Intelligence MEMOS

From: Nic Rivers

To: Concerned Canadians

Date: January 6, 2017

Re: **WILL CONSUMERS RESPOND TO A CARBON TAX?**

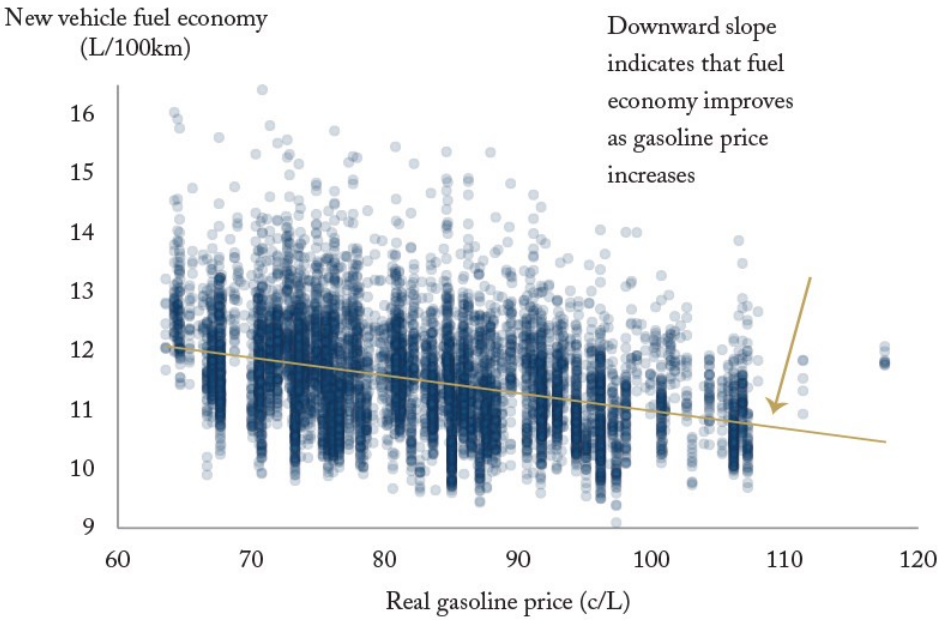
As Alberta rolls out its carbon tax this week and Ontario's cap and trade system starts up, the question for many is whether people and businesses will change their behavior and reduce fossil fuel consumption and carbon dioxide emissions in response to these policies.

The question of whether and how decision makers respond to energy price changes has been heavily studied since the 1970s. Studies of gasoline demand are particularly common. Here, I highlight several new studies that use large data sets and strong methods to provide compelling answers to the question of how consumers respond to gasoline price changes.

The first study is based on odometer readings from nearly all Danish vehicles over a 10-year period, linked to detailed information on where households live and work and other characteristics. The authors find that a 10 percent increase in gasoline prices causes the average consumer to drive about 3 percent less. The response is even larger for households that live close to work or near transit.

The second study is based on individual credit card transactions from consumers across the US, and so is able to link the exact price of gasoline paid at the pump to the quantity of gasoline consumed by each individual on each visit to a filling station. That study finds that a 10 percent increase in gasoline prices causes an immediate 3-3.5 percent reduction in gasoline demand.

Closer to home, several studies provide evidence on how consumers have responded to British Columbia's carbon tax. Each suggests that households in BC reduced gasoline consumption by 7-8% in response to BC's $30/t carbon tax. Another study by myself and a colleague quantifies how Canadians purchase more fuel efficient vehicles when gasoline prices increase. That study finds that a 10c/L increase in gasoline taxes causes a 3-4 percent improvement in fleet fuel economy. The response is illustrated in the figure below, which shows data on the average fuel economy of the new vehicle fleet in each Canadian forward sortation area (the first three digits of a postal code) for each year from 2000-2010 as a function of the gasoline price. Higher gasoline prices result in better (lower) fuel economy.



Although it is hard to see on an individual level, the evidence that carbon prices will cause consumers to reduce emissions is compelling.

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