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This Issue Summary is based on the research paper entitled, "*Setting a Baseline: A Primer for Environmental Taxes in Canada*" by Pomme Arros. The paper is available on the Sustainable Prosperity website at:

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Environmental Taxes in Canada

Key Messages

- Environmental taxes are policy mechanisms designed to increase the price on activities and products that are harmful to the environment. Environmental taxes are found in economies around the world and are levied on bases such as energy, transportation, natural resources and pollution.
- While the balance sheets of Canadian federal and provincial budgets reflect some use of environmental taxes, a consistent methodology for identifying, categorizing and calculating such pricing policies has not been identified.
- The lack of a consistent methodology may be partly due to unclear definitions of environmental taxes, as these definitions vary in theory and in practice. In theory, environmental taxes limit environmentally harmful behaviour through a price incentive. In practice however, many taxes labelled as environmental are strictly revenue-raising tools that are not designed to provide any environmental benefit. The calculation of environmental taxes can be easily misinterpreted based on these definitional complexities.
- Sustainable Prosperity's recent paper introduces a set of definitions to categorize environmental taxes based on theory. Applying these definitions in the Canadian context shows that only a small subset of environmental taxes is designed with an environmental purpose. Data collected for the fiscal year 2012-2013 estimates the value of all environmental taxes in Canada to be approximately \$16 billion, while the value of taxes specifically designed for environmental benefit represents only a small subset of the overall value.

The Issue

An environmental tax is defined as a tax legislated by government on activities or products that have a negative impact on the environment. In Canada, environmental taxes are levied on the tax bases of energy, transportation, pollution and natural resources. Examples of environmental taxes in Canada include the federal gas tax, or provincial taxes on mineral use or waste management.

While it is clear that environmental taxes are used in Canada, the total number and value of environmental taxes is less clear. This is partly because a methodology for collecting this information has not yet been reported in Canada. A further complication is that the definitions of environmental taxes as they are defined by statistical agencies vary from how they are defined in the literature. There seems to be a distinction between how environmental taxes exist in theory and how they are used in practice. In theory, environmental taxes are designed to limit environmentally harmful behaviour through a price incentive. However, in practice many taxes referred to as environmental taxes are strictly revenue-raising instruments and are not designed to meet specific environmental objectives.

This Issue Summary is based on recent work conducted by Sustainable Prosperity that categorizes environmental taxes in Canada based on their goals and objectives. The research shows that while environmental taxes are used across Canada, the vast majority of environmental taxes are not designed with a specific environmental objective.

The Knowledge Base

Benefits of environmental taxes

Pollution imposes significant costs on Canadian society. For example, air pollution costs the Canadian economy billions of dollars every year in health care costs, missed days of work, and reduced worker productivity. Research by the Canadian Medical Association found that the economic cost of air pollution-related illness and death in Canada is more than \$8 billion a year.¹ More recent research estimated the total annual costs of pollution in terms of out-of-pocket expenses for business and governments to be a minimum of \$18.8 billion in 2014.²

Governments can encourage firms or individuals to reduce pollution through either command and control regulation or through a price on pollution. Price-based policies directly incent the reduction of pollution and the creation of substitutes and thus are generally more economically efficient than regulation. Environmental taxes are one form of pricing policy. In theory, the application of an environmental tax will price environmentally harmful activities to address the environmental and social costs they impose on society. These taxes can help to ensure those who impose costs to society from polluting or from direct destruction of the environment are financially responsible for those costs.

Definitions of environmental taxes in Canada

The most widely accepted definition of an environmental tax is “a tax whose tax base is a physical unit (or a proxy of it) of something that has a proven, specific, negative impact on the environment”³

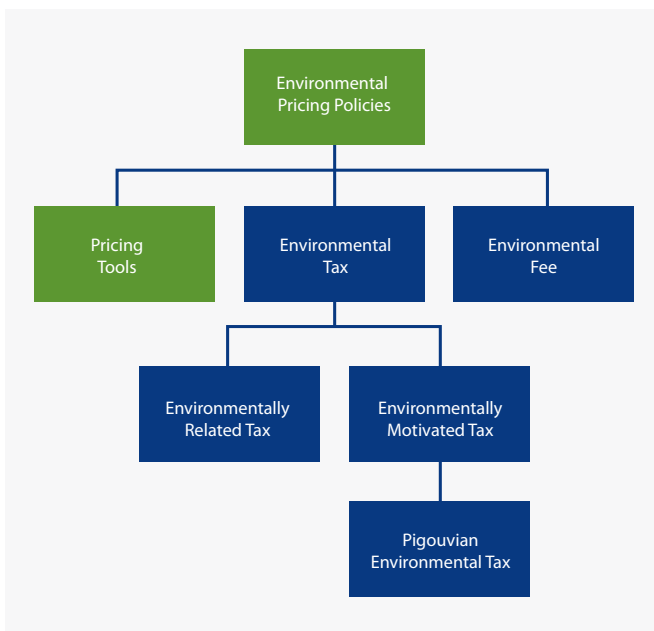
However, this definition does not consider the motivation for the imposition of the tax—that is, it does not consider if the tax is designed for revenue generation, or if it is

designed to achieve an environmental objective. This means that many taxes defined as environmental according to the definition above may not be environmental in defined objective or goal. The concern is that some taxes may be described and incorrectly categorized as environmental despite the lack of an environmental objective.

For this reason, Sustainable Prosperity proposes a set of definitions to categorize environmental taxes based on defined objectives and goals.

Environmental taxes are divided into two categories: **environmentally motivated taxes** and **environmentally related taxes**. **Environmental fees** exist in their own category and are separate from environmental taxes. Environmental taxes and fees are one type of environmental pricing policy. Given this paper’s focus on environmental taxes and fees specifically, the boxes in blue in the figure below represent the instruments discussed in this paper.

Figure 1: Categorization of Environmental Taxes and Fees in Canada



An environmentally motivated tax is a tax levied on activities or products that have a direct negative impact on the environment, and which has a purpose of addressing environmental damage. The revenues from these taxes either are earmarked for environmental activities, or are collected to be redistributed to ensure the tax is revenue neutral. As pollution is taxed directly, environmentally motivated taxes have the potential to be designed such that the tax rate can be set to offset as closely as possible the damage that pollution causes society.

A subset of an environmentally motivated tax is a Pigouvian tax, whose tax rate is set to equal the environmental and social damage caused by the pollutant.

Environmentally Motivated Tax

A subset of an environmentally motivated tax is a Pigouvian tax. In the context of environmental taxes, a Pigouvian tax is a tax whose rate is set to equal the environmental and social damage caused by the pollutant. Pigouvian environmental taxes are difficult to implement in practice because the analysis of setting the correct rate is complex. In Canada, the British Columbia (BC) carbon tax is the closest example of a Pigouvian environmental tax.

The BC carbon tax is levied on the purchase of many carbon-containing fuels. The tax rate is currently \$30 per tonne of CO₂ equivalent emissions. The tax rate is consistent with Canadian estimates of the social cost of carbon, which is the economic value of avoided climate change damages for current and future generations as a result of reducing greenhouse gas emissions. Environment Canada has calculated the social cost of carbon value in a Canadian context, and as of 2013, the value is \$28.15/tonne of CO₂e.⁴

An environmentally related tax is a tax on an activity that has an indirect negative impact on the environment. Generally, these taxes are not environmentally motivated and do not always consider the environmental benefit to be achieved from the imposition of the tax. Revenues from environmentally related taxes are used for general government revenues, rather than for specific environmental objectives.

An environmental fee is a payment in return for the provision of services that are directly linked to the payment and charged by either government or a private entity. In most cases these are not taxes at all, but rather service provision fees because the revenues are not collected by government (though waste-disposal legislation exists at federal and provincial levels).

The primary differences between environmental taxes and environmental fees can be made using two distinct considerations i) the goal of the tax and ii) how the revenues are used (Table 1).

Table 1. Features of Environmental Taxes and Fees in Canada

	Environmental Taxes		Environmental Fees
	Environmentally motivated tax	Environmentally related tax	Environmental fee
Goal	Addressing environmental damage	Taxing environmental bases with a goal of raising general government revenue	Raising funds to cover the cost of service provision
Objective of Revenues	To provide funds for environmental objectives or raise general government revenue for tax neutrality	To raise general government revenue	To cover the cost of service provision

The distinction between each definition is important because this information will better equip policy makers to decide where to direct efforts to improve environmental outcomes through the tax system.

Value of environmental taxes in Canada

Using a variety of sources, Sustainable Prosperity collected data for the year 2012-2013 according to the categories of environmental taxes outlined above.

As environmentally related taxes do not consider the potential environmental benefit from their

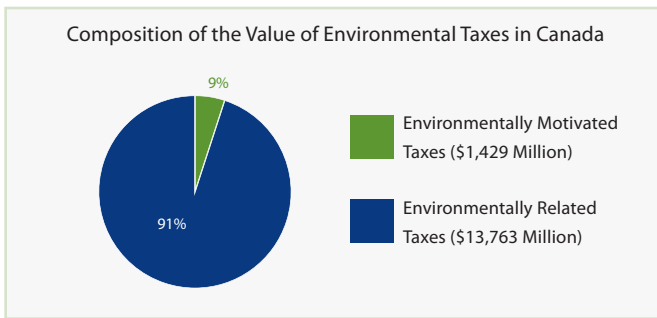
implementation, environmentally motivated taxes are a more accurate measurement of the rate of environmental taxation in Canada. Table 2 represents an approximation of the values of environmentally motivated taxes in Canada.

Table 2: Environmentally Motivated Taxes in Canada, 2012-2013

Tax Name	Jurisdiction	Category (Base)	Goal	Objective of Revenues	Total Annual Revenue (2012-2013, Millions)
BC Carbon Tax	British Columbia	Energy	To encourage a reduction in fossil fuel use by pricing most carbon emissions	To offset the environmental and social damage caused by carbon emissions; revenues are recycled for revenue neutrality	\$1,120
Climate Change and Emissions Management Fund	Alberta	Energy	To raise revenue for emissions reduction projects by pricing some carbon emissions	To contribute to the Climate Change and Emissions Management Fund that awards money to innovative projects that reduce greenhouse gas emissions	\$94
Emissions taxes on coal	Manitoba	Energy	To raise revenue for alternative energy projects by pricing emissions from coal	To fund the Biomass Energy Support Program which supports the transition to the processing and use of biomass for heating in place of coal	\$0.4
Fossil Fuel levy	Quebec	Energy	To raise revenue for combating climate change by pricing some fuel and fossil fuels	To fund Climate Change Action Plan programs to combat climate change	\$200
Innovative Clean Energy (ICE) Fund Tax	British Columbia	Energy	To raise revenue for clean energy projects by pricing some fossil fuels	To fund the provincial ICE Fund which encourages the development of new sources of clean energy and technologies	\$15
					Total: \$1,429

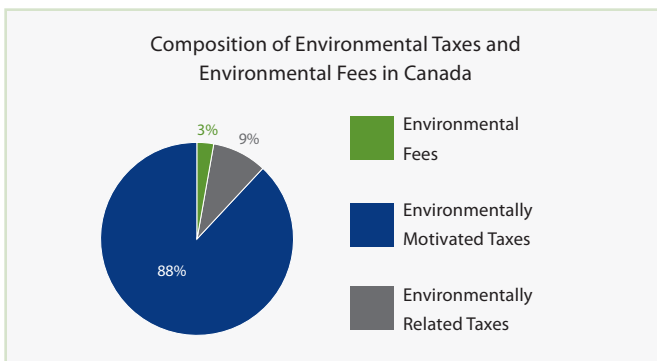
When comparing the available total value of environmentally related taxes to the total value for environmentally motivated taxes, it appears that environmentally related taxes form the bulk of the total value of environmental taxes in Canada (Figure 2).

Figure 2: Composition of Environmental Taxes in Canada



When comparing the value of environmental fees to environmental taxes (including environmentally motivated and environmentally related taxes) it appears that the total value of environmental fees is considerably smaller (Figure 3).

Figure 3: Composition of Environmental Taxes and Fees in Canada



Given the available values for environmentally motivated taxes, environmental fees and some environmentally related taxes, a very rough calculation estimates the total value of environmental taxes and environmental fees to be over \$15.7 billion per year (Table 3).

Table 3: Estimated Value of Environmental Taxes and Fees in Canada

Estimated Value of Environmental Taxes and Fees in Canada (Million \$)	
Environmentally Motivated Taxes	\$1,429
Environmentally Related Taxes	\$13,763
Environmental Fees	\$516
Total Value of Taxes and Fees	\$15,708*

* A full list of all identified environmental taxes and fees and their values (if available) are recorded in the full report. Given the many definitional and methodological challenges raised throughout the paper, it is assumed that the total value of environmental taxes in Canada is greater than calculated in this report.

Implications for Policy Makers

- Applying environmental taxes and fees to the economy can be a useful policy response to address environmental externalities. However, a consistent methodology for calculating and defining these instruments in Canada has not yet been identified, which makes an assessment of the current use of environmental taxes and fees difficult.
- Sustainable Prosperity's research provides a rough estimate of the value of environmental taxes and fees in Canada. This estimate is a baseline measure of the extent and value of environmental taxes and fees, and represents a first step towards understanding how the design of these fiscal instruments can further environmental objectives in Canada.
- While this research is helpful for categorising environmental taxes, many questions remain unanswered. Further study into the design and objectives of individual environmental taxes and fees would be useful for policy makers to understand the impact of such fiscal instruments. Understanding the effectiveness of environmental taxes and fees to incent positive environmental behaviour would be valuable to ensure that the design of environmental pricing policies is consistent with environmental goals.

Endnotes

- ¹ Canadian Medical Association. (2008). National Illness Cost of Air Pollution. Retrieved from http://www.cma.ca/multimedia/CMA/Content_Images/Inside_cma/Office_Public Health/ICAP/CMAICAPTec_e-29aug.pdf
- ² Smith, R. (2014). Pollution in Canada: A Review of the Literature and Initial Estimate of Costs. Retrieved from <http://www.sustainableprosperity.ca/article3899>
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- ⁴ Order Declaring that the Reduction of Carbon Dioxide Emissions from Coal-fired Generation of Electricity Regulations do not apply in Nova Scotia. (2014). Canada Gazette, 148(26). Retrieved from <http://www.gazette.gc.ca/rp-pr/p1/2014/2014-06-28/html/reg3-eng.php>