses in England and Wales.

One of the most important ongoing debates around public goods occurs in the discussion of knowledge, particularly scientific knowledge. Accumulated knowledge, to the extent that it is available, is non-rival and non-excludable in consumption. Knowledge is easy to share, does not get 'used up', and once provided cannot be taken away. This led economists such as Richard Nelson (2006) and Kenneth Arrow (1996) to argue that private entities will be reluctant to undertake their own research and development through fear of competitors copying them. Research, in other words, will be under-provided in a free market because of the high fixed costs of undertaking original research against the low marginal cost of production or replication (Kealey, 2013). A classic example might be research into new drugs within the pharmaceutical industry.

Even in the case of knowledge, though, other analysis, not least by 2018 Nobel Prize-winning economist Paul Romer, acknowledged that market mechanisms, such as basic corporate secrecy, can allow firms to capture the gains of their own endeavours:

If a firm can control access to a discovery, it can charge a price that is higher than zero. It therefore earns monopoly profits because information has no opportunity cost. (Romer, 1994, p. 13)

Private research societies, think tanks, and universities have long existed, and at least part of what they do can be considered pure research. If knowledge is underprovided in free markets

but is crucial to growth, how does one explain the Industrial Revolution in England, where government support for research was limited, and yet observers such as Adam Smith documented extensive innovation by private entities?⁵

One theory advanced by biochemist Terence Kealey concludes that the public-good ‘problem’ associated with knowledge was overcome through knowledge-sharing institutions such as the Royal Society, which made the results of research a ‘contribution good’. Clubs of scientists or researchers can band together, benefiting from the spillovers of knowledge to each other, but with broader excludability to those outside of the group. Researchers have incentives to undertake their own research to obtain the tacit knowledge and permission to access the research of others. This substantially increases their probability of discovering something worthwhile, which can be commercialised.

This is one example of markets developing institutions to create excludability. More recently, types of contracts, such as noncompete or exclusivity clauses, have arisen as ways to prevent trade secrets from being transferred to other companies through the transfer of employees. All these mechanisms, as well as some government-supported institutions, such as patents, make investment in scientific knowledge less of a public good.

These practical and historical examples highlight that even goods or services that themselves appear to be non-rival and non-excludable can be delivered privately if payment can be tied to a complementary product or service, or when technological clubs or contractual institutions can significantly reduce the transaction costs associated with delivering excludability. Yet still many commentators misuse the market failure framework by simply pointing at things with public good characteristics as uncontentious justifications for government provision.

4 | EXAGGERATION OR INCONSISTENT USE OF THE CONCEPT OF EXTERNALITIES

Consumption or production decisions often impose costs or benefits on third parties. In public debate, these are described as a market failure because private consumers and producers, it is believed, consider only the private costs and benefits to themselves, and not these external effects, when deciding whether to consume or produce. As such, goods and services with broader external benefits might be underproduced in a free market, and those with external costs overproduced.

The classic recommended government remedy for this problem is to try to calculate the marginal external costs or benefits associated with a given activity (beyond the private costs or benefits) and implement taxes or subsidies so these externalities are priced in when consumption or production decisions are made.⁶ Joseph Stiglitz’s Nobel lecture is a good description of this policy solution (Stiglitz, 2002).

Given the pervasiveness of externalities, applying this logic consistently and universally would result in an extremely intrusive government. Yet, in public debate, externalities are often exaggerated by stretching the definition of external costs to cover effects that are not truly external or else cannot be easily quantified or measured. The most obvious example of this comes in relation to so-called ‘sin’ products, such as junk food, soft drinks, and alcohol.

Alcohol consumption, for example, can clearly impose external costs (Parry, 2009). The costs of alcohol-related crime and drunken driving are borne by people other than the drinker. There may be net external costs relating to health care, too, given that alcohol-related diseases and incidents could necessitate higher taxpayer subsidies or insurance premia. However, to be

applied consistently, one must also account for the effects of alcohol consumption on life expectation. Excessive alcohol consumption may reduce the lifetime welfare and health care costs of a drinker, relative to a non-drinker, thus resulting in taxpayer savings (Møller & Matic, 2010).

Most would accept that alcohol consumption could have net external costs. Seeking to account for these is defensible. Taxation may even be the most efficient way of achieving this goal.⁷ But those campaigning for alcohol tax hikes sometimes expand the charge sheet of alcohol's external costs to include things that primarily affect the product's consumers rather than third parties.

A 2015 report by the Centers for Disease Control and Prevention estimated, for example, that excessive alcohol consumption cost the United States \$25bn per year from crime-related activity, \$13bn for collisions, and \$28bn for health care in 2010 (Sacks, Gonzales, Bouchery, Tomedi, & Brewer, 2015). Yet these costs were all dwarfed by what was identified as the major cost to the economy: a reduction in workplace productivity accounting for \$179bn. Similar results have been reported in the UK (IAS, n.d.). Yet little of a reduction in workplace productivity is really an external cost. If individuals' alcohol consumption affects their work performance or their human capital accumulation, the vast proportion of that cost would ultimately be borne by the individuals themselves through worse employment prospects and lower wages. Some people may prefer (hard as it is for public health campaigners to believe) a work–life balance where they stay out later to socialise and drink, rather than maximising at-work productivity. Acting on their preferences can be argued to improve their economic welfare rather than detracting from it.⁸

It is certainly true that some part of that productivity deterioration would hurt the individual's employer or the ultimate consumer of the product. Lost productivity could also be considered at least partially an external cost in that lower wages or worse employment prospects may reduce an individual's net tax contribution. If this necessitates higher tax contributions from other taxpayers to maintain government revenues, there is an indirect fiscal third-party effect.

But applying such reasoning consistently would profoundly change the scope of economic policymaking. Many decisions throughout our lives affect our measured productivity, pecuniary rewards, and net tax contributions. Implicitly assuming a baseline in which all individuals maximise measured productivity and net fiscal contributions, and considering deviations from this to be a market failure, would be an absurd principle. Taking time off to have children or to care for a sick relative, regularly staying out partying and being tired at work, or choosing to take a gap year: these might all reduce measured productivity or earnings, or both, and so reduce one's net tax contributions. This is to say nothing of career choices. Opting to become a French teacher or a public-interest lawyer, even when the opportunity exists for one to be a Wall Street trader, means people clearly do not always make decisions to maximise their net tax contributions. Yet in a free society such decisions are rightly considered to lie within the realm of personal choice. Singling out the productivity effects of alcohol consumption as a unique externality in need of correction, when every day individuals make decisions that affect their productive potential and, indirectly, their net tax contributions, would be unworkable, arbitrary, and wrong.

Nevertheless, in the public health literature, chalking up lost productivity as an external cost is increasingly common. A recent paper from academics at the University of Oxford, calculating supposed optimal tax rates on red and processed meat, cited productivity losses from mortality and morbidity for those aged under 65 as one of the costs requiring corrective taxation (Springmann et al., 2018).

Again, the lion's share of any effect would represent private costs, and not external costs. The most obvious potential external effect is on net tax contributions, but here we should again note that mortality or morbidity itself could also result in some fiscal savings (through lower lifetime

welfare and health-care payments). The most important point is this: the implication that policy should encourage us to maximise our productivity levels would result in thousands of taxes and subsidies on all kinds of activities.

External costs exist. Where things such as alcohol consumption are concerned, they may even be significant. It can be appropriate to levy taxes as a least-bad means of attempting to account for this marginal external harm, such that the full social costs of activities are reflected in prices. But too often in policy debates campaigners misuse the concept of externality-induced market failure by defining external costs too broadly. By including effects that are primarily private costs, they advocate corrective taxation at far too high a rate than what is justified by the genuine external costs of an activity. In what contexts to consider certain effects to be externalities also appears arbitrary and inconsistent.

5 | PROMOTING UNIFORM TAXES WHEN EXTERNALITIES ONLY OCCUR AT HIGH LEVELS OF CONSUMPTION

For the reasons outlined in section 4, identifying negative externalities can be extremely difficult. But, once identified, it is often treated as a matter of faith that a simple, uniform tax can be applied to 'internalise' the externality and shift us to a socially optimal level of consumption. Such reasoning has been applied to sugar or soda taxes (to account for obesity), alcohol taxes (to account for costs associated with drunken driving), and more recently to red-meat taxes (to account for health-related costs).

Yet even if we acknowledge external effects, externalities can be corrected efficiently using *uniform* tax rates only if all levels of consumption generate the same marginal external costs. Otherwise, one would want to tax only consumption that generates external costs. Yet sin taxes, such as those on sugar, soda, alcohol, and red meat, apply to all consumption, regardless of whether there are external effects for low levels of consumption.

People who drink one can of sugary drink per month to replenish their energy levels after a long run impose minimal health costs on others. Someone drinking gallons of soda every day while already being obese and covered by government health programmes may, in contrast, be imposing much larger external costs on other taxpayers. If we want to reach efficient levels of consumption, we'd want a system of taxation or regulation that accounts for this heterogeneity, increasing the price of consumption units that impose external costs.

Of course, it would be extraordinarily costly (and possibly illegal) to impose such price discrimination through taxes, even if it were theoretically possible. It is also difficult to ascertain how much an individual's health outcome is affected by marginal soda consumption. Indeed, where obesity is concerned, it is unclear what the rationale is for taxing one potential cause of the perceived problem and ignoring the broader diet or lack of exercise. Why taxes on soda but not subsidies for kale smoothies or gym memberships? If sugar is regarded as the key cause of obesity, why not have taxes on milkshakes? Again, there appears to be an inconsistency in the way externalities are considered where policy is concerned.

If obesity itself is ultimately believed to be the problem, perhaps a more rational solution would be to impose taxes on obese people themselves. This might be thought socially unacceptable. But in other lifestyle areas, there are more options for dealing with the external costs associated with heterogeneity among consumers (Miron, 2009).

Consider alcohol consumption. Some drinkers consume alcohol regularly without ever driving under the influence, while others drive under the influence often. Ideally, we would impose

financial penalties only on those who impose the risks and external costs on others. In a world with perfect detection, this could take the form of direct penalties and fines for drunken drivers. Even without perfect detection, one could impose larger fines on those caught and convicted (although, given low detection rates, these fines could be financially ruinous for many). It is already technologically feasible and cost-effective to instal breathalyser equipment within cars, too, linking the drivers' alcohol levels with their ability to start the car.

The problem with alcohol taxes and other sin taxes is that they impose the same marginal charge on both responsible and irresponsible consumers. This can worsen economic efficiency overall if irresponsible drinkers' consumption behaviour is less responsive to the increase in price than that of responsible drinkers. Academic research tentatively suggests this is the case. A review of the literature (J. Nelson, 2013, p. 265) found that only two of 19 studies on the consumption behaviour of heavy drinkers found "a significant and substantial negative price response".

In short, identifying external costs relating to an activity is a necessary but not a sufficient condition for uniform consumption taxation to advance us to a socially efficient level of consumption. Unless consumption or production of the good at every level produces the same marginal external costs, this type of taxation will certainly not take us to the theoretical perfectly competitive market outcome. In some cases it may still increase overall economic welfare, but in other areas it might reduce it. Policy proponents and commentators misuse the market-failure framework by ignoring the fact that external costs often are not the same at all levels of consumption. As a result, they advocate that uniform taxes be applied to consumption or production activities even when this will clearly not maximise social welfare.

6 | IGNORING THE EFFECT OF INTERVENTIONS ON OTHER MARKETS

Taxes and regulations designed to account for externalities can also fail to acknowledge trade-offs caused by the intervention. Consider childcare. Intervention and regulation in this sector are often justified by arguments that high-quality childcare provides broader 'positive externalities', such as incentivising mothers of young children to return to work, thus boosting female productivity and net fiscal contributions. On this basis minimum staff-child ratio regulation, qualification requirements for workers, and, more recently, childcare subsidies have been rationalised.

Yet by raising the costs of provision, regulations on staffing reduce the number of childcare centres, particularly in poor areas (Bourne, 2018). This raises prices and reduces the availability of care. The increased cost and shortage of available care can, in turn, lead to substitution towards other forms of care, such as home day care, the quality of which could conceivably be worse. Even if the regulation ensured higher-quality care for those using formal nurseries, the effect on prices and the availability of care could mean that, overall, the quality of care available to the population falls.

Similar unintended consequences could come from subsidising childcare with a desire to improve mothers' labour force participation. Even if a planner could estimate the external benefits of parents working, parents should not be incentivised to work unless the social value of their market output is greater than the social value of activities they might otherwise be engaged in. This could include any positive parental role in the development of their own children (which could have broader external benefits), or broader external welfare gains from engaging in charitable or family activity.

Yet often the discussion of externalities is partial, with little attempt to think about the external effects of the intervention itself. Consider the recent debate around plastic bags. Jurisdictions in many countries have enacted legislation to ban or tax the bags (Kish, 2018). These actions are usually justified by pointing to environmental externalities associated with plastic bags, such as carbon emissions in production, spillovers from landfill sites, and, most emotively, visible pollution and harm caused to natural habitats and ocean wildlife.

According to the conventional market failure paradigm, a tax or fee should be imposed to account for the marginal external cost of the next bag to the environment. The tax should make consumers face the full social cost associated with its consumption. Nevertheless, proponents of taxes or fees seem to consider their use in isolation, rarely acknowledging that increasing the price of plastic bags causes substitution to other means of transporting groceries. These also have environmental effects.

One of the reasons plastic bags are so cheap, for example, is that they are energy- and water-efficient to produce. To carry an equivalent amount of groceries, the National Center for Policy Analysis has estimated that production of paper bags consumes three times as much energy (Villarreal & Feigenbaum, 2012). Paper bags also produce substantially more landfill waste, potentially higher greenhouse gas emissions, and more waterborne wastes than their plastic cousins (Roach, 2003).

Some studies have tried to compare the environmental effects of different bags. One UK government study found that reusable plastic tote sacks and cotton bags would need to be reused more than 11 and 131 times, respectively, before they yielded net environmental benefits (as measured by their contribution towards climate change) compared with single-use plastic bags (Edwards & Fry, 2011). But cotton bags tend to be reused only around half that amount, making them worse for the environment, in net terms, than plastic bags. More recently, a Danish study assessing the life cycle of bags estimated that, looking across all environmental effects, to provide the same performance as an average single-use plastic bag – used once before being used as a bin liner – paper bags would have to be used 43 times and cotton bags an astonishing 7,100 times (Bisinella, Albizzati, Astrup, & Damgaard, 2018).

The point here is not to downplay some of the environmental externalities associated with plastic bag use. It is to show that, by considering the consumption of one good in isolation, policy proponents misuse the framework of market failure with potentially damaging policy consequences. All goods and their substitutes here entail production processes using chemicals and water, and have the potential for pollution, carbon emissions, and much else besides. Advocating taxes or bans for one type of product on the basis of externalities, without considering the environmental consequences of substitutes, can lead to policies that reduce social welfare.

7 | USING EXTERNALITIES ARGUMENTS TO SUPPORT BANS

Environmental externalities can be real and significant. But of late, the existence of external costs from certain activities has been used to justify banning or curtailing the availability of products entirely. This represents a misuse of the concept of social cost and goes against the insights of the market failure paradigm, practically ensuring social welfare is not maximised.

A recent example of this mistake again relates to the ‘War on Plastic’. In July 2018, Seattle banned plastic straws and utensils from bars and restaurants (CBS News, 2018). Restrictions have also been implemented in certain Californian towns, too, such as Malibu and San Luis

Obispo. Beginning in 2019, California prohibits restaurants from providing these utensils unless customers explicitly ask for them (Filloon, 2018). In the United Kingdom, the government is also planning to ban the sale of single-use plastic straws (and other throwaway items such as plastic-stemmed cotton buds) (BBC News, 2018).

The driver for this policy seems to be the evident pollution of the world's oceans by straws, which can cause physical harm to marine wildlife. Awareness of this damage has already led many individuals and restaurants to voluntarily cease or cut down use of plastic straws. But, self-evidently, large numbers of businesses and consumers continue to use them, implying that they believe that the benefits of doing so exceed the costs.

Although it is difficult to estimate the environmental damage caused by marginal straw use, a reasonable policy prescription here would be to impose a tax on the straws themselves. In doing so, we must consider that substitute products may come with their own environmental costs. But, allowing for these effects, we could attempt to price in the external costs of straw use – difficult as they would be to estimate.

It is important to emphasise that the goal of such taxation is *not* to eliminate use entirely. The point is to ensure that when individuals and businesses make consumption decisions, they do so bearing the external costs of their actions. Even with such a tax imposed, those who consider the marginal private benefits of using straws to be higher than the marginal social cost would continue to buy them. Nor is it necessarily short-sighted or selfish of individuals to continue using plastic straws. Consider those individuals with disabilities who cannot drink a beverage without the assistance of a straw and so rely on plastic straws to be able to dine or drink in public. For these individuals, the private benefits from straw use are almost certainly high enough that they would be willing to pay a highish tax per straw, and so face the full social cost of their actions. Yet, with a plastic straw ban, they would not be able to use them.

The logic of banning or adopting prohibitively high sin taxes, in contrast, is that the optimal consumption level of anything with external costs is zero. This is an absurd principle, albeit one that is regularly espoused. It is common, for example, to hear commentators and policymakers advocate a zero-carbon economy (Turner, 2018) or, worse, just assume that this is an indisputable objective. The UK government's recent announcement that it plans to ban all new petrol and diesel vehicles by the year 2040 (other European countries are doing the same) is an example of a policy that will almost certainly impose net costs on society.

Similar reasoning to that applied to plastic straws suggests that many people, even if they accepted that carbon and particulate emissions should be reduced, would want to continue to drive petrol-consuming automobiles even if all the external costs of consumption were embedded within the price of petrol or diesel. Yet, with a ban, those consumers for whom the marginal benefits vastly exceed the marginal social costs are no longer able to drive traditional automobiles.

Banning products therefore creates a situation where gains from trade go unfulfilled. Society as a whole is made worse off than if the external costs of the activity were appropriately priced. To repeat, using plastic straws and driving gas and diesel vehicles certainly impose externalities. If one believes these negative effects increase uniformly with consumption, then it is defensible to impose corrective taxation to price in the external costs when individuals make consumption decisions. But it is a complete misuse of the market failure framework to go further and point to externalities as justification for banning activities outright. Trying to outlaw consumption of a product leads to a situation where the marginal social benefits exceed marginal social costs, leaving society as a whole worse off than if externalities are priced in appropriately.

8 | CONCLUSION

Markets are inevitably imperfect. Sometimes government interventions, through taxes, subsidies, and regulations, can be used to improve social welfare in the face of evident problems. But this article has shown that bad arguments by advocates of intervention can often result in suboptimal policies.

Armed with a rudimentary textbook understanding of market failure and a belief that government is well-placed to 'correct' markets, policy advocates sometimes push for government provision of certain goods even when there is no economic rationale, or ignore evidence that markets themselves can deliver public goods. They often argue for Pigouvian taxes at rates much higher than necessary to account for genuine external costs, or fail to apply consistently the logic of dealing with externalities. They sometimes ignore the effects of such taxes on the market for substitute goods, or wrongly use externality reasoning to justify outright bans. All these mistakes can lower social welfare.

The best academic economic analysis considers the effects of intervention on outcomes against real-world alternatives, including non-intervention and other policies, not against the outcomes of theoretical perfectly competitive markets. Too often in public debate, interventionists deem it sufficient to point out some market imperfection in order to justify government taxes (or subsidies), or regulation. This simplistic approach – predicated on the idea that government can perfect markets – leads to more intervention or higher taxes than is optimal, and has significant unintended consequences.

NOTES

¹These conditions were first systematically set out by Francis Bator, who defined market failure as “failure of a more or less idealized system of price-market institutions to sustain ‘desirable’ activities or to estop ‘undesirable’ activities” (Bator, 1958, p. 351).

²Other theoretical issues which are sometimes raised to justify government intervention include asymmetry of information, arising when parties to a contract have different information sets (Akerlof, 1970). This ‘problem’ might seem to be almost ubiquitous, although markets often have means of offsetting it. Then there is the argument around ‘merit’ (and ‘demerit’) goods/wants, where, in the view of more informed or enlightened observers, consumers do not understand what is good for them (Musgrave, 1957, 1959). This argument could be used to reject the concept of consumer sovereignty in its entirety, leaving economists little to say.

³In relation to negative externalities, Booth (2008, p. 72) has pointed out that “The government could only have the information to work out the optimal tax if it had all information about the costs and benefits of all potential uses of economic resources. If it had that information, then centrally planning the economy more generally would work. And yet we know that central planning is a catastrophe.”

⁴See, for example, the exposition by Robert Reich (2012), where he appears to define almost every piece of physical infrastructure that government has built as a ‘public good’.

⁵“If we go into the workplace of any manufacturer and . . . enquire concerning the machines, they will tell you that such or such a one was invented by a common workman” (Smith, 1763, p. 294).

⁶This is sometimes described as Pigouvian or Pigovian taxation, after A. C. Pigou (1920), who first suggested the approach. Note that the same reasoning can in some circumstances suggest Pigouvian *subsidies* to products which are substitutes for goods that produce negative externalities. Thus, for instance, we see government subsidies for renewable energy.

⁷For a fuller discussion of whether alcohol taxation is the optimal way of internalising these social costs, see the discussion between Parry (2009) and Miron (2009).

⁸More recently, interventions and ‘nudges’ to reduce alcohol consumption have been justified in the behavioural economics literature on the basis of consumers’ observed preferences not representing their ‘real’ preferences, a modern update of the ‘demerit good’ argument.

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How to cite this article: Bourne R. 'Market failure' arguments are a poor guide to policy. *Economic Affairs*. 2019;39:170–183. <https://doi.org/10.1111/ecaf.12346>