Kyoto's Real Costs

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Numerous commentators, including two lead editorials in the Globe and Mail last week, urged the federal government to stick with the Kyoto Protocol. The argument hinges on two widely-repeated assertions. First, Kyoto will prevent serious ecological consequences (such as, supposedly, the devastation of the Atlantic coast and the desertification of parts of Alberta). Second, the economic costs will be minimal: less than half a percent of annual Gross Domestic Product.

Neither claim is true. As to the first, as soon as Kyoto was signed climate experts dismissed the emission targets as meaningless. The former co-chair of the Intergovernmental Panel on Climate Change, Bertil Bolin, commented that carbon dioxide would continue to accumulate in the atmosphere at pretty much the same rate with or without Kyoto. Climate model simulations showed that Kyoto had almost no detectable effect on temperatures and sea levels. Now with the US out, and the original deal gutted with compromises at Bonn and Marrakech last year, it is at best a symbolic gesture.

To say that the "cost of not acting" includes all the worst-case possibilities of climate change is therefore misleading. Kyoto in its current form would not prevent or even delay any of these things, so if they are going to happen they are just as likely with or without ratification.

As to the cost side, Thursday's Globe editorial accused Alberta of "scaremongering" for producing a report showing Kyoto will cost Canada about 2.5 percent of GDP. The study is dismissed with the claim that no one could believes such numbers, since the real figure (according to the Environment Minister) is at most half a percent.

The fact Alberta's numbers are eye-popping is not an argument for ignoring them. They are in line with estimates done over the past decade by numerous independent analysts, inside and outside of government. Alberta is on solid ground with its numbers: it is the Environment Minister whose figures are wrong.

In 1992 Finance Canada used an in-house model to generate estimates of the costs of meeting the "Rio" target: reducing CO_2 emissions to 1990 levels by 2000. This would have entailed a 12.5 percent emissions cut, and they estimated it would have cost about 0.8 percent of GDP. This could be reduced slightly by using emission taxes instead of industry-specific standards, but the federal government has consistently ruled this option out.

The study also found that the marginal cost of emission reductions is increasing, such that a target twice as stringent would cost 2 to 3 times more. This implies that a Kyoto-type target (25 percent emissions reduction) with industry-specific standards would cost Canada from 1.6 to 2.4 percent of GDP. This study, however, ignored losses due to reduced investment since it assumed the national capital stock remains fixed.

In 1996 I wrote a report for Environment Canada costing out emission reduction targets using carbon dioxide taxes. The study pre-dated Kyoto, but I found that—taking account of capital flight—for a 20 percent emissions cut Canada would lose between 1 and 3 percent of real GDP. The range depended on assumptions about what was done with the tax revenue. The only simulation that came close to the current policy mix being discussed in Ottawa yielded a GDP loss of 2.7 percent.

Following the signing of the Kyoto Protocol in 1997 a series of studies by academic economists and independent consultants looked at the costs to Canada of ratifying and implementing emission reductions along with all our major trading partners. These studies typically assumed efficient policy instruments like emission taxes or tradable permits would be used. Cost estimates from economic models ranged from 0.2 to 2.2 percent of GDP, depending mainly on whether permits could be traded globally.

The difficulty of applying these results was that economists had no guidance about the actual policy tools that would be used. So they only simulated emission taxes or an equivalent policy. But Canada has ruled out emission charges from day one. All other policy options (including the currently popular "cap-and-trade" scheme) were found in US simulations to be at least twice as expensive as emission charges.

In 2000 Industry Canada commissioned a new study that looked at a range of policy options. A uniform emissions charge was found to cost between 1 and 1.5 percent of GDP, but if exemptions were given to certain sectors the costs quickly rose. Exempting the non-energy intensive sectors led to economic losses of 1.5—2.0 percent, while exempting energy intensive sectors and focusing policy elsewhere could cost up to a whopping 7.5 percent of GDP.

This study assumed that all our major trading partners would live up to their Kyoto commitments. As of today, however, we know they will not. The US is, of course, out for good. Mexico was never in. Japan says it is in, but its actions speak otherwise. Last month Tokyo introduced legislation in the Diet which does not include any emission charges, standards or caps on industry. The only specific measure is to create a series of local information offices that will urge households to be more energy efficient. This is the extent of their plan for Kyoto.

Under the Climate Change Action Plan the Analysis and Modeling Group looked at the costs of a "Canada Acts Alone" scenario. The Informetrica model predicted a short-term GDP increase as industry spends money to re-tool, but this reverses into a permanent decline of 2-3 percent below what GDP would have been without Kyoto. Another model (MARKAL) predicts no short-term gain and a wider range of long term GDP losses (1-4%) depending on the mix of policies. In one scenario key sectors get hammered: iron ore mining and truck assembly fall 30%, steel production falls 20%, automotive assembly, plastics and clothing fall about 15% each, etc.

Finance Canada used a new model to produce a set of simulations based on the mix of industry-specific policies proposed by the so-called "Issues Tables", set up by the feds to study climate change options. Taking the proposals at face value they estimate a 0.9 percent contraction in GDP. They note that they are (by instruction) assuming a lot of costless adjustments will take place in society, such as large-scale switching to public transit and adoption of new technologies. If these wishes don't pan out Kyoto will be, in their words, "noticeably more costly".

The study prepared for the Alberta government was done by an independent economics consulting group in Australia with an excellent reputation. Their numbers are in line with those already produced by Informetrica, DRI, Charles River Associates, the Energy Modeling Forum at Stanford University, the OECD Research Division, Industry Canada, Finance Canada, and others (including me) over the past decade. The Environment Minister's claim that Kyoto will cost "at most" 0.5 percent of GDP is at odds with a mountain of contrary evidence, much of it commissioned or produced by his own government.

The bottom line for Canada is that Kyoto will precipitate a recession that will cause a permanent reduction in employment, income and the size of our economy. And if global warming is going to happen Kyoto will do nothing whatsoever to prevent it or even slow it down. Why are we still considering it?

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