



POLICY SERIES

FRONTIER CENTRE FOR PUBLIC POLICY • POLICY SERIES NO. 131 • FEBRUARY 2012



The Economic, Environmental and Political Consequences of Carbon Pricing

Case studies in pricing-based carbon controls

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Date of First Issue: February 2012.

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ISSN 1491-78

FCPP Policy Series No. 131 • February 2012

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Clicking on these words will direct the reader to relevant sites or documents using your associated web-browser.

Executive Summary

Economic theory predicts that attaching a “price” to carbon emissions, through either a cap and trade scheme or a straightforward carbon tax, is the most efficient way to reduce greenhouse gas emissions (GHG). However, the gap between theoretical predictions about the likely impact of a general policy approach and the real-world consequences of policies as they are actually designed and implemented is often large. This has certainly been true in the case of carbon pricing policies.

This paper focuses on eight case studies from around the world to examine the economic, environmental and political effect of ambitious carbon pricing policies and proposals. In several of the case studies we examine, the policies failed to achieve their stated objective of significantly reducing greenhouse gas emissions without causing severe economic shocks. In some cases, the policies did not work because design flaws limited their environmental efficacy. In others, projected negative economic shocks and program design flaws alienated key constituencies and resulted in political backlashes that either led to policy reversals or prevented implementation. The key findings from our analysis of these case studies include:

- From a theoretical perspective, carbon taxes are superior to cap and trade both environmentally and economically. The imperfect information available to policy-makers makes effective central planning of economy-wide emissions exceedingly difficult. Cap and trade plans are also susceptible to gaming and political manipulation.
- Revenue neutral carbon reduction plans may be more saleable and less economically damaging than policies that

use carbon pricing as a tool to increase government revenue or pursue other social objectives. Revenue neutral carbon reduction plans are also more likely to succeed politically if they include easily understood revenue-recycling provisions that return carbon revenue to the private sector through transparent, efficiency-enhancing tax reductions.

- Even carbon pricing plans that are revenue neutral overall can cause significant harm to specific industries, groups and regions within a jurisdiction, leading to the development of fierce, concentrated political opposition that can result in policy reversal. If governments develop strategies to compensate the “losers” of carbon pricing initiatives, political opposition may be blunted. In the case of Canada, this would likely mean that a national carbon pricing program would require mechanisms to compensate Alberta and Saskatchewan to ensure that the costs are not disproportionately borne by a specific region of the country.
- Carbon pricing proposals often result in severe negative political outcomes for their proponents. For example, aggressive support for carbon pricing played a significant role in recent electoral defeats for congressional Democrats in the United States and the federal Liberal Party of Canada. Support for carbon pricing has also, at various points in recent history, contributed to an erosion of popular support for Australia’s governing Labour party. Further, political opposition has prompted several participating jurisdictions in two major regional cap-and-trade initiatives in the United States to withdraw, limiting the effectiveness of those initiatives.

Introduction

Since the 1980s, climate change has consistently been one of the most high-profile environmental issues facing policy-makers around the world. Some scientists think climate change represents a significant environmental risk. They argue that considerably warmer global temperatures could create environmental problems including glacial melting, droughts and increased occurrences of some natural disasters. In response to these professed risks, governments in many countries with advanced economies have sought to develop policy options designed to reduce the emission of greenhouse gasses into the atmosphere.

In their efforts to reduce the emissions that many experts argue are an important cause of climate change, governments in economically advanced countries have considered different policy options. The most ambitious GHG reduction policies have been centered on attaching a "price" to carbon emissions. In short, the objective of these policies has been to make it more expensive for firms and individuals to engage in the economic activities that result in carbon emissions.

Attaching a price to carbon emissions is, theoretically, the most economically efficient way to reduce emissions. Economic theory tells us that demand curves slope downwards, which means that as the cost of doing almost anything goes up, people will tend to do less of it. Carbon pricing is theoretically more efficient than regulatory strategies for reducing emissions—for example, banning particular inefficient products—because it does not discriminate between different sources of emissions, and it allows market forces to identify the areas of economic activity where GHG use can be reduced most efficiently.

“By and large, our review suggests that the international experience with carbon pricing has not been a success.”

However, the gap between theoretical predictions about the likely effect of a general policy approach and the real-world consequences of policies as they are designed and implemented is often large. This has certainly been true in the case of carbon pricing policies.

Since Kyoto was signed in 1997, a number of jurisdictions have implemented policies based on carbon pricing, some of which have been in place for many years. As a result, we can move beyond theoretical arguments about the likely impact of carbon pricing and move on to empirical examinations of what has happened when governments have attempted to attach a price to carbon. This paper uses a case study approach to examine the question and to assess the extent to which ambitious carbon reduction policies have achieved their stated objective to significantly reduce GHG emissions without causing severe negative consequences for economic performance. By and large, our review suggests that the international experience with carbon pricing has not been a success.

In addition to examining policies that have been implemented, our analysis will also discuss detailed legislative policy proposals in North America that were not implemented. In these cases, the policy proposals were sufficiently detailed that they were subject to considerable

“Policy development does not occur in a political vacuum, and policy ideas that fail to generate public support are generally not implemented or they are reversed shortly after enactment.”

independent analysis that was designed to estimate their likely environmental and economic impact in their proposed settings. These analyses of specific, detailed legislative proposals also allow us to go beyond abstract questions about the theoretical impact of carbon pricing , and allow us to analyze the likely effect of these policies in specific jurisdictions.

Our case studies pay careful attention to the political effects of different approaches to carbon pricing. Policy development does not occur in a political vacuum, and policy ideas that fail to generate public support are generally not implemented or they are reversed shortly after enactment. As part of our assessment of the viability of cap and trade and carbon pricing policies, we consider the political consequences of the initiatives we examine.

Each of the case studies presented in this paper is divided into three sections: First, there is a summary of the policy or proposal. Second, there is an analysis of any environmental or economic implications that have been predicted or observed. Third, each case study includes a review of the political aftermath of each policy.

Following the eight case studies, the concluding section of our paper provides a discussion of the lessons our case studies hold for policy-makers concerning the advantages and disadvantages of different approaches that have been taken to carbon pricing. Specifically, we examine the common program-design features that undermined the achievement of policy objectives in multiple jurisdictions as well as the features that resulted in the development of strong political opposition that was ultimately able to prevent implementation.

American Clean Energy and Security Act 2009



In Brief

- *The American Clean Energy and Security Act (ACES) was President Obama's signature attempt at passing legislation to establish a cap and trade system in the United States.*
- The Act would have applied to emitters of 25,000 tonnes of GHG or more and established reduction targets of 3 per cent from 2005 levels by 2012, 17 per cent by 2020, 42 per cent by 2030 and 83 per cent by 2050.
- Independent analysis estimated that legislation would have a negative impact on the economy by hampering economic growth, reducing disposable income and domestic consumption, destroying jobs and increasing energy costs. The Environmental Protection Agency (EPA) and the Congressional Budget Office (CBO) also predicted a negative effect on the economy, though the estimates produced by these organizations were modest.
- The U.S. Senate refused to back cap and trade amid the public backlash toward the House version of the bill. The bill died in advance of the 2010 mid-term elections, and it may have contributed to the historic swing to the Republicans, allowing them to gain majority status in the House of Representatives and to dominate state legislatures across the country. This has slowed the advance of regional cap and trade initiatives.

Introduction

ACES was supposed to be one of President Obama's signature legislative achievements, but instead it was roundly criticized by economic experts and left to die amid the public backlash before the 2010 mid-term elections.

Policy Details

The ACES passed in the House of Representatives with a vote of 219 to 212. It represented the final push of the Obama administration to introduce cap and trade to the United States in advance of the 2010 mid-term elections. The bill, however, was not able to secure the necessary support in the U.S. Senate, which passed its own energy bill that did not include a cap and trade program.¹

Entities covered under ACES would be stationary sources emitting 25,000 tonnes of GHG annually. It would have applied not just to CO₂ but also to methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF₆) and nitrogen trifluoride (NF₃). The law would have mandated 3 per cent emissions reductions from 2005 levels by 2012, 17 per cent by 2020, 42 per cent by 2030 and 83 per cent by 2050. Twenty per cent of credits (the unit of exchange purchased under cap and trade to permit the emission of specific amounts of GHGs) would be auctioned in the short term, with the number of credits auctioned increasing to 70 per cent by 2030. The proceeds would go toward consumer benefit programs that would shield them from the price hikes. The Act would also allow for carbon offset credits to a maximum

of 2 billion tonnes system-wide (with at least 1 billion from domestic sources).² Carbon offset credits are a type of credit that allows firms to purchase permission to release emissions beyond what they would otherwise be allowed to emit. Offset credits allow firms to meet their emissions reductions targets by purchasing offset credits rather than by actually reducing emissions.³

Environmental and Economic Consequences

The *American Clean Energy and Security Act* came under intense public scrutiny when it was passed by the House of Representatives. The bill passed by a vote of 219-212, with just 8 Republican members voting in favour of the legislation. Given the fragility of the economic recovery following the 2008 financial crisis, both Republicans and Democrats were apprehensive about its possible negative economic consequences.

Ultimately, ACES never became law, as it did not garner sufficient support in the Senate. However, several independent organizations published analyses of the legislation, the study of which allows us to better understand the likely economic and environmental impact of a federal cap and trade policy in the United States. Specifically, analysts examined the likely effect of cap and trade on GDP performance, personal income growth and household budgets.

The American Council for Capital Formation (ACCF) concluded that ACES would result in significant job losses. Specifically, the ACCF estimated that by 2030, between 1.8 and 2.4 million jobs would be lost because of higher energy prices, compliance costs and competition from overseas manufacturers

with lower energy costs.

The ACCF also estimated that overall U.S. GDP would be reduced by 1.8 to 2.4 per cent in 2030 for a total loss of \$419-billion to \$571-billion of economic production in that year alone. The ACCF estimated that ACES would result in cumulative GDP losses of \$2.2-trillion to \$3.1-trillion between 2012 and 2030. The ACCF also estimated that cap and trade would have a significant effect on household budgets, reducing disposable income per household by \$118 to \$250 per year by 2020 and \$730 to \$1,248 by 2030.⁴

A separate analysis by the Brookings Institution estimated that under certain assumptions, achieving targets roughly equivalent to those laid out in the Waxman-Markey discussion draft would cause a loss in total personal consumption of between \$1-trillion and \$2-trillion between 2010 and 2050. Overall, the Brookings analysis found that the U.S. GDP would likely be approximately 2.5 per cent lower in 2050 because of cap and trade legislation than what would be the case without the cap and trade program.⁵

A report commissioned for the National Black Chamber of Commerce echoed these findings. The report estimated that the cost of gasoline would rise by 18 per cent (95 cents per gallon) and electricity costs would rise by 48 per cent (5.8 cents per kWh) because of ACES. Such price hikes were projected to have a significant impact on average household purchasing power, which the chamber estimated would be reduced by \$1,070 (in terms of 2010 income levels) by 2050. The report also predicted serious negative impacts for national GDP growth and job-creation performance, with projected job losses of \$1.5-million in 2015, rising to \$3.6-million by 2050. The study also projected that ACES would result in the nation's GDP contracting by 1.5 per cent by 2050.⁶

Studies by the CBO and the EPA also predicted declining household consumption, increased energy prices and lower GDP but to lesser degrees than the studies mentioned above.⁷

Political Fallout

In June 2009, the House of Representatives passed landmark climate change legislation. The passage of the *Act* was no easy feat, as it was widely panned on the left by environmental groups such as Friends of Earth for its “corporate giveaways” and on the right for being a massive “tax grab” that would cost jobs and raise energy prices. Forty-four Democrats in the House voted against the measure. Most of these were centrist Democrats from Republican-leaning districts. A few congressional representatives who thought the measures did not go far enough also voted against it. The U.S. Chamber of Commerce and the National Association of Manufacturers fiercely opposed the *Act* and argued that it would “affect every aspect of the American economy, harming our ability to compete in the world and provide secure and affordable energy to American consumers and businesses.”⁸

As the public debate over ACES went on, the public also became strongly opposed to cap and trade legislation. A poll conducted at the height of negotiations for a counterpart *Act* in the Senate showed that 70 per cent of the public opposed any form of a new energy tax.⁹ As it became clear that there was insufficient support to pass ACES in the U.S. Senate, Senators John Kerry and Joseph Lieberman put forward *The American Power Act* as a more moderate alternative. Even this more modest cap-and-trade proposal provoked a public backlash. As mid-term elections approached in which the Democrats were threatened with severe defeat, the bill was withdrawn and replaced with a much more

limited energy bill that did not include a strong carbon pricing mechanism. Cap and trade was thus abandoned by the Democrats in the Senate.¹⁰ In November, the Democrats were routed in mid-term elections, as Republicans took control of the House of Representatives and made gains in the Senate.

It is difficult to say if voter backlash to Congress’s proposed climate legislation had a significant impact on the 2010 mid-terms, as the overriding issues were health-care reform legislation and the state of the national economy. However, cap and trade was broadly unpopular among the electorate and might have contributed to election losses in specific districts and states. It is notable that some Democrats ran strongly against cap and trade, including the ultimately successful U.S. Senate candidate Joe Manchin, who ran a TV commercial in which he used a rifle to shoot a copy of the cap and trade bill.

In the end, the Democrats suffered a historic defeat with one of the largest seat swings in the House of Representatives in the past century. The Republicans gained 63 seats to hold 242 seats in the House, while the Democrats nearly lost the Senate, losing six seats.¹¹ Also significant was the loss of six governorships, and several state-level legislative chambers across the country.¹² Massive Republican gains at the state level proved significant for climate policy, as it has allowed them to chip away at regional cap and trade initiatives such as the Western Climate Initiative (WCI) and the Regional Greenhouse Gas Initiative (RGGI), a development that is discussed in subsequent sections of this paper. Again, it is difficult to say how much of the 2010 mid-term defeat was sparked by opposition to climate legislation, but it is clear that in the midst of economic uncertainty, there was little appetite for ambitious carbon pricing proposals that posed any risk to the country’s fragile economic recovery.

The negative economic implications associated with ACES were widely accepted, as even the most favourable estimates by the (EPA) and CBO showed a modest negative economic impact.

Summary

It is difficult to say how much of an impact the opposition to ACES had in delivering a serious defeat to the Democrats in the 2010 mid-term elections, but with 70 per cent of Americans opposed to cap and trade, it certainly did not help the Democrats' odds. That defeat also set the stage for Republican challenges to regional cap and trade programs such as the WCI and the RGGI. The negative economic implications associated with ACES were widely accepted, as even the most favourable estimates by the (EPA) and CBO showed a modest negative economic impact. Other studies highlighted considerable impact on the GDP, domestic consumption, disposable income and employment. In a fragile economy, Senate Democrats were unwilling to follow the President's lead and push cap and trade despite their large majority. As a result, cap and trade is, for the time being, completely off the policy agenda at the federal level in the United States.

Regional Greenhouse Gas Initiative



In Brief

- The RGGI is the first regional attempt at cap and trade in the United States. It involves 10 states, and five Canadian provinces and one state that have observer status.
- It aims to reduce emissions in the utilities sector by 10 per cent by 2018 from a 2005 baseline.
- Estimates showed that the program would have little adverse economic impact. Lower energy prices were possible due to investments in energy efficiency from auction revenue. In practice, there has been little impact on energy prices.
- The system has failed, however, to significantly lower GHG emissions independent of emissions reductions caused by the recession. Over-allocation of permits has ensured a low price for emissions credits that has reduced the effectiveness of the program in terms of GHG emissions reductions.
- The RGGI is construed as an energy tax, and it faced a backlash in New England, which traditionally has the highest energy costs in the country. New Jersey withdrew from the initiative, and efforts are underway to follow suit in Maine, New Hampshire and Delaware.

Introduction

The RGGI was the first effort at a cap and trade program for GHG emissions in North America. This program has not had as deep a negative economic impact as critics feared, primarily because of its ineffectiveness as an emissions reductions program. Nonetheless, the RGGI is withering in the face of a public that is not willing to accept higher energy costs.

Policy Details

The RGGI is a carbon credit-trading program that incorporates several states in the Northeastern United States and several provinces in Eastern Canada, including Maine, Vermont, New Hampshire, Connecticut, Massachusetts, Delaware, Maryland, New Jersey, New York and Rhode Island. Quebec, New Brunswick, Nova Scotia, PEI, Newfoundland and Pennsylvania are observers. Compared with other initiatives, the RGGI is limited in scope and applies to the utilities sector only. The target for the program is emissions stabilization between 2009 and 2014. In the subsequent four years, 2015 to 2018, the target is a decline in emissions by 2.5 per cent annually for a total decrease of 10 per cent from the 2005 baseline.¹³

The cap of 188 million tonnes of CO₂ equivalent emissions applies to fossil fuel-fired plants of 25 megawatts or more, which account for 95 per cent of energy production in the region. Emitters meet these caps by purchasing emissions allowances at auction, which are distributed

quarterly by state governments—over 90 per cent of the credits in the program are sold at auction. Up to 3.3 per cent of a company's emissions can be covered by offset credits that are generated by carbon sequestration projects.¹⁴

While only 25 per cent of auction revenue was mandated to go toward consumer benefit programs to increase energy efficiency, to support renewable energy and the mitigation of electricity price increases, in practice, many states have used significantly more of the revenue for those purposes.¹⁵

Environmental and Economic Consequences

The RGGI has not attracted the same ire as other cap and trade programs around the world. This is primarily because estimates done to analyze the economic effect of the initiative found that there would be little, if any, negative economic impact. The RGGI is a relatively modest emissions trading program, and consequently, both the projected environmental and economic impacts are significantly less dramatic than is the case for other, more ambitious carbon pricing programs that have been proposed or implemented elsewhere. A study conducted by Neal Elliott (et al.) projected an increase of 0.8 per cent in employment opportunities under a high energy-efficiency scenario. The same analysts estimated energy price increases would be minimal, reaching 5 per cent by 2024 under a conventional scenario; however, with investments in energy efficiency, increases could be contained to 0.5 to 1 per cent by 2024.¹⁶ Most analysts have agreed that whether the impact of the RGGI on regional economic performance

is positive or negative, it is likely to be relatively small.

The few negative economic repercussions associated with the RGGI can, in part, be explained by its ineffective nature as a cap and trade scheme. Unlike most other initiatives, the RGGI applies to the utilities sector only and has rather modest caps in place, which in turn depress the price of emissions permits. In fact, partly due to the recent economic downturn, emissions declined further than the mandated reductions require.¹⁷ In other words, the economic slowdown reduced production and caused emissions to drop below the regulatory cap. This means that the emissions permits were over-allocated, causing the price to plummet as their value sank when emissions fell below the cap. In the most recent auction, only 30 per cent of credits were sold at the floor price of \$1.89, while the number of participating compliance entities dropped to 25 from 36.¹⁸ This is similar to what occurred in Europe in the first phase of its carbon trading scheme. Because of the collapse in the price of credits, the effect of the RGGI on emissions in recent years is likely to have been small.

It is worth noting that the RGGI's response to the withdrawal of New Jersey from the initiative did not mention any success in reducing GHG's but instead highlighted that auction revenue has been used for consumer benefit programs and to bring jobs to the region.¹⁹ The RGGI defended itself in the face of a withdrawal not as an effective mechanism for emissions reductions but rather as a useful taxation scheme to raise additional revenue for state governments.

Political Fallout

With the economic downturn and skyrocketing energy prices, the RGGI has come under increasing fire in the last few years. Recently, the Governor of New Jersey, Chris Christie, called the RGGI a “failure” that was “not effective in reducing greenhouse gases and is unlikely to be in the future.” Additionally, Christie warned against rising energy costs as the result of caps on the utilities sector. He announced that New Jersey would pull out of the RGGI by the end of the year.²⁰ This is a significant blow to the program, as New Jersey makes up 12 per cent of the RGGI’s carbon market.

In New Hampshire, efforts were also made to withdraw from the RGGI. The Republican-controlled legislature voted to withdraw from the initiative, citing increasing energy costs. Democratic Governor John Lynch vetoed this legislation. Since the legislation failed to achieve two-thirds support in the Senate, it is unlikely that it can override the Governor’s veto in the immediate future.²¹ New Hampshire continues to have some of the highest energy prices in the country; it is ranked sixth highest by the Institute for Energy Research, so it is unlikely that this will fade as a political issue in the state.²² In addition, legislation has been drafted and tabled for Maine and Delaware to withdraw from the RGGI, but maneuvering at the committee level derailed both proposals.²³

Since energy prices are likely to remain high for the near future and the RGGI is weakened by New Jersey’s withdrawal, it is entirely possible that the political will to implement cap and trade in the Northeast will continue dissipating.

Summary

With the U.S. economy remaining fragile in the wake of a terrible recession, criticism of the RGGI is likely to escalate in the years ahead. Republicans have had success framing the initiative as an energy tax, and in a region that already faces high energy prices, this line of argument has the potential to resonate, especially as caps tighten in future years. However, there is little evidence that the RGGI caused a significant negative economic impact. One reason there has not been a significant economic shock from the implementation of the RGGI is the lack of effectiveness the initiative has had in setting a carbon price that can change behaviour. Collapsing carbon prices due to over-allocation have minimized compliance costs while simultaneously keeping the system’s impact on emissions small.

...there is little evidence that the RGGI caused a significant negative economic impact.



Western Climate Initiative

In Brief

- The Western Climate Initiative (WCI) is the second proposed regional cap and trade program. It initially involved seven Western states and four provinces. In addition, six U.S. states, two Canadian provinces, one Canadian territory and seven Mexican states hold observer status.
- The goal of the WCI is to reduce GHG emissions by 15 per cent from a 2005 baseline by 2020. It would apply to emitters of 25,000 megatonnes or more.
- While the final details are pending, preliminary estimates by the Beacon Hill Institute of Suffolk University and the Western Business Roundtable (WBRT) predict significant negative economic consequences including a decline in disposable income and domestic consumption, shrinking GDP and a loss of employment and investment.
- The political backlash has been severe. By the end of 2011, six of the seven original participating U.S. states had withdrawn from the WCI.

Introduction

The WCI is the second regional effort in North America to implement a cap and trade emissions reductions program. The initiative is expected to have a substantial negative impact on the economy in the region. A lack of public appetite for the program and the prospect of higher energy prices have caused several members to withdraw, thus compromising the future of the program.

Policy Details

The WCI is the second major regional carbon credit-trading scheme developed in North America. Participating partners include British Columbia, Manitoba, Ontario, Quebec, Washington, Oregon, California, Montana, Utah, Arizona and New Mexico. In addition, the Yukon, Saskatchewan, Nova Scotia, Alaska, Idaho, Nevada, Wyoming, Colorado, Kansas and seven Mexican states hold observer status. Only British Columbia, Ontario, Quebec, California and New Mexico passed legislation to enable participation on the 2012 start date.²⁴

The model for the initiative is similar to that of the RGGI but broader in scope regarding the industries targeted. The goal is a reduction of GHG emissions by 15 per cent from a 2005 baseline by 2020, with further caps to be set in 2017, which would take effect after 2020. Large industrial emitters will be capped at the 2012 start date with transportation, residential, commercial and industrial fuel combustion being capped starting in 2015. Regulations will apply only to emitters of 25,000 megatonnes or more, with

reporting requirements for all emitters over 10,000 megatonnes. However, unlike the RGGI, most credits will not be auctioned. Ten per cent will be auctioned at the 2012 start date, rising to 25 per cent in 2015. Jurisdictions can auction more credits if they choose.²⁵ In addition, there are different types offset credits available for purchase.

Environmental and Economic Consequences

As the details of the WCI are pending, little substantial research has been done to assess its economic implications. The WBRT released a report in 2009 after the initial draft recommendations were published by the WCI. In the report, the WBRT was critical of three assumptions made by the WCI's economic projections. First, the WCI assumed that no baseload power plants would be deployed until 2020. Second, all new demand should be met by intermittent power generation such as wind farms and solar power, which would threaten the stability of the power grid. Last, the WCI plan would provide no discernable impact on climate change (-0.0001°C). The report found that the WCI would lead to increased energy costs that would disproportionately harm low-income and minority families that are the most vulnerable to price shocks.²⁶

A report by the Beacon Hill Institute also casts a negative light over the WCI. It estimates a decline in private sector employment in the region of 35,177 to 165,397 jobs by 2020 and a decline in investment of between \$1.62-billion and \$4.54-billion (figures in this section are in U.S. dollars). The Beacon Hill Institute also estimates that families will be hit hard, with disposable income per capita projected to decline between \$63 and

...the WCI would lead to increased energy costs that would disproportionately harm low-income and minority families that are the most vulnerable to price shocks.

\$272 per year. In this economic scenario, 25 per cent of credits are sold at auction, which is the target of the WCI by 2015.²⁷ Unfortunately, this analysis leaves out the Canadian provinces that are participating in WCI and includes only the seven states in the Western region.

Political Fallout

As was the case with the backlash against the RGGI, the negative reaction to the WCI was largely the result of a painful economic slowdown and continually rising energy prices. The 2010 mid-term elections returned Republican governors in Arizona and New Mexico, both of whom campaigned against participating in the WCI cap and trade program. Arizona withdrew from the cap and trade component of the WCI.²⁸ In November 2011, the WCI received another blow when five additional U.S. states announced that they would no longer participate in the cap and trade component of the WCI. Six states have now withdrawn from the cap and trade program: New Mexico, Arizona, Washington, Oregon, Montana and Utah.²⁹

Of all the jurisdictions that initially committed to the WCI, only British Columbia, Quebec, Ontario, California and New Mexico passed legislation to enable trading to begin by the 2012 start date.

Since then, New Mexico announced its withdrawal from the cap and trade program. Most involved states declined to pass legislation due to economic conditions.³⁰ Given the share of the carbon market that would be held by the Canadian provinces and California, the WCI could go on, but the decision of the six other states to not participate was a major setback to proponents of the WCI. Just as important, the fewer the signatories, the more damaging it will be to the economies of the participants; they would be at an even greater economic disadvantage relative to those that opted out of the initiative.

Summary

Due to a strong political backlash in the midst of an uncertain recovery from the economic disaster of 2008-2009, six of the original seven U.S. states involved in the WCI carbon trading plan have withdrawn. The WCI is set to stay in effect, but it has been reduced to a rump of California along with a few Canadian provinces. Independent analysis suggested that the WCI may damage economic growth, domestic consumption and disposable income and hurt employment in the participating jurisdictions. In fact, the decision of neighbouring states to not implement the WCI will likely increase the compliance costs for the remaining jurisdictions. The volatile politics surrounding climate change policy delivered a series of setbacks to the proponents of the WCI, who envisioned a much larger and more ambitious carbon market than it appears will ultimately be created.

The WCI is set to stay in effect, but it has been reduced to a rump of California along with a few Canadian provinces.

European Union Emissions Trading Scheme



In Brief

- The European Union Emissions Trading Scheme (EU-ETS) is the centerpiece policy of the EU to combat rising GHG emissions and meet its Kyoto targets.
- There are three reduction targets: a 2 per cent reduction from a 2004 baseline by 2007, a 7 per cent reduction by 2012 and a 21 per cent reduction by 2020. The caps apply to the emitters of over 25 megawatts (MW) of heat that are responsible for 40 per cent of Europe's GHG emissions.
- The EU-ETS has not had a happy history. Generous credit allocation to member states led to an over-allocation of emissions allowances in phase one, which caused the price of carbon to plummet to near zero and led to windfall profits for firms while emissions increased.
- In phase two, the recession dampened emissions, which led to a credit over-allocation equivalent to France's emissions as well as a plummeting price for carbon.
- As the caps tighten, the program is expected to dampen economic growth across the EU, but there have thus far been no negative economic consequences.
- Opposition to the EU-ETS is largely concentrated in environmental groups that are critical of the ineffectiveness of the program and the ability of companies to make windfall profits from cheap credits.

Introduction

The EU-ETS is the centerpiece of the EU's attempt to control greenhouse gas emissions. Thus far, there is little evidence that the EU-ETS has had a significant effect on emissions, and there is evidence it has instead been a cash cow for some businesses that are profiting from cheap emissions credits.

Policy Details

The EU-ETS is the most comprehensive attempt to establish a cap and trade system. It is a centerpiece in Europe's ambition to meet its targets under the Kyoto Accord, and it operates in conjunction with carbon taxes that are already implemented across much of Europe and with the carbon trading and offset system established under Kyoto.

The emissions caps created by the EU-ETS apply to 10,000 facilities that emit over 20 MW of heat and are responsible for 50 per cent of Europe's CO₂ emissions and 40 per cent of Europe's overall GHG emissions. The initiative is broken into three stages. The first stage (2005-2007) mandated a 2 per cent reduction in CO₂ emissions from a 2005 baseline; no offsets were allowed and allowances were free. Phase two (2008-2012) requires a reduction in CO₂ emissions of 7 per cent, and allowances are still free. The aviation industry is included under the cap, and offsets are allowed to be traded. In phases one and two, member states are allowed to allocate their credits. Phase three (2012-2020) requires an emissions reduction of 21 per cent; nitrous oxide and perfluorocarbons are added

under the cap, and up to 60 per cent of allowances will be auctioned.³¹

Environmental and Economic Consequences

There have been severe problems with the EU-ETS. In phase one, the decentralized nature of credit allocation led to more credits given out than the actual amount of emissions produced in several countries. This caused the price of credits to plummet on the market, leaving little incentive for emitters to reduce their emissions, and it generated windfall profits for businesses. Emissions rose 2 per cent rather than declining by 2 per cent, the target mandated during phase one.

Phase one of the EU-ETS was, by many measures, not successful. However, supporters of EU-ETS counter that as phase one was supposed to be a trial period, errors were likely, and they would be sorted out in future phases.³² However, Sandbag, a group that monitors the emissions trading process, predicted an over-allocation of 525 megatonnes by 2012 in phase two, the equivalent of the entire emissions for France. This is the result of declining emissions due to the economic downturn that has dampened demand and caused prices to plummet.³³

This over-allocation can be attributed to two factors: the difficulty for central agencies to establish an artificial market based on regulatory caps given the volatility of emissions and economic realities, and the ability of industry to manipulate political actors to alter the rules of the artificial market to suit their own purposes, which in the case of the EU-ETS is to generate windfall profits through over-allocation.

As economist John Kay wrote in the Financial Times, "[W]hen a market is created through political action rather than emerging spontaneously from the needs of buyers and sellers, business will seek to influence market design for commercial advantage."³⁴

Another potential issue is the credibility of the offset program. Phase two was designed to link in with the Clean Development Mechanism in the Kyoto Protocol, which means offsets can be purchased abroad from countries with potentially questionable verification practices. The World Wildlife Federation released a report that questioned the validity of many of these projects, specifically noting that many would have occurred regardless of the offsets.³⁵ The WWF also thought that more than 88 per cent of the estimated carbon credit shortfall in nine states under analysis could be met by using the maximum amount of offset credits.³⁶ The sheer volume of projects being implemented in the developing world threatens to flood the carbon market and presents a cheap and easy way for emitters to appear to be reducing emissions without actually doing so.

Initially, the EU-ETS was seen to have the potential to affect high-risk industries negatively, specifically those that were limited in their ability to pass compliance costs on to consumers due to international competition. In fact, none of the direst predictions occurred, largely because the free allocation of credits and the plummeting prices minimized the impact of compliance costs, while most industries were able to pass the remainder of the cost on to consumers. This could change as the credit allocation structure is reformed, the caps tighten and the credits are auctioned in phase three.

Political Fallout

The EU-ETS has maintained the support of most industries, including the oil and gas sector. This is largely because compliance costs have been minimal because of over-allocation, while any costs that were incurred were almost all passed on to consumers due to inelastic demand. Even vulnerable industries faced minimal hardship due to the free allocation of permits. Political criticism has come largely from the left wing and environmental groups that are critical of EU-ETS because it has thus far failed to contain emissions due to permit over-allocation and because of what they perceive as industry influence over the process that has produced windfall profits. There is therefore pressure on the EU from some environmental groups to abandon the EU-ETS and implement taxes and regulations to reduce GHG emissions.

Summary

The EU-ETS has been, from an environmental perspective, largely unsuccessful. The inability of the artificial market to maintain a stable price for carbon illustrates the central challenge involved in the creation of artificial markets: Planners simply cannot accurately predict emissions levels and therefore cannot set proper emissions targets. In two of the three phases of the initiative, credits were over-allocated, allowing corporations to reap windfall profits. Emissions rose 2 per cent in the first phase. These emissions will likely fall in the second phase due to the economic recession and a lackluster recovery that is putting a damper on emissions. From an economic perspective, the damage done by the EU-ETS has been minor due to its environmental ineffectiveness. However, one analysis projected that the policy will result in a modest contraction of GDP in comparison with business as usual projections once the caps tighten in phase three.³⁷

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The Liberal Party Green Shift

In Brief

- In the lead up to a recent federal election, the Liberal Party of Canada proposed a national carbon tax.
- The policy would implement a \$10 per tonne tax, increasing to \$40 per tonne after four years. It would return revenue to taxpayers by using a combination of corporate and personal income tax cuts and subsidies to vulnerable groups.
- The Green Shift received both praise and criticism, but ultimately it became unpopular as the economy began to falter in the midst of the 2008 federal election campaign.
- The Liberal Party suffered the second-worst defeat in its history, falling to 26 per cent support. The governing Conservatives successfully framed the policy as a “tax on everything.”

Introduction

The Liberal Party’s Green Shift policy was the first proposed introduction of a carbon tax at the federal level in the country. This proposal came in the midst of rising gas prices and a slumping economy. Opponents successfully framed it as a “job-killing tax on everything.” Experts thought the tax would disproportionately punish Western Canada, which would pay more of the tax and receive fewer of the corresponding tax cuts and subsidies. On the left, the policy was criticized as disproportionately affecting low-income Canadians. Canadians ultimately rejected the policy at the ballot box, which contributed to a historic defeat for the Liberal Party.

Policy Details

In advance of the 2008 federal election, the Liberal Party, under the leadership of Stéphane Dion, launched the major pillar of its future election platform: the Green Shift. This program was billed as a revenue neutral carbon tax that was designed to rein in Canada’s greenhouse gas emissions. The Liberal Party argued that the revenue gained through the carbon tax would be returned to taxpayers through various subsidies, tax credits and personal and other tax reductions.

The carbon tax component would require an initial carbon price of \$10 per tonne of GHG emissions, rising by a further \$10 a tonne per year until it reaches a maximum of \$40. This tax would not apply at the gas pump due to the current federal excise tax that already applies to gasoline for automobiles, which is equal to a carbon tax of \$42 per tonne.³⁸ The new carbon tax would not be in addition to this excise tax on gasoline for cars. It is estimated that the tax in fourth year would bring in over \$15-billion, and with that revenue, the Liberals planned to do the following:

- Cut the bottom tax bracket 10 per cent, from 15 per cent to 13.5 per cent and cut the middle-class tax rates from 22 per cent to 21 per cent and 26 per cent to 25 per cent.
- Cut corporate tax from 15 per cent to 14 per cent within four years and cut the small-business tax rate by 1 per cent in addition to the decrease in corporate tax.
- Increase the Northern Residents Deduction to \$7,000 from \$6,000 and introduce a green rural credit to compensate rural residents for higher energy costs.

- Introduce the Liberal 30-50 plan to cut poverty by 30 per cent and child poverty by 50 per cent within five years by introducing a universal child-tax benefit of \$350 and a \$1,850 refundable employment credit, by enriching the Working Income Tax Benefit and by making the Disability Tax Credit refundable.³⁹

Environmental and Economic Consequences

Due to the short-lived nature of the Liberal Party proposal, little in the way of thorough analysis has been done to estimate the economic impact it would have had.

Carbon taxes overall have been supported by many economists across the political spectrum. Many free market-oriented economists support revenue neutral carbon taxes. For example, Dr. Ross McKittrick, a well-known critic of radical anti-capitalist environmentalism, argues that levying a carbon tax could benefit the economy by focusing state taxation efforts on consumption as long as taxes on income and investment are commensurately reduced. If the reductions in income and investment taxes are sufficient, this strategy of shifting to a carbon-based consumption tax might constitute an effective strategy for reducing emissions without harming economic growth.⁴⁰

Additionally, Jack Mintz, former CEO of the C.D. Howe Institute and a professor at the University of Calgary, has argued that carbon taxation is a superior alternative to cap and trade.

However, Dion's tax plan contained a number of elements that alienated key constituencies, which made it difficult for the plan to gain political traction. One fundamental design flaw with the Green

Shift proposal was that it exacerbated regional tensions in Canada and was seen as a wealth transfer from Alberta and Saskatchewan to the East. In 2008, with only 2 per cent of the population, Alberta emitted 33 per cent of the GHG. According to Mark Jaccard of Simon Fraser University, who was instrumental in designing British Columbia's carbon tax, "If the money from a carbon tax is paid back to Canadians through income-tax cuts and credits, Alberta companies and consumers could pay more than one-third of the billions collected in a carbon tax, while getting just a fraction back in rebates." While a revenue neutral carbon tax could theoretically be constructed to ensure regional equity in the tax, this was not the case with Dion's Green Shift.⁴¹ The perception of an uneven impact of the Liberal's carbon tax proposal alienated large numbers of Canadians.

As noted earlier, little thorough research has been dedicated to evaluating the economic implications of the Green Shift proposal. There has been commentary in the press by academics and business leaders who primarily addressed the merits and drawbacks of the proposal at an abstract level without doing a thorough analysis. Nonetheless, the media narrative was dominated by the impression that the Green Shift would be economically devastating, particularly in Western Canada, a view that gained traction when Canada's economic forecast grew bleaker in 2008.

Political Fallout

The Green Shift originally drew accolades from the mainstream media for being a bold and daring policy, and it was sometimes described as the first big idea the Liberal Party had presented since the Chrétien years. However, the Conservative Party, in framing the issue as one of taxes rather than the environment, soon used it as fodder.

While the Liberals claimed the Green Shift was revenue neutral, this claim was repeatedly called into question. Personal and corporate taxes made up the bulk of the revenue collected, but taxpayer money was also to be used for a dizzying array of tax credits and subsidies. The Conservatives gained enormous favour with the public by framing the Green Shift as Dion's "Tax on Everything" and by saying that Liberal tax and spend policies would destroy jobs and lead to higher costs for families. Harper said in a speech before the campaign that the tax would "screw everybody."⁴² Polling data suggest that the electorate maintained a deep skepticism about the ability of the Green Shift to benefit the economy,⁴³ and with economic concerns front of mind during a downturn, this proved highly damaging to Liberal electoral prospects.

The Green Shift proved unpopular with the electorate, and the Liberals faced their worst election defeat as a percentage of the popular vote since the late 1890s. The Liberals dropped from 103 seats to 77 and to 26 per cent of the vote nationwide.⁴⁴ It is impossible to say how much of this decline can be attributed to the Green Shift. However, it was one of the most discussed policy proposals during the election, and political commentators and analysts mostly agree that the Green Shift had a significant negative effect.

By not focusing on their policy proposal since the election, the Liberal Party has implicitly acknowledged that the Green Shift contributed to its defeat. Since their disastrous 2008 showing, they have all but abandoned the carbon tax as a prominent policy plank, even when Michael Ignatieff, a past vocal supporter of a carbon tax, assumed the leadership of the party.⁴⁵ Aside from the Greens, climate change policy was not an issue in the 2011 federal election compared with 2008. At the federal level, it appears that the failure of the Green Shift made carbon taxes politically toxic in Canada.

Summary

The Green Shift contributed significantly to the Liberal Party's catastrophic defeat in the 2008 federal election. Opposition to the Green Shift intensified as the economy soured in late 2008, and the Liberal Party struggled to explain the policy clearly. Furthermore, many analysts convincingly argued that the policy would produce disparate effects cross the country, taxing Western provinces disproportionately and leading many in the West to view the policy as fundamentally unfair. The carbon tax is seen as political suicide at the federal level, and with the exception of the Green Party, it has been all but abandoned by the major federal parties.

*The carbon tax is seen
as political suicide at the
federal level.*

British Columbia Carbon Tax



In Brief

- British Columbia's carbon tax was one of Gordon Campbell's key legislative achievements in his second term as Liberal premier, and it was the second provincial carbon tax implemented in Canada.
- The tax would start at \$10 per tonne of CO₂ emissions and rise to \$30 per tonne in 2012. The policy would be revenue neutral with revenue returned to taxpayers in the form of corporate and personal income tax cuts.
- The policy led to a rise in energy costs that disproportionately affected low-income families and small businesses; however, most of the impact has been outweighed by the positive effect of the tax cuts.
- Liberal Party popularity initially suffered a major hit with two-thirds of the public opposing the tax. However, support for it recently increased. The carbon tax no longer appears to negatively affect the prospects of British Columbia's Liberal Party. It now has unanimous support from both major political parties.

Introduction

The British Columbia carbon tax was the second provincial-level carbon tax introduced in Canada, behind a more modest initiative by Quebec. The tax did not draw the ire of business groups that preferred the revenue neutral tax to the rival NDP's regulatory policies. It faced opposition from taxpayers groups that argued it would disproportionately affect small businesses as well as criticism from some on the left who argued it would harm low-income British Columbians. Over time, this tax secured more public support, particularly after the NDP reversed its position and came to support the tax. Comparatively, the B.C. carbon tax can be seen as one of the more successful environmental initiatives that we examined in this series.

Policy Details

On July 1, 2008, the government of British Columbia implemented a carbon tax, the second in Canada. The tax was designed to be genuinely revenue neutral with all the revenue collected returned in the form of other tax cuts. B.C.'s tax was implemented at \$10 per tonne of CO₂ equivalent emissions and was scheduled to increase \$5 per tonne annually, with a cap of \$30 per tonne on July 1, 2012. Unlike the Green Shift proposal, the B.C. carbon tax would apply to fuel at the gas pump.⁴⁶

To ensure that the tax would be revenue neutral, the B.C. government cut the two lowest tax brackets by 2 percentage points in 2008 and 5 percentage points in 2009. For businesses, the general corporate tax rate was cut from 12 per cent to 11 per cent, and the small business corporate tax

rate was reduced from 4.5 per cent to 3.5 per cent. A low-income Climate Action Tax Credit was also implemented to help low-income residents adjust to higher energy prices.⁴⁷

Environmental and Economic Consequences

Although the tax was billed as revenue neutral, questions soon arose about whether the tax might be causing economic distress for economically vulnerable individuals and some industries in British Columbia. The tax would fall heaviest on energy-intensive industries such as manufacturing and utilities, while low-income citizens would feel the most pain, since they spend a greater portion of their income on energy costs. The Canadian Taxpayers Federation and the New Democratic Party of British Columbia opposed the tax, although for different reasons, with the former concerned about the impact on small businesses and the latter primarily concerned with the effect on low-income households.⁴⁸ There has been limited empirical research on the economic impact of the B.C. carbon tax. Many economists have suggested that the tax is too small at present for a full economic assessment to be feasible.⁴⁹ However, it is worth noting that even with the tax in place, British Columbia remains one of the most-competitive jurisdictions in Canada, with lower unemployment and higher growth than the national average.

Political Fallout

Since its inception, the B.C. carbon tax has steadily gained support. When it was announced, the vast majority of residents opposed it—59 per cent according to a poll by Ipsos Reid.⁵⁰ Since then, opposition has softened, with support reaching 48 per cent in 2009 according to an Environics poll.⁵¹ A recent study by the Pembina Institute found 33 per cent thought the carbon tax would benefit British Columbia, and 27 per cent said it would be economically harmful. The remainder thought it would be neutral.⁵² Much of the criticism of the proposal was blunted by the tax's revenue neutral nature, as British Columbians households and businesses received significant tax relief in other areas that eased the burden of higher energy prices. Most importantly, political leaders are increasingly lining up behind the tax. Liberal Premier Christy Clarke indicated that she remains supportive of the tax, while the NDP, under leader Adrian Dix, reversed its opposition to the carbon tax and declared its support for the tax. Only B.C. Conservative Party leader John Cummins remains opposed, but that party does not have a strong parliamentary presence.⁵³ There are few visible faces around which latent opposition to the tax can rally. While anti-tax sentiment in British Columbia is on the upswing, it has largely been confined to opposition to the Harmonized Sales Tax. At least in the short term, there is little prospect for policy reversal and the elimination of the carbon tax in British Columbia.

Summary

The B.C. carbon tax implemented by Liberal Premier Gordon Campbell proved less politically unpopular than the Green Shift proposed by the Liberal Party of Canada. The mechanisms by which revenue neutrality would be assured were relatively straightforward and easily understood, and this muted some opposition. While opposition to the tax initially had traction, over time, the initiative became more politically palatable. However, there are limits to its popularity in British Columbia. Recent polls suggest that there is little appetite for further increases in the tax.⁵⁴ As the pressure on energy prices increases, the support for the tax may begin to erode. In the meantime, in the midst of multiple policy failures and full or partial reversals in North America, the B.C. carbon tax can generally be seen as a relatively bright spot for proponents of carbon pricing.

Much of the criticism of the proposal was blunted by the tax's revenue neutral nature, as British Columbians households and businesses received significant tax relief in other areas that eased the burden of higher energy prices.

Australia Carbon Pollution Reduction Scheme



In Brief

- Carbon emissions reduction has been a fierce topic of debate in Australia since the election of Kevin Rudd's Labor government in 2007.
- The Carbon Pollution Reduction Scheme (CPRS) set a target of 5 per cent emissions reduction by 2020 and up to a 15 per cent reduction if a global GHG emissions reductions agreement was reached. The long-term goal was a 60 per cent reduction by 2050 by applying a cap and trade program to emitters of over 25,000 megatonnes of CO₂ equivalent.
- After a widespread backlash, the policy was watered down to accommodate industry groups.
- Steeper energy prices, shrinking domestic consumption and GDP, and a loss of jobs were predicted. The agriculture and coal sectors in particular would feel pressure.
- Despite Rudd's compromises, the Senate rejected the plan twice, and this ultimately contributed to the loss of Rudd's leadership of the Labor Party. Malcolm Turnbull lost his leadership over the Coalition to hardliner Tony Abbott for compromising on the CPRS.
- The recent revival of the CPRS by Prime Minister Julia Gillard in the form of a carbon tax has led to record disapproval ratings for the Labor Party, and some prognosticators suggest that this will increase its likelihood of defeat in upcoming elections.

Introduction

The CPRS and its successor policy recently proposed by Gillard have been a highly controversial topic in Australian politics. With the country heavily dependent on coal-fired electricity generation, the impact of such a policy on the economy could be severe. The backlash to these proposals cost the job of a prime minister and an opposition leader and may contribute significantly to a defeat for the current Labor government.

Policy Details

Over the better part of a decade, a fierce debate has raged in Australia as to the appropriateness of various climate change policies. Tony Abbott and his Liberal Party remain staunchly opposed to carbon pricing, claiming such policies are "socialism masquerading as environmentalism,"⁵⁵ while the governing Labor Party of Australia has attempted to navigate climate change legislation in Parliament to secure the support of the Greens in the governing coalition that was led by Labor. The first attempt was Kevin Rudd's signature cap and trade policy, the CPRS. This program set a target of 5 per cent emissions reductions by 2020, rising to 15 per cent if a comprehensive global agreement was reached, and a long-term goal of 60 per cent emissions reductions by 2050 compared with a 2000 baseline. The caps would apply to emitters of 25,000 megatonnes of CO₂ equivalent annually.⁵⁶

Although the CPRS was abandoned and Gillard promised not to pursue cap and

trade or carbon taxes, such an environmental initiative became a necessary requirement for the continued support of the Green Party in the governing coalition. The carbon tax would apply to the 500 largest polluters and would amount to a tax of \$24 per tonne of CO₂ equivalent for the first three years. Half of the revenue collected would be used to compensate individuals for higher energy costs, and 40 per cent would be used for grants and subsidies to help industry adjust, with the remainder going toward clean energy and energy-efficiency programs. The long-term target was increased to 80 per cent emissions reductions by 2050 from a 2000 baseline.⁵⁷

Environmental and Economic Consequences

Australia, more than any other country in the developed world, is vulnerable to the economic impact of emission reduction schemes because coal-fired plants generate more than 80 per cent of its electricity. The CO₂ intensity of Australia's electricity supply is the highest of any Organisation for Economic Co-operation and Development (OECD) country and 98 per cent higher than the OECD average.⁵⁸ The abundance of black and brown coal kept electricity prices low, but it has also ensured that Australia has the highest GHG emissions per capita with total emissions roughly the equivalent of Britain despite the fact that Australia has only one-third the population. Because of this, efforts to rein in GHG emissions are likely to be measurably more economically painful in Australia than elsewhere.

Several economic impact studies that estimate the effect of Rudd's CPRS on the Australian economy were released.

When the matter was brought before government committees, the coal industry voiced strong opposition to the initiative. Industry members argued that the system is flawed, as it does not provide adequate assistance to trade-vulnerable industries. Assistance was to be given to industries that produced 25 per cent of emissions, when in reality trade-vulnerable industries are responsible for 40 per cent of Australia's emissions. Due to this formula, a vulnerable coal sector would not receive beneficial treatment in the allocation of free credits.⁵⁹ In the end, changes Rudd made to the legislation did provide assistance to all electricity generators, but it was insufficient to quell the concerns of the industry, which feared an influx of cheap coal from the United States, which has no parallel emissions reduction initiative.

The Australian Farm Institute (AFI) conducted a study to estimate the effect of the scheme on the agriculture sector. It found that in the absence of worldwide action on climate change, there would be severe negative effects on the agriculture sector due to the increasing cost of carbon inputs if the CPRS were implemented. AFI farm-finance modelling projected a reduction in farm cash margins of 18 per cent by 2020. The Centre for International Economics modelled an impact on agriculture production of between -1 per cent and -2 per cent for the grains sector and between -9.1 per cent and -28.2 per cent for the beef sector relative to a business-as-usual scenario. The only model that produced modest effects assumed worldwide action on climate change, which would mean that Australia would not have a competitive disadvantage. In this model by the Australian Bureau of Agriculture and Resource Economics, production by 2020 would vary between 3 per cent and 5.3 per cent for the grains sector and between -1.6 per cent and -8 per cent for beef and sheep.⁶⁰

A study presented at the 12th annual conference of Global Economic Analysis showed there would be negative macroeconomic effects from Rudd's climate policy. Real GDP was estimated to be 1.5 per cent lower in 2025 compared with the baseline. Projections also suggested that household consumption would decrease by 2 per cent over that time from the baseline level despite the household reimbursements through the CPRS system. At a sectoral level, the study found benefits to the renewable energy sector due to some substitution of energy sources, and to the forestry sector, but it found harmful effects to energy-intensive industries.⁶¹

Due to the recentness of the announcement of the new carbon reduction scheme and its proposed carbon tax, little research has been done to estimate the effect of the revamped proposal on the economy. However, government projections estimate that average electricity bills would increase by \$550 per year, which would be returned to the consumer through tax rebates. It is unclear, however, if there would continue to be compensation as the initiative shifts to carbon trading, the caps tighten and the electricity prices soar higher.⁶²

Political Fallout

As in North America, carbon pricing policies have been highly controversial in Australia for largely economic reasons. The country is dependent on coal for its energy production, and its coal and mining industry is important to the overall economy. Additional taxation or regulation could threaten jobs and result in significantly higher energy prices. The backlash from industry groups and members of the parliamentary opposition in the Liberal-National Coalition to Australia's original cap and trade program was swift and fierce. Rudd faced enormous problems in securing passage

of the bill, as his party did not control a majority in the Senate.

In broad consultation with stakeholder groups, Rudd began a year-long process to mute the opposition by watering down the proposal. On May 4, legislation that incorporated several changes from the original draft was introduced. In light of international agreement, the target was hiked from 15 per cent to 25 per cent, and handouts to businesses were littered throughout. As a result, the legislation lost the support of the Greens, who opposed what they viewed as low targets and "industry giveaways." Ultimately, the bill was defeated, which resulted in a devastating PR blow against what Rudd had deemed his top priority.

In light of this failure, Rudd approached Coalition leader Malcolm Turnbull to negotiate a deal to secure the passage of the CPRS in the Senate. The deal made the "Global Recession Buffer" a permanent feature, increased transitional assistance to the coal industry to \$1.5-billion and increased assistance to households by \$4-billion to \$7.3-billion through the Electricity Sector Adjustment Scheme. The new proposal also included a \$1.1-billion fund to help medium and large manufacturing companies adjust to higher electricity prices in the early years of the program.⁶³ This deal sparked outrage in the Coalition, as many members were against any sort of CPRS. Malcolm Turnbull was defeated as leader and replaced by Tony Abbott, who took a hardline position on CPRS and ensured its subsequent defeat in the Senate 24 hours after taking the reins as leader.⁶⁴ With public opinion against Rudd, he did not request that Parliament be dissolved; he shelved the bill indefinitely. Popularity for Rudd's government reached abysmal levels after it came under attack from both the right and left. Rudd was replaced as leader of the Labor Party by

Julia Gillard, who promised not to revive his cap and trade initiative or implement a carbon tax.⁶⁵ Nonetheless, the Labor Party took a hit in the following election; they were only able to hold on to government in co-operation with Green and Independent MPs.

In 2011, Gillard backtracked on her promise not to pursue an emissions reductions scheme, announcing a carbon tax as a transitional measure to a functioning carbon market. Australia's carbon tax bill passed into law in late 2011, and it is scheduled to come into effect in the summer of 2012. The opposition coalition and other groups opposed to taxes on carbon immediately attacked Gillard's decision to implement a carbon tax.⁶⁶ Support for the Labor Party plummeted following the announcement, with the Conservative opposition showing 61 per cent support to Labor's 39 per cent in a head-to-head race in a poll taken shortly after the announcement. Despite an intense public relations campaign by the government, a majority of voters (54 per cent) in that poll said they thought they would be worse off under the new tax regime.⁶⁷ Opposition leader Abbott has set the stage for a future election by launching a powerful campaign against the tax, stating in an address:

This carbon tax is a bad idea because everything will cost more: At \$23 [US\$24.70] a tonne, power prices will immediately rise by 10 per cent and the cost of living of average households will rise by \$515 [US\$543] a year that you can't afford.

The Prime Minister says that most families will be compensated but you can't compensate people who lose their jobs and the compensation won't keep pace as the tax goes up and up and up.

Even on the government's own modelling, millions of Australians will be worse off—including a single income family with one

child on just average weekly earnings.

The Prime Minister says that the tax won't hurt you but why should we trust her now when we couldn't before the election? Why should we trust the Prime Minister to stand up to the Greens in the future when she can't stand up to them now?

Why should we trust this government with a new tax when we know where it will all end: with more spending, more waste, and more spin.

So I say 'no' to a carbon tax because I say 'yes' to manufacturing in Australia, and 'yes' to affordable electricity and transport.⁶⁸

It remains to be seen if voters will punish Gillard's Labor Party at the polls, but for the moment, the new carbon tax appears to be draining support from Labor, just as the cap and trade scheme before it did.

Summary

In Australia, controversy regarding GHG emissions reductions schemes has reached heights unmatched in any other country. Rudd's CPRS cost him his job. The opposition Liberal Party leader fell offside his party, as most members stood opposed to carbon pricing, and he lost his job. Gillard's carbon tax and future cap and trade proposal may well also have significant political costs. Australia's economy is particularly vulnerable to efforts to reduce GHG emissions due to its reliance on coal for electricity, making it a tough sell politically. Estimates for the CPRS indicated it would have a serious negative impact on employment, GDP and domestic consumption. With the current carbon tax proposal, families will likely pay an extra \$550 annually on energy bills. With an uncertain global economy, it is possible the new Australian carbon tax will not last past the next general election.

Norway Carbon Tax



In Brief

- Norway implemented one of the world's first carbon taxes in response to the signing of the Kyoto Protocol.
- Carbon tax rates differ depending on the economic sector; they range from \$15.93 to \$61.76 (USD) per tonne of CO₂ equivalent. The revenue goes into a consolidated pension fund.
- The policy has been only modestly successful in reducing GHG emissions. Norway has reduced its emissions intensity, but emissions have risen substantially in the past two decades due to the development of the offshore fossil fuel industry.
- There was limited political backlash to this measure partly because the government granted exemptions and discounted rates to different industries. This, however, may have compromised the effectiveness of the program.

Revenue from Norway's carbon tax goes into government accounts, so it is not revenue neutral. This revenue has been consolidated into a special pension fund that amounts to \$80,000 for every Norwegian.

Introduction

Norway, along with other Scandinavian countries, has been heralded for its early efforts to combat climate change; however, it has also been held up as an example of how carbon taxes do not reduce GHG emissions. The truth, however, is mixed. Norway has managed to contain its emissions relative to its economic growth despite its thriving oil and gas sector.

Policy Details

Norway has one of the longest-established carbon taxes in the developed world, having implemented it in 1991. Sectors are taxed at rates ranging from \$15.93 to \$61.76 per tonne of CO₂ equivalent. Heavily taxed sectors include fossil fuels and natural resources, while other sectors such as pulp and paper, fishmeal, and domestic aviation and shipping pay reduced rates. These sectors cover 68 per cent of Norway's CO₂ emissions and 50 per cent of its GHG emissions. Revenue from Norway's carbon tax goes into government accounts, so it is not revenue neutral. This revenue has been consolidated into a special pension fund that amounts to \$80,000 for every Norwegian.⁶⁹

Environmental and Economic Consequences

Norway is often used as an example of a country with a carbon tax that went wrong. Despite early initiatives in tackling global warming emissions, the country's emissions actually increased by 15 per cent between 1991 and 2008.

Higher oil prices in recent years sparked a boom in its offshore oil industry that led to increasing emissions. Supporters point to the fact that while Norway's GDP rose 70 per cent, emissions rose only 15 per cent as proof of the carbon tax's worth.⁷⁰ Additionally, emissions intensity has decreased 22 per cent since 1991, although it is worth noting that since 1996 this figure has risen slightly.⁷¹

It is likely Norway's emissions would be somewhat higher in the absence of the carbon tax. However, it is exceedingly difficult to isolate the effect of the tax from the other environmental measures and economic changes that have occurred during this period.

Another issue with Norway's carbon tax is its selective nature. Unlike B.C.'s tax, which applies equally to all businesses in a fair and non-discriminatory manner, Norway exempts many industries from the tax and grants others preferential rates. This situation is ripe for political abuse and could be a partial explanation for how Norway has continued to increase emissions unlike the Netherlands and Denmark, which have lower but less distortionary taxes that apply to all sectors. Additionally, the increased cost of energy appears to have done little to alter the habits of the Norwegians. Despite gasoline that is \$10 per gallon because of the carbon tax, the number of registered cars in Norway has increased 27 per cent in the past decade.⁷²

Despite the question of the carbon tax's effectiveness, it is clear that it did not have a severely negative economic effect on the Norwegian economy. By and large, it is a country that had already adapted to high energy prices, and even the high prices brought about by the carbon tax did not dampen consumer demand for energy-intensive products such as automobiles. High oil prices have also ensured a thriving

oil and gas sector that more than offsets the carbon penalty and allows for industry expansion. As noted, Norway's GDP soared 70 per cent despite the implementation of a carbon tax. Again, we can see an inverse correlation between the effectiveness of the tax and the impact on the economy.

Political Fallout

There was little in the way of discernable political fallout from the Norwegian carbon tax. Most major parties on both the left and the right support the tax, while industry has adapted to its use and in some cases support it (e.g., Statoil).

Summary

The Norwegian government escaped political backlash over the carbon tax because of the generous granting of lower tax rates and exemptions for trade-vulnerable industries. This played a part in compromising the effectiveness of the tax and contributed to an overall increase in GHG emissions. With that said, two decades after the implementation of the tax, the fossil fuel industry has adapted and improved its energy efficiency. Statoil's emissions are 39 per cent of the industry average largely because of investments made by the company to reduce its tax burden. Norway's emissions intensity has also declined, with its economy growing 70 per cent compared with a 15 per cent increase in GHG emissions. Absolute emissions have gone up, but there is evidence that the carbon tax made an impact in curbing emissions. It is clear though that even a carbon tax rate as high as Norway's is sometimes insufficient to change consumer and business behaviour to the point of producing absolute emissions reductions.

Discussion and Conclusion

This policy study used a case study approach to assess the consequences of carbon pricing policies that were either proposed or enacted in several jurisdictions around the world. We sought to evaluate these based on whether they achieved their stated objective of reducing carbon emissions, and whether they had (or were projected to have) significant negative economic effects such as slower economic growth, reduced investment, higher unemployment or higher energy prices that effect low-income families and business development. Furthermore, we looked at the political consequences of carbon pricing policies and proposals.

We drew several broad conclusions from these case studies. First, the case studies suggest that carbon taxes are preferable to cap and trade from both an environmental and economic perspective. It is extremely difficult for any central planner to establish regulations for an artificial market that are fair to businesses and consumers alike. The political nature of the process allows emissions trading to become a hotbed of rent-seeking, with interested parties seeking favourable regulations, loose offset criteria or free permits that allow them to avoid compliance costs or even reap profits. Of course, businesses and industries that cannot navigate through the politics are punished disproportionately. Even setting aside the weaknesses in a politically constructed market, it is difficult to anticipate future emissions and to establish proper caps given the fluid nature of the global economy.

The failure of cap and trade can clearly be seen in the implementation of the EU-ETS and the RGGI. In both cases, an inability to predict emissions led governments to over-allocate permits, causing a collapse

of carbon prices. The EU-ETS scheme simply handed out permits in the initial stage instead of auctioning them, and this resulted in windfall profits for participating firms. In phase one of the EU-ETS, the collapse in the price of emissions was attributable to a lack of co-ordination of member states and simple failures of foresight. With RGGI and phase two of the EU-ETS, the collapse in the price of emissions was due to the inability to adapt to the reality of emissions reductions that occurred because of the global economic downturn. On balance, history has shown that it is difficult to establish an effective cap and trade policy. Carbon taxes, on the other hand, are somewhat easier to implement effectively.

Second, while the case studies suggest that carbon taxes are preferable to cap-and-trade, the drawback, of course, is that without regulatory caps, the size of emissions reductions is difficult to predict and may be disappointing to policy-makers. Norway's experience shows that with such an inelastic commodity, it takes a substantial tax burden to alter consumer and business behaviour. However, despite rising emissions in Norway, progress has been made in curbing emissions relative to GDP without any severe economic damage. A drawback of Norway's carbon tax is that it is not revenue neutral. If the tax were offset with corporate and personal income tax cuts, a higher rate that is capable of further altering behaviour would be less likely to drastically restrict economic growth.

We further conclude that carbon pricing plans have a much greater likelihood of earning popular support if they are truly revenue neutral, and include transparent "revenue recycling" provisions that

automatically return any revenue from carbon pricing back into the economy. Political opposition to carbon prices often coalesces around the notion that such policies are “tax grabs,” designed to increase government revenues. Examples include the grassroots pressure that prompted the withdrawal of several American states from the WCI and RGGI, as well as the opposition that developed to the Liberal Party of Canada’s proposed Green Shift, which was successfully framed by the Conservative party as a “tax on everything.” The British Columbia Carbon tax, with clear and easily understood revenue recycling provisions, provides an example of how this type of opposition can be minimized if politicians are willing to resist the temptation of using carbon pricing plans as a tool for revenue generation.

Additionally, our case studies suggest that it is not necessarily sufficient for a carbon pricing plan to be revenue-neutral across an entire jurisdiction. If a specific region or group of individuals perceives itself to be disproportionately harmed by the policy, the result is likely to be fierce, concentrated political opposition that may successfully derail implementation. The proposed federal Green Shift in Canada provides a clear example. Strong regional opposition developed in Western Canada, where large numbers of residents and local politicians were convinced that it would result in economic harm for that region. Similarly, opposition to the effort to enact cap and trade legislation at the federal level in the United States had a partially regional character, as politicians in key states where there was particular concern about the impact on local economies led the opposition. This phenomenon was most clearly illustrated when a Democratic candidate for Senate in the state of West Virginia bucked his own party leadership and strongly opposed the legislation,

“...in a jurisdiction like Canada, where a nationally applied price on carbon would likely have a disproportionate economic effect on specific regions.”

actually shooting a bullet through a copy of the legislation in a campaign commercial. In British Columbia, significant opposition to the carbon tax actually developed on the left wing of the political spectrum, as New Democratic Politicians argued that the tax might disproportionately disadvantage low-income residents. In the case of British Columbia, this opposition was eventually overcome, yet it is nonetheless significant that this argument constituted one of the major sources of political opposition to the law.

These case studies illustrate the importance of recognizing that carbon taxes will usually not be revenue neutral for each individual, business or geographic region, meaning some people and businesses may be disproportionately harmed unless compensation schemes are exquisitely well designed. This can lead to fierce political opposition from those most harmed by the carbon tax. This is particularly true for energy-intensive industries and low-income citizens who tend to spend a greater share of their income on the cost of energy.

This factor is particularly important to consider in a jurisdiction like Canada, where a nationally applied price on carbon would likely have a disproportionate economic effect on specific regions. Although a tax may be revenue neutral across the country, specific regions would likely be disproportionately affected even

“Across North America, we have seen that the strong perception among the electorate that carbon pricing will harm economic performance has, on several occasions, generated fierce political resistance movements...”

if the money were returned to the private economy through reductions in other taxes. Specifically, the people of Alberta and Saskatchewan would almost certainly end up paying far more into a carbon tax than they would receive in federal tax cuts because of the energy-intensive nature of their economies. Regionally differentiated effects such as these are likely to result in strong political opposition in disadvantaged regions of a country unless steps are taken to ensure that the burden of climate policy is not borne disproportionately by the residents of particular provinces.

Finally, our case studies suggest that in natural resource intensive countries with high rates of energy consumption per capita such as Canada, Australia and the United States, significant action on climate change is often extremely difficult politically. Given the nature of these economies significant emissions reduction proves more difficult because the likelihood of a significant trade-off in terms of economic growth may be greater. In Europe cap and trade and carbon tax policies have been, on balance, less controversial.

This can be seen also at a sub-national level, For example the Liberal Party “Green Shift” was more unpopular in Alberta compared to Eastern Canada.

The case studies paint a somewhat bleak picture for politicians who wish to embark upon carbon pricing in North America. Of the major initiatives examined in this report, only the BC Carbon Tax appears to have been implemented effectively and seems to have little prospect of repeal in the immediate future. On the other hand, the two regional cap and trade initiatives, the RGGI and WCI have seen key members withdraw, while federal efforts to implement carbon pricing in both countries led to a significant political backlash and contributed to the defeat of the politicians who supported them. Across North America, we have seen that the strong perception among the electorate that carbon pricing will harm economic performance has, on several occasions, generated fierce political resistance movements that have ultimately been successful at frustrating the ambitious plans of carbon pricing supporters.

While, on the whole, our case studies suggest that politicians in North America who have aggressively pursued carbon pricing have often paid a political price, they also offer some lessons concerning how certain policy design features may be able to mitigate political backlash. Specifically, if carbon pricing policies compensate groups and regions that are most likely to be harmed and include transparent revenue recycling mechanisms, it is less likely that fierce political opposition will emerge. These factors help explain the political survival of the carbon tax in British Columbia, when ambitious carbon pricing has frequently failed politically elsewhere in North America and in Australia.



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Further Reading



November 2011

The Myth of Carbon Reduction Laggards

By Ben Eisen, Jonathan Wensveen and Kenneth P. Green

<http://www.fcpp.org/publication.php/3989>



April 2011

Green Jobs

By Ben Eisen and Kenneth P. Green

<http://www.fcpp.org/publication.php/3740>

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