

We All Own the Air:  
Why a Carbon Fee and Dividend Makes Sense for Canada

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## We All Own the Air:

### Why a Carbon Fee and Dividend Makes Sense for Canada

In Canada, the urgency of reducing Greenhouse Gas emissions and slowing down Climate Change is widely recognized<sup>1</sup>. Economists have said, for many years, that the most efficient way to do this is to make polluters pay for the “negative externalities” they are imposing on others. In the environmental, policy analysis and business communities, many agree that “putting a price on carbon” would be an efficient and effective method. There is a consensus that although the carbon price might start small to minimize adjustment costs, it should increase over time until it fully reflects the social cost of carbon, taking into account all the costs of global climate change. However, despite all this agreement, there is little carbon pricing in Canada. Starting from the understanding that carbon pricing would help reduce Greenhouse Gas emissions and slow down Climate Change, this paper therefore asks: Why is carbon pricing now seen as “good policy but bad politics” in Canada? How can carbon pricing be designed so that it can become “good politics” – and thus actually happens often enough to make an appreciable difference to GHG emissions?

An unfortunate reality in Canada in 2015 is that the opponents of carbon pricing – most importantly, the Harper government in Ottawa – have framed it as a “job-killing tax” whose implementation will “hurt the economy”. This framing feeds on the insecurities and financial anxieties of lower and middle income households in Canada, who have seen little change in real incomes in recent years<sup>2</sup>. Soft labour markets and weakened EI coverage have heightened economic insecurity and many Canadians feel pressured financially. Promises that a carbon price which visibly adds to day to day cost of living will be somehow offset by invisible benefits sometime far in the future require a lot of trust to be believed. However, the advocates of carbon pricing have not been sensitive to the immediate economic stresses facing the less affluent and have not effectively addressed their suspicion that carbon pricing is just another tax grab by government which will make ordinary Canadians worse off. Mistrust of big government, resentments of taxation and fears that carbon pricing will be a job-killing attack on hard-working Canadian families are narratives that have been assiduously encouraged for quite a few years by the current federal government. Hence, carbon pricing has become framed as implying costs and risks (potentially large), and as having only uncertain and distant benefits. As a result, no major political party in Canada outside BC now dares to openly advocate a carbon tax or to admit that pricing carbon through an equivalent cap-and-trade system will have equivalent impacts on the living costs of individual households.

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<sup>1</sup> When asked in September 2014 how much of a threat climate change poses for the planet, three-quarters of Canadians (75%) say the threat is either very serious, or serious (38%, and 37% respectively). 62% agreed that “Global warming is a fact and is mostly caused by emissions from vehicles and industrial facilities”. see <http://angusreid.org/majority-of-canadians-call-for-more-robust-efforts-to-curb-climate-change-2/>

<sup>2</sup> See Osberg (2008a, 2008b and 2014)

How can good policy turn into good politics in Canada? This paper argues that a “Carbon Fee and Dividend” (CFD) approach offers a way to reframe the debate on carbon pricing. Section 1 begins by presenting the proposal, summarizing recent polling evidence on carbon pricing and suggesting how the CFD might enable a reframing of the debate. Section 2 then asks what kind of evidence matters in the public debate on carbon pricing and compares the Carbon Fee and Dividend with other alternative carbon pricing proposals. Section 3 addresses complications and administrative issues and Section 4 is a conclusion.

## 1. The Carbon Fee and Dividend (CFD) Proposal and its Current Context

The Carbon Fee and Dividend proposal is that a fee or carbon price be charged per ton of CO<sub>2</sub> equivalent emissions for all greenhouse gas emissions and that all fee revenue would be refunded as an equal cash dividend to all citizens<sup>3</sup>. It is framed as a “fee” rather than as a “tax” because the underlying idea is enforcing compensation for a property right<sup>4</sup> - it is not taxation, whose purpose is to transfer resources to the control of government. The moral rationale is that collectively, we all own the air, so those who use and degrade the air (i.e. GHG emitters) should compensate those who own it (i.e. citizens) for the damage they are causing. By reframing carbon fee revenue as deserved compensation for degradation of the property of citizens, a CFD shifts the focus of debate fundamentally.<sup>5</sup> It therefore has a crucial advantage over other carbon pricing proposals – it just may catch the imagination of enough voters to become good politics, as well as good policy.

What is the current political standing of carbon pricing proposals? In Canada, the April 2015 Angus Reid poll<sup>6</sup> indicated soft majority support for some form of carbon pricing – as Table 1 indicates, three quarters of respondents were in favour of a cap-and-trade system and there was majority (57%) support for a carbon tax. However, support for carbon pricing has to be seen as relatively soft. Another question in the same survey found that less than half (47%) of respondents believe that cap-and-trade

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<sup>3</sup> An early advocate was Osberg (2008) – see

<http://myweb.dal.ca/osberg/classification/conference%20papers/Have%20most%20of%20us%20already%20met%20our%20k%20April%2022.pdf>

The proposal has been adopted by the Citizen’s Climate Lobby in the U.S. (see

<http://citizensclimatelobby.org/carbon-fee-and-dividend/>) and Canada (see

<http://www.citizensclimatelobby.ca/content/about-citizens-climate-lobby-canada>). For draft U.S. legislation see:

<http://dv7gcmvxe5e8l.cloudfront.net/wp-content/uploads/2014/04/Carbon-Fee-and-Dividend-April-2014.pdf>

<sup>4</sup> Phrased in this way, it has attracted the support of political conservatives, such as George Shultz and Gary Becker (2013). An alternative term is “citizenship right”, which is more popular on the left. Importantly, a CFD is not easily labelled on a standard “left-right” political continuum, which increases the probability that it can gain support across the spectrum.

<sup>5</sup> As an equal owner of a share of the common asset, each citizen therefore has an equal claim on fee revenue.

<sup>6</sup> Online survey conducted April 15<sup>th</sup>, 2015. Sample size was 1536.

See <http://angusreid.org/wp-content/uploads/2015/04/Cap-and-Trade1.pdf>

would be effective in reducing greenhouse gas emissions<sup>7</sup>. As well, Table 1 shows that most of those who support either form of carbon pricing do so only “moderately”.

Table 1  
Canadian Attitudes  
Angus Reid Poll - April 2015

	<u>Carbon Tax</u>	<u>Cap&amp;Trade</u>
Strongly Support	24%	33%
Moderately Support	33%	42%
Moderately Oppose	18%	12%
Strongly Oppose	25%	13%

Do you support or oppose Canada as a whole adopting carbon tax?

Do you support or oppose Canada as a whole joining or forming a cap and trade system?

Source: <http://angusreid.org/wp-content/uploads/2015/04/Cap-and-Trade1.pdf>

However, the framing of carbon pricing proposals can be crucial to public support – as a December 2014 poll<sup>8</sup> of 1,438 Canadians by Abacus Data illustrates. Any carbon tax has the property that tax payments will be lower for low emitters and higher for high emitters. Like a glass of water that can equally accurately be described as half-full or half-empty, a carbon tax can equally well be described in terms of its lower relative impact for low emitters or its higher relative impact for high emitters. As Table 2 illustrates, in December 2014, 78% of Canadian respondents were in favour of lower taxes on activities and products that produce lower emissions. Logically speaking, that is the same as saying that activities and products that produce higher emissions will pay higher taxes – but only 59% of Canadians were willing to say explicitly that they supported this. And when a “carbon tax” (which would do exactly the same thing as both the other options named) is mentioned, support drops still further, to 44%.

An optimistic interpretation of Table 2 is that despite years of attacks on “job-killing carbon taxes”, slightly under half of the Canadian population are still willing to declare themselves in favour of that option. Moreover, Table 2 also implies that about a third of Canadians (34%) may switch their support, depending on how a tax initiative is labelled. Specifically, a third of the population shift to being in favour of carbon taxes when “good news” (i.e. benefits to the relatively advantaged low emitters) is the focus. However, the general importance of framing also illustrates how vulnerable carbon pricing

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<sup>7</sup> Only 12% said “very effective”, 35% said “quite Effective”. Although Cap-and-trade systems are notoriously complex, the question asked offered no explanation of the concept, so it is not clear what respondents thought they were supporting.

<sup>8</sup> [http://abacusdata.ca/wp-content/uploads/2015/01/CarbonRelease\\_Dec2014.pdf](http://abacusdata.ca/wp-content/uploads/2015/01/CarbonRelease_Dec2014.pdf)

initiatives are to the “bad news” framing that Canada’s current federal government has promoted – i.e. carbon prices are “job-killing taxes”.

Table 2  
Framing the Question

Percentage of Canadians who favour/oppose:	<u>Favour</u>	<u>Oppose</u>
- Lower Taxes on Activities and Products that produce lower emissions	78%	12%
- Increase Taxes on Activities and Products that produce higher emissions	59%	28%
- Introduce a Carbon Tax that would be phased in over time	44%	38%

Source: [http://abacusdata.ca/wp-content/uploads/2015/01/CarbonRelease\\_Dec2014.pdf](http://abacusdata.ca/wp-content/uploads/2015/01/CarbonRelease_Dec2014.pdf)

Central to the Carbon Fee and Dividend proposal is the “good news” of a dividend which returns all the fee revenue to all citizens. How much do public attitudes shift when the possibility of refunding the revenue from a cap-and-trade system or carbon tax is mentioned? As Table 3 shows, American pollsters have asked that question<sup>9</sup> specifically.

Table 3 indicates that there is a significant increase in the percentage favouring either a carbon tax or a cap and trade system when a carbon pricing proposal is paired with mention of an equal refund of all revenues to all citizens. However, because these questionnaire wordings retain the terminology of “carbon tax” and “cap and trade”, they do not probe the impacts on public opinion of reframing carbon pricing as fair compensation for the use of the common property of all citizens.

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<sup>9</sup> The cap-and-trade question was (Q38A). “There’s a proposed system called “cap and trade.” The government would give permits to companies limiting the amount of greenhouse gases they can put out. Companies that do not use all their permits could sell them to other companies. Companies that need more permits can buy them, or these companies can pay money to reduce the amount of greenhouse gases that other people or organizations put out. Economists say that this system is likely to cause companies to figure out the cheapest way to reduce greenhouse gas emissions. Would you favor or oppose this cap and trade system?”  
Q38B added: “The money the government makes from selling the permits would be returned to all Americans equally by reducing the amount of income taxes they pay.”  
The carbon tax question was: Q92. “Do you think the federal government should or should not require companies to pay a tax to the government for every ton of greenhouse gases the companies put out?”  
Q92B added: “All this tax money would be given to all Americans equally by reducing the amount of income taxes they pay.”

Table 3  
U.S. Attitudes to Carbon Pricing and  
Carbon Dividends

	<u>Dec-13</u>	<u>Jan-15</u>		<u>Dec-13</u>	<u>Jan-15</u>
<u>Cap-and-Trade</u>			<u>Cap-and-Trade With Dividend</u>		
Favour	48	52	Favour	65	62
Oppose	49	42	Oppose	33	34
DK/Refused	4	6	DK/Refused	2	4
%	100	100	%	100	100
N	271	497	N	258	
<u>Carbon Tax</u>			<u>Carbon Tax With Dividend</u>		
Favour		61	Favour		67
Oppose		35	Oppose		31
DK/Refused		3	DK/Refused		2
%		100	%		100
N		497	N		509

Source: GLOBAL WARMING NATIONAL POLL  
RESOURCES FOR THE FUTURE, NEW YORK TIMES STANFORD UNIVERSITY  
Interview dates: January 7-22, 2015  
<http://www.rff.org/Documents/RFF-NYTimes-Stanford-global-warming-poll-Jan-2015-topline-part-3.pdf>

In order to stick with commonly used terms, this paper refers throughout to a “Carbon Fee and Dividend” (CFD) approach but it would be more accurate to call it a “Carbon Price and Dividend” (CPD) approach since it is, in principle, compatible with either cap-and-trade permits or carbon fees. In general, compensation for the use of property can be done in a variety of ways. For example, to get compensation when other people use privately owned land, a land-owner can charge a fee for entry onto the property or auction off a limited number of entry permits. Either mechanism will reduce the number of visitors who use the land and provide compensation for the wear and tear that they cause. Enforcing a common property right in the atmosphere is similarly compatible with either a carbon fee or a cap-and-trade system for raising the revenues which can compensate all citizens for GHG emissions.

An important political advantage of a carbon tax or carbon fee is clarity and simplicity. However, in theory, in a world of perfectly informed policy makers, cap-and-trade and carbon taxes/fees are

equivalent<sup>10</sup>. A price could be put on carbon either by specifying the quantity of carbon to be emitted and letting prices adjust (cap-and-trade) or by setting the price of carbon emissions and letting quantity adjust (a carbon tax or carbon fee). There is an ongoing debate on which mechanism is more effective in limiting GHG emissions at least cost, given real world information imperfections and administrative constraints. Since the distinguishing feature of the CFD approach is the Carbon Dividend, the focus of this paper is how to use the revenue raised by carbon pricing, not the specific mechanism chosen for carbon pricing.

However, two issues in the Carbon Tax vs. Cap-and-Trade debate remain highly relevant<sup>11</sup>. Because cap-and-trade schemes are vulnerable to special interest lobbying which undermines their impact on emissions by ‘grandfathering’ the pollution of large emitters through the issuance to them of free quota, cap-and-trade systems also reduce the revenue initially available for a carbon dividend, thereby also reducing the constituency of support for further increases in the price of carbon. Secondly, because cap-and-trade implies fluctuating carbon prices which are difficult to integrate with the tariff surtaxes and rebates for GHG emission required to maintain a level playing field for trade between jurisdictions with and without carbon pricing, carbon price revenue from cap-and-trade will be less likely to increase over time<sup>12</sup>.

Whether it is a carbon fee or quota auctions under cap-and-trade which raise revenue, when a carbon price is thought of as compensation for the use of a common property right, the owners (i.e. citizens) have the right to 100% of the revenue raised. But carbon dividend income would be before tax income<sup>13</sup>. For the same reason that the rental income of apartment owners is considered taxable income for income tax purposes, the carbon dividend income of all citizens would be income they receive in right of their ownership of property (specifically, their share of the income from ownership of the common property resource, the atmosphere). As such, their carbon dividend income should be added to all their other property and labour income from all other sources and taxed accordingly – which means in practice that the carbon dividend would be taxed at the marginal income tax rate of all citizens. Hence, the Carbon Fee and Dividend approach does not mean foregoing all the possible

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<sup>10</sup>Some advocates of carbon pricing may believe that the complexity of cap-and-trade systems will shield such proposals from political attacks, but the Harper government has been quite clear in asserting (correctly) that the two mechanisms are theoretically equivalent.

<sup>11</sup> As well, in this author’s view, a carbon tax or carbon fee also has important technical advantages. An announced carbon tax schedule provides a stable, known price signal to guide investment decisions, while cap-and-trade implies uncertain carbon costs, due to fluctuating permit prices. Because recessions depress the demand for, and price of, GHG permits, the price signal which is supposed to guide long term transition to a low-carbon economy is vulnerable to the transitory noise of business cycle fluctuations. As well, compliance with carbon quota allocations, within specific time periods, requires expensive and uncertain monitoring, which is only feasible for large emitters. In contrast, a carbon fee or carbon tax can be applied upstream, at the point of initial production or importation of carbon fuels, enabling relatively simple administration and compliance, and wide diffusion in downstream impact.

<sup>12</sup> See Section 3.3 below

<sup>13</sup> Section 3.4 below considers retained earnings from collection of a carbon price – i.e. carbon dividends that amount to less than 100% of revenue from carbon pricing.

benefits of reduced taxation or alternative investments in environmental improvement which other carbon pricing proposals promise<sup>14</sup>.

The increase in income tax revenue resulting from taxable Carbon Dividends could be used in many possible ways. When British Columbia implemented a carbon tax, tax credits were used to mollify the complaints of Northern and remote constituencies who felt particularly aggrieved by increased energy costs. Alternatively, business groups have argued that income and corporate tax cuts could be paid for by carbon price revenues. Social assistance increases or public transit investments or other environmental spending might also be deemed to be the priority. Governments of different persuasions would presumably choose differently from this menu, but they could all choose how to spend the additional revenue, while still balancing the public budget.

The Carbon Fee and Dividend approach is therefore very much a “good news” agenda. It recognizes a property right of all citizens and provides compensation for its use – with visible financial benefits to all citizens, which would be on net be positive for most households. It enables government to provide additional services and/or lower taxes, while maintaining budget balance. And it creates incentives, increasing over time, to shift away from GHG emissions, thereby helping to improve the environment, and reduce Global Warming. Politically, it reframes the debate on carbon pricing as an assertion of the property rights of all citizens – which can be a populist platform for either the left or the right.

A key feature of all carbon pricing proposals is phasing in – beginning at a relatively low level with a schedule for regular increases until emissions goals are achieved. Since individuals and firms need time to make investments in new technologies and to replace existing capital assets (like automobiles) with more efficient alternatives, phasing in minimizes transition costs. A common starting point for discussion is a carbon price in the region of \$5 or \$10 per tonne – at current Canadian emissions levels (20.1 tonnes of CO<sub>2</sub> eq per person in 2012<sup>15</sup>), that would imply revenue of approximately \$100 - \$200 per person per year. Even if paid out entirely as an annual dividend, this is initially too small to have much impact on family well-being.

“Starting Small” is undoubtedly necessary for initial acceptance and has been a key characteristic of carbon pricing initiatives, such as that of British Columbia. However, small prices have small impacts. When the momentum for further increases in the price of carbon stalls, as it has in B.C., the carbon price stays small and so does its impact on GHG emissions. Fundamentally, a carbon pricing policy which only ever implies a small carbon price and a small impact on GHG emissions and climate change is a failure. The impact of carbon pricing on GHG emissions and climate change depends on how much the carbon price increases each year, to what ultimate level. The ultimate level of the carbon price also determines how much carbon dividend income a CFD generates for citizens. The Citizen’s Climate

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<sup>14</sup> At current Canadian emissions levels (20.1 tonnes of CO<sub>2</sub> eq per person in 2012) and a population of roughly 35 million, a carbon fee or tax of \$10 per ton would initially produce total Carbon Dividend income of about \$ 7 Billion. An average marginal tax rate of 35% would imply additional federal and provincial income tax revenue of about \$ 2.45 Billion, which would increase over time as the carbon price increased.

<sup>15</sup> Environment Canada (2014:i)

Lobby in the U.S., for example, advocates a CFD<sup>16</sup> in which, starting in 2016 at \$10 per tonne, the carbon fee increases for 20 years by \$10 per year, implying a 2035 carbon price of \$200 per tonne<sup>17</sup>. In their modelling of impacts, GHG emissions are reduced substantially (-52%) by 2035, but the annual dividend still increases to \$1,152 per capita<sup>18</sup>, which would be a significant amount for low income families.

## 2. The Carbon Fee and Dividend Compared to Alternatives

Carbon pricing promises the benefit of reducing GHG emissions, at the cost of reallocating resources to less carbon-intensive uses<sup>19</sup>. Assessment of the total costs of carbon pricing, and the distribution of costs and benefits within the population, has thus become central to the debate. What is the evidence and, more importantly, what is the evidence that is likely to influence the public debate?

Policy analysts who rely on objective data may argue that if GHG emissions per capita in Canada in 2012 were 20.1 tonnes of CO<sub>2</sub> eq. per person, then a carbon price of \$10 per tonne has an initial average impact of roughly \$200 per person per year, which is quite a small fraction (0.36%) of Canada's current GDP per capita<sup>20</sup>. Although this proportion will increase over time, if the carbon price increases, most current carbon prices do not add up to a big fraction of average income. BC's carbon tax was, for example, \$30 per tonne in 2012, which added about seven cents<sup>21</sup> to the cost of each litre of gasoline, which would only have added about \$144 to annual car costs for somebody driving 20,000 Km per year. This was less than a fifth of one percent (0.195%) of median census family income in BC in 2011<sup>22</sup> and about one seventh of the decline in Vancouver gasoline prices in 2014-2015<sup>23</sup>. In Canada as a whole,

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<sup>16</sup> For some unexplained reason, the U.S. proposal (see <http://citizensclimatelobby.org/carbon-fee-and-dividend/>) gives children only a half dividend and limits each household to receiving a maximum of two child dividends, thereby considerably increasing administrative costs, since place of residence must be established for all children. It is also unclear why children, and especially children in larger families, should be discriminated against. Hence, the CFD proposal in this paper is for an equal dividend for all citizens.

<sup>17</sup> Moore and Diaz (2015) argue that if global warming adversely affects capital formation and productivity growth (particularly in poor countries) the Social Cost of Carbon increases substantially – perhaps to \$220 per tonne. Lee (2013) advocates a \$200 per tonne carbon tax by 2020.

<sup>18</sup> <http://citizensclimatelobby.org/wp-content/uploads/2014/06/REMI-carbon-tax-report-62141.pdf> Notably, the labour intensity of increased consumer spending means total employment increases by 2.1 Million (i.e. about 1%).

<sup>19</sup> Since reallocating resources means there will be less jobs in some sectors (e.g. oil sands development) and more jobs in other sectors (e.g. wind farm construction and maintenance), it is true, but incomplete, to say that carbon pricing “kills jobs”. Indeed, killing some jobs and replacing them with other jobs is an entirely intended part of moving to a low-carbon economy – but the vulnerability of carbon pricing to this framing is testimony to the importance of the economic insecurities of Canada's middle class.

<sup>20</sup> In Q1 2015, GDP per capita at market prices was \$55,378 – so \$200 would be about a third of one percent (0.36%) CANSIM Table 380-0063. Differences in impacts will typically be some fraction of that.

<sup>21</sup> Rivers and Schaufele (2012:5) report the cost as \$0.0667.

<sup>22</sup> Rivers (2012). Based on 10 litres per 100 Kilometres. In 2008, Average annual distance travelled by light vehicles in Canada was 15,153 Kilometres. Office of Energy Efficiency 2008 Canadian Vehicle Survey Update Report; Median BC census family income in 2012 was \$71,660 – see CANSIM, Table [111-0009](#).

<sup>23</sup> Pump prices for gasoline in Vancouver averaged \$1.523 per litre in June 2014 and \$1.029 in January 2015 – see CANSIM Table 326-0009

gasoline prices have fluctuated over a range that is almost nine times larger than the maximum size of the BC carbon tax<sup>24</sup>. Fundamentally, even where implemented, carbon prices have been marginal influences on carbon energy costs and market prices have remained the overwhelmingly dominant influence on consumption of carbon energy.

So why is there all this fuss about instituting a carbon tax or cap-and-trade?

In a very real sense, the objective impacts of Carbon Pricing are not all that important for the politics of carbon pricing adoption. It is the subjective expectations – what people think happens because of Carbon Pricing – which will determine their political attitudes, which in turn will determine whether carbon pricing is going to be adopted, or not. To some extent, subjective personal expectations differ from average objective outcomes because individuals' personal circumstances differ objectively from the norm – another \$150 on the annual gas bill looks very different when family income is \$130,000 compared to when it is \$30,000. But differences in personal circumstances can explain only part of the political reaction to carbon pricing.

Gasoline is a standardized commodity whose price is very visibly advertised and which consumers have to buy repeatedly, so changes in the cost of gasoline are highly salient to consumers. This produces systematic subjective over-estimation of the impacts of gasoline pricing on household well-being. In 2011, for example, when the price of gasoline had risen between January and May in the U.S. by nearly \$1 a gallon (roughly 25 cents per litre), Gallup (2011) found that 67% of Americans reported that this had caused them financial hardship (21% reported “severe hardship”<sup>25</sup>). In recent years, gasoline expenditures in the U.S. have accounted for about 5% of household expenditures, and the increase between 2010 and 2012 in average annual household spending on gasoline was only about \$500<sup>26</sup>. In 2011, median household income in the U.S. was \$50,054. Although it may be thought implausible that two thirds of Americans are objectively so close to the economic margin that they would experience financial hardship from a shock of approximately 1% of median annual income, the key political fact is that two thirds of Americans thought they were experiencing hardship because of higher gasoline prices.

Moreover, Rivers and Schaufele (2012:33) have argued that the econometric evidence on gasoline sales in BC demonstrates that “the carbon tax .. is more salient than equivalent changes in price. A five cent increase in the carbon tax, all else constant, causes gasoline demand to decline by 10.6% whereas an identical five cent increase in the market price of gasoline leads to a 2.2% reduction in

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<sup>24</sup> Pump prices for gasoline in Toronto averaged \$0.78 per litre in January 2005 and hit \$1.367 in July 2014, for a range of \$0.587. CANSIM Table 326-0009

<sup>25</sup> Gallup has asked this question since 2000, with peaks of reported financial hardship from recent gas price increases in 2005 (72%) and 2008 (71%). In 2011, a majority reported that they had made “major changes to deal with rising gas prices” (53% overall, 44% among those with incomes greater than \$75,000). See <http://www.gallup.com/poll/147593/high-gas-prices-cause-lifestyle-changes-americans.aspx?version=print> To put a 25 cents per litre price movement in context, the Toronto price of gasoline was \$1.405 per litre in June 2014 before falling to \$0.91 in January 2015 and rebounding to \$1.126 in May 2015 – see CANSIM Table 326-0009.

<sup>26</sup>See <http://www.eia.gov/todayinenergy/detail.cfm?id=19211>

litres consumed.” The good news part of the excess salience of carbon taxes is that visible modes of carbon pricing (like an explicit carbon tax) will have, if enacted, an impact on energy conservation and GHG emissions that is disproportionately large. The bad news is that individuals over-estimate the importance of gasoline prices for their financial well-being and treat increases in gas taxes as more salient than equivalent increases in the market price of gasoline<sup>27</sup>, hence their subjective expectation of carbon tax costs is way out of proportion to actual impacts – which makes a carbon tax less likely to be enacted or expanded<sup>28</sup>. Furthermore, in this situation, economic studies of the objective financial impact of carbon pricing are likely to provide only limited guidance on subjective expectations and political impacts.

An example of the limited impact of data on carbon pricing debates comes from B.C.. Peet and Harrison (2012) note that opposition to the B.C. carbon tax was most vocal in the north of the province, based on northerners’ belief that their colder winters, longer distances and the necessity of driving larger vehicles made the imposition of the tax regionally unfair. In the B.C. debate, advocates of the carbon tax cited Statistics Canada data to argue that commuters in the Lower Mainland in fact had longer trips to work than northern residents. As Peet and Harrison note, “The publication of these findings had no apparent effect.”(2012:106)

Comparisons of average commuting distances between economic regions are relatively straightforward – even if such comparisons make, in the end, little headway in affecting public beliefs. In communication with the public at large, it is much more of a challenge to defend the fairness of carbon pricing using computable general equilibrium (CGE) models<sup>29</sup> of the distributional implications of alternative carbon pricing systems. Rausch et al. (2011) argue, for example, that carbon pricing has a similar proportionate effect on upper and lower income groups. Their CGE model simulations of income distributional impacts in the U.S. indicate that the impacts of carbon pricing on income sources and expenditure uses offset each other<sup>30</sup>. Lower income groups use a higher fraction of their income to buy carbon intensive goods, and therefore face a greater increase in their cost of living when carbon pricing is implemented. In their CGE model, because capital income is a more important income source for the affluent, and because the rate of return on capital falls in general equilibrium when demand shifts away from the capital intensive energy sector, a carbon price is progressive in its impact on incomes, which offsets its regressive impact on expenditures. As a consequence, they argue that the income distributional impact of carbon pricing depends primarily on how the revenue is spent. Beck et al (2015) go even further, and argue that even without revenue recycling, a carbon tax is progressive in impacts.

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<sup>27</sup> Hastings and Schapiro (2013) found households consistently treat “gas money” differently from other income.

<sup>28</sup> Carbon taxes and cap-and-trade systems are unlikely to be equivalent carbon pricing mechanisms in this respect. Since cap-and-trade impacts on gasoline prices are variable and hard to measure, they lack both the good news of greater consumer sensitivity to taxes and the bad news of greater taxpayer resistance to implementation.

<sup>29</sup> See Araar, Dissou and Duclos (2011), Beck, Rivers, Wigle and Yonezawa (2015), Fullerton, Heutel and Metcalf (2011) or Rausch, Metcalf and Reilly (2011).

<sup>30</sup> Beck et al (2015) use Canadian data but group households into ten deciles, which are then treated as a representative household for each decile. They therefore cannot detect the intra-decile heterogeneity in impacts which Rausch et al (2011:18) found swamps inter-decile differences in impacts. Their conclusion on the progressivity of income sources impacts is even stronger than Rausch et al (2011).

Rausch et al (2011) argue that there is a tradeoff between equity and efficiency in the spending of carbon fee revenues since they find that spending carbon price revenues on equal per capita rebates has more pro-poor distributional outcomes than reducing income taxes but also implies a larger increase in average costs. However, the numbers involved are all very small – they calculate the average costs associated with a \$20 per ton carbon price plus income tax reduction policy as 0.18% of household income<sup>31</sup> compared to 0.46% for the carbon price plus per capita payment option. Given the introduction of carbon pricing, the different revenue recycling options thus produce a difference (0.28%) in income levels that is significantly less than measurement error in annual GDP estimates and far smaller than GDP growth, even over a year or two – and is also much less than the uncertainty surrounding current projections of future income levels.

As well, almost all voters will check the predictions of CGE models against personal life experience. The impact of carbon pricing on the uses of income, i.e. via cost of living increases, is an immediate reality which is easily understandable. The eventual general equilibrium impacts on factor prices predicted by CGE models are more inherently hypothetical – relatively few people will take on faith the projections of CGE simulations<sup>32</sup>. The cost of living impacts of carbon pricing are therefore crucial to the political attitudes which will determine whether it actually happens.

Although the recycling of the B.C. carbon tax included a Low Income Climate Action Tax Credit, it was initially small (\$100 per adult, \$30 for children) and has risen less rapidly than the tax itself. Lee (2013) therefore argues that by 2012, reductions in personal income tax and corporate tax made up increasingly more of the revenue recycling involved – see Figure 1. Figure 2 is also taken from Lee (2013) and portrays the average percentage cost of living impact of the BC carbon tax by income decile. The increasing size of carbon tax impacts on expenditures, in combination with the presumption of increasingly regressive distribution of recycled revenues, produces a regressive net impact – particularly at the very top, where the dividend and capital gain income deriving from corporate tax cuts is

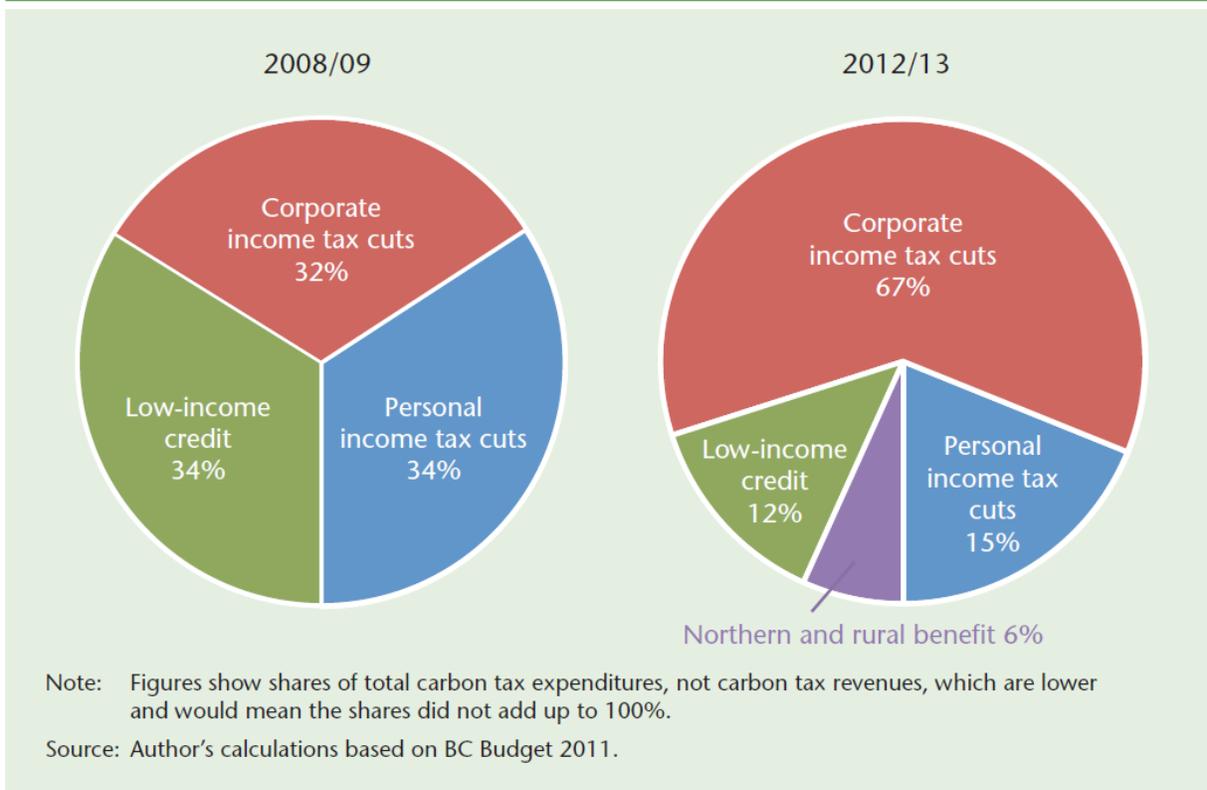
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<sup>31</sup> Araar et al (2011) do not include per capita rebates as a case for examination of income distributional impacts. Rivers (2012) argues that annual expenditures may be a guide to lifetime income and that organizing the data by deciles of expenditure, rather than income, reduces the perceived regressivity of the expenditure impacts of carbon pricing. However, using annual expenditure as a proxy for lifetime income depends on the belief that people know their lifetime income with certainty and can borrow and lend on perfect capital markets – which only a subset of economists thinks is plausible.

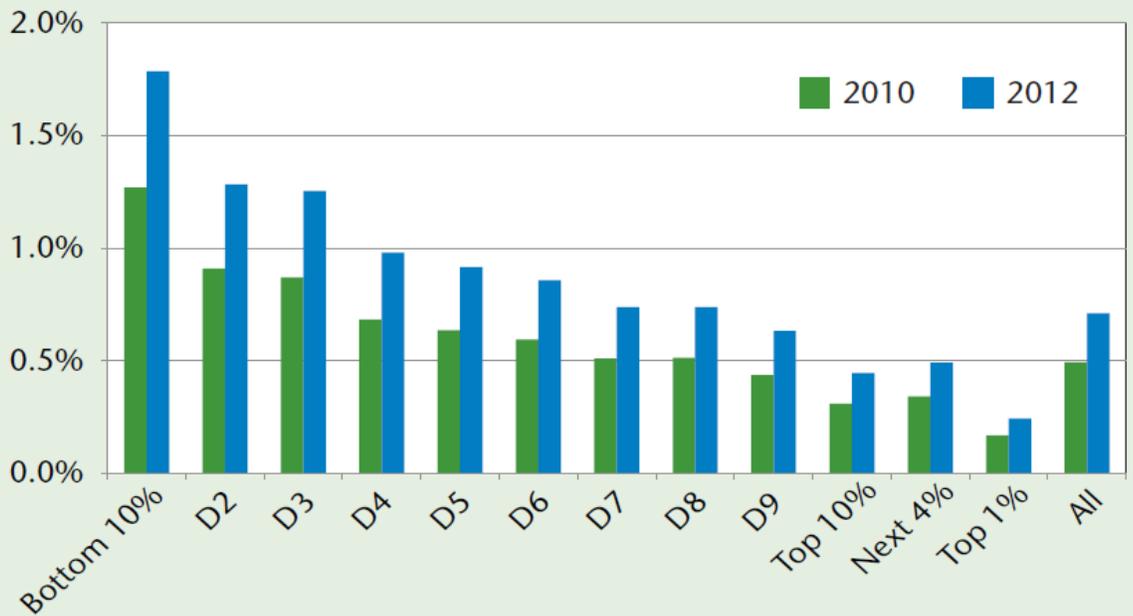
<sup>32</sup> Many economists question whether real world market forces operate with the perfection necessary for carbon pricing to eventually produce lower rates of return to capital in general equilibrium factor markets. CGE models also depend critically on the market-clearing assumption, and a crucial assumption of Rausch et al (2011) is the full indexing of transfer payments, which many find dubious. As well, the specific results of any given CGE model depend on the assumed functional forms and the parameter values chosen for crucial elasticities calibrated into the model, so any specific run of a CGE model can only show what could happen (i.e. conditional on the assumptions made). Without demonstrated robustness of results to alternative a priori assumptions, there is no way of knowing how sensitive results are – but none of the CGE models discussed above present such evidence.

concentrated.

**Figure 1: Share of carbon tax expenditures**



**Figure 2: Carbon tax as share of total income**



However, how do we know which part of the income tax and corporate tax schedule in B.C. had lower rates in 2012 because of the carbon tax? Although the government of British Columbia says that the B.C. carbon tax is revenue-neutral,<sup>33</sup> how can one know this is true? What is the counter-factual? If a carbon tax had not been introduced, how do we know for sure that personal income tax and corporate income tax rates in B.C. would not have been cut anyway? Would there have been equal percentage point changes in these different tax bases or equal percentage changes in tax rates or different rates of change in different tax bases? In Figure 1 above, Lee uses the assumptions in the 2011 B.C. budget to allocate the revenue from the B.C. carbon tax to notional changes in tax sources, but any number of other possible changes in sales tax or personal income tax or corporate income tax rates in B.C. could have been added up to the same total revenue impact.

Politically, revenues from carbon pricing may be able to claim credit for income or corporate tax reductions that are announced at the same time that carbon pricing is implemented. However, the longer carbon pricing is in place, the more difficult it becomes to argue convincingly that carbon price revenue is replacing any specific amount of this or that particular other tax. Past cuts to tax rates on different tax bases simply define the status quo from which current and future tax policy changes start. Governments can, and do, amend tax legislation every year. Over time, the exact reasons why a particular rate of tax for a particular tax base was once adopted are often forgotten (and ancient reasons are not particularly relevant to current impacts). When carbon price revenue forms part of general government revenue it is, therefore, impossible to determine exactly which specific other taxes it is replacing and therefore impossible to determine exactly whether it is in fact revenue neutral and which income groups actually benefit.

Eventually, when the revenues from carbon pricing have become embedded in the general government revenue stream, abolition of carbon pricing would mean that other taxes might have to be raised. Inertia, habituation and the imperatives of budget balancing may then protect carbon pricing from being abolished. But because the daily costs to consumers of a carbon tax or cap-and-trade quotas are highly visible, and more salient than market based variations in carbon energy prices, and because people over-estimate the importance of energy prices to their financial well-being, carbon pricing is a politically expensive way of raising government revenue. The costs of carbon pricing are visible daily while the benefits from carbon price revenues are invisible parts of general revenue. Hence, carbon pricing has a limited constituency of political support, which has two crucial long run implications:

- (1) the prospects for further increases in the carbon price are dim, despite emerging evidence that the Social Cost of Carbon may be considerably higher than the \$40-\$50 per tonne assumption guiding many current Canadian carbon price proposals;<sup>34</sup>
- (2) carbon pricing is always vulnerable to populist appeals that lower energy prices can make life more affordable for ordinary middle class families<sup>35</sup>.

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<sup>33</sup> More exactly, "revenue-negative" since taxes foregone are said to exceed carbon tax revenue.

<sup>34</sup> See Moore and Diaz (2015)

There are many claimants for the potential revenue from carbon quota auctions or carbon taxes. Business groups always lobby for cuts to corporate taxation and top personal income tax rates, and in this case the claim is that allocating carbon pricing revenue towards such tax cuts will yield a “double dividend” of efficiency and thereby increase incomes<sup>36</sup>. Some conservative economists may agree – but there is deep scepticism in the wider public. And even if it were true that income and corporate tax cuts are efficiency improving, the change in level of GDP associated with the size of tax changes that could be financed from carbon pricing revenues is so small as to be undetectable, relative to business cycle fluctuations and current general uncertainty about economic forecasting<sup>37</sup>.

Revenue recycling through income tax cuts also faces the objection that it is fundamentally unfair. If carbon price revenue is recycled through income tax cuts, the revenue benefits from the tax are concentrated among the relatively affluent, because they now pay more income tax. In public debates over income tax recycling of carbon pricing, vivid examples of inequity can have disproportionate impacts. Reporters will, for example, be able to quote the prediction of Rausch et al (2011:16) that in the U.S., when carbon pricing revenue is rebated to households via income tax reductions, the mean welfare loss for blacks is about twice as large as that for whites<sup>38</sup>.

Environmental groups have argued that carbon pricing revenues should be spent on environmental issues, particularly on reducing Greenhouse Gas emissions. However, since the atmospheric concentration of CO<sub>2</sub> depends on global emissions, added to the global stock of atmospheric CO<sub>2</sub> inherited from the past, Global Climate Change is inherently a long term issue. There is thus no promise from environmental groups that in the short run one will be able to observe any discernible temperature difference that could be directly ascribed to carbon pricing<sup>39</sup>. And when carbon pricing revenue is part of general tax revenue, there is no real reason to say which particular tax is paying for which particular program – including environmental programs – so any observed environmental improvements could equally well be ascribed to the financing of environmental programs from income tax revenues.

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<sup>35</sup> The leadership of Nova Scotia’s NDP government of 2009-2013 believed strongly that the NDP election promise to eliminate provincial value added tax on home heating oil and electricity (much of which is coal-fired) was crucial to their electoral success in 2009. This tax give-away arguably amounted to a subsidy to carbon consumption, but the new Liberal government has not rescinded that tax exemption (which will cost the province \$128 million in 2015-16) or introduced a carbon tax, despite commissioning a report which urged both (see Broten, 2014).

<sup>36</sup> Such changes in tax rates can only promise a level change in GDP – for example, as more labour is supplied in response to cut in income tax rates causing an increase in the after tax wage. Living standards in the longer term are dominated by GDP growth rates.

<sup>37</sup> As already noted above, Rausch et al (2011) find a difference of 0.28% in income levels from the efficiency benefits of cutting income taxes compared to spending carbon taxes on per capita rebates.

<sup>38</sup> The mean welfare change is very small for both groups (-0.17% for whites and -0.32% for blacks) – which implies the difference is also very small. Rausch et al (2011) find that, in general, impact differences within racial or income decile groups are much larger than between group differences in average impacts. But these nuances will likely be relegated to footnotes, if they are reported at all, and many people do not read footnotes.

<sup>39</sup> Increased carbon energy prices will, one hopes, have the observable short run implication that, for example, more people buy less powerful, smaller cars. Committed environmentalists will (correctly) see this as an instrumental benefit of carbon pricing – but many others will see it as a cost.

Spending the revenues from carbon pricing on environmental programs and making carbon pricing “revenue-neutral” by cutting income or corporate tax rates are therefore similar policies in one important respect – in both cases, the ‘good news’ benefits of the revenue from carbon pricing will very quickly be invisible to most of the electorate. In both cases, the “counter-factual” for the revenue – what would have happened if carbon pricing had not been introduced – is not at all clear, either politically or analytically. In the years after the initial introduction announcement for carbon pricing, there may be lower income tax rates or greater environmental spending, but in public perception this will be just the taken-for-granted status quo, which could have been funded from any other tax source (or added to the deficit).

Furthermore, Canadians have, for some years now, been encouraged to believe that there is no link between taxes and government services. Specifically, Canadians have been told repeatedly by their governments that tax cuts have no costs in foregone government services – that tax cuts are “all gain and no pain”. Politicians have promised tax cuts without saying what the corresponding cut in public services would be. It has been a recurring theme in Canadian political rhetoric that there is so much ‘fat’ in waste and mismanagement in government that taxes can be cut, again and again, without any real impact on the quality of life of Canadian families. Since this discourse implies that any tax increase will be “all pain and no gain”, carbon pricing is collateral damage in a broader narrative. So when Canadian political culture produces no challenges to the general proposition that taxes almost always can and should be cut, why should Canadians now believe that a new tax on carbon energy is necessary?

By contrast, the Carbon Fee and Dividend proposal establishes a clear link between a carbon price and observable short-run benefits to ordinary families because it resets the Carbon Dividend each year as equal to  $(\text{Total Carbon Price Revenue})/(\text{Population})$ . It therefore has a clear counter-factual – no carbon price revenue, no dividend payments. Because the CFD proposes a 100% return of carbon pricing revenue, via equal dividends to all citizens, there is an immediate and highly visible financial benefit, to everybody, of carbon pricing, in addition to the long run benefit of moving to a less carbon-intensive world. This creates a widely based constituency of support – which is crucial both for future increases in the carbon price and to undercut future populist appeals to make life affordable for middle class families by cutting the cost of energy.

Fundamentally, the environmental benefits of carbon pricing depend on how many mega-tonnes of CO<sub>2</sub> equivalent Green House Gases are not emitted into the atmosphere over the next several decades, which depends on how much and for how long the price of carbon increases. Given the scale of global climate change impacts, it is not nearly good enough to institute a small carbon price, which then stays small, and therefore always has a small impact on GHG emissions and climate change. It is therefore crucial that enough voters derive immediate and tangible benefits from carbon pricing that there is a broad constituency of support for continued increases in the price of carbon over time.

### 3. Complications and Administrative Issues

#### 3.1 Delivery

In the first year, the amount of the dividend could be calculated based on forecast revenues. In each subsequent year the annual dividend per person could be calculated either as (1) equal to the total carbon price revenue collected in the previous year, divided by the total population<sup>40</sup> or (2) equal to forecast revenue for the current year, plus or minus any forecast error for the previous year, divided by the total population. The CFD payable to children could be paid to their parent or guardian on their behalf.

The most visible form of payment would be as a quarterly cheque – if the carbon price is initially low, a monthly cheque would initially imply quite small payments. An alternative possible delivery mechanism, would be to integrate the CFD as a refundable tax credit within the income tax system<sup>41</sup>. The advantage would be lower administrative and mailing costs, but the disadvantage is less political visibility,

#### 3.2 Federal and Provincial Roles

If the Carbon Fee and Dividend proposal is implemented at the provincial level, the carbon dividend would be taxable income, which would be subject to both federal and provincial income tax. However, it would be unfair for the federal government to free-ride on provincial initiatives in carbon pricing. A provincial government which paid all the political costs of implementing carbon pricing would have a reasonable claim to receive all the tax revenue from such initiatives – i.e. all the carbon tax revenue or auction value of carbon permits plus all the federal and provincial income tax collected on carbon dividends paid to that province's residents.

#### 3.3 Border Taxation Issues

In the U.S. debate on carbon pricing, there is considerable concern about potential trade implications. If the carbon tax or carbon quota costs embodied in goods and services produced for export are not rebated to exporting firms, those firms will have higher costs and be at a competitive disadvantage in global export markets. Similarly, if no carbon tariff is applied to imports, and if the carbon energy embodied in imports escapes carbon pricing at equivalent levels in the origin country, imported goods will be cheaper, implying that those imported goods and services will have a competitive advantage in U.S. markets. In both instances, American jobs are put at risk. The CFD proposals for the U.S. therefore include detailed provision for remitting carbon price costs on exports and collecting carbon fees on goods imported from countries which do not price carbon<sup>42</sup>.

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<sup>40</sup> It would be reasonable to define the recipient population as Canadian citizens residing in Canada.

<sup>41</sup> If a Carbon Dividend were delivered through the income tax system as a refundable tax credit, making it made inversely proportional to income level would increase net benefits to lower income groups – but at the expense of undermining the common ownership rationale which distinguishes a carbon fee from a carbon tax. See also 3.4 below.

<sup>42</sup> see: <http://dv7gcmvxe5e8l.cloudfront.net/wp-content/uploads/2014/04/Carbon-Fee-and-Dividend-April-2014.pdf>

If carbon pricing always remains a cosmetic policy which promises environmental benefits while delivering a carbon price that remains at nuisance levels (i.e. small enough to be ignored in plant location decisions) then border issues will not matter. However, each province in Canada that initiates significantly large carbon pricing will have similar grounds for concern about trade implications, with the added complications that (1) an individual province has to worry about both interprovincial and international competition, and (2) unlike the federal government, provinces do not have the policy levers of border control and tariff policy. If carbon pricing is left to the provinces, the inability of provinces to protect themselves against trade implications (both international and inter-provincial) will therefore bias policy choices towards a “lowest common denominator” model of low carbon pricing, which will imply a low carbon dividend.

### 3.4 Partial Dividends

Even if all citizens have equal ownership of the air, and have an equal right to be paid for the use of that air, citizens might rationally decide to save some of their income from carbon pricing as “retained earnings” – i.e. only pay out part of the current year’s carbon price revenue as a current year carbon dividend. Retaining part of the carbon dividend could be justified in part by the argument that future generations, as yet unborn, will also own the air and deserve some payment for the depleted quality (due to rising GHG concentrations) of the asset that they will inherit.

The retained earnings from carbon pricing could be loaned to government and in principle could be used for any public purpose – but to be consistent with the idea that earnings are retained to benefit future generations, investment in public infrastructure or environmental improvement or reduction of the public debt might be thought most appropriate. However, whatever the uses to which retained earnings from carbon pricing are put, the moral rationale of a carbon price as deserved payment for use of the property of all citizens would require that all retained earnings be accounted for, and accumulate with interest as a defined fund. If the carbon price increases over time, the fund could grow to significant size, which could open up a plausible new option for counter-cyclical fiscal policy, since it would make macro-economic sense to vary accretions to retained earnings cyclically by declaring larger carbon dividends during recessions and smaller carbon dividends during booms.

However, whatever the technical economic advantages of a partial dividend, the political question is the important one. Does a straightforward 100% Carbon Dividend rule have a transparency that makes carbon pricing more likely to be adopted and to increase over time? Would blurring the connection between the Carbon Price and the Carbon Dividend undermine the political constituency for carbon pricing? There is no point at all to a plan for carbon pricing that never happens and there is little point to a small carbon price that always stays small – so the political implications of a partial dividend approach are crucial.

#### 4. Conclusion

Carbon pricing would be good policy, but how can it become both good policy and good politics in Canada? This essay has argued that politics depends on perceptions, and that carbon pricing opponents have been successful in focussing the debate about cap-and-trade or carbon taxes on the potential costs of such policies. When framed as a “job-killing tax” which will decrease the income and increase the cost of living of middle class Canadian families, carbon pricing is clearly “bad politics”. Since the advocates of carbon pricing cannot agree on what to do with the revenue, but their current proposals (cuts to corporate and personal income tax rates, increased spending on environmental protection and GHG emission reduction) share the characteristic that immediate benefits to the middle class will be invisible, carbon pricing is now a proposal with little “good news” to offer.

This essay has argued that the debate on carbon pricing could be reframed as being about deserved compensation and the rights of all citizens. If we all own the air, charging a fee for GHG emissions is compensation for environmental damage done. When all revenue raised is paid out as an equal dividend to all citizens, the revenue from carbon pricing then becomes an immediate, visible and deserved benefit of carbon pricing, which creates the broad constituency of support necessary to maintain and enhance that policy. The long run benefit of putting a price on carbon is to speed the transition to a low-carbon society, reduce GHG emissions and slow global warming – but none of that will happen unless carbon pricing is actually implemented and the carbon price increases over time. The Carbon Fee and Dividend proposal thus offers a way to reframe the debate on carbon pricing and a ‘good news’ agenda which may enable carbon pricing to become both good policy and good politics.

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