

The Impact of a Revenue-Neutral Carbon Tax on GDP Dynamics: The Case of British Columbia

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The effect of environmental taxes on GDP is a major policy concern and it continues to generate heated debates in public squares. One side argues that environmental taxes produce a negative effect on the economy since they increase costs and may also adversely affect competitiveness. The other contends that, not only can environmental taxes reduce negative externalities such as pollution and global warming, but they may also increase GDP via the double-dividend economic argument. This can notably happen when the new tax is designed to be revenue-neutral and it replaces less efficient duties, such as those applied to personal and business income.

We rely on a unique policy that was enacted by the government of the province of British Columbia (B.C.) of Canada to study the effects over time of a revenue-neutral-designed environmental tax on the province's GDP. This carbon tax was applied to a broad range of greenhouse gas (GHG) emissions originating from fossil fuel use in the province, and its coming into effect in mid-2008, and the subsequent rate hikes and their timings over the next five years, were all pre-announced. We also study the extent of tax pass-through over time into energy prices.

We apply time series methods to suitably-constructed aggregate energy price and aggregate carbon tax series, taking into account possible pre-announcements and tax saliency effects. Results from estimated impulse response functions, and from statistical comparisons of GDP changes over time in the presence and (counterfactual) absence of carbon taxes, lead to the same result: globally, revenue-neutral carbon taxation has no negative impacts on GDP. We thus conclude that implementing a pre-announced policy of revenue-neutral carbon taxation by a jurisdiction contributes to lowering harmful greenhouse gases into the atmosphere without hurting the overall economy of the associated region. We also conclude that our data span is currently too limited to inform us on whether there have been any long run positive effects on GDP. Finally, we find that pass-through of carbon tax changes into energy prices has been complete, with consumers incurring the full extent of the tax increase.

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