

Pricing Carbon Pollution: Reducing Emissions or GDP Growth?

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ABSTRACT. Based on an in-depth survey of the literature, the purpose of the paper is to explore the carbon emissions tax regulation. Using and replicating data from ACU, BVA, EIB, IER, Pew Research Center, and UNSW, I performed analyses and made estimates regarding the environmental effectiveness of carbon pricing. Data were analyzed using structural equation modeling.

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1. Introduction

Coherent approaches to cut down greenhouse gas emissions are essential so as to make significant progress in focusing on climate change. (Best et al., 2020) Carbon emissions produced by business operations may result in relevant large-scale climate change: the economic upsides of decreasing carbon emissions surpass the expense of reducing carbon emissions. (Shi et al., 2020) Carbon taxes shape fossil energy prices while revitalizing renewable sources. (Gonçalves Mollica and Perrella Balestieri, 2020) Escalating the carbon price may ensure considerable declines in transport-related greenhouse gas emissions. (Gagné et al., 2020) Companies invest in carbon emissions decrease to cut down the carbon tax expenses as various governments progressively adopt carbon tax to enhance the environment. (Nie et al., 2020) The intensifying integration of carbon expenses by companies is key in shifting to a low-carbon economy. (Bento and Gianfrate, 2020)

2. Conceptual Framework and Literature Review

Carbon emissions tax is an adequate market-based approach to reduce carbon emissions, influencing participants in the supply chain to reconsider their appropriate operational decisions. (Zhao et al., 2020) Carbon tax on energy production sector escalates energy supply expenses, while carbon emission trading exacerbates energy demand expenses. (Jia and Lin, 2020) Both a carbon tax and environmental subventions constitute coherent strategies (Andrei et al., 2016a, b; Dușmănescu et al., 2016; Lăzăroiu, 2017; Mircică, 2019) to curb greenhouse gas emission. (Xu et al., 2020) The clout of carbon tax develops on consumers' feedback (Atwell et al., 2019; Groener, 2019; Lăzăroiu et al., 2019; Nica, 2019) to price changes. (Tirkaso and Gren, 2020) Various emission regulation approaches impact the companies in reconfiguring their supply chain (Brown et al., 2020; Kowo et al., 2019; Lăzăroiu et al., 2020; Popescu et al., 2018) in the direction of sustainable management. (Rout et al., 2020) Concerns as regards detrimental transitory consequences of carbon pricing on companies' or sectors' large-scale competitiveness are not reasonable as carbon price levels are affordable and due to exonerations to industrial carbon taxes, or substantial levels of costless allowances to companies protected by emissions trading schemes. (Venmans et al., 2020)

3. Methodology and Empirical Analysis

Using and replicating data from ACU, BVA, EIB, IER, Pew Research Center, and UNSW, I performed analyses and made estimates regarding the environmental effectiveness of carbon pricing. Data were analyzed using structural equation modeling.

4. Results and Discussion

Independent climate policies could not attain predetermined emissions decreases: carbon pricing provides an exemplary opportunity to carry out large-scale strategy synchronization, which is necessitated to fortify climate approaches and adequately tackle climate change. (van den Bergh et al., 2020) Taking into account the carbon tax policy, companies are more driven to enhance carbon reduction levels by cutting down their carbon tax expenses but have to cover carbon decrease costs that may lead to insufficiency of capital, thus confronting issues of financial limitations which may discourage them to produce more ecological goods. (Cao et al., 2020) Industrial and energy structures are fluidly redesigned by hindering the output and harnessing of the coal and oil domains but furthering that of the clean energy and the service sector. (Li and Ouyang, 2020) (Tables 1–10)

Table 1 Attitudes toward an economically modeled policy proposal for a market-based approach to reducing emissions through a company emitter tax that is redistributed progressively to the households

89%	believe U.S. needs a clear policy that addresses carbon emissions and ensures energy supply is reliable and affordable.
68%	support a tax on companies that produce carbon if it specifically encourages a reduction in emissions.
76%	support a tax on companies that produce carbon if it is redistributed to taxpayers and designed to lower emissions and encourage investment into technology to achieve this.

Sources: UNSW; my survey among 4,700 individuals conducted June 2020.

Table 2 Actions citizens are willing to support to fight climate change

64%	support a carbon tax on flights
74%	support a ban on high-emission vehicles from city centers

Sources: BVA; EIB; my survey among 4,700 individuals conducted June 2020.

Table 3 % of adults who say ...

global climate change is affecting their local community a great deal.	28
federal government is doing too little to reduce effects of climate change.	67
human activity contributes a great deal to climate change.	52

Favor each of the following proposals to reduce the effects of climate change (%)

Planting about a trillion trees to absorb carbon emissions	87
Providing a tax credit to businesses for developing carbon capture/storage	82
Tougher restrictions on power plant carbon emissions	83
Taxing corporations based on their carbon emissions	76
Tougher fuel efficiency standards for cars	74
U.S. should prioritize developing alternative energy sources	81

Sources: Pew Research Center; my survey among 4,700 individuals conducted June 2020.

Table 4 % of adults who say the more important priority for addressing America's energy supply should be to ...

develop alternative sources such as wind, solar	63
expand production of oil, coal, natural gas	23
both should be given equal priority	14

Sources: Pew Research Center; my survey among 4,700 individuals conducted June 2020.

Table 5 % of adults who say ...

the private marketplace will ensure that businesses and consumers rely more on renewable energy sources, even without government regulations.	34
government regulations are necessary to encourage businesses and consumers to rely more on renewable energy sources.	66

Sources: Pew Research Center; my survey among 4,700 individuals conducted June 2020.

Table 6 % of adults who say they favor expanding each energy source

More solar panel farms	92
More wind turbine farms	86
More nuclear power plants	41
More offshore oil and gas drilling	37
More hydraulic fracturing	34
More coal mining	30

Sources: Pew Research Center; my survey among 4,700 individuals conducted June 2020.

Table 7 Would you say each of the following is a major way that global climate change is currently affecting your local community? (yes, %)

Droughts or water shortages	62
Long periods of unusually hot weather	76
Severe weather, like floods or intense storms	68
Rising sea levels that erode beaches and shore lines	54
Damage to forests and plant life	69
Harm to animal wildlife and their habitats	72
More frequent wildfires	57

Sources: Pew Research Center; my survey among 4,700 individuals conducted June 2020.

Table 8 Do you agree that ...? (%)

if there are costs associated with a tax or regulation, consumers will wind up paying them	87
we can address climate change and make energy affordable and reliable for everyone	84
solutions to climate change are going to involve technological breakthroughs	83
solutions to climate change should address the needs of the 2 billion people in the world who don't have access to affordable, reliable energy	72
to the extent climate change is a problem, it is likely to be solved by technology, research, innovation, and education rather than by government mandates	78
innovators and entrepreneurs are probably going to be more important in addressing climate change than will laws and regulations	67

Sources: IER; ACU; my survey among 4,700 individuals conducted June 2020.

Table 9 Are the proposed solutions likely to help address climate change? (% , yes)

Tax energy	35
More government regulations	48
Technologies/Inventions	85
Reducing pollution	88
Improving energy efficiency	89
Renewable energy	86
Education	84
Recycling	87

Sources: Pew Research Center; my survey among 4,700 individuals conducted June 2020.

Table 10 % of adults who say the federal government is doing too little in each area

Protect water quality of lakes, rivers and streams	71
Protect air quality	68
Reduce effects of climate change	66
Protect animals and their habitats	63
Protect open lands in national parks	57

Sources: Pew Research Center; my survey among 4,700 individuals conducted June 2020.

5. Conclusions and Implications

The expense and demand consequences of cutting down the product carbon footprint have an effect on the profit-maximizing configuration: more overwhelming climate concerns may intensify the entire corporate carbon footprint, despite the fact that the products are more ecological. (Bertini et al., 2020) Resource substitution provides a more significant upside than decarbonizing fossil fuels throughout economic production processes. (Silva et al., 2020) Economic co-benefits are not quite convenient in accomplishing coherent mitigation policy results lacking procedures which separately alter the edges of powerful industry groups. (Dibley and Garcia-Miron, 2020)

Survey method

The interviews were conducted online and data were weighted by five variables (age, race/ethnicity, gender, education, and geographic region) using the Census Bureau's American Community Survey to reflect reliably and accurately the demographic composition of the United States. Sampling errors and test of statistical significance take into account the effect of weighting. Stratified sampling methods were used and weights were trimmed not to exceed 3. Average margins of error, at the 95% confidence level, are +/-2%. For tabulation purposes, percentage points are rounded to the nearest whole number. The precision of the online polls was measured using a Bayesian credibility interval. An Internet-based survey software program was utilized for the delivery and collection of responses.

Data and materials availability

All research mentioned has been published and data is available from respective outlets.

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Author contributions

The author confirms being the sole contributor of this work and approved it for publication.

Conflict of interest statement

The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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