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Estimated Impacts of a $170 Carbon Tax in Canada
Revised Edition

by Ross McKitrick and Elmira Aliakbari

The federal government's Healthy Environment and Healthy Economy (HEHE) plan includes a $170-per-tonne carbon tax to be phased in over 9 years. Unlike previous cases when the government proposed major policy changes, it has not released any quantitative economic analyses of the impacts of the plan, except to claim that the policy will have no effect on GDP. This claim is at odds with numerous previous analyses of the costs of greenhouse-gas emission controls that were made inside and outside the federal government during discussions of the Kyoto Protocol.

In this study, we present an analysis using a large empirical model of the Canadian economy that indicates that the tax will have substantial negative impacts, including a 1.8% decline in Gross Domestic Product and the net loss of over 184,000 jobs, even after taking account of jobs created by new government spending and household rebates of the carbon charges. The drop in GDP works out to about $1,540 in current dollars per employed person.

The analytic method we use here is called Computable General Equilibrium (CGE) modeling and is one of the standard approaches for assessing this type of policy. In previous policy debates, the federal government provided multiple independent analyses using several CGE models developed within federal ministries or in the academic sector and, for comparison, provided estimates using other analytical methods that were again developed internally or in the private sector. We compare our findings and show that our macroeconomic cost estimate is almost identical to the average of six previous studies when scaled to an equivalent reduction in carbon-dioxide emissions.

In our analysis of the policy we account for the effects of the Output-Based Pricing System for energy-intensive and trade-exposed sectors and we take partial account of the effects of the Clean Fuels Standard, on the assumption that compliance will be aided by a credits-trading system that will limit the actual effect on fuel carbon intensity.

CGE models do not attempt to estimate temporary unemployment arising from a policy shock. Instead they compute "before and after" snapshots assuming that the labour market clears each time. In order for labour supply and demand to balance after introducing the carbon tax it is necessary that real wages decline. We find that real household incomes in the model decline by 2.5% nationally, but the carbon tax rebates offset much of that loss so real household consumption only declines by 1.0%. We also observe that real consumption goes down in every province. The federal government intends for the majority of Canadians to be made better off by the policy, but this may end up being difficult to achieve in practice.

We deflate the nominal value of the carbon tax to $140 to account for inflation. We estimate that a carbon tax of this magnitude will result in a 26% reduction in carbon-dioxide emissions. This will not be sufficient to reach the Paris target. We estimate that a constant-dollar carbon tax of $243 per tonne would be required to get 2030 emissions down to the Paris target, and it would need to increase continually thereafter to keep emissions constant in the context of a growing population.

A key finding of this analysis is that introducing the carbon tax will cause rather pronounced reductions in revenues elsewhere in the tax system, such that the government will not be able to refund household carbon-tax payments to the extent it has promised without going into deficit. The net increase in government revenue will only cover about 28% of the carbon taxes on final demand. If the government intends to rebate 90% of the revenue and use 10% to increase spending elsewhere, it will add about $22 billion annually to the consolidated government deficit.

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A $170 per tonne carbon tax by 2030 will result in 184,000 fewer jobs across Canada

BC	AB	SK	MB	ON
21,540	30,140	1,300	1,240	86,860

QC	NB	NS	PEI	NL
39,050	2,190	990	350	910

Projected Job Losses by Province

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