

The political economy of instrument choice

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Synopsis

The aim of the literature on the political economy of instrument choice is to provide insights into real-world instrument choices and to explain when and why particular types of instruments, such as quotas, standards, rules, pollution taxes, tradable permits etc., are adopted to control environmental pollution and other externalities. The instrument choice is viewed as the outcome of a rational political decision making process where the interests of voters, politicians, special interest groups, and bureaucrats are traded off and mitigated. Much of the literature emphasizes that well-organized polluter special interest groups play a dominating role. This is suggestive of a strong political bias against pollution taxes, tradable permits, and other incentive-orientated instruments but the suggestion is challenged by the increasing popularity of these instruments observed in recent decades in Europe (e.g., green tax reforms in many countries and the European Union’s market for greenhouse gas emission permits), in the USA (e.g., the Acid Rain Program) and elsewhere (e.g., the congestion charging scheme in Singapore). More ambitious environmental goals, increasing marginal cost of public funds, and a greater emphasis on buying political acceptability through revenue recycling and free allocation of tradable permits provide some tentative answers to this challenge.

Key words: Instrument choice, political economy, pollution taxes, tradable permits, command-and-control instruments, political acceptability, revenue recycling, permit allocation.

Link to chapters: 13, 18, 20, 24, 25, 26, 27, 31, 36, 70.

1. Introduction

The literature on the political economy of instrument choice provides insights into the circumstances under which particular policy instruments – quotas, standards, rules, pollution taxes, tradable permits etc. – are adopted to control environmental pollution and other externalities. The emphasis on understanding real-world policy choices is in contrast to a vast normative literature on instrument choice. This (normative) literature studies the circumstances under which particular instruments should be chosen to maximize social welfare and to achieve efficient outcomes. When pondering the political economy of instrument choice, two insights from this normative literature are worth bearing in mind. The first insight is the least cost principle. It says that pollution taxes and tradable permit markets can, in situations where abatement technologies are unknown to the regulator, achieve a given reduction in pollution at the lowest possible total abatement cost. The second insight is the double dividend principle. It says that revenue raising policy instruments (taxes or auctioned permits), *ceteris paribus*, dominate non-revenue raising instruments because the revenues can be used to reduce distortionary labor, capital, or commodity taxes in addition to whatever beneficial environmental impact they might induce.

Both of these principles provide reasons why a society seeking to regulate environmental pollution or any other externality problem (e.g., road congestion) should not use inflexible command-and-control instruments, such as design standards that require the use of a particular technology or performance standards or quotas that prescribe the maximum amount of emission allowable from each source. Outside the fictional world of perfect information, perfect competition, and full certainty such instruments are inefficient and welfare dominated by what we might call incentive-based instruments, such as pollution taxes and tradable pollution permits. Yet, command-and-control instruments were the bedrock of environmental regulation until the 1990s and persist to be an integral and important part of regulation across the globe even today. One of the key questions that the literature on the political economy of instrument choice seeks to answer is why this is case.

2. Why inefficient instruments often win the day

At the surface, it may seem puzzling why so much environmental regulation is based on inefficient and inflexible policy instruments when better and more efficient alternatives are available. On closer scrutiny, there exist, however, plenty of political economy reasons for this. Environmental policy is the outcome of a complex political process where voters, politicians, bureaucrats, and special interest groups all play a role and the instrument choice is an equilibrium outcome of this process. Despite differences in emphasis, a common theme runs through most theoretical and empirical work in the area: environmental regulation has distributional impacts and the incidence of the cost of regulation matters a great deal more than the total cost. Distributional and efficiency considerations often conflict and, when they do, the equilibrium outcome is biased against efficient policy instruments. For this reason, some scholars have gone as far as claiming that (efficient) incentive-based instruments do not stand a chance in a representative democracy.

It is widely acknowledged that special interest group politics play a major role for environmental policy. Voter interests and electoral incentives may sometimes dominate, but the hand of special interest groups is clearly seen in the design of most environmental regulation. The reason is simple: abatement of pollution is costly to polluters and because the cost-savings of lax regulation often are highly concentrated amongst a few large polluters, they are able to overcome the free rider problem that normally makes collective action difficult. Although environmentalists and the victims of pollution also are active participants in the political process and provide some counter-balance, the “polluter lobbies”, typically, carry the day. Consequently, the policy choice is regularly biased in their favor. While it is, then, easy to understand why this may lead to environmental regulation that is too lax from a social point of view, with lots of loopholes and special concessions, it is less clear why inefficient policy instruments should be chosen. After all, such instruments violate the least cost principle and so, polluters could lower their aggregate abatement bill by casting their support behind them.

The literature has pin-pointed several reasons why this, typically, does not happen. First, the classical contribution, from the mid-1970s, points out that command-and-control instruments can

do something that pollution taxes cannot. Contrast, for example, the effect of a uniform pollution quota and a pollution tax (which yield the same reduction in industrial pollution) in a competitive industry. The firms in the industry appreciate that the tax allows more flexibility and results in lower total abatement cost than the quota system, but they dislike the distributional impact of the tax: they have to pay to the government an amount equal to tax rate times the unabated units of pollution. More surprising is the insight that the quota system can help them make higher short-run profits than they otherwise could earn (in the absence of regulation). The reason is that the quota system encourages all firms to scale production back. This pushes the competitive price of output up and, in effect, allows the industry to sustain something like a “cartel solution”. This provides a very strong political economy rationale for why regulated firms may prefer an inflexible uniform quota to a flexible pollution tax. Yet, a system of tradable quotas with free initial allocation should be even better: it may also sustain a “cartel solution” but would allow the flexibility needed to ensure that abatement is done by the most efficient firms. One reason why industrial polluters as a collective may continue to back the inflexible uniform quota is that the most efficient polluters may find it privately optimal to go beyond what is required by the quota. This keeps output prices higher than they would be with tradable permits where the efficient polluters would sell some of their permits to the inefficient polluters and in that way undermine the “cartel solution”. Second, another reason that polluters, typically, back command-and-control instruments is that it is easier to gain exceptions from design, performance or process standards, which are negotiated directly with the environmental agency in charge of implementation, than it is to get such concessions within a system of pollution taxes or tradable permits. How much practical relevance this argument has is, however, unclear. For sure, the German and Danish green tax reforms from the 1990s and early 2000s show how easy it is for well-organized heavy polluters to get tax rebates at the expense of less well-organized household consumers of energy. Lobbying from energy-intensive sectors biased the allocation of tradable permits during the initial phases of the European Union’s carbon trading scheme.

Political markets are plagued by information asymmetries. This makes it difficult for voters to evaluate the consequences of different policy choices. In fact, many voters are rationally ignorant about environmental regulation in general and the finer differences between different policy instruments in particular. This is fundamentally what allows organized polluter interests to bias

policy choices in their favor. However, even if voters were fully rational and used all available information to the best possible effect, inefficient environmental instruments may still carry the day. To illustrate, suppose that (some) elected politicians are willing to divert public resources to special interest groups at the expense of voters at large. The socially most efficient way of doing this is simply to hand them a lump sum transfer. However, voters would see through this and vote politicians who implemented such a policy out of office. Voters are often uncertain about both the need for environmental regulation and the true intentions of their elected representatives (some of them may after all not be catering to special interest groups). Politicians know this and may be tempted to camouflage the transfer by picking an inefficient environmental policy instrument that at the same time corrects the externality and indirectly diverts resources from voters to the target special interest group at the expense of an economically efficient pollution tax combined with a direct transfer. This is because it helps the politicians convince voters that they are not really in the pocket of the special interests and in that way enhance their re-election chances.

While environmental policy is decided by elected politicians, it is implemented by a bureaucracy, e.g., an environmental agency or, if it involves levying taxes, a treasury department. Bureaucracies have their own agendas and can, in fact, be viewed as yet another special interest that seeks influence on the instrument choice. An objective often attributed to bureaucracies is that of power maximization which, in practice, boils down to obtaining a big budget. This explains a bureaucratic bias in favor of environmental policy instruments that require a well-resourced “implementation” agency. Command-and-control instruments, typically, dominate any of the incentive-based instruments on this account because they are more labor intensive to administer and require their “own” agency or ministry (as opposed to an existing treasury department). Accordingly, the bureaucratic bias often becomes a bias in favor of such instruments. However, competition between a treasury department (which would favor taxes and auction permits) and environmental agencies tasked with implementing the nitty-gritty of command-and-control based regulation might sometimes swing the balance towards revenue raising instruments.

Adding these considerations up, the picture that emerges is one of a strong political bias against incentive-based instruments. This, however, gives rise to a new puzzle: if the political process is so staked against incentive-based instruments, what explains the wave of green tax reforms that swept over western Europe during the 1990s and early 2000s, the tradable permit markets used to regulate SO₂ emissions in the United States and greenhouse gas emissions in the European Union, the London or the Singaporean congestion charging scheme, and many other recent examples of the use of taxes and tradable permits to regulate externalities? One tentative answer is that environmental targets have become more ambitious in recent times. This shifts, from the point of view of (industrial) polluters, the balance of support away from quotas to tradable permits. The reason is that the gains from being able to allocate abatement efficiently (through permit trades) dwarf the gains from exploiting a quota system to keep output prices high. The US Acid Rain Program adopted in 1990 provides one good example of how industry interests, once the ambitions of the overall cap on SO₂ emissions became clear, started to lobby in favor of a system of tradable permits and against an inflexible quota system. Another reason is that the marginal cost of public funds has increased in many countries as a larger and larger welfare state puts pressure on traditional tax bases. This plays into the hands of political parties that see an electoral advantage in replacing income tax revenues with “green” tax revenues. One recent example is the green tax reform implemented in Germany between 1999 and 2003 which combined a levy on energy with a reduction of the employers’ contribution to social security. A rise in the marginal cost of public funds may also encourage politicians to constitutionally rule out inefficient quota systems even in situations where tax instruments may allow regulators to share information rents with monopolistic firms more effectively. However, practical examples of this approach are yet to emerge.

3. Taxes and revenue recycling rules

Two striking facts stand out about the many recent green tax reforms that – despite the political bias against pollution taxes – have been implemented across Europe during the past two decades. The first fact is that tax rates are differentiated across sectors. Although not inconsistent with standard welfare economics considerations, this feature nevertheless bears the mark of political economy forces at play. The non-uniformity of tax rates, typically with lower rates for industrial

users than for final consumers and with special concessions to particular sectors, can readily be explained by sector differences in lobbying power. The second fact is that the green tax revenues have been put to very different uses. In some countries, the tax revenues contribute to the general public budget without being tied to specific purposes (e.g., in Norway and Finland). In others, the revenues are recycled partly or wholly as reductions in social security taxes (e.g., in Germany and the United Kingdom), in personal income taxes (e.g., in Denmark, Sweden, and the Netherlands) or employment charges (e.g., in Italy). In yet other cases, some of the revenues are used to compensate polluters (e.g., in Denmark) or to subsidize investments in clean technologies (e.g., in the United Kingdom). How can we understand this variety of different revenue recycling rules?

One important consideration is that the revenues can be used to “buy” political acceptability for the overall package of regulation and, in this way, help circumvent opposition, not only to strict environmental targets in general, but also to the use of tax instruments to achieve these targets in particular. The point can be illustrated within the context of a plain-vanilla median voter model where voters differ in their exposure to pollution and vote directly on the size of a pollution tax using the simple majority rule. The stringency of the pollution tax is determined by the preferences of the median voter, i.e., the voter with “median” exposure to pollution. She trades off the environmental benefit induced by the tax with the cost of having to pay more for the services produced by the polluting sectors. Importantly, if the revenues were recycled to the benefit of the median voter, e.g., as a reduction in her income tax rate, then she would be willing to support a higher pollution tax than otherwise and, therefore, more stringent environmental regulation. In a nutshell, the revenue from the pollution tax “buys” her support. The notion that strategic use of the revenues can reduce opposition to strict environmental targets is not limited to “buying off” pivotal voters. The tax on NO_x emissions – a major contributor to acid rain – levied in Sweden in 1992 provides a first-rate example of how green tax revenues can be used effectively to “buy off” opposition from well-organized industry interests. Olsonian logic suggests that the lobbying power of the 200 combustion plants covered by the scheme must have been significant: they were few in numbers (making it easier to control free riding) and the per-plant benefit of getting the tax refunded was large, about half a million dollars per plant. Yet, the tax levied on NO_x emissions in Sweden was about 200 times larger than a corresponding tax

levied in France around the same time. The fact that the revenues were recycled entirely to the 200 polluters in Sweden but not in France provides a convincing explanation for this difference.

Another important consideration is that earmarking of tax revenues can serve as a commitment device that helps alleviate time inconsistent problems in environmental policy making. Many important decisions related to for example energy efficiency involve irreversible investments in durables, e.g., investments in a new type of power plants or in some consumer durable, such as a solar panel. These investments are made in anticipation of future environmental policy, say, the tax levied on energy consumption. Politicians have, for optimal tax reasons, a strong incentive to increase the tax on energy ex post after the investments are sunk because the tax base has become less elastic. This, in turn, discourages firms and individuals from making the investments in energy efficiency in the first place. A rule that earmarks the revenues from the energy tax can help resolve this problem. If, for example, the revenues have to be spent on, say, general public services rather than on the pet projects that politicians really like to spend on, then the incentive to “over-tax” energy in the future is diminished and the time inconsistency problem is (partly) solved. This line of reasoning is particularly important in relation to long-term investments in power generation. For such investment, policy uncertainty plays an important role. Earmarking can help reduce this risk and in that way create a more predictable path of future carbon prices and in this way encourage the private sector to make socially valuable investments in, say, power generation capacity.

Both of these considerations – the principle of buying political acceptability and the use of earmarking as a commitment device – presume that the government (or some part of it) wants, for social welfare reasons, to impose constraints on what political agents can subsequently do with the revenues and that these constraints somehow bind in the future. In reality, it is difficult to make such commitments and it may, therefore, be more relevant to ask if the variety of recycling rules that we observe in reality can be understood as the outcome of one unified political process that selects packages of policies consisting of pollution tax rates and revenue recycling rules. The answer is that it can. To illustrate, suppose that the political process is captured by organized polluter interests that effectively “bribe” elected politicians to bias the environmental policy choice in their favor at the expense of citizen-voters. It is tempting to think

that tax-burden compensation to polluters will be the natural outcome in this case but that would be wrong. Organized polluter interests may be willing to accept that green tax revenues are being used to cut income taxes or fund public services (to the benefit of citizen-voters) if doing so allows them to “buy” a low pollution tax rate more cheaply. This consideration is most salient when the marginal cost of public funds is high, which is consistent with the fact that many of the green tax reforms of the 1990s and the 2000s with income tax replacement were concentrated in countries in north-western Europe where high marginal tax rates and large public sectors are common.

4. The political economy of tradable permit markets

The US Acid Rain Program and the European Union’s market for CO₂ emission permits are the two best-known examples of cap-and-trade programs in action but they are not the only ones. The economic efficiency rationale for such programs is clear-cut: abatement can be done where it is cheapest (the least cost principle). Moreover, as long as the resulting permit market is competitive and transaction costs are not too nonlinear, the initial allocation of permits does not matter for cost efficiency. It is for these reasons that it is often argued that the permits can be allocated to achieve equity objectives at zero efficiency cost. From a political economy point of view, however, there is another and more important implication: the permits can be used to win over opposition to the program. Suppose as it is often the case in practice that certain segments of the industries that have been singled out for inclusion in a cap-and-trade program are well-organized and are lobbying strongly against a strict cap while other segments have failed to overcome the free rider problem and remain unorganized. In this case, the (free) allocation of permits, which distributes the windfall gain (equal to the permit price times the total number of permits) within the covered industries, can be used by the regulator to “bribe” organized opponents into accepting a strict cap. This logic is, perhaps, even more potent in the international arena where the allocation of permits in an international trading scheme, say, for greenhouse gas emissions can be tailored to maximize participation.

Appealing as such arguments may be, one should not overlook the fact that the windfall gain created by a cap-and-trade scheme with free allocation of permits is a contestable rent. This

means that the firms (or countries) covered by such a scheme have a strong incentive to invest resources in biasing the allocation in their favor. In this case it is doubtful if the regulator has much discretion to allocate them to win over opposition. The real resources wasted on such rent-seeking activities can be substantial. Theoretical work on rent-seeking contests puts a lower bound of one half on the fraction of the total rent (here the market value of the permits) that is dissipated by rent-seeking. The presumption in the literature, therefore, is that a major drawback of cap-and-trade schemes relative to pollution taxes is that the former encourages more rent-seeking than the latter. This, however, overlooks the fact that tax revenues may also be contestable and when this is taken into account it is not so clear which instrument performs worse in terms of rent seeking costs.

5. Conclusion

The emerging literature on the political economy of instrument choice has enhanced our understanding of the political forces that drive the practical choice of regulation instruments. The challenge is to account for two stylized facts: the historical prominence of ineffective and inflexible command-and-control instruments and the surge of green taxes and cap-and-trade programs across the industrialized world during the past two decades.

While the emphasis of the literature is positive, it has important normative implications that should not be overlooked. In particular, it demonstrates how political constraints can (and should) be built into the design of environmental policy. Examples of this include the use of earmarking to reduce political risks and encourage long-term investments and, more generally, awareness in the policy community that political acceptability constraints bind, but can be relaxed by appropriate redistribution of the rents generated by the regulation of environmental externalities.

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