

Intelligence MEMOS



From: Chi Man Yip
To: Hon. George Heyman, British Columbia Minister of Environment and Climate Change Strategy
cc: Ministers of Environment and Energy across Canada
Date: May 10, 2018
Re: **WHAT DO WE LEARN FROM BRITISH COLUMBIA'S CARBON TAX?**

British Columbia's carbon tax turns 10 on July 1. Over that time, the tax, based on greenhouse gas emissions generated from burning fuels, has risen from \$10 per tonne of carbon dioxide equivalent emissions to \$30. The policy is revenue-neutral: all the money is returned to residents and firms by reductions in corporate taxes, personal income taxes, and lump-sum transfers. This policy was unique in North America because of its revenue neutrality.

That fact led many observers to think that unemployment effects would not be large. While businesses face increased costs of production, the offsetting tax reductions lessen the adverse impacts. In addition, there was hope that the carbon tax would promote green jobs and foster research and development on new abatement technologies, both of which open up job opportunities. Therefore, many policymakers and economists have been looking forward to the economic consequences: if the unemployment effect is weak, BC's carbon tax policy could serve as a successful model for other jurisdictions.

According to my research published [in the Journal of Environmental Economics and Management](#), the policy turned out to have significant impacts on BC's labor market, especially on the low-educated males. Using a difference-in-differences technique, the unemployment effect is captured by comparing the gap in unemployment between BC and other Canadian provinces before and after the implementation of the policy. I find that first, the policy caused the overall unemployment rate to increase by 1.3 percentage points. The increase is found regardless of gender or educational category. Males of lower educational levels suffered the brunt of unemployment effects: an increase of 0.6, 1.4, and 2.4 percentage points for high-, medium-, and low-educated males. The proportion of job losers (as opposed of job leavers) increased immediately after the policy, suggesting that the unemployment induced by this policy was largely involuntary. My study finds no evidence that the policy inclined layoffs towards temporary and part-time workers.

However, I find more temporary and part-time new hires of medium- and low-educated males following the policy. But for these temporary and part-time positions, the unemployment effects would certainly exceed 2.4 percentage points. Perhaps because the unemployment effect is substantial and persistent for the low-educated, their labor force participation rate drops by two percentage points after the second year of the policy.

Why were the lower-educated affected more? I find that a lot more low-educated were engaged in affected industries (i.e., energy-intensive manufacturing industries) than their high-educated counterparts prior to the policy. Some may worry that the estimated unemployment effect was driven by the recession. I find that employment trends were parallel between BC and the rest of Canada in the first six months of the recession and BC's employment fell off the trend immediately after the policy. Moreover, the unemployment effect was concentrated on BC's energy-intensive manufacturing industries, in line with the tax structure. In sum, this carbon tax policy was implemented mainly at the expense of the low-educated: because of these job losses, some were engaged in temporary and part-time jobs, and, eventually, some, being discouraged workers, left the labour force.

Carbon pricing is still the most economically efficient way to reduce emissions. What are some of the lesson to take from this study? One is that the revenues that governments collect from any carbon price need to be disproportionately shared with those most harmed by carbon pricing for the policy to be politically palatable. Now that we know whom that is, governments across Canada should look to redesign their revenue-recycling policies.

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