

MARKET-BASED SOLUTIONS TO PROTECT THE ENVIRONMENT

Executive Summary

Momentum is building to take stronger action to address environmental concerns. Leaving the science of climate change for others to debate, we focus on the economics of environmental action. The conventional view is that there is a trade-off between the economy and the environment. But that trade-off can be sharply influenced by the design of the policies. Most economists, including ourselves, believe that any injury inflicted on Canadian jobs, incomes and competitiveness can be mitigated through reliance upon market-based policies that change the price structure to pollution. Doing so serves two purposes. It ensures that polluters pay for the social cost of their actions. And, it alters behaviour when the price for pollution becomes steep. Polluters will seek alternatives, thereby spurring innovation and reducing the need for further, more intrusive and costly environmental policies.

Market failure at the root of the problem

The existence of externalities and market failures has long been one of the key rationales for government intervention in the economy. The ultimate goal is to change the price-cost structure to appropriately reflect the social costs. Negative externalities occur when individuals or organizations take an action that benefits them while forcing unwanted costs onto other people. For instance, smog alerts in Ontario have nearly quadrupled from 1995 to 2005, in part because a resource like clean air is considered a “free” good. Herein lies the crux of the problem, known formally as market failure. The most economically efficient path to alter the price-cost relationship in the environment is to employ market-based tactics (such as taxes, subsidies, tradable permits), which often can’t be effectively implemented to the exclusion of some of the more traditional methods of regulation and moral suasion.

Environmental standards: a command and control approach

Although environmental regulation tends to meet con-

siderable political backlash, it is effective in targeting clearly defined sources of pollution through a system of emission restrictions and heavy penalties for failure to comply. For instance, the U.S. effectively employed regulation to reduce airborne concentrations of lead by 93% between 1980 and 2000 in the U.S. Clean Air Act.

However, regulation is best used to complement market-based policies because they are inefficient and can be overly burdensome to participants. There are two main drawbacks to regulation. First, a blanket emissions policy can impose exorbitant compliance costs on firms and individuals, to the point where the cost may end up higher than the value society places on reducing the environmental damage in the first place. There is also little incentive for firms or households to innovate and invest in new technology that will help them exceed the minimum threshold for compliance since the financial benefit in doing so is zero.

One area where regulations can have a symbiotic relationship with market-based policies is in a tradable permit framework, where firms use their differing costs to establish a price for a unit of pollution. If regulations were not put in place to cap emissions, free reign on emissions would render the price of pollution equal to zero.

Moral suasion: in search of the warm and fuzzy feeling

Tactics that use moral suasion and voluntary guidelines are far more politically friendly than regulation, because they provide flexibility in choosing when and how to implement environmental improvements. However, these policies are more useful as an information building block to complement a national environmental policy framework, rather than a stand-alone policy tool. Moral suasion has an inherent “free rider” problem. The burden of the policy tends to fall on those who are morally sensitive and/or those who have lower marginal abatement costs. It allows individuals who do not respond to still enjoy the benefits of the actions of others without assuming any of the costs. A

program like this generally lacks accountability and public trust, making it increasingly likely that it will fail to hit the desired environmental targets. Be it industry or households, participants must believe that other participants are subject to the same criteria for monitoring and reporting. And, even if a voluntary program is designed to include mechanisms to stimulate the diffusion of existing technologies, it does not provide the incentive to develop new abatement technologies.

Environmental taxes: making the polluter pay

Environmental taxes (or user-pay principle), promote both economic efficiency and greater fairness, because they help ensure that polluters bear the cost of their actions, thereby eliminating the free-rider problem. In addition, setting the appropriate price structure to polluting allows other environmental objectives to be realized endogenously. For instance, if it's much more expensive to engage in a polluting activity, individuals and firms will reduce that activity and search for alternatives. Take hybrid automobiles, which are more expensive to purchase than gas guzzlers. If the reverse was true, people would automatically seek out fuel efficient cars. This would spark innovation by producers and could alleviate any need to impose regulations on fleet mileage.

Environmental taxes are best applied where the pollution is created and the revenues should not be a 'revenue-grab' by the government. Rather, the revenue should be used to lower other taxes in the economy or to finance subsidies that help the environment. This is known as 'tax shifting' and can provide additional positive impacts on the economy when environmental tax revenues help reduce existing taxes that currently create economic distortions including disincentives to working or investing. Like other environmental policies, user fees are not a silver bullet. Governments must find the fine balance between making the tax rate high enough to adequately address the underlying environmental concern, but not so high as to unduly compromise economic efficiency.

Subsidies are the nudge in the night

Subsidies work in exactly the opposite way as taxes. If the cost of emission reduction for individuals or firms is too financially onerous, the government can provide a subsidy to lessen the financial burden. However, like taxes, choosing the optimal amount for a subsidy is extremely difficult. Subsidies only work if they change behaviour, otherwise

they will result in a free-rider problem. Even when a subsidy achieves the desired GHG emission reduction, it may require other complementing programs in order for it to truly succeed. For instance, a subsidy that significantly increases the use of public transit may also require enhancement of the infrastructure to avoid straining the transit system.

The tax-payer ultimately bears the cost of the subsidy. It must either come from an equivalent increase in taxes, or from a drawdown in existing government coffers (i.e. surpluses), which in turn amounts to forgone future tax or debt reductions. So, subsidies act as tax shifting, but there are some considerable pitfalls that governments must avoid. In too many cases the person paying for the subsidy may not be the polluter of the targeted activity, such that the polluter-pays principle is violated. Worse still, taxpayers could end up shouldering the cost of a subsidy that results in unforeseen negative externalities. For instance, subsidies favouring palm oil as a bio fuel in Europe led to severe environmental damage in Indonesia and Malaysia through clear cutting huge tracts of land, and draining and burning peatland that sent huge amounts of carbon emissions into the atmosphere. Governments must take care to look at the whole lifecycle of a process, often cited as the 'energy-out minus energy-in' principle.

If a government decides to pursue subsidies, the ideal candidate is new environmental technology, either for firms or consumers. In the market environment, price signals for current technology do not incorporate the cost to the environment. There is therefore no incentive to embrace new and costly technology that will only be beneficial to the environment. A subsidy can make up the difference between the marginal private cost and social benefit.

A cap and trade system

Of all the market-based environmental tools, cap-and-trade policies are probably gaining the most international buzz as a successful 'polluter-pay' system. Cap-and-trade systems are not easy to implement, but once up-and-running they have proven benefits. The fundamental appeal of a cap-and-trade system is that it aligns the incentives of firms with the objective of reducing GHG emissions. Firms that are successful in reducing emissions beyond their allowances not only contribute to a healthier environment, but also receive a financial gain by being able to sell their unused credits to those in need. By extension, firms that have exceeded their allowances have to face a personal-

ized economic cost to their pollution and therefore have a financial incentive to reduce future emissions. From the perspective of the economy as a whole, GHG emissions can be reduced in an efficient and least-cost manner with those willing to bear the costs of pollution paying the market price for that decision. A second advantage of a cap-and-trade system is that there are no restrictions or guidance placed on the nature of the technology employed to reduce emissions. This allows firms the flexibility to customize their own solutions and timelines.

There is already a global push towards trading systems in carbon pricing, and the longer Canadian firms have to become accustomed to the cap-and-trade program the better off they will be. Plus, if technology-adoption is made early, there is a better chance that Canada will be a provider of surplus credits on the global stage.

That said, the international carbon market is still in its infancy with what is almost too large a range of abatement costs. This can lead to a situation where a technologically advanced country like Canada (where abatement costs are relatively high) may be forced to purchase carbon credits from a country like China where reducing their abatement costs is considerably less expensive. This leads to a direct transfer of wealth from the Canadian economy to devel-

oping nations. Over time, the excessive earnings will be worked out of the market as the emerging economies implement new technology. But for the time being, this market anomaly makes it relatively more attractive to start with a domestic emissions trading platform before linking up to other international systems.

Bottom Line

Although sensible environment policy regimes will require elements of almost everything we've discussed, those that change the price structure of pollution to the users are most effective in changing consumer behaviour towards emissions. Tax-tilting to the polluter can endogenously achieve a number of environmental proposals with less financial costs to society.

There should also be long term continuity in policies to build market confidence in the framework. Most businesses around the world now expect some type of emissions regime and many have already geared up for it. As such, any delay or vagueness in policy announcements creates an economic cost in itself. So while there is an economic cost of action, there is also a cost of further delay, especially if it results in more pronounced emission cuts down the road.

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