Carbon Tax Is the Good Tax and Is Coming to a G7 Country near You

I have to admit that when Stéphane Dion, the former Leader of the Liberal Party of Canada, was calling for and promoting "carbon tax" in 2008[1], I thought that was a crazy idea and wondered why and how anybody would support a carbon tax. However, after two years of studying public policy, finance and economics and doing research on the carbon tax and cap-and-trade; I have come to the conclusion that if a nation is planning to introduce emission mitigating measures, it has to include carbon tax.[2]

The word "tax" is scary, and the politicians don't want to use it as new policy instrument; that may be why Quebec has implemented and Ontario is calling for a carbon cap-and-trade regulation instead of carbon tax.

A carbon tax system that has been in effect in British Columbia since July 2008, in absence of a globally enforced CO_2 emission cap, is better than a carbon cap-and-trade regulation that is planned by the Government of Ontario and has been in effect since January of 2013 in Quebec.

What is the issue?

There is a consensus that today CO_2 is released at a rate that is higher than what the natural carbon dioxide sinks, mainly the plants and the sea, can absorb. This high rate of release has resulted in an increased level of CO_2 concentration in the atmosphere (from 310 ppm in 1960 to 400 ppm in 2015) as reported by Mauna Loa Observatory in Hawaii (Figure 1). This elevated concentration of CO_2 is argued to have and will result in climate change. As a consequence, it is feared that societies, nations and all living beings will be negatively affected by the climate change and the related extreme weather patterns.

It is argued by the environmental scientists that if we can capture and sequester the CO_2 emissions at the same rate as they are released into atmosphere, then we are ok. However, currently that is not the case.

[1] CBC News. 2008. "*Carbon tax plan 'good for the wallet,' Dion pledges*." http://www.cbc.ca/news/canada/carbon-tax-plan-good-for-the-wallet-dion-pledges-1.704607

[2] Homam, M. 2015. "*Economic Efficiency of Carbon Tax versus Carbon Cap-and-Trade*." http://www.academia.edu/18125115/Economic_Efficiency_of_Carbon_Tax_versus_Carbon_Cap-and-Trade

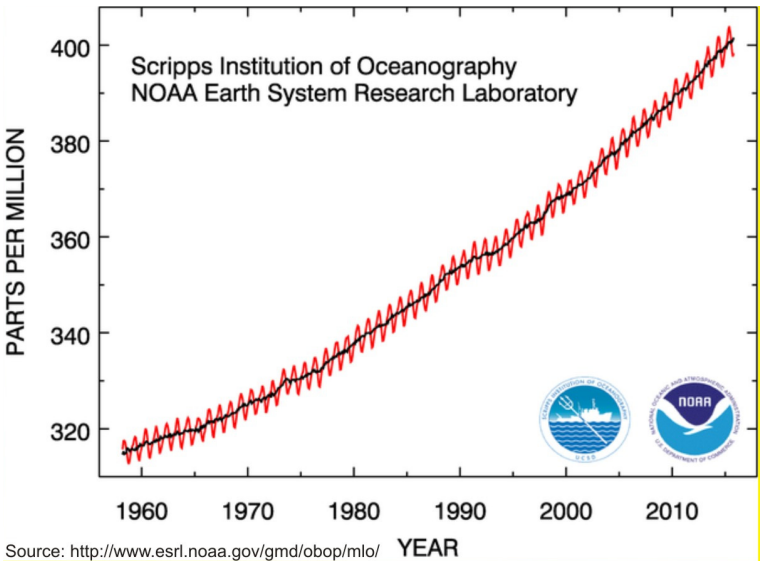

Figure 1: Changes in atmospheric CO_2 concentration over the past five decades

What is a possible solution?

Economists say that when business activities of one party, such as production of goods, negatively affects members of a society who are unrelated to the business, a tax should be imposed on the produced goods to reduce the production of the good to a socially optimum level and, subsequently, compensate the society for the losses and sufferings of its members. The cost that is suffered by the unrelated members of society resulting from the production of the goods is called a "negative externality," and the tax imposed to reduce production of goods to a socially optimum level and compensate those affected is called "Pigovian tax," named after the economist who first introduced the concept of negative-externality-correcting tax in 1920.

Carbon tax system

Carbon tax, a form of Pigovian tax, can be used as a tool by governments to induce a reduction in CO_2 emission, a negative externality from burning fossil fuels. The revenues from carbon tax can be used to fund emission mitigating measures, spend on health care and environmental protection (preferred), or to replace other taxes.

On June 8, 2015 the leaders of G7 nations declared that they will jointly mobilize USD 100 billion a year by 2020 from a wide variety of sources, both public and private to be used for carbon

emission mitigation actions[3]. They also declared that they would apply effective policies and actions throughout the global economy, including carbon market-based and regulatory instruments, to promote low-carbon growth.

The USD 100 funding will and should come from the negative-externality-correcting carbon tax. It cannot come from issuing free emission permits that is practiced in the case of carbon cap-and-trade and should not come from the inefficiency-inducing income, corporate and general consumption taxes. Using the CO_2 emission data provided by the World Bank, at a rate of \$30/tonne of CO_2 emission, the G7 nations could collect about \$270 billion in carbon taxes a year. Nationally, a carbon tax can be collected at the point of production of all fuels. If we use British Columbia's \$30 per ton of CO_2 emission tax for making estimates, the carbon tax on each tonne of coal (lignite) would be about \$38, resulting in an increase of about 2.3 cents per kWh of coal-produced electricity. The carbon tax on a litre of gasoline, on a litre of diesel and on one cubic metre of natural gas would be about \$0.07, \$0.08 and \$0.06, respectively. The cost of electricity produced from diesel and natural gas would increase by about 1.7 and 1.3 cents per kWh, respectively. Comparing this to the 32 cents per kwh cost of electricity produced by solar panels, carbon tax is not too bad at all. It is a good tax and can be used to implement CO_2 emission mitigating measures that will make even burning of coal environmentally acceptable and economically competitive.

Carbon capture and sequestration (CCS), a CO_2 emission mitigating measure, can be done through use of technology or by increasing the size of forests at the global level. Scientists and environmentalist tell us that CO_2 disperses in the atmosphere very fast and the effect of emission in Canada will affect the lives in Australia. By the same token, a carbon sink in Australia can be used to absorb an equivalent amount of CO_2 that is produced in Canada to get a global zero net CO_2 emission. Carbon taxes collected on CO_2 emission in Canada can be used to pay for creating CO_2 sinks even in Australia, for example.

The cost of technology-based CCS, in accordance to a statement that is attributed to the Julio Friedman of the US Energy Department, is reported to be between \$70 and \$90 per tonne. Although, the costs for a full scale CCS plant that has been built in Saskatchewan, after some cost recovery from sale of CO_2, could be much lower.

[3] The Guardian. 2015. "*G7 leaders agree to phase out fossil fuel use by end of century*." https://www.theguardian.com/world/2015/jun/08/g7-leaders-agree-phase-out-fossil-fuel-use-end-of-century

Carbon Cap-and-Trade Regulation

Carbon cap-and-trade regulation is another tool that is used and promoted for emission reduction. Theoretically, both carbon tax system and cap-and-trade regulation can equally reduce the impact of the CO_2 related negative externality. Carbon cap-and-trade regulation is the foundation of the Kyoto Protocol and has been implemented by some jurisdictions and rejected by others. In practice, however, carbon cap-and-trade regulation has a number of problems and has proven to result in economic inefficiency. That is probably one of the main reasons why the Kyoto Protocol will never be implemented as it was initially envisioned.

A major problem with cap-and-trade is "carbon leaking." The Kyoto Protocol exempts developing nations from the carbon cap-and-trade requirements. This seems fair since the developing and underdeveloped countries will have to burn a lot of fuel to improve the standard of living and infrastructure within their borders. However, if a developing nation uses the carbon emission cap exemption to produce products at a lower cost for export to Canada where the production costs will be higher because of the carbon cap-and-trade, this could negatively affect Canadian industries that are exposed to international competition. Some companies will have to shut down, while others may move to carbon cap exempt jurisdictions. With a carbon tax, the problem of carbon leaking can be addressed with a border adjustment tax.

One side-effect of the emission quantity regulating system that is not being talked about in the context of carbon cap-and-trade but has proven to be a problem in the case of dairy product quota or taxi quota is the economic rent seeking (profit) by the quota holders to the extent that it is creating barrier to entry and giving the quota holders monopoly power. The monopoly power and the associated inefficiencies will develop in industries that are energy intensive but are immune from international competition.

Carbon Tax or Cap-and-Trade?

To prevent cap-and-trade induced carbon leakage problem as well as the monopoly power problem, it is much more efficient and economical to use carbon tax, and stay away from carbon cap-and-trade regulation, as the tool for eliminating CO2 emission negative externality.

From the text of G7 leader's declaration released on June 8, 2015, there are strong indications that national carbon taxes are coming to G7 nations. Ideally, Ottawa should implement a system of national carbon tax collected at the point of production on all carbon dioxide emitting fuels; or, since Canadian provinces do not have jurisdiction over border tax, allow the provinces to impose their own border adjustment taxes.

According to Warren Maruyama, General Counsel of the Office of the US Trade Representative, a carbon tax that is imposed on imports and rebated on exports to ensure a level playing field could be implemented under the World Trade Organization's existing border tax adjustment rules even in the absence of a multilateral climate agreement.[4]

To ensure a level playing field for Canadian producers in the global market, the carbon taxes collected at the upstream end of the supply chain should be rebated at the border for fuels that are exported. Fuels imported to Canada should be taxed at the border based on its carbon content. Carbon tax can and should be applied to all products that cross border based on their carbon consumption. This will be very similar to the excise tax that applies to goods that people buy and claim tax rebates for at ports of departure and pay taxes on at ports of entry. Implementation of a carbon tax and its associated border adjustment tax will greatly reduce regulation costs and provide a fair treatment to all industries.

Canadian consumers can reduce their carbon footprint and their tax burden by living in accordance to the following guiding principal:

"Do not waste water even if you are at a river."

[4] W. Maruyama. 2011. "*Climate Chage and the WTO: Cap and trade versus carbon tax.*" Journal of World Trade, vol. 45, no. 4, pp. 679-726.