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Voting Behavior on Carbon Pollution from Power Plants

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Abstract

Environmental regulation is a polarizing issue. In 2014, a bill came to a vote in the U.S. House of Representatives that would limit the powers of the Environmental Protection Agency. This empirical note identifies the characteristics that influenced the voting behavior of House Representatives on this bill. Political party, educational background, the location quotient of the mining industry in the representative's state, and the amount of emissions in the Representative's state are considered. A member's political party is the primary factor influencing voting behavior but the location quotient of the mining industry also plays an important role.

Voting Behavior on Carbon Pollution from Power Plants

1   Introduction

Because of the highly uncertain nature of climate change, environmental regulation is a concern in the United States (Schneider, 2002). The two dominant political parties use this issue as a way to differentiate themselves. Republicans tend to be against strict environmental regulation while Democrats are more likely to vote in support of environmental regulation. On June 25, 2013, U.S. President Barack Obama announced a climate action plan that made the Environmental Protection Agency (EPA) responsible for establishing federal standards to reduce carbon dioxide emissions from new and existing fossil fuel fired power plants. In January of 2014, the EPA proposed a rule that set national limits on carbon emissions from new power plants that use coal or natural gas.

On March 6, 2014 a response bill was passed in the house that served to limit the Environmental Protection Agency's (EPA) power concerning the regulation of carbon emissions. Bill H.R. 3826, called the "Electricity Security and Affordability Act," prohibited the EPA "from issuing, implementing, or enforcing any proposed or final rule under the Clean Air Act that establishes a performance standard for greenhouse gas emissions from any new source that is a fossil fuel-fired electric utility generating unit unless the rule meets specified requirements of this Act." Essentially, the Electric Security and Affordability Act repeals the EPA rule regarding national limits on carbon emissions and places limits on future carbon emissions. For more information on the legislative background, see Kasperowicz (2014).

While the vote on the Electric Security and Affordability Act was largely along partisan lines, with Republicans voting for and Democrats voting against, ten Democrats crossed party lines and voted for passage. In this empirical note we seek to explain Congressional voting

behavior on the topic of carbon emissions from coal and natural gas power plants. Clearly, political parties and party discipline matter as Representatives tend to follow their party's interests (Morton and Cameron 1992; Smith 1995). Do other factors, such as the backgrounds of House members or their constituents' economic interests, matter for voting on the regulation of carbon emissions? Cragg et al. (2013), for example, noted that Representatives from high carbon districts are more likely to vote against regulation. We analyze that question empirically in this note.

2   Data and Empirical Approach

Our sample consists of 411 members of the U.S. House of Representatives who voted on H.R. 3826. Our dependent variable equals one if the Representative voted for the bill and zero otherwise. For independent variables, we include a binary variable equaling one if the member of the House is a Republican and zero otherwise. In addition to capturing party interests, this variable is likely correlated with the ideology of the median voter in a Congressional district. We also include a binary variable equaling one if the member of Congress has an academic background in economics, as O'Roark and Wood (2010) show that an economics background explains votes on minimum-wage legislation. This variable is obtained from Hall and Shultz (2015).

To better capture the impact of special interests related to energy, we include three distinct variables related to energy and energy production. First, we include the carbon emissions per square mile within a state from CNN Money (2013). While we would ideally like to have district-level data, to our knowledge this data does not exist. Our prior is that districts with higher

carbon emissions per capita will be more harmed by carbon emission regulation and therefore be more likely to vote for H.R. 3826. Second, we include renewable energy per square mile in a state. This variable is measured as total renewable energy per square mile generated within the state and was obtained from CNN Money (2013). More renewable energy, because it reduces the need for fossil fuels for power generation, should be negatively related to votes restricting the regulation of carbon emissions. Third, we control for the importance of the mining sector within a Representative's state through the use of a location quotient for mining. Location quotients (LQs) are ratios that allow an area's distribution of employment by industry to be compared to a reference area's distribution. A sector with a LQ greater than 1 is assumed to be an exporting sector (Hoover and Giarratani 1971). We therefore expect that Representatives from states with large mining sectors would be more likely to be against the regulation of carbon emissions, other things being equal. Table 1 contains descriptive statistics for all non-binary variables. Due to the binary nature of our dependent variable, we estimate our model using probit.

Table 1. Descriptive statistics for nonbinary variables

Variable	Standard Deviation	Mean	Minimum	Maximum
CO2 emissions	6.40	4.92	.058	25.39
Renewable energy	2.52	3.45	.007	25.39
Location Quotient	2.34	1.05	.000	23.85

Note: N = 411

3   Empirical Results

Table 2 presents our probit results. We use three different specifications to examine the relevance of our explanatory variables. The most robust variable is the political party dummy

variable. It is positive and statistically significant in all specifications in which it is included. Candidates are more likely to vote to limit the EPA if they are a member of the Republican Party. This is likely to be a mixture of party control and the characteristics of the Representative's constituent preferences. The location quotient for mining at the state level is also statistically significant even when we control for political party. This could mean that Representatives are more focused on the strengths of their state rather than their district. If a Representative's state has a well-developed mining sector, the Representative would be more likely to vote to limit the EPA. In particular, a member of the U.S. House would be more likely to not vote with their political party in states where mining is more important.

Table 2- Probit of Representative voting on HR 3826

Variables	(1)	(2)	(3)
Intercept	0.252	-1.407	-1.388
	(0.132)	(0.243)	(0.247)
Political Party	-	3.967***	3.984***
		(0.304)	(0.309)
Economic Background	-	-	-0.189
			(0.46)
CO2 emissions	0.014	0.002	-0.002
	(0.01)	(0.02)	(0.02)
Renewable energy	-0.07***	-0.096***	-0.098***
	(0.025)	(0.042)	(0.043)
Location Quotient State	0.061**	0.074**	0.073**
	(0.031)	(0.039)	(0.039)

Note: Standard errors are given in the parenthesis. ***, **, * indicate significance at the 1%, 5%, and 10% levels respectively.

The amount of renewable energy produced per square mile in a state is negative and statistically significant in all specifications in which it is included. More renewable energy production in a state means that the state's Representatives are less likely to vote for limiting the EPA. Presumably this is because these states have readily available alternatives compared to other states that rely more on coal and natural gas. Finally, we find that whether or not a

Representative has an economics background is not related to voting behavior on this topic. Our

finding here is similar to Hall and Shultz (2015). The same is true for CO2 emissions at the state

level.

4   Conclusion

Environmental regulation is a polarizing issue, often splitting along party lines. Our results, using

Congressional voting on a bill that prevents the EPA from limiting carbon emissions from power

plants, show that this conventional wisdom is largely true. Members of the U.S. House of

Representatives largely voted along party lines. Our results do show that on the margin,

however, the economic interests of the states in which members districts influence behavior. If

mining is a base sector within the state, the Representative will be more likely to vote to prevent

the EPA from regulating carbon emissions. Similarly, areas with more renewable energy

production per capita were less likely to vote for HR 3826. Future research could include the

source of campaign contributions for each Representative like in Hall and Shultz (2015) or more

finely detailed data on carbon emissions, location quotients, and renewable energy.

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