



Which Method of Emissions Trading Is the Best at Reducing Pollution?

What is this research about?

Emissions trading is a way of using the market to reduce pollution. There are two main emissions trading methods:

1. Cap-and-trade
2. Baseline-and-credit

The cap-and-trade model lets firms pollute a certain amount. Firms have to give up permits to pollute. If a firm pollutes less, it can sell its left over permits to other firms that can then pollute more. The baseline-and-credit model sets a performance standard for firms. With this model, “clean” firms that perform above the standard create permits. The clean firms may then sell these to “dirty” firms that perform below the standard. At the moment, both methods are popular around the world. Theory suggests that with the second model, the amount of emissions will be different from the first model because the performance standard subsidizes production. Theoretically, this would make the baseline-and-credit less effective at lowering pollution. However, the effectiveness of the 2 methods had not been compared in a laboratory before this study.

What you need to know:

A lab simulation showed that cap-and-trade emissions trading leads to less pollution than baseline-and-credit if the emissions rate stays the same.

What did the researchers do?

The researchers conducted a lab experiment to test the properties of these 2 methods of emissions trading. The researchers held the emission intensity of firms in each category constant at the cost-minimizing level. Then, they let firms make decisions about how much to produce at regular intervals. A total of 6 lab sessions were held (3 baseline-and-credit and 3 cap-and-trade). Each session had 8 subjects. The subjects were university students with an introductory understanding of economics. Subjects were told that they were firms making decisions about how much to produce.

What did the researchers find?

The researchers found results to support the theory that baseline-and-credit leads to higher emissions than cap-and-trade. Under cap-and-trade, firms produced less because the number of pollution permits is capped by government. This led to lower pollution. Firms produced more under the baseline-and-credit because their production was not limited. The cap-and-trade also led to a lower build up of permit inventories than baseline-and-credit.

How can you use this research?

Researchers may use this work to build a fuller model where firms choose both their emissions rates and how much they can produce. Policymakers may use this research to help with their decisions on which emissions trading scheme to use in their jurisdiction to lower pollution. Community organizations may use this research to call for better pollution reduction policies from governments.

About the Researchers

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