

# Carbon taxes could create new winners and losers among countries

February 19 2019

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A global carbon tax would create new sets of economic winners and losers, with some countries holding a distinct competitive advantage over others, says new research from Don Fullerton, a Gutgsell Professor of Finance at Illinois and a scholar at the Institute of Government and Public Affairs. Credit: University of Illinois at Urbana-Champaign

Although conventional wisdom suggests that poor countries are more likely to bear a disproportionate burden of a worldwide carbon tax on fossil fuels used for electricity and transportation, the potential consequences of such a tax would vary depending on several factors, says new research co-written by a University of Illinois energy and environmental policy expert.

A global carbon tax or mandate would create new sets of economic winners and losers within each group of countries at different levels of per capita income, said Don Fullerton, a Gutzwiller Professor of Finance at Illinois and former deputy assistant secretary of the U.S. Treasury Department.

"With any sort of worldwide carbon policy, low-income countries are afraid that all the burdens are going to fall on them," Fullerton said. "But the consequences are not all that clear-cut. What we find is that there are going to be winners and losers among rich countries, [poor countries](#) and [middle-income countries](#).

"To be sure, some low-income countries are at a distinct disadvantage. But just because you're a low-income country doesn't automatically mean you're worse off under a carbon policy. It really depends on how much your economy relies on [fossil fuels](#)."

To identify the possible international consequences of a global carbon policy, Fullerton and co-author Erich Muehlegger of the University of California, Davis examined cross-sectional data on country characteristics and trade patterns for 2013-14, using country-level data on gross domestic product, GDP per capita, electricity generation by fuel type, and industrial activity by sector culled from the World Bank's annual World Development Indicators. The researchers also used the World Bank's grouping of countries into four broad income categories based on GDP per capita: low income, lower-middle income, upper-

middle income and high income.

Their analysis found substantial variation in carbon intensity and trade exposure within each of those groupings, Fullerton said.

"Within each income group, we found that a global carbon tax would benefit low-carbon economies relative to high-carbon ones, creating winners and losers within each group," he said. "What this suggests is that broadly assessing the distributional impacts of a global carbon policy by income may overlook important variations across countries with similar incomes. Basically, the whole message becomes really blurry."

Some countries would be put at a competitive disadvantage, while others with more hydropower or nuclear power would hold a distinct competitive advantage.

"Low-carbon countries would be able to sell their goods all over the world, while the carbon-intensive countries are hit with a tax," Fullerton said. "It's not that countries such as France—a high GDP, low carbon country that relies heavily on [nuclear power](#)—would have no costs associated with a global carbon tax. It's just that they would gain a competitive advantage over everyone else, including countries in their own income group such as the U.S., Great Britain and Japan. Countries like Russia that export carbon-intensive goods are going to be at a huge disadvantage, especially if they're competing around the world to sell their product."

Poorer countries are disproportionate importers of petroleum-based fuels, so a worldwide carbon tax would inevitably raise the price of oil and gasoline, "which makes it seem as though you're saddling a poor country with an additional burden, but even that's not clear from our analysis," Fullerton said.

"In the poorest countries, many people don't own cars, so a carbon tax might not be that much of a burden," said Fullerton, also a professor of economics and a scholar at the Institute of Government and Public Affairs. "Certain [low-income countries](#) are a bit more insulated than you would think. Ethiopia is one of the poorest countries in the world, but it relies on hydropower, which means it would not be directly affected by a carbon tax—but might gain from selling products more cheaply to other countries. Haiti, on the other hand, is an extremely poor country that's very carbon-dependent. A carbon tax would be a double-whammy for Haiti—higher costs of its own plus lost ability to export goods."

Potential outcomes of a global carbon tax also depend on the policies within a country, Fullerton said.

"Each country can choose where gains from a carbon tax would flow to—the rich or the poor," Fullerton said. "In the U.S., for example, the government has a whole lot it could do with [carbon](#) tax revenues to help those who have to pay more for gasoline, heat or electricity. The oil and gas lobbyists will be out there trying to protect their industry and their interests, but all of that revenue could easily be earmarked to help low-[income](#) people who face higher costs in electricity and fuel, among other goods. So it's the internal policies of a country that will drive the redistributions within a country."

**More information:** Don Fullerton et al, Who Bears the Economic Burdens of Environmental Regulations?, *Review of Environmental Economics and Policy* (2018). [DOI: 10.1093/reep/rey023](https://doi.org/10.1093/reep/rey023)

Provided by University of Illinois at Urbana-Champaign

Citation: Carbon taxes could create new winners and losers among countries (2019, February 19)

retrieved 26 June 2024 from <https://phys.org/news/2019-02-carbon-taxes-winners-losers-countries.html>

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