Carbon Taxes in Canada:

Explaining the Political Feasibility

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A research essay submitted in fulfillment
of the requirements for Political Science 4908
as credit towards the degree of Bachelor of Arts with Honours

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2007

Acknowledgments:

I Would Like To Thank Prof. Meadowcroft For His Patience And Advice,
My Parents For Their Unwavering Support,
And My Friends For Their Commiseration.

Abstract

This paper examines the political feasibility of the federal Canadian Government implementing a Carbon Tax. The paper considers three political science models to assess public support for a carbon tax and assesses the strengths and weaknesses of each model: a public choice analysis, a pluralist interest-group based analysis, and a model based on the institutional framework within which the Canadian government operates. Based on the reasons that the models identify for public opposition to carbon taxes, the paper recommends policy measures to make a carbon tax more politically saleable in Canada: only implement a carbon tax in particular sectors of the economy; construct a visible mail-out-rebate scheme akin to the GST rebate to promote knowledge of revenue recycling as well as address public regressivity concerns; focus public education campaigns on environmental issues, not policy issues; phase in any carbon tax; use Border Tax Adjustments to address international competitiveness concerns; attempt to frame the tax as a reward, not just a penalty. The paper concludes by noting that if it is constructed appropriately, a carbon tax in Canada could be politically possible.

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INTRODUCTION

This paper asks why carbon taxes have been politically (un)successful in Canada. Economists have often pointed out the discrepancy between the policies that their theories recommend as efficient and the policies that are politically achievable. Carbon taxes are often considered a paradigmatic example of an efficient, but politically impossible policy proposal. In the words of The Economist, “it is political poison, but a carbon tax still makes sense.” (The Economist, 1998) This paper compares three approaches to conceptualizing the political (in)feasibility of carbon taxes:

- A public choice model which compares the demand of firms for a carbon tax and the willingness of politicians to provide one
- A public interest approach which uses public opinion surveys to enumerate what people do not like about a carbon tax. The problems are that the public does not trust politicians to recycle revenues and does not understand the rationale for the fiscal neutrality of a carbon tax.
- An institutional analysis which notes that impediments include the lack of international pressure to implement a carbon tax, the lack of US buy-in, more right-wing governments, and identifies which provincial governments will be more (and less) supportive of a carbon tax. This analysis also rejects the notion that the bureaucracy is an impediment to adopting a carbon tax.

The paper then applies the insights of these models by recommending how a carbon tax could be designed to make it more politically saleable in the Canadian context. The paper concludes that:

- Carbon taxes are only appropriate for some sectors of the Canadian economy
- A visible mail-out-rebate scheme akin to the GST rebates would promote knowledge of revenue recycling as well as address public regressivity concerns
- Public education campaigns are likely to be ineffective
- A carbon tax should be gradually phased in
- International competitiveness can best be ensured with Border Tax Adjustments, not exemptions
- The tax must be seen to reward, not just penalize, people

The media frequently lauds carbon taxes as an ideal, but politically infeasible, approach to climate change. A Los Angeles Times editorial noted that "carbon taxes represent the simplest, most effective and economically least damaging option to fight global warming…yet a carbon tax comes with built-in political headaches" (Los Angeles Times, 2007) Such headaches are undeniable, but it is the conclusion of this paper that an appropriately conceived carbon tax can overcome the obstacles to implementation. In short, a carbon tax need not be, as the Edmonton Sun described it, "the political equivalent of taping a 'kick-me' sign on your back." (Edmonton Sun, 2006)

SCOPE AND LIMITATIONS OF THIS PAPER

This essay will not make normative claims about the desirability of a carbon tax, but will confine itself to positive claims about the political feasibility of carbon taxes; I seek to understand why politicians use the policy instruments that they do, rather than establish which tools are desirable.

This paper has a special focus on carbon taxes even though much of the analysis could apply to green taxation in general. As a note on terminology, 'ecological tax reform' encompasses other pollution taxes such as automotive congestion taxes and landfill surcharges, while the term 'ecological fiscal reform' is yet broader and includes the removal of subsidies.

This paper will examine the instruments chosen to achieve policy objectives, but will not examine the related issue of how a particular level of protection is chosen.

Finally, in terms of scope, this paper considers examples from other countries. With the Canadian context in mind, these extra-Canadian experiences are analyzed to draw lessons that are applicable to the Canadian federal government situation.

BACKGROUND INFORMATION ON CARBON TAXES

GENERAL ECONOMIC JUSTIFICATION & TERMINOLOGY REVIEW

A carbon tax involves the government charging actors for the carbon dioxide that they emit into the atmosphere. This is an example of internalizing a **negative externality**. For example, when a consumer drives a car, the gas emitted from that car contributes to air pollution and climate change. The idea of internalizing these negative effects, as developed by Pigou, is that they become costed and when a person acts, the price that they pay reflects the full costs of their actions.

The term '**double dividend**' is often used in relation to carbon taxes. The first dividend is the environmental one, the idea that taxing pollution will result in a reduction of that pollution, and thereby benefit the environment. The second dividend reflects the idea that carbon taxes can be revenue-neutral and that as they are introduced, other, more distortionary taxes, such as income taxes, can be reduced. In theory, this can reduce the deadweight losses that arise from taxation and increase employment by encouraging employers to substitute (now cheaper) labour for other factors of production. It is notable that the idea that ecological tax reform could stimulate demand for labour is controversial as most studies indicate that an ecotax would have a negative effect on aggregate output, which could reduce employment and offset the effects of reducing taxes. (e.g. see Table 1 on page 6 of this paper)

Implicit in the double dividend argument is the idea that a carbon tax would be **fiscally neutral**, e.g. that the revenues from the tax would not be spent on general government expenditure, but would instead be used to offset other taxes – either to reduce distortionary taxes such as income taxes or to redress the regressive nature of a carbon tax.

Generally, this is consistent with the notion of taxing '**bads**' that the government desires to discourage and not taxing '**goods**' that the government wishes to promote, with the ultimate aim being that the government's fiscal system sends signals which induce people to change their behaviour in environmentally-friendly ways. The reason why a carbon tax would so modify behaviour is that more carbon-intensive energy sources would be taxed at a

higher rate than energy sources which do not emit as much carbon.[1] For example, coal would (in theory) be taxed more heavily than natural gas because, as demonstrated in the following table, it emits more carbon dioxide per unit of energy:

Fossil Fuel	Carbon-Equivalent Emitted per 1000 BTUs of Energy Produced
Coal	25.1
Oil	20.3
Natural Gas	14.5

Source: Herber and Raga, 3

A carbon tax is an example of the environmental movement towards **true cost pricing**. Proponents argue that the problem which this addresses is that environmentally problematic businesses are cheaper to run than businesses which are better for the environment simply because the environmentally harmful businesses do not have to pay for the negative effects of their operations. By way of example:

- SaskPower Corporation produces electricity by burning coal in large generating plants; this costs about C$.045 per kilowatt hour (kWh). (Warnock 2007)
- Airtricity Canada produces electricity through wind power; this costs about C$.08 per kWh (comprised of operating costs of C$0.01 per kWh and capital recovery costs of C$0.07 per kWh). (Airtricity Canada 2007)

Proponents of true cost pricing would argue that the reason why SaskPower is able to produce electricity for about half of Airtricity's costs is that the price of SaskPower's coal power excludes many costs including "air and water pollution, mercury contamination, cancer caused by coal ash, health impacts to workers, and greenhouse gas emissions." An analysis done for the Ontario Ministry of Energy calculated that if these costs were included, the true cost of generating electricity from coal would be around C$.164 per kWh. (Warnock 2007) In sum, the argument is that the low cost of coal-generated power is a significant barrier to the success of less polluting forms of electricity and that if the prices that consumers pay include the full cost of each of their options in the marketplace, then through the invisible hand of the marketplace, less polluting options will be adopted.

[1] A note on the word 'carbon'. In this report, it is used as a shorthand for all greenhouse gasses (including N_20, CH_4, etc.), not just carbon dioxide and monoxide.

The reason why a market-based mechanism like full-cost pricing is seen to be a desirable way of reducing carbon dioxide emissions is that it can achieve a given level of emissions reductions at a significantly lower overall economic cost to society when compared with other policy measures, such as legislating automobile emission standards. For example, this Government of Canada economic model compares achieving the same emissions reductions with three different policy instruments and demonstrates that a carbon tax is significantly lower cost:

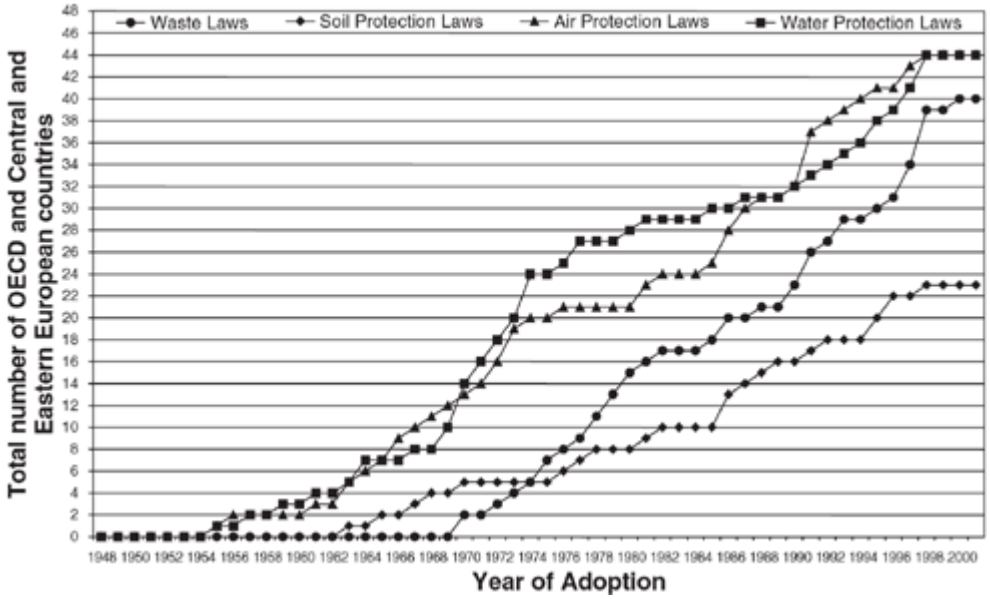
Table 1: Comparison of Instruments to Meet Rio Target

	Fossil Fuel Tax	Carbon Tax	Emission Standards
Real GDP Change	**-0.6%**	**-0.3%**	**-0.4%**
Tax Rate	33% ad valorem	$27.70 per tonne $C0_2$	n/a
Revenues ($Bil.)	13.4	11.2	2.4

Source: *Canadian Department of Finance* Working Paper by Beausejour, et. al.
All $ Values adjusted to 1990 Canadian Dollars

HISTORICAL VIEW OF ADOPTION

Figure 1: The Takeoff of Environmental Legislation in Developed Countries

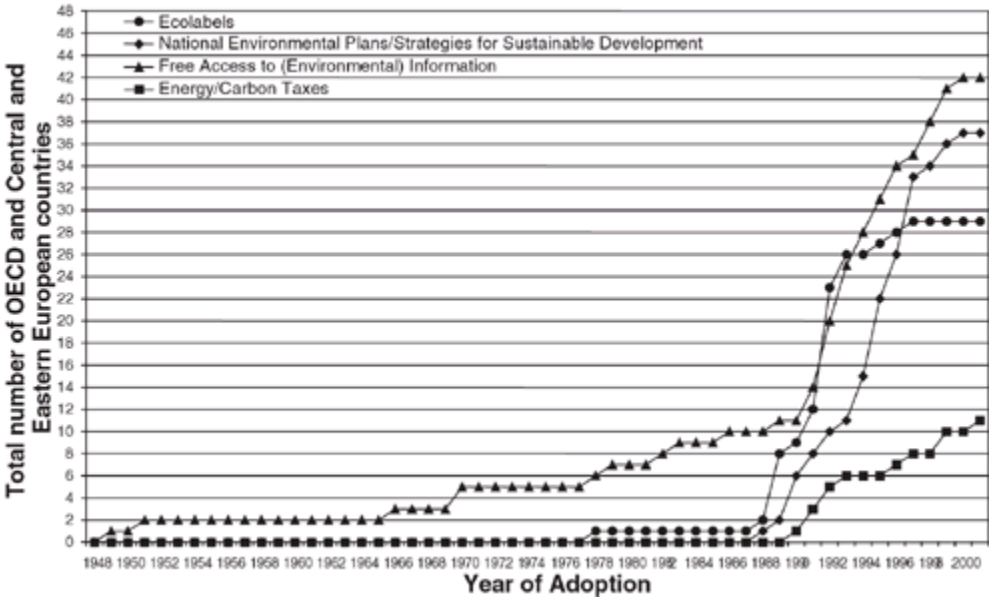


Source: Tews, et. al. 2003

With the advent of modern environmental protection legislation in developed countries in the 1950s, many regulations were implemented which specified allowed thresholds of pollution. It was then the case that even small amounts of the pollutants being regulated were toxic. Thus, for a long period, a carbon tax was not the ideal sort

of instrument because the central environment concerns were more amendable to the likes of outright bans. The advent of global warming as an environmental policy issue, however, requires government to regulate pollutants that cannot be banned, like carbon dioxide. There is thus a need for new policy instruments to limit, but not eliminate, substances. The problem is that the adoption of these new environmental policy instruments has lagged behind the adoption of more traditional command-and-control policy instruments (compare the adoption rates in figures 1 and 2). Of just the new environmental policy instruments, the adoption rates for carbon taxes have also lagged behind the adoption rates of other instruments, as the following figure demonstrates:

Figure 2: Comparison of Policy Adoption Rate for Carbon Taxes and Other New Environmental Policy Instruments



In the early 1990s, Environment Canada proposals considered implementing carbon taxes, as part of their preparatory work while formulating the Green Plan. However, carbon taxes were considered unfeasible at the time because of the recession; the taxes were shelved with the intent of reviving the proposal during better economic times. (Hoberg 1994) In recent years, carbon taxes have returned to the Canadian political agenda:

- The government of Quebec has implemented a modest carbon tax. (Shrum 2007)
- Michael Ignatieff, a leader in the 2006 race for the leader of the federal Liberal Party of Canada, discussed them as part of his environmental platform. (Ivison 2007)
- The Green Party of Canada has received growing electoral support whilst prominently advocating gasoline tax hikes, specifically, and ecological tax reform, generally. (Iterson 2004, p.38)

The following table lists some jurisdictions which have implemented carbon taxes; it is noteworthy that the dates of implementation cluster around 2007 and the early 1990s in that it points to the fact that the concept is experiencing a renaissance.

Table 2: Political Jurisdictions that have Implemented Carbon Taxes

Jurisdiction	Adopted	Rate	Notes & Exemptions
Boulder, CO United States	2007	$7	Only covers emissions from electricity
Denmark	1992	$9-$18	Gasoline, natural gas, and biofuels exempt. Aviation, shipping, and refinery gas exempt. 50% rebate for larger businesses.
Finland	1990	$8 + 21¢/giga-joule	Industry raw materials and fuel for planes exempt. 60/40 carbon/energy content.
Netherlands	1990	$16.4 + 91¢/giga-joule	Full rate not phased in until 1998. 50/50 carbon/energy content.
Norway	1991	$15-$47	Coal used in industry exempt.
Quebec	2007	$1.16 + 3.4¢/gallon of gasoline	Only covers hydrocarbon fuels such as petroleum, coal, natural gas
Sweden	1991	$27-55	Industry pays 50% of full rate. Uses other than heating oil and fuel exempt.

Source: National Center for Environmental Economics 2001, Shrum 2007

Note: Rate in US$ per ton of CO2 unless otherwise stated

Table 3: Selected Countries that have engaged in Ecological Tax Reform

Jurisdiction	Adopted	Rate	Notes & Exemptions
Britain	2001	Coal: 0.15p/kWh Gas: 0.15p/kWh Electr.: 0.43p/kWh	Climate Change Levy applies to business use of gas, coal and electricity. Reduced rates for energy-intensive sectors and for industries that commit to major improvements in energy efficiency.
Germany	1996		Increased taxes on electricity, gasoline, fuel oil and natural gas while providing exceptions for renewable sources. Revenue raised financed reductions in social security contributions from both employers and employ-

Source: Pembina Institute 2007; Note: Currency is British Pounds

Note: While these are carbon taxes, of a sort, they are arguably more limited in their application than the countries that are listed in the first table

A DESCRIPTION OF THIS PAPER'S THREE THEORETICAL APPROACHES

This paper will employ three theoretical approaches to assess the political feasibility of carbon taxes. This section will describe the approaches, as well as their strengths, weaknesses, and differences. These approaches have been adapted from Steven Croley's typology of 'constellations of positive theories of regulation'. (Croley 1998)

THE PUBLIC CHOICE MODEL

The Public Choice approach looks for ways that governments serve organized political interest groups at the expense of the unorganized general public. At its core, the Public Choice model of policy is built upon the notion that those involved in the policy process (e.g. politicians, bureaucrats, regulators, interest groups, the media, voters) should be viewed as self-interested actors seeking to maximize their individual welfare. Thus, Public Choice theory takes the principles of economics, such as the model of *homo economicus*, which are used to explain transactions in an economic marketplace and applies them to the 'political marketplace'. The advantage of this approach is that it leads to very specific predictions about how actors will behave.

Public Choice models have been much criticised, though. Trebilcock, one of the pioneers in applying Public Choice models to Canadian environmental policy, repudiates much of his early work on Public Choice theory in a retrospective he published in 2004 wherein he argues that Public Choice "obscures the importance of a range of noneconomic and non-self-interested values that commonly motivate various participants in collective decision-making processes, including notions of distributive justice, corrective justice, due process, communitarianism, racial and gender equality." (Trebilcock 2004, p.7) Others charge that Public Choice theory takes a static view of political systems and is unable to explain how change occurs in political systems. Meadowcroft (1999) criticises such a fixed view of interests when he writes that "politics has always at least in part been about changing the ways in which problems are defined, and the most promising approaches to conflict resolution attempt to alter the parties' conceptualizations of their interests. As patterns of perceived interest shift, solution spaces can come to encompass previously unimagined outcomes." Because a Public Choice model is not a good tool for analyzing different ways of framing political interests, I will secondly employ what I am calling a 'pluralist model'.

PLURALIST INTEREST GROUP-BASED MODEL

There are many definitions of pluralism; for the purposes of this essay, pluralism is an analytical framework used in political science to assess the way that the relative political power of interest groups leads to policy outcomes. (Croley 1998) While public choice theory uses assumptions about rational self-interest to predict how actors will behave, pluralism instead attempts to asses the political power and influence of actors in predicting policy outcomes.

Like public choice theory, pluralism begins with the concept that competition between interest groups is central to understanding which regulations are enacted. However, this competition does not lead to the static deadlock of fundamentally opposed interests that public choice theory predicts but instead leads to a *dynamic* political space as disparate interest groups continue to debate with each other in the public sphere and as public attention ebbs and flows. Contrary to public choice theory, pluralist theory reserves more of a place for public opinion and the media in settling disputes between interest groups. (Croley 1998)

The pluralist model accepts that political actors do not necessarily pursue outcomes that accord with some narrowly defined sense of their self-interest because the way that issues are framed has a dramatic effect on the way that people conceptualize issues and their solution spaces. Political decisions are far more a result of compromise amongst disparate political groups, than the mere triumphing of the most powerful political lobby group, as public choice theory argues.

That said, for all the gains of the pluralist framework in terms of flexibility, pluralist literature generally has a limited account of the state, reducing it to a black box that is buffeted by various societal interest groups. Because it is important to consider the specifics of political institutions, this paper will lastly employ what I am terming an 'institutional' analysis of public policy outcomes.

INSTITUTIONAL EXPLANATION

Trebilcock writes that the Public Choice framework "discounts unduly the long-run independent impact of incremental changes to institutional design and modus operandi on subsequent policy outcomes." (Trebilcock 2004,

p.7) I think that his observation is prescient; the institutional explanation section of the paper thus delves into the relationship between government institutions and the use of a carbon tax as a policy instrument.

For example, Croley identifies a stream of 'public interest' literature which concentrates on the general public's ability to monitor regulatory decision makers. It observes that where regulatory decision makers operate under conditions of significant public scrutiny, regulatory outcomes tend to reflect the general interest, while in situations where decision makers operate without oversight, they tend to deliver regulatory benefits to well organized interest groups at the public's expense. It is this sort of tact on the institutions which implement policy that this section will explore.

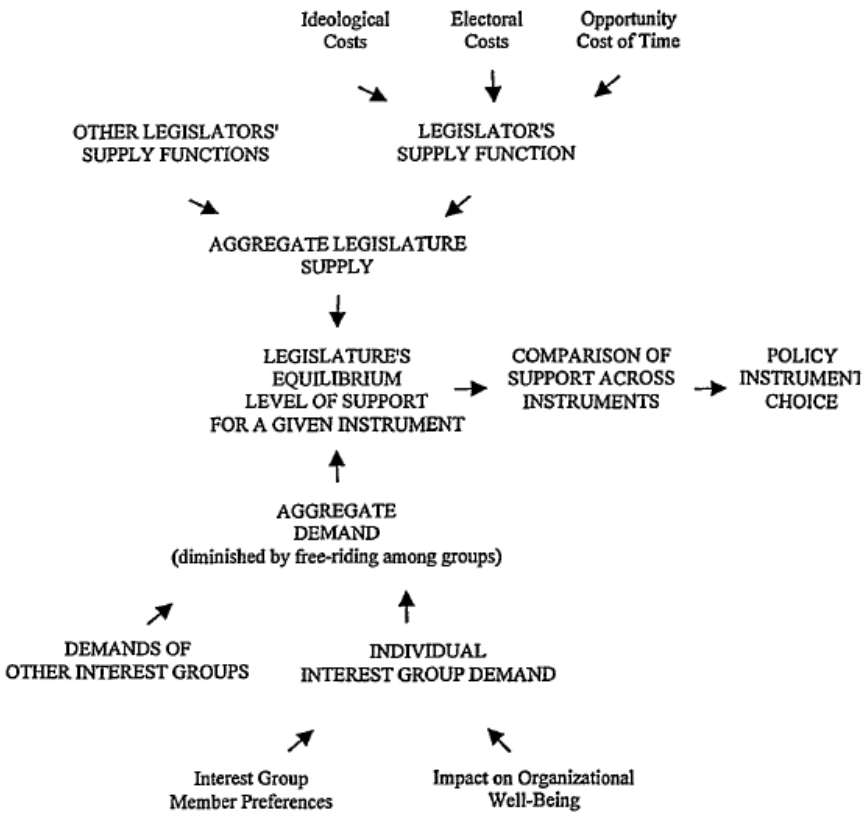
This sort of explanation would be incomplete without the other two frameworks. Ultimately, I believe that these three frameworks are each valuable and each have weaknesses and that they can individually be used to assess different aspects of the political calculus affecting the implementation of carbon taxes.

PUBLIC CHOICE EXPLANATION

KEOHANE'S PUBLIC CHOICE-BASED EQUILIBRIUM MODEL

Keohane, et.al. provide a model for assessing the Public Choice literature on environmental policy instrument choice. They divide the literature into two classes: demand-driven and supply-driven explanations of instrument choice.

Figure 3: An Equilibrium Framework for Examining the Political Market



Source: Keohane, et. al. 1998

The so-called 'demand-driven' explanations fall mostly within the domain of economics. They point to Stigler's "economic theory of regulation," which argues that many environmental regulations are not imposed on firms by the government, but are instead actually demanded by the firms themselves as a form of rent-seeking, a desire to restrict competitors from entering their market, a grab at government subsidies, etc.

The explanations that Keohane, et. al. identify as 'supply-driven' originate primarily from political scientists. These explanations centre on reasons why a politician would want to implement a policy, reasons largely dictated by the imperatives of electoral politics including the desire to create a platform which will increase a politician's support, manage media expectations that politicians be actively seized of emerging issues and have a pat solution for any problem.

The useful analytic construct that Keohane, et. al. provide is that the demand and supply for policy measures can be plotted on a supply-demand graph as a way of assessing whether the supply and demand align. If supply and demand for a particular policy instrument are in concord, then the instrument is likely to be implemented. If they are not, then the instrument is unlikely to be implemented. I will proceed to assess major factors contributing to the demand for (and supply of) a carbon tax. Afterwards, I will assess this on the basis of supply and demand and conclude that such supply and demand do not meet. At the end of the paper, I will translate this insight into policy recommendations that could make the political acceptance of a carbon tax more likely.

DEMAND-DRIVEN EXPLANATIONS

The public choice model assumes that firms' demands for environmental regulations will accord with whatever brings them the highest profits and lowest losses. This paper here considers three classes of situations under which environmental policies can increase the profits of a firm and then assesses to what extent carbon taxes would constitute such a policy.

LOWER ENTIRE INDUSTRY'S COMPLIANCE COSTS

Firms are to be expected to support measures which will lower their costs; one would expect to see firms support environmental measures which lower environmental compliance costs across their entire industry, such as measures which provide subsidies to the industry.

While a carbon tax is among the most efficient policy instruments when viewed from a societal point-of-view, when viewed from the perspective of an individual firm, it may impose higher costs than competing policy instruments that the firm could lobby for. Thus, just as a firm can be expected to support measures that will lower an entire industry's costs, it can be expected to oppose measures that will raise costs for the industry. Arnold (1995) argues that firms almost unanimously oppose carbon taxes for this reason.

RENTS AND MARKETPLACE BARRIERS TO ENTRY

Firms are to be expected to lobby for environmental regulations which can increase their profitability. Some environmental regulations can result in firms being able to charge economic rents. This would happen, for example, in

the case of a regulation which requires that firms lower their production when the resultant excess of demand over supply enables firms to increase their profit margins. (Buchanan & Tullock 1975) Additionally, some other policies have equivalent effects. For example, a cap-and-trade system with grandfathered permits can impede new companies from entering a market and this can enable established players to collude and raise prices, secure in the knowledge that the market will not be disrupted by new entrants because they can refuse to trade their grand-fathered permits and thereby exclude the new companies from operating (or at least raise the operating costs for such new firms). (Rasmusen and Zupan 1991)

While such profitable environmental regulations are a viable alternative to a carbon tax, firms can be expected to lobby against a carbon tax not only because of the costs that it would impose upon them, but also because of the profits that they can expect to reap with alternative forms of environmental regulation.

COSTS THAT DIFFERENTIALLY AFFECT INDUSTRY ACTORS

Finally, it can be rational for firms to support environmental measures when they will affect their competitors more than they will affect themselves because they will thereby obtain a competitive advantage. (Oster 1982) For example, Toyota New Zealand's executive chairman Bob Field has been publicly arguing for a carbon tax; incidentally, because of Toyota's more-fuel-efficient-than-industry-average automobiles, such a tax could give it a competitive advantage. (New Zealand Herald 2006)

In Canada, the Pembina Institute founded the *Triple E Tax Shift Research Collaborative* along with 'progressive' Alberta resource companies in May 2001. The Collaborative's goal was to "promote the concept of environmental tax shifting." Their major report, *Environmental Tax Shifting in Canada: Theory and Application*, (Taylor 2003) makes plain the way that the companies involved consider that they can make a carbon tax palatable by recycling the revenues raised back into their industry, thereby rewarding leading firms disproportionately. Overall, it appears that there is some scope for some firms to support carbon taxes because of the way that select firms can benefit from their imposition. That said, the number of firms that would push for such measures seems inherently limited.

SUPPLY-DRIVEN EXPLANATIONS

The paper now considers two major determinants of whether or not politicians will support a given policy instrument, according to Public choice theory: whether the benefits are concentrated on marginal voters, and the extent to which the policy created both winners and losers.

BENEFITS CONCENTRATED ON MARGINAL VOTERS

Trebilcock argues that the primary criterion that politicians use when choosing a policy instrument is how it will affect their prospects of being re-elected. A good instrument will concentrate the benefits of policies on marginal voters and will not disperse those benefits over infra-marginal voters (that is, the instrument will not 'waste' resources on those voters who are guaranteed to [not] vote for the politician). (Hoberg and Harrison, p.2)

As to a carbon tax, such a policy instrument would have significantly different effects on different socioeconomic groups. Researchers Hamilton & Cameron produced an economic model which estimates the income distribution effects of a carbon tax. The following chart presents the income distribution effects of a carbon tax in Canada, assuming that other countries do not impose a carbon tax and that their imported goods do not have the price of carbon emissions priced in. Hamilton & Cameron modeled several scenarios and I selected this scenario because I consider such unilateral action to be the most likely (when compared with scenarios such as an international carbon tax which applies to all countries).

Figure 4: Effect of Carbon Tax on Canadian Households, by income quintile

	Q.1	Q. 2	Q. 3	Q. 4	Q. 5	All
Percentage Change in Consumable Income						
Married no children	-6.1	-2.7	-2.3	-2.0	-1.7	-2.3
Married young children	-4.5	-3.1	-2.5	-2.2	-1.9	-2.2
Married old children	-11.4	-3.2	-2.5	-2.2	-1.9	-2.1
Married elderly	-5.3	-3.0	-2.5	-2.1	-1.9	-2.6
SPF young children	-2.8	-2.6	-2.2	-2.5	-1.7	-2.5
SPF old children	-4.2	-2.8	-2.6	-2.2	-1.9	-2.5
Unattached non-elderly	-2.7	-2.0	-1.8	-1.6	-1.6	-2.2
Unattached elderly	-2.7	-2.5	-2.0	-1.5	-1.8	-2.5
All	-2.9	-2.5	-2.3	-2.1	-1.8	-2.3

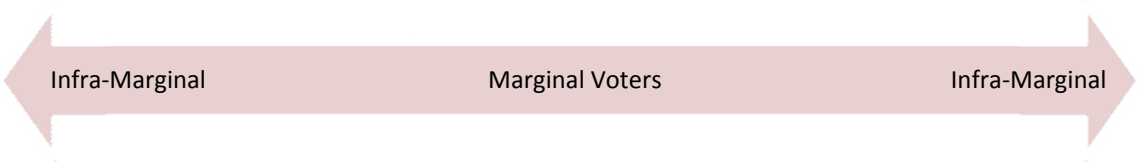
N.B. Q.1 is lowest earning, Q.5 is highest earning

N.B. Shaded cells indicate low statistical reliability

The authors write that "low income married couples are the hardest hit (in terms of percentage declines in consumable income)…while unattached individuals with consumable income in the range of $26,431 to $38,324 are affected the least." Different Canadian political parties will interpret these results differently, depending on how the affected groups accord with voter groups that they are courting. For the *Conservative Party of Canada*, for instance, the income distribution effects of a carbon tax would not be ideal.

The income effects of a carbon tax are not ideal for the Conservative Party because several of the hard-hit groups are ones that the Conservative Party is specifically targeting. Before the 2006 federal election, extensive Conservative Party polling determined "who voted Conservative, who might be persuaded to, and who would not be worth the wasted breath." For example, a couple with one or two children probably votes Liberal, but a couple with three children is about 50 percent likelier to vote Conservative, and the odds increase with every child after three. The party summarized such research and turned it into a series of archetypes, "imaginary people who would be either open or immune to Harper's appeals." (Wells 2006) These are some of the actual archetypes that were on the lips of Conservative staffers:[2]

Zoë	Dougie	Mike & Theresa	George & Mary
•A single woman in her late 20s who lives in a condo in downtown Toronto and eats most of her meals in bistros on College Street.	•A tradesman in his early 30s who lives in Yarmouth. He doesn't usually vote, but might with the promise of a tax credit on his work tools.	•A couple with a mortgage and two kids who have moved out of Toronto to suburban Oakville. Mike is a salesman who travels a lot.	•An elderly churchgoing couple in Lethbridge, Albert a. They had five children who have now all moved out of the house.



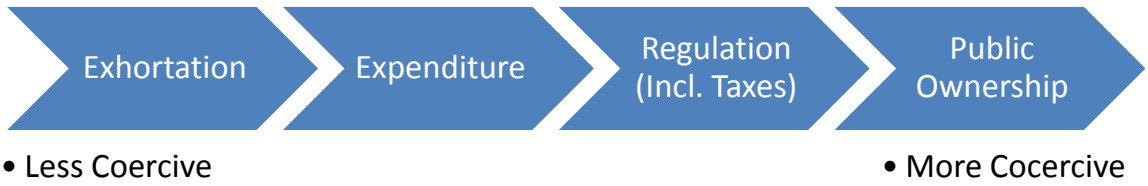
[2] Source: Conservative Party descriptions as described by Wells (2006). 'George & Mary' added for example.

In this table, both 'Zoë' and 'George & Mary' are infra-marginal voters – Zoë because she is out-of-reach of the party and 'George & Mary' because they are virtually guaranteed to vote Conservative. The marginal voters are 'Dougie' and 'Mike & Theresa' because they may or may not vote (Conservative). Unfortunately, a carbon tax would have a disproportionately negative effect on 'Mike & Theresa' – just the voters that the Conservative party is looking to court. Instead, the least affected would be people like Zoë – hardly of electoral benefit to the Conservative Party.

As an aside, the negative income effects of the carbon tax could be mitigated if it were made revenue neutral for particular segments of the population (this will be discussed more in the recommendations section below). That said, despite the fact that the carbon tax can be modified to be less hostile to the groups that the Conservative party is attempting to court, it remains that the party is unlikely to choose this policy because it does not concentrate its benefits on the Conservative Party's marginal voters. The Conservative Party was merely used as an example to demonstrate the principle of a party targeting marginal voters with policies; there is a discussion of which parties may be more likely to implement a carbon tax in the 'institutional explanation' section of this paper.

LESS COERCIVE POLICIES PREVENT LOSERS

Bruce Doern and colleagues developed an approach to instrument choice which assesses the level of 'coercion' associated with a policy instrument. They categorize types of instruments available to Canadian policy makers and place those instruments on a continuum from those involving low levels of coercion to those involving high levels of coercion:



He argues that politicians have a tendency to respond to policy issues by moving successively from the least coercive policy instruments to the most coercive. Harrison & Hoberg argue that this "[simple] insight has proven to be a powerful predictor of government behaviour."

A carbon tax would fit into this framework as a more coercive instrument as it falls into the regulation category. Thus, the model predicts that politicians will be reticent to implement a carbon tax. A potential reason why politicians are reticent to employ more coercive measures is that such measures create both winners and losers and politicians are keen to avoid creating 'losers' from their actions.

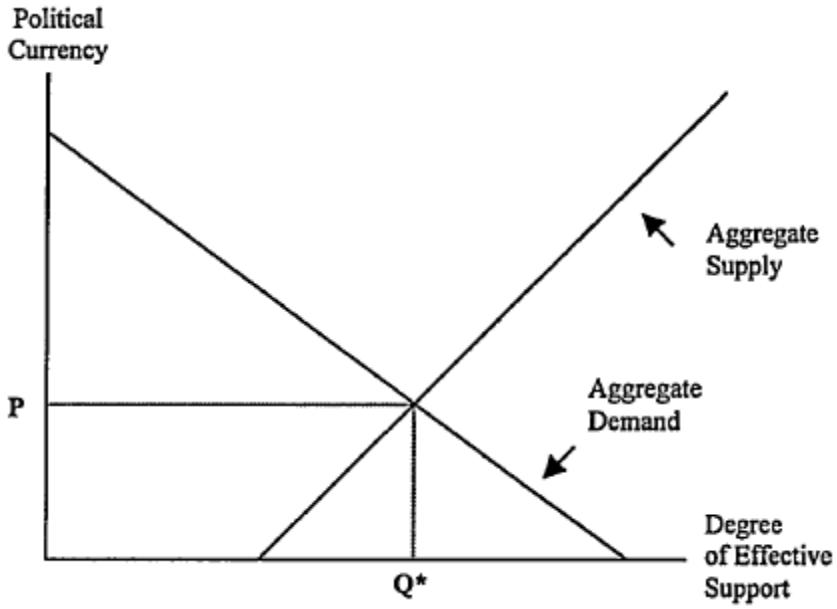
McCubbins and Sullivan add to this analysis by emphasizing that it is the perceived costs of a policy that are important, not the actual costs. Even though market instruments usually have lower overall costs, they are often perceived to have higher costs because their costs are more transparent (say, having to pay a tax) while the costs of regulatory measures are often hidden and dispersed (say, unemployment or marginally higher product prices). Thus, ceteris paribus, politicians will prefer command-and-control policy instruments because they tend to hide costs. (McCubbins and Sullivan 1984)

Denmark, for example, implemented a significant carbon tax and recycled its revenues by, inter alia, reducing personal income taxes and employers' social security contributions (see Table 9 on page 38). Public opinion research indicates that the vast majority of Danes are not aware of the fiscal neutrality of the carbon taxes. For example, in one study which conducted focus groups with fifty people, only one person was aware of the fact that as carbon taxes were introduced in Denmark, other taxes were reduced. (Dresner, et. al. 2006) There are similar results from a study of the French public's attitudes towards ecological fiscal reforms: "although ETR [had been] implemented for two years in France, only representatives of energy-intensive industries were really aware of it." (Deroubaix 2006) Thus, a problem with a coercive measure such as a carbon tax is that the people who benefit from it forget about it and only the ones who are harmed by it remember it.

HOW SUPPLY AND DEMAND DO NOT BALANCE

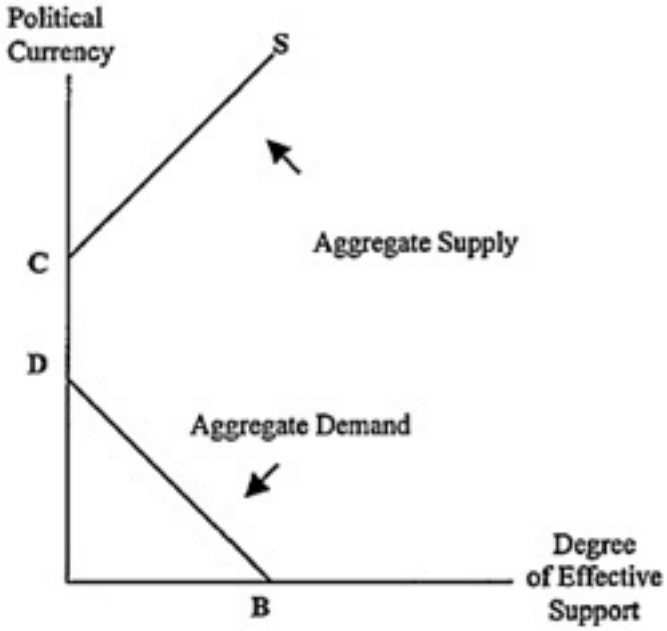
Keohane's supply-demand model for political action predicts that when supply and demand for a policy meet, the policy will be implemented to the level at which the supply and demand for that policy form an equilibrium, as demonstrated in the following chart:

Figure 5: A Political Market where Aggregate Demand and Supply Balance to Form a Legislative Equilibrium



The x-axis represents the cumulative amount of support for a policy instrument while the y-axis represents the amount of political currency (time, money, etc.) that an actor is willing to expend on that instrument. The demand curve represents the amount of demand for a policy instruments from businesses, the electorate, the media, interest groups, etc. The supply curve represents the willingness of a legislator to support a given policy initiative. The demand curve is downward sloping because Keohane hypothesises that the more support a measure already has, the less resources an actor is willing to devote to lobbying for that issue (e.g. lobbyists will put more effort into advocating on an issue if they are the only lobbyist for that issue than if there are dozens of fellow lobbyists pressuring government on the same issue). Similarly, the supply curve is upward sloping, reflecting the preference of legislators to pass legislation that is popular; the more popular a policy instrument, the more they will want to be associated with that instrument and will invest political currency in ensuring that policy instrument is implemented.

Figure 6: Degenerate Canadian Political Market for Carbon Tax Support



I argue that this is a graph of supply and demand for a carbon tax in Canada. The reason that one has not been implemented is that supply and demand do not intersect at a point where interest groups are pushing government to adopt a carbon tax and legislators are willing to address a carbon tax. The demand curve for a carbon tax is lower than the example demand curve for figure five because the demand for the policy expressed by some of the general public and interest groups like ENGOs is offset by the negative demand (e.g. opposition) to the policy from business groups and some of the general public. For the supply function, the amount of politically currency required to implement this instrument (because it is coercive and generates losers, does not have benefits that are especially well targeted at marginal voters, etc.) is too high.

PLURALIST EXPLANATIONS (INTEREST GROUP POLITICS)

A pluralist explanation of political support for carbon taxes will examine the relative power of interest groups who are predisposed towards and against those carbon taxes. Such interest groups include the 'general public', which is just assumed to be a diffuse and poorly coordinated interest group under this model.

PUBLIC OPINION ON CARBON TAXES

Since Joe Clark's 18-cent-per-gallon gas tax precipitated his government's fall in 1979, such taxes have been considered political poison. The general conclusion has been that carbon taxes are hampered because the public will just never support raising taxes. Indeed, in America, Democratic congressperson John Dingell (whose riding includes Detroit) famously decided to introduce a carbon tax bill into Congress simply in order to demonstrate that such a proposal is doomed to failure because the public will just never support new taxation. (New York Times, July 2007)

Canadian opinion surveys, however, indicate that the public's reaction to carbon taxes is not reflexively negative. For instance, this Vancouver Sun poll indicates that a majority of Canadians respond favourably when asked whether Canada should implement a carbon tax – even in politically sensitive Alberta:

Jurisdiction	Canada	BC	Alberta	Atlantic Provinces
Percentage of Population Supporting a Carbon Tax	52%	55%	54%	59%

This poll of 1002 Canadians is considered accurate to within 3.1 percentage points, 19 times out of 20.
Source: Vancouver Sun 2006

In a 2000 Environics poll, two-thirds of Canadians strongly (25%) or somewhat (42%) supported increased taxes on pollution to protect the environment, even if it meant higher prices for consumers. Sixteen per cent were somewhat opposed, and another 16% strongly opposed to this idea. (Environics 2000)

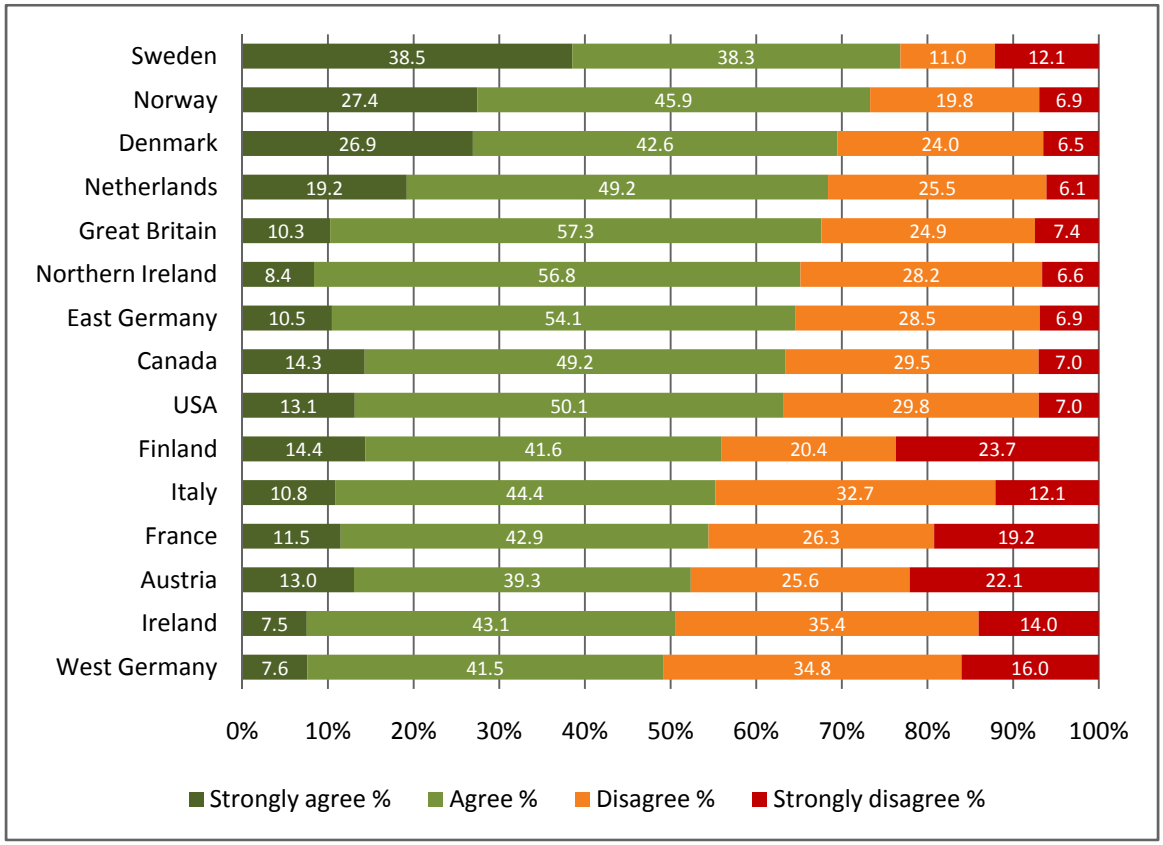
In a landmark survey of five European countries, the PETRAS study group conducted focus groups in which participants were asked open-ended questions about their thoughts on a carbon tax. (Dresner, et. al.) This study supports the aforecited public opinion research by suggesting that it is not the case that people are reflexively opposed to paying taxes. Instead, the primary factors which reduce their support for taxation are that they:

- Do not **trust** that their governments to spend the money effectively
- Do not **understand** the concept of a tax shift, and
- Believe that it is important to have **positive** – not just negative – reinforcement for behaviour

Due to the similarity of the survey results over the five European countries surveyed, (France, Ireland, Britain, Germany, Denmark) I believe that it is likely that their conclusions would also apply to the Canadian case. That said, public opinion seems to be of limited value in predicting which policy instruments politicians will implement.

The following table summarizes public support and opposition to the notion of increasing taxes for the sake of 'preventing environmental pollution'. Each bar represents the swathe of public opinion in one country. For example, in Canada 14.3% of the population strongly agree with the statement that taxes should be increased to prevent environmental pollution, while 7.0% strongly disagree with this statement.

Table 4: Support for Increased Taxes to 'Prevent Environmental Pollution'



Source: European Values Study 1990

It is notable that while some countries with more public support for taxation for environmental initiatives than Canada have implemented a carbon tax, (e.g. Sweden) so too have countries with less support (e.g. Finland). This would suggest that public support for a tax is not a sufficient condition for the implementation of such a tax.

BUSINESS GROUPS

Business groups have traditionally been hyperactive in their opposition to a carbon tax. For example, when Lucien Bouchard was the Canadian Minister of the Environment and word leaked that Environment Canada was consider-

ing a carbon tax, the *Business Council on National Issues* immediately dispatched an envoy to Prime Minister Mulroney and the proposal was squashed (actually, sent to a committee for 'review'). (Harrison & Hoberg, 1994) Similarly, the *European Round Table of Industrialists* has vocal in declaring that it "remains strongly opposed to any new or increased…carbon/energy tax. Europe already operates with energy costs some 40% higher than other regions. Any increase in these costs will damage European industry." (European Round Table of Industrialists, p.8)

In contrast to the public choice model which assumes that firms will seek whichever regulations will provide them with the highest profits, the empirical research carried out in the pluralist tradition has demonstrated that the positions that firms take are more consistent with either the personal policy views of the businesspersons within the firm or with a reflexive opposition to government action than with whatever might theoretically be said to be the optimal policy instrument for that firm. This has implications for the tactics that can be used to convince business groups to support a carbon tax.

Business groups repeatedly emphasize that, above all, they desire regulatory predictability. (e.g. comments of Christine Hogan at *2007 Banff Summer Arts Festival* Session on Climate Change) Thus, business groups will be keen to hold the government to its existing commitments, such as the promise that the Canadian government limit companies' liabilities for GHG emissions to $15 per tonne of CO_2. This cap would be problematic for the widespread adoption of carbon taxes because it limits potential annual revenues from a GHG tax to about $8.6 billion in 2004-2005 budget dollars. (Van Iterson 2004, p.35)

THE PRO-TAX LOBBY: LACKING OR GROWING?

Some observers suggest that the lack of a strong pro-tax lobby has been a decisive factor in allowing the anti-carbon-tax lobby to shape the agenda on carbon taxes in Canada. Ikwue and Skea (1994) write that environmental groups have backed away from supporting carbon taxes because of the general unpopularity of tax measures and the potentially regressive nature of such a tax. Crubb (1992) notes that even in many situations where it appears that a business or industrial group could benefit from a carbon tax (for the reasons outlined in the supply-side section of the Public Choice model, supra) they have generally been reluctant to publicly support them, either because they are seeking an alternative measure such as a subsidy, or else because they outsource their lobbying to a

larger industry lobbying body which, in aggregate, would be adversely affected by such a tax. He provides the example of insulation manufacturers and examines why they have been reluctant to support a carbon tax when they would patently stand to gain from one, in his estimation.

That said, some observers suggest that a pro-carbon-tax lobby is growing. In Canada, The *Green Budget Coalition* is an organization formed from a multitude of Canadian ENGOs, such as *Greenpeace*, the *Pembina Institute*, the *David Suzuki Foundation*, and the *Canadian Nature Federation*. It has the aim of promoting the integration of ecological tax reform (amongst other issues) into the federal budget and they have repeatedly issued press releases and produced studies calling for a carbon tax. (e.g. Green Budget Coalition 2006) Another factor contributing to a pro-carbon-tax lobby in Canada is the ascendancy of *The Green Party of Canada*. During the June 2004 election, they received 4.3% of the popular vote, after rising as high as 7% in national polls, (Ipsos Canada 2004) all the while prominently advocating ecological tax reform and a rise in gasoline and diesel taxes. (Green Party of Canada 2004, p.42)

While there has not traditionally been a strong lobby for carbon taxes, that lobby is likely growing. NGOs and the academic community have also increased their work on carbon taxes, as with the *National Roundtable on the Environment and the Economy* doing significant work on ecological tax reform. (NRTEE 2002) It is important to keep in mind that there are limits to the potential growth of the coalition supporting carbon taxes. For example, John Warnock of the left-wing *Canadian Centre for Policy Alternatives* arguably represents a significant swathe of the Canadian population when he dismisses a carbon tax as insufficient by writing that "[a mere carbon tax] bears no relationship to the scope of the problem [of global warming]. These are very modest reform proposals. … The Green Budget Coalition, representing 20 of Canada's environmental organizations, advocates very moderate actions by the federal government which don't begin to address the issue." (Warnock 2007) In sum, there is a growing, if limited, lobby for carbon taxes in Canada and this is arguably important because of the way it shapes the Canadian debate on the issue.

INSTITUTIONAL FACTORS

INTER-PROVINCIAL DYNAMICS

Any mention of a carbon tax in Alberta elicits comparisons to the reviled National Energy Programme and raises the possibility of Alberta obstructing the implementation of a carbon tax. Legal experts generally agree that the federal government has the constitutional authority to unilaterally implement a carbon tax as taxes on emissions of pollutants are likely to be upheld by the courts as falling within sections 53 and 90 of the Constitution Act, 1867, which outline the ability of the federal government to impose taxes. (Rolfe 2000) That said, if there was determined provincial opposition to a carbon tax, the provinces would find ways of impeding the collection of such a tax, constitutional jurisdiction notwithstanding. Looking at how much electricity each province generates from fossil fuels will likely provide a rough indicator of how much difficulty each would have with a carbon tax. For example, the hydro-electricity-exporting provinces like Quebec and Manitoba would be unlikely to oppose measures, while Alberta would be expected to be more obstructionist.

Table 5: Electricity Generated From Fossil Fuels by Province

Province	Gigawatt Hours Generated	Percentage of Generation
Prince Edward Island	7	100
Alberta	60530	94
Nova Scotia	11266	89
Saskatchewan	15355	78
New Brunswick	12809	61
Ontario	45276	32
British Columbia	7258	5
Newfoundland and Labrador	1638	3
Manitoba	556	3
Quebec	2040	2

Source: Statistics Canada 2007, Government of Canada 2001 p.17

BUREAUCRATIC INTERESTS

The federal government bureaucracy is traditionally considered an impediment to the implementation of carbon taxes. James Q. Wilson is behind an influential model which emphasises the desire of bureaucrats to maximize their autonomy. (Wilson 1975) This model predicts that the bureaucracy will be somewhat hostile to a carbon tax.

For Wilson, a carbon tax would involve powerful ministries, such as Finance, subordinating themselves to the wishes of comparatively junior ministries, like Environment, something that a bureaucracy focused on autonomy is unlikely to desire.

William Niskanen is behind a competing model which conceives of budget-maximizing bureaucrats who aim to inflate their budgets. (Niskanen 1971) This model predicts that the bureaucracy will be merely indifferent to a carbon tax. For Niskanen, a carbon tax is unlikely to be the focus of a bureaucracy's efforts because it relates more to raising revenue and less to the (putatively preferable) activity of allocating money and spending it.

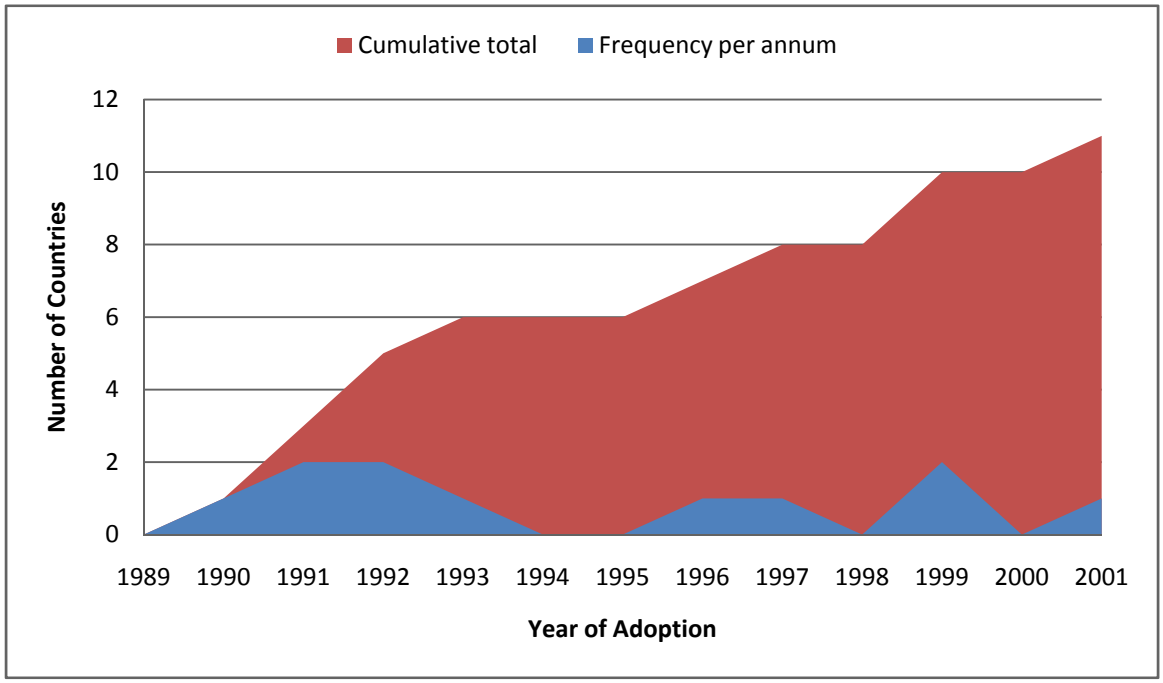
Weimer notes that bureaucrats are likely to pursue work that peers in their profession would evaluate highly, in case they leave their job in the bureaucracy and seek employment elsewhere. Thus, lawyers are likely to want to spend time in the courtroom, economists will want to conduct innovative research that could be published in an economics journal, etc. Arguably, this has the effect of mitigating against the likelihood of the *Ministry of the Environment* pushing for carbon taxes since there are fewer economists in the ministry and the employees who are there are "thought to be predisposed by their predominantly legal training to favour command-and-control approaches to regulation" (Kneese and Schultze 1975) or approaches favoured by major ENGOs.

I contend that all of these arguments about the limitations of bureaucracies are of limited value because they are somewhat at odds with the factual record; it does not appear that bureaucracy has been a significant impediment to the introduction of a carbon tax in Canada. The Finance Ministry, for example, has participated in NRTEE working groups on ecological fiscal reform, and their *Sustainable Development Strategies* emphasize the importance of integrating economy and environment. Van Iterson (2004, p.36) interviewed unnamed officials from the Ministry of Finance and they emphasized that they do see the value of reducing the distortionary impact of income taxes, and in internalizing costs that are currently not included in transactions. Their one significant note of caution was that they are resistant to 'earmarking' the revenues from a carbon tax for any specific purpose because this can compel government to engage in inefficient patterns of expenditure (there is more discussion about this in the recommendations section where I note that such earmarking is politically desirable).

LACK OF INTERNATIONAL PRESSURE

Tews, et. al. argue that examining the adoption of carbon taxes as a solely domestic phenomenon is inadequate as there is a strong international dimension to policy diffusion. They point to the relative lack of regimes implementing and championing carbon taxes as a factor explaining their limited uptake, when compared to other instruments in the context of their model of how policy instruments spread internationally. (Tews et. al. 2003)

Figure 7: Spread of Energy/Carbon Taxes in OECD countries and Central & Eastern Europe



Note: Cumulative total shows the total number of countries that have implemented energy/carbon taxes while frequency shows number that have implemented energy/carbon taxes in any given year
Source: Tews, et. al.

Finland, in 1990, was the first country to introduce a carbon tax. However, Finland "has hardly perceived itself as a 'good example' that other countries could learn from" and this likely had the effect of limiting the number of copycats. (Andersen & Liefferink 1997: 25) In the Canadian context, the lack of US action on a carbon tax (Bill Clinton's aborted BTU Tax notwithstanding) has perhaps retarded domestic efforts to implement such a tax because of the lack of scope for pan-North American policy co-ordination to address perceived competitiveness issues. This appears to be an example of a race to the bottom, exemplified by the Australian government rejecting the proposed

Australian Greenhouse Levy in 1994 following complaints from energy-intensive industries that they would be disadvantaged in the global marketplace. (Hoerner and Muller 1996).

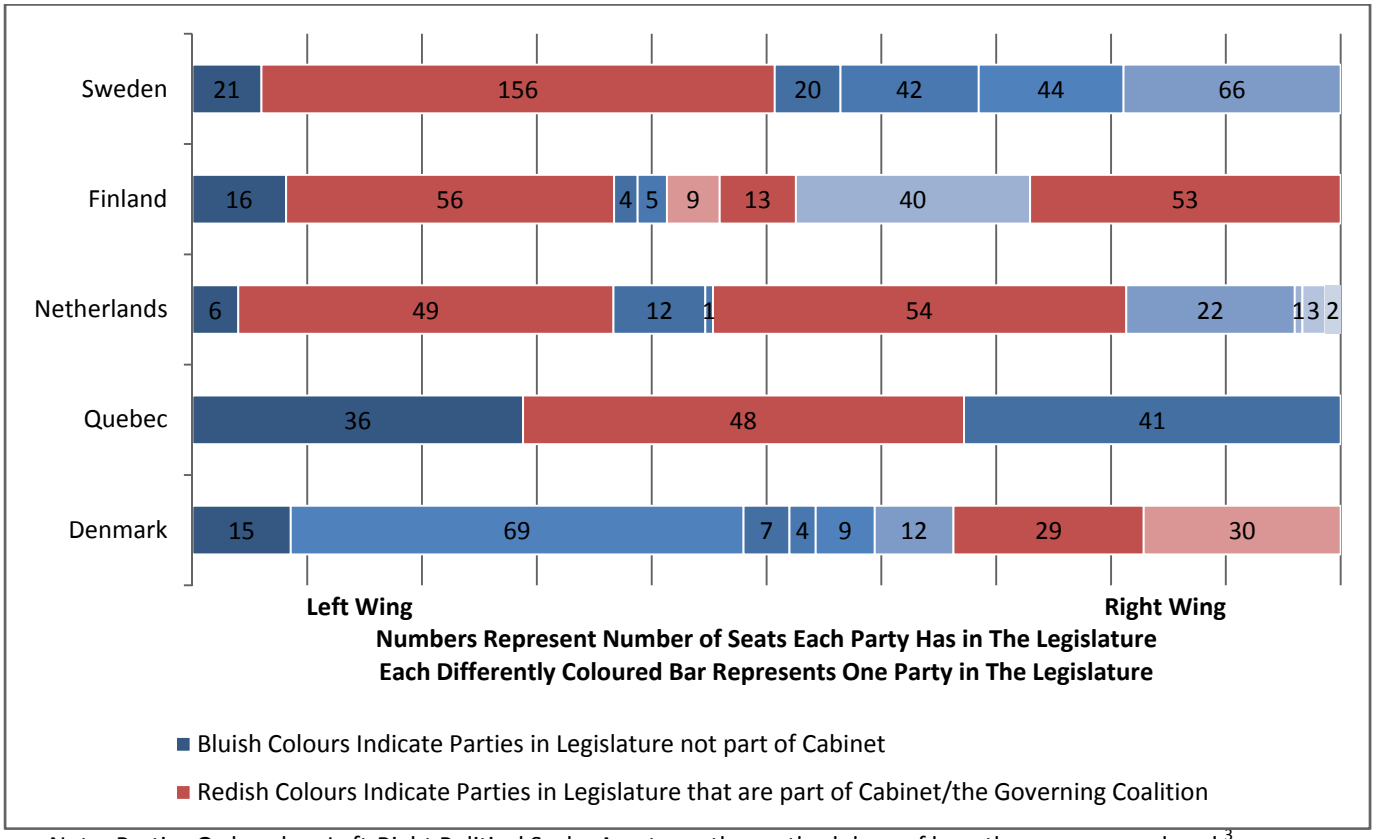
CARBON TAXES: ARE LEFT OR RIGHT WING PARTIES PROPITIOUS?

One institutional question is whether left-wing parties are more likely to implement a carbon tax than are right-wing parties. Some observers suggest that right-wing legislators are likely to support free market responses to environmental problems, such as a carbon tax. Kelman surveyed US congressional staff members and found many Republicans supporting pollution charges. When asked for a rationale for their support, they would often proffer such bromides as "the free market works," or "less government intervention [is desirable]" without actually understanding the economic arguments for the position that they are espousing. (Kelman 1981)

However, I examined the makeup of five randomly selected legislatures at the time at which they passed a carbon tax and I found that in each case it was left-wing parties which were instrumental in passing the carbon tax. The following figure lists the parties in each nation's legislature at the time when they first passed a bill to implement a carbon tax. This is the way that the diagram works:

- Each bar represents all of the seats in the legislature
- Each colour represents one party in that legislature
- The number represent the number of seats that each party in the legislature possesses
- The names of each party have been dropped for simplicity
- Parties are placed on a left-right political spectrum; parties on the right of the chart are relatively more right-wing than parties place to their left on the chart, for example.

Figure 8: Party Composition of Legislatures at time of Carbon Tax Passing



Note: Parties Ordered on Left-Right Political Scale. A note on the methodology of how they were so ordered.[3]
Sources: Statistics Finland, European Values Study 1990

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[3] My methodology was to select the lower chamber for jurisdictions which were not unicameral, as it is usually the dominant chamber. The places were chosen by randomly selecting five jurisdictions which have implemented a carbon tax. I then obtained a list of the parties that were in their legislature at the time they passed a carbon tax, how many seats each party had, and which parties were part of the government/cabinet.

I then sorted each party on a left-right political scale. I determined where each party would fit on the left-right political spectrum by looking at two questions from the 1990 *European Values Study*. The two variables were: how people rank themselves on a left-right political scale *("On a Left-Right Political Scale Where 1 is Left and 10 is Right, Where Do You Place Yourself?")* and what party they support *("Which Political Party Would You Vote For-1st Choice")* and then inferred where the party would fit on the left-right political scale from a weighted mean of where its supporters fit themselves on that same scale. Data available upon request.

The data is taken from the results of the election prior to passing the bill which implemented the carbon tax. I do not consider the way that the seat counts could have changed during the term, such as with resignations, floor crossings, deaths, etc. and only use the number of seats each party had immediately following the general election. Finally, independents are left off the chart because they cannot be categorized by the methodology I am employing since they are not listed in the EVS survey.

These data indicate that when Sweden implemented its carbon tax, its cabinet was composed solely of one large left-wing party. Finland's cabinet was composed of a rainbow coalition in which the largest party was staunchly left-wing. The Netherlands' cabinet was made up of two parties forming a grand coalition, though all of the small right-wing parties were excluded from that coalition. Quebec's carbon tax was implemented by a centrist government. At first it might appear that Denmark was an exception and a right-wing government implemented a carbon tax there, but in fact there were exceptional circumstances in the Danish parliament, the cabinet was a minority government and a broad coalition of left-wing parties were able to group together to press for the implementation of a carbon tax, in spite of the right-wing government's concerns about business competitiveness. (Klok, et. al. 2006)

POLITICALLY FEASABLE SOLUTIONS TO OPPOSITION TO CARBON TAXES

This section applies the political frameworks and observations that have hereby been presented in order to formulate suggestions and recommendations for the implementation of carbon taxes in Canada at the federal level.

PER-SECTOR IMPLEMENTATION OF CARBON TAX

Ideally, a carbon tax would be implemented across the entire economy, without exceptions. This is economically ideal because it is the best way to ensure that a country transitions to a low-carbon economy as highly emitting industries are compelled to either radically reform or shut down. However, this ideal does not consider the economy's transition costs, it does not consider the political reality that people are unlikely to democratically choose to compel themselves to switch jobs, and it does not consider that administrative costs may make some forms of carbon taxes impracticable. For these reasons, carbon taxes have commonly been implemented on a per-sector basis.

For some carbon emissions it is practical to measure them (or infer their magnitude) and place taxes on them. However, there are some cases where this is not practical. The following table from an OECD study divides greenhouse gases into those which can feasibly be taxed and those which cannot: (OECD 2001, p.120)

Table 6: Greenhouse Gas Sources (Not) Suitable for Taxation

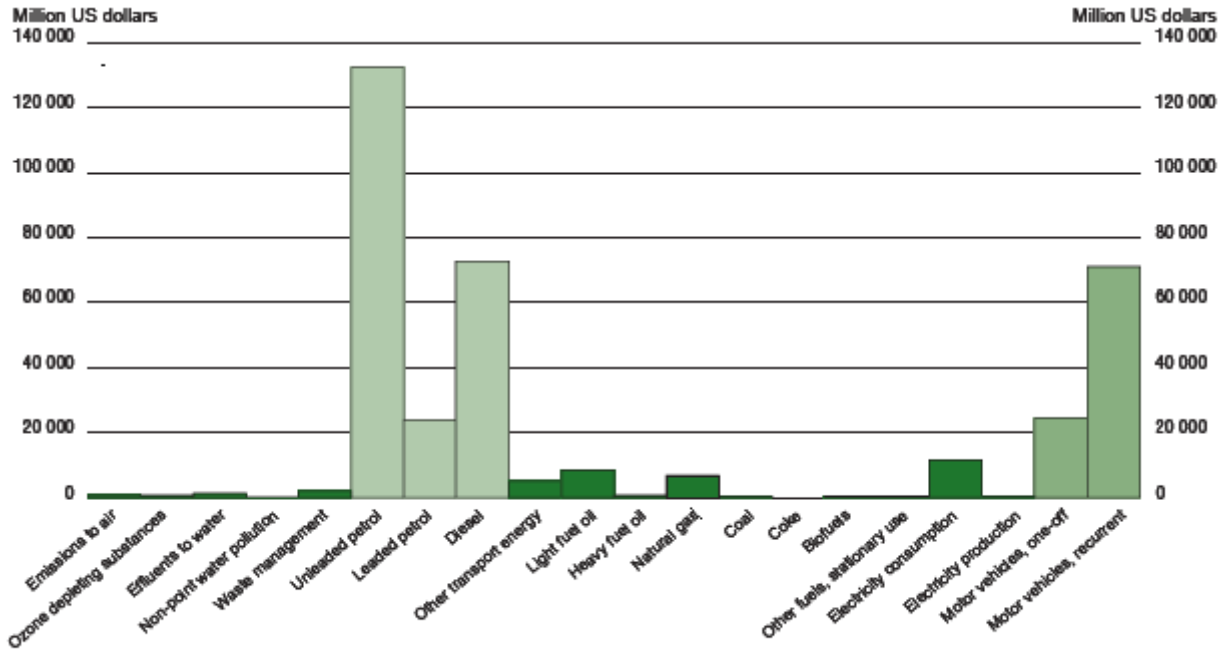
Activity	Quantity of Taxable Entities	Importance	Ease of Measurement
CO_2 from electricity production	Few	High	Good
CH_4 from oil and natural gas production	Few	High	Medium
CH_4 from modern landfills	Many	High	Good
CH_4 from underground coal mines	Medium	High	Good
N_20 from fertilizers	Many	High	Poor
SF_6 used in magnesium processes	Few	Low	Good
PFCs from aluminum production	Few	Medium	Good
CH_4 and N2O from stationary fuel combustion	Many	Medium	Poor
CH_4 from old landfills	Many	High	Poor
CH_4 from surface coal mining	Medium	High	Poor
CH_4 from natural gas distribution	Medium	High	Poor
CH_4 from enteric fermentation	Many	High	Poor
CH_4 from livestock production	Many	Medium	Poor
CH_4 from waste water	Many	Low	Poor
N_2O from spread of animal waste	Many	Low	Poor
CH_4 and N_2O from manure management	Many	Low	Poor
HFCs, PFCs, and SF_6 used in semi-conductor industry	Many	High	Uncertain

Legend: Suitable for Taxation Not Suitable for Taxation

This is the first reason for a sectoral approach to a carbon tax – the fact that it is simply not practical to apply one to several categories of greenhouse gas emissions and that other regulatory measures are more suited to addressing those problems (e.g. regulation requiring the use of Best Available Technologies).

Besides practical limits on the imposition of carbon taxes, there are a number of more dubious reasons that are given for exempting actors and sectors from a carbon tax. One of them is competition. Indeed, companies have been very successful in having exemptions placed on their carbon emissions on competitiveness grounds. The following chart demonstrates that the only sectors that have been significantly affected by environmentally-related taxes have been the oil/petroleum/fuel sector and the automotive/vehicle sector. With those exceptions, other environmental taxes have been negligible.

Figure 9: Revenues Raised on Environmentally Related Tax-Bases for 21 OECD Member Countries, circa 1995



Source: The OECD/EU database on environmentally related taxes.

Companies often argue that energy-intensive industries need to be exempted from a carbon tax if they are to survive. On average, energy makes up 2% of industrial production costs. However, this is not true of some industries, such as:

- Energy production companies;
- 'High-impact' industries such as iron and steel, cement, glass and clay products for which energy makes up 10-20% of costs;
- 'Moderate-impact' industries such as chemicals, paper and ceramics where energy accounts for 5-10% of costs (Ikwue 1994)

However, what is notable is the lower number of industries that really would be significantly affected by a carbon tax. The following chart is based on a model of the US economy, though that model is general enough that conclusions likely apply to Canada as well. The most significant difference is that this model does not consider the effect of a carbon tax on tar sands oil extraction operations.

Table 7: Projected Effect of Carbon Tax on Energy Intensive US Manufacturing Industries

Industry	Carbon Tax Revenue ($)	Value of Shipments ($)	Tax as a % of Value of Shipments
Primary Aluminum	1.1	10	**10.8**
Blast Furnaces and Steel Mills	5.6	70	**8.0**
Nitrogenous Fertilizers	0.3	5	**7.2**
Industrial Inorganic Chemicals	0.8	16	**4.7**
Paperboard Mills	0.9	23	**4.0**
Primary Metals	8.1	218	**3.7**
Paper Mills	1.6	47	**3.4**
Stone, Clay & Glass	2.4	92	**2.6**
Industrial Organic Chemicals	1.6	63	**2.6**
Paper Products	3.0	180	**1.7**
Chemical Products	5.7	380	**1.5**
Petroleum Refining	2.0	166	**1.2**
Plastics And Resins	0.6	50	**1.1**
Petroleum & Coal Processing	2.1	193	**1.1**
Residual Primary Metals	1.5	138	**1.0**
Residual Chemicals	2.4	247	**1.0**
Textiles	0.8	95	**0.9**
Rubber & Misc. Plastic	0.8	138	**0.6**
Residual Paper	0.5	110	**0.5**
Residual Petroleum And Coal	0.1	27	**0.5**
Subtotal, Energy Intensive Industry	23.0	1,296	**1.8**
Total, All Industry	30.4	3,939	**0.8**

Note: 'Revenue' and 'Value' Columns are listed in Billions of US Dollars

Source: Hoerner and Muller 1996

These data indicate that surprisingly few companies would suffer from a significant competitive disadvantage because of a carbon tax. Admittedly, the per tonne cost of the carbon tax in this study was modest, but the percentage effects on sectors should roughly scale to higher carbon prices based on their methodology.

The political reality is that every carbon tax that has been implemented has included exemptions for key industries, or for industry altogether in the case of carbon taxes focused solely on consumers. (See Table 2 on page 8) The downside of acquiescing to such special interests is that it makes the regulation less economically efficient and that the public generally has a disdain for such corporate exemptions. Deroubaix interviewed the French public about their thoughts on a carbon tax. After supplying people with background information on ecological tax reform, in-

terviewees “adopted a very moral point of view, saying that there should not be any [exemptions for businesses]. Most of them took this position in reference to the polluter-pays principle.” He goes on to write that the French government’s decision to exempt the agriculture and transportation sectors from their carbon tax heightened public suspicion about the tax and worsened its social acceptability because people saw the tax as a crass political instrument that would serve vested interests. A lack of public support for France’s ecological fiscal reform program was a critical factor which lead to the program’s failure, cancellation, and eventual replacement. (Deroubaix 2006)

Perhaps Canada should not impose a carbon tax in areas like energy production and aviation – because these are areas of the economy that will just find it very difficult to reduce their energy consumption. Perhaps in such areas it is simply better to have a cap and trade system that will allow these industries to fund emissions reductions in other countries or other areas of the economy. Alternatively, Britain’s Climate Change Levy applied to some of these sensitive sectors, but companies were able to secure exemptions provided they reached an agreement with the state; the climate change levy provided a good ‘stick’ to compel companies to reduce their emissions and adopt best available technologies and practices. (Dresner, Jackson, et. al. 2006)

Finally, there are times when exempting powerful sectors is necessary to have a tax implemented. For example, the French government at first attempted to implement a carbon tax with few exemptions, but widespread protests including a weeklong demonstration by truck drivers, taxi drivers and fishers eroded support for the measure and in the end, the government was compelled to acquiesce to these special interests and reduce fuel taxes for the groups that had protested as they were generally undermining support for the carbon tax. (Deroubaix 2006, p.6) The necessary balance is between implementing a sufficient number of exemptions to sate powerful interest groups, but not too many exemptions so as to rile the general public. This will be easier in Canada than it was in France because of our less corporatist political structure.

MAIL OUT REBATES

“Environmental regulation typically involves the imposition of concentrated costs on regulated industries in order to confer diffuse benefits on the public at large.” (Hoberg 1994, p. 5) As the public choice model presented in this paper made plain, this is exactly the sort of action that politicians shun because people are eternally more sensitive

to what they lose than what they gain. One of the political problems with the imposition of a carbon tax is that the actors that are negatively affected by it become very aware of it whilst the actors that are positively affected do not have a good knowledge of it. In interviews with Danish citizens a decade after a carbon tax had been implemented, far more were aware of the tax than the revenue recycling provisions which concomitantly reduced other taxes. In fact, only one of the fifty focus group participants in a Danish study on ecological tax reform was aware of the revenue recycling, where the participants were selected to represent a cross section of educational and income levels proportional to the overall Danish population. (Klok, et. al. 2006)

In reviewing the state of ecological taxes in Germany, Christiane Beuermann and Tilman Santarius both note that even though measures have been in place for several years, public knowledge of them is minimal to virtually non-existent. They suggest a means of periodically reminding people about the ecotax measures and how they reduce other taxes, for instance by separately listing ETR-related tax savings on salary statements and wage slips. It might be worthwhile considering this proposal in Canada. Another option that could prove popular (and would redress the regressivity of the tax) would be a cheque mail-out mechanism akin to the GST rebate programme. (Beuermann 2006)

PUBLIC EDUCATION: THE BENEFITS AND PITFALLS

There is good reason to be cautious about the ability of the government to educate Canadians about ecological tax reform measures. The international PETRAS study conducted small focus groups in five countries. When the concept of ecological tax reform was explained to the focus group members, they had difficulty grasping it, even though they had the opportunity to ask questions, an extensive amount of time, and experts on hand. In particular, people had difficulty grasping the notion of revenue recycling – offsetting ecotax revenues by lowering labour taxes in order to replace a more distortionary tax with a less distortionary one. To quote from Dresner:

> Among the focus group participants, the double dividend argument caused confusion and a negative attitude towards ETR. A large majority did not believe in it. A number of people could not bring both sides of the reform together in their heads even after careful explanation. Focus group participants were particularly suspicious about spending the revenue with the aim of reducing labour costs. A common attitude was that revenue raised from environmental taxes should be spent for environmental purposes. If revenues from a tax imposed supposedly for the sake of the environment went to other purposes, then that was seen as a trick.

If the public found it difficult to understand the concept under such propitious circumstances, it will likely prove difficult to educate the public about the concept of revenue recycling. The same study also found that throughout Europe there was a poor understanding amongst the general public of the link between energy use, greenhouse gas emissions, and global warming and that this lack of understanding reduced support for measures such as a carbon tax. (Clinch et. al. 2006) Perhaps it would be more effective to focus education campaigns on the environmental rationale for a carbon tax, rather than on its structure. Instead of attempting to convince people of the wisdom of tax shifting, it may be more politically expedient to plan to initially spend the revenues from a carbon tax on environmental measures and gradually shift towards tax reductions. This is because the concept of having the government raise revenues to spend on environmental measures is rather popular, especially when compared to the popularity of a revenue-neutral tax shift. Dresner speculates that this may be because people can grasp the concept of government spending more easily and that they see reducing energy consumption as a better goal than reducing greenhouse gasses, "an invisible, abstract, large-scale and long-term problem that is difficult to get the general public to care about." (Dresner, Jackson, et. al. 2006)

GRADUALLY IMPLEMENT TAX

Most observers recommend that a carbon tax be phased in, often as part of a general tax reform package. Many countries have begun the process of implementing a carbon tax with a governmental commission on the concept of environmental taxes to place the idea in the public consciousness and produce an independent report that politicians can rely on, as well as make relevant business groups and NGOs feel included in a consultation process.

Table 8: Green Tax Commissions (Source: OECD 2001)

Country	Date of Introduction	Did The Commission Consider:			
		Revenue Recycling	Reforming Subsidies	Damaging Effects of Fiscal Reform	Broader Tax Reform
Belgium	1993	Yes	No	No	n.a.
Denmark	1993	Yes	No	No	Yes
Finland	1991/1986	Yes	Yes	No	No
Ireland	1996/97	Yes	No	n.a.	n.a.
Italy	1996/97	Yes	No	n.a.	Yes
Japan	1994	Yes	Yes	No	n.a.
Netherlands	1999/1995	Yes	No	Yes	Yes
Norway	1994/1990	Yes	Yes	Yes	Yes
Sweden	1994	Yes	Yes	Yes	Yes

Often the taxes themselves are gradually introduced. One of the reasons for this is that it is difficult to predict what effect a given level of taxation will have on the economy and the general rule of thumb, as followed with other green tax measures such as London's Congestion Charge, has been to start with a low figure and gradually increase the tax until the desired policy outcomes are observed (e.g. a given level of carbon emissions).

This gradual 'ramping up' also creates a predictable policy environment for business actors and it can help to make the tax more revenue neutral. Because of the paucity of real-world examples of environmental tax reform, it is difficult to predict the precise revenues that will be derived from a carbon tax. Gradually ramping up such a tax will allow the government to fine-tune the reductions of other taxes to genuinely make the process revenue neutral. This sort of phased introduction will likely be necessary. What is politically feasible should be implemented first, so that 'the better is not the enemy of the good'.

USE AN INDEPENDENT BODY TO GUARANTEE REVENUE NEUTRALITY

Citizens generally do not trust that governments will in fact make a carbon tax fiscally neutral. Many Canadians recall promises that the GST would be revenue-neutral and believe that it was not in fact revenue neutral. A common reaction amongst the public is to scoff at the idea of a fiscally neutral tax and assume that the government will certainly raise taxes, but never lower them. However, this is at odds with the history of ecological tax shifts where countries **have** both raised *and lowered* taxes:

Table 9: Tax Shifts in Selected European Countries

Country	Shift	Year(s)	Tax Shift From	Tax Shift To
Austria	4.8%	1999	Employers' social security contributions	Energy and vehicle taxation
Denmark	2.5%	1992-1998	Personal income, employers' social security contributions, investment incentives	Various (electricity, water, waste, cars), CO_2 and SO_2
Sweden	1.9%	1991	Reduction of labour taxes of around 4.3% and social security contributions	CO_2 tax and SO_2 tax
Netherlands	0.8%	1996	Personal income, corporate profits, employers' social-security contributions	Energy and CO_2 Regulatory energy tax)
Germany	0.6%	1999	Social security contributions (pension insurance) paid by employers and employees	Energy (mineral oils, natural gas and electricity)
Finland	0.5%	1997	Personal income, employers' social security contributions	CO_2 and Landfill
UK	0.3%	2001	Employer's national insurance contributions	Energy/CO_2 emissions under the change levy
Spain	0.2%	1995	Personal income	Motor fuels
UK	0.2%	1996	Employers' social security contributions	Landfill
Italy	0.2%	1999	Reduction of employment charges	CO_2 on mineral fuels

Note: 'Shift' column is Revenue shifted expressed as a percentage of total tax revenue
Source: Dresner, Dunne, et. al. 2006

One proposal to increase the public's support for implementing carbon taxes is to utilize an independent body that would ensure that any carbon tax is genuinely revenue neutral. When focus groups in Ireland and Britain discussed this idea, they generally did not consider an arms-length government body to be sufficiently impartial, but instead preferred a board staffed with organizations that enjoy high public esteem on these issues, such as environmental groups. However, an equally effective way of garnering public support for a carbon tax was simply to promise that the revenue would be spent on environmentally-related programmes such as providing incentives for the use of energy efficient technologies and improving public transport. (Dresner, Jackson, et. al. 2006)

The use of an independent body to guarantee the fiscal neutrality of the new taxes might be a better approach than earmarking the taxes to be spent on particular environmental measures from an economic point of view, for reasons of efficiency, and from a political point of view, both because the Finance Ministry would strongly resist the earmarking of new taxes, as documented in the section on bureaucracy in this paper, and because left-wing groups may reject some forms of recycling revenues back to corporations as a violation of the polluter pays principle.

EXEMPTIONS FOR INTERNATIONAL COMPETITIVENESS

One of the key objections to a carbon tax is that Canadian businesses are too exposed to the United States for Canada to unilaterally implement a carbon tax without significant economic hardship. International competitiveness is a key issue for Canada because 37% of Canada's economic output is exported, the highest percentage of any G7 country. Of this, more than 40% consists of energy intensive resource-based commodities. (Government of Canada 2001, p.28) 78% of Canada's exports go to the U.S., (1999) a country with a patchwork of climate change regulations implemented at the State-level. The single largest issue is Canada's oil and natural gas production, most of which is exported. The annual carbon emissions of crude oil and natural gas produced solely for export are estimated at 46 Mt. (Government of Canada 2001, p.15)

The solution to this dilemma that has been used in European jurisdictions that have implemented carbon taxes is to impose carbon taxes solely on consumers, or on businesses that do not compete with imports. However, such outright exemptions for key industries are economically and environmentally unsound. Britain addresses that issue, for example, by requiring businesses which were given exemptions from the British Climate Change Levy to sign an agreement with the state committing them to lesser standards such as reduced emissions, the of use best available technologies, etc. (Dresner, Jackson, et. al. 2006)

A different proposal is to only levy the carbon tax on production destined for domestic consumption, so as to not affect Canada's international position. This could be done by applying the carbon tax when products are at retail here in Canada.

The opposite of that proposal would be to levy a carbon tax without exceptions, but then use Border Tax Adjustments to make Canadian products internationally competitive when traded with the outside world. The traditional objection to this has been that the use of such BTAs is illegal under NAFTA or WTO rules, but there is good reason to question this assumption. Hoerner and Muller (1996) powerfully argue that BTAs are be legal; "[the argument that BTAs are illegal] is based on a faulty interpretation of [WTO] rules. There are clear legal, historical, and policy bases for allowing such adjustments." The OECD report on Environmental Taxation (OECD 2001) also recommends the use of BTAs, going so far as to provide examples of other BTAs at work, such as the United States' for Ozone

Depleting Substances (ODS). They conclude by noting that "BTAs…should be consistent with World Trade Organisation rules." (OECD 2001, p.29)

Companies, of course, are more keen to see the revenues from a carbon tax recycled back into their industry. If some companies see the inevitability of carbon taxes, then they will push for a substantial share of the revenues to be returned to the companies that were originally taxed. For example, several 'progressive' oil patch companies including Shell Canada and Suncor formed the *Triple E Tax Shift Research Collaborative* along with the Pembina Institute. The Collaborative's major research report consisted primarily of outlining options for revenue recycling, be they in the form of providing investment incentives to businesses or providing purchasing incentives to consumers. The report disregarded options for income or payroll tax reductions, all in keeping with the predictions of Public Choice theory. The body of economic literature is clear that such measures to protect companies from international competition are often of dubious economic value (e.g. Oliveira-Martins, et. al) as they are merely another example of rent-seeking by firms, as explicated in the Public Choice section of this paper. In sum, the best solution to international competitiveness concerns is to continue to levy the carbon tax without exemptions and return some of its revenue through Border Tax Adjustments which nullify the international competitiveness effects of the measure, except for particular sectors where this could impose onerous time and measurement costs on cross-border trading. As the discussion of a sectoral approach to a carbon tax made clear, supra, BTAs and sectoral exemptions will only be needed by a handful of industries as most industries will see their costs negligibly affected.

FRAMING

One of the problems that was cited in the public opinion section, supra, was that people reacted negatively to the notion of a carbon tax because they considered it excessively punitive and wanted incentives for good behaviour, not just penalties for bad behaviour. I think that this is primarily about the framing of the discussion on these measures and not about the measures themselves. For example, when former Liberal leadership candidate Michael Ignatieff was discussing his carbon tax proposal, he was able to do so by embedding it in a scenario which avoided the negative connotations of a tax: "If you're going to the gas tank and you have one price for the dirty stuff and one price, considerably lower, for the cleaner stuff, my guess is that everyone is going to go with the

cleaner stuff, if they can. This is not about penalizing people -- it's about incentivizing people," said Ignatieff. (Ivison, National Post, 2006)

The PETRAS study focus groups and interviews with businesspersons in both Denmark and Germany revealed that the ecological tax reform measures that have been implemented in their countries are widely viewed as punishments because they apply to energy consumption that is not easy to reduce. A number of policy measures to provide public incentives by recycling the carbon tax revenues were suggested, including the idea that people could receive a rebate if they met an energy conservation target or the idea of a tax-free allowance that would give people an incentive and not make them feel 'punished' for unavoidable energy use.

Additionally, in terms of framing, there was surprisingly strong opposition to the term 'ecological tax reform' when the revenues of those taxes were used to reduce labour taxes. "Focus groups in Germany, the UK and Ireland found the name 'ecological tax reform' misleading, wrong and negative." (Dresner, Dunne, et. al. 2006) It would be advisable to avoid this term in Canadian discourse about a carbon tax.

REDISTRIBUTION FOR LOW-INCOME EARNERS

A carbon tax will be regressive because:

a. Carbon-intensive expenditures on heating, transportation, etc. make up a larger percentage of a low-income household's budget than a high-income household's budget
b. Low-income households are less able to afford investments to reduce their carbon footprint, such as investments in a more energy efficient furnace, a hybrid automobile, etc.

This disproportionate affect on low-income households is a political problem because such regressive taxes are generally considered to be unfair, as seen by rhetoric criticising the British Poll Tax or the McGuinty government's Ontario Health Premium. If the tax is applied to consumers, then the best method of dealing with regressivity is likely to exempt low-income earners altogether, the same way that there is a threshold below which Canadians are not obligated to pay income tax. If the carbon tax were integrated into the prices in the economy, then a measure akin to the GST rebate cheque would be politically popular, even if its administration costs would be higher than with a simple tax credit.

It will be essential to make the redistribution mechanism transparent and effective. One of the strong aspects of a carbon tax is its potential to gain support from people across the political spectrum – from left-wing environmentalists to right-wing economists. However, the most trenchant left-wing critiques of carbon taxes have emphasized their regressivity. John Warnock, of the left-wing Canadian think tank the *Canadian Centre for Policy Alternatives*, writes that "Germany used some of the funds to increase children's allowances, increased the tax-free threshold for income taxes, and reduced the rate of tax on those in the lower income brackets. But this did not offset the impact on the poor." He lauds the Netherlands' approach of establishing an untaxed basic level of energy use, but cautions that this approach is "opposed by the free market think tanks and organizations supporting ETR." (Warnock 2007)

CONCLUSION

For all the bluster about a carbon tax being unsellable in Canada, for all of Alberta's stonewalling (and firewalling), for all of the handwringing about how to address the tar sands, I think that the conclusion that a carbon tax is eminently implementable in Canada is inescapable because of the sheer number of options to target the tax, to offer exemptions, and to otherwise make it politically saleable. This paper proceeded by conceptualizing the political impediments to instituting a carbon tax and then addressing them with concrete policy proposals.

> *I fully understand that [a carbon tax] is considered politically impossible, but part of our challenge is to expand the limits of what is possible.*
>
> *Al Gore*
> *San Francisco Chronicle, 2007*

The **public choice** model argued that a carbon tax is politically problematic because of the way that people's interests do (and do not) accord with the economic conception of a rational self-interested actor. For example, firms which would stand to gain from a carbon tax are not lobbying for its introduction and most firms would be disadvantaged by such a measure and are actively lobbying against it. Additionally, it is not an ideal policy for politicians because its benefits are conferred on infra-marginal voters and because it is a coercive policy which creates both winners and losers – losers who will remember the politician come election time.

The **public interest** approach considered surveys which indicate that while Canadians are generally supportive of the notion of paying more tax in order to protect the environment, they do not trust the government to spend the money effectively and do not understand the concept of a fiscally-neutral tax shift. Additionally, people do not like the way that ecological tax reformed is framed – they consider the term misleading and taxation an excessively negative concept, devoid of positive reinforcement. Business groups do not necessarily behave as rational self-interested actors, but instead translate the personal opinions of their employees into policy demands and above all desire regulatory predictability. An historical impediment to the adoption of a carbon tax has also been the lack of NGO pressure on this issue.

Finally, the **institutional** analysis noted that some provinces, especially Alberta, will be an impediment to a carbon tax, both because of their interests (in terms of their dirty electricity generation mix) and their historical point-of-view (largely, the legacy of the NEP). Additionally, the lack of international pressure to implement a carbon tax, especially the critical lack of US buy-in, have created an unpropitious international environment. Finally, the Canadian lack of left-wing governments has also likely been an impediment, though this conclusion is less robust than others and subject to caveats.

The paper then considered concrete political proposals to redress these impediments and make a carbon tax more politically saleable in Canada. The paper concludes that:

- There are fundamental limitations to a public choice analysis because it presents an overly static view of the world as conceived of unchangeable interests and devoid of the power of ideas and ideology. Therefore, its pessimistic conclusions about the implementation prospects of a carbon tax are not definitive.
- The lack of trust and understanding identified by the public opinion surveys can be redressed by creating a neutral body to implement the carbon tax, framing the issue appropriately, launching appropriately targeted education campaigns, and recycling revenue into popular expenditures such as environmental spending, rather than just lowering distortionary taxes
- The opposition of business groups and indifference of NGOs has been shifting in recent years as some businesses consider the possibility of a carbon tax along with the *Pembina Institute* and as some NGOs form the likes of the *Green Budget Coalition*. However, there is reason to be sceptical about the extent to which these constituencies will push for a carbon tax, because of the fundamental self-interest and disposition of businesses and because of the traction of left-wing critiques of free market environmentalism from the likes of the Canadian Centre for Policy Alternatives
- The institutional impediments to a carbon tax are of marginal concern. The oft-cited problem of the bureaucracy is anything but a problem. The lack of American support for a carbon tax can be resolved via Border Tax Adjustments. Provincial opposition can be mitigated through measures that exempt industries

> that are sensitive or for which a carbon tax is impracticable, measures to recycle revenue back to affected industries and provinces, with a national dialogue facilitated by a Green Taxation Commission, with a gradual phase-in of the tax, and ultimately with eminently constitutional unilateral federal government action (if need be).

These conclusions overturn some conventional wisdom. Many observers, for instance, comment that the public is inveterately opposed to taxes, ergo they won't like a carbon tax. This paper finds that such an analysis cannot be reconciled with public opinion surveys which demonstrate the opposite (reasonably high public support for increased taxation if those revenues will go towards environmental objectives) except by considering that the major reason people oppose increased taxes is that they lack trust in government and that this can be overcome with innovative government bodies, such as a committee of ENGOs to oversee the implementation of a carbon tax.

As well, many people underestimate the importance of the way that discussions are framed; the supposedly fundamental interests of which public choice theory speaks are actually rather malleable. It will be essential to consider the way that the introduction of a carbon tax in Canada is framed because the framings used by European countries to date have done more to engender scepticism about the taxes than any real understanding of the economic theory behind them. It will be essential to focus more on the possibility of raising revenue for environmental expenditures than for tax shifting, since environmental expenditures are received positively and tax shifting discussions leave people sceptical and quizzical. Instead of exempting industry from a carbon tax, as is usual practice in most jurisdictions, Border Tax Adjustments would be a more effective way of reconciling our environmental goals with the necessity of remaining globally competitive.

In short, if a carbon tax is appropriately designed to address Canadian concerns, interest groups, and the Canadian economy, it can be crafted so as to be economically, environmentally, **and** politically effective.

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