

The Impact of Private Interest Contributions on Energy Policy Making.

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Overview

In the last two decades, many U.S. states introduced support policies to promote electricity generation from renewable energy sources. Renewable portfolio standards are their most popular policy choices to date. This paper tackles the question why some state legislators were front-running the trend of RPS implementation while others adopted policies just recently, and again others have not incentivized investment so far. In short, what drives states to support renewable energy?

We base our empirical analysis on theoretical reasoning. First, we present an application of the common agency model developed by Dixit et al. (1997) to better understand the impact of special industrial interests on policy decision-making. Second, we compile data on financial contributions of conventional energy interests (CEI) and renewable energy interests (REI) to state-level policymakers between 1998 and 2010. Third, in a series of panel, hazard and tobit regressions, we test the impact of these financial contributions on (i) the probability of a state to adopt a RPS policy and (ii) on the stringency of the RPS. We also control for state effects, time trends, and a set of socio-economic and political covariates.

Combining our empirical framework with the theoretical model produces key insights into U.S. state level energy policy making. First, CEI have donated more to state-level legislators affiliated with the Republican Party than to Democrats while contributions from REI went largely to the latter. Second, we reveal statistically significant links between the likelihood of RPS adoption and private interest contributions. Financial contributions from CEI have a negative impact on the likelihood of RPS adoption while REI contributions have a positive impact. Third, the estimates show a similar – albeit less significant – pattern on RPS stringency.

Methods

Economic Theory and Modelling. We develop a stylized partial equilibrium model for the electricity sector of a large, open economy. We then apply the Common Agency Model (Dixit et al. 1997) on the electricity sector to analyze how special interests' financial contributions affect the decision making process for both RPS adoption, and level setting.

Data Analysis and Regressions. We assemble 1998-2010 panel data on RPS policies, campaign contributions, and the most prominent control variables for the U.S. 50 states sample. Our independent variable of interest represents the ratio between campaign contributions donated by CEI and REI to total contributions. Data has kindly been provided by the “National Institute on Money in State Politics”, a non-partisan, non-profit organization (Follow The Money.org). Other data has been derived from the EIA, EPA, DSIRE, BLS, BEA, FERC, and NCSL. We run a hazard, TSCS and Tobit regressions. The logistic random-intercept model regresses the instruments and a set of control variables on the binary code of RPS adoption. It reveals the impact of the instruments captured in the vector X and the impact of the controls captured in the vector Z on the conditional probability $P_1 = P(t, X, Z)$ of a state to adopt regulation in a certain year, given the state did not adopt such regulation before: $P_0 = 1 - P(t, X, Z)$.

$$\log it \{PR(P_1 / P_0)\} = \lambda_0(t) + \beta_1 CEI_{it}^R + \beta_2 REI_{it}^R + \beta' Z_{it} + \varsigma_i + \varepsilon_{it} \quad (1)$$

The logistic model investigates the link between our instruments and the likelihood of RPS adoption. As soon as an RPS is adopted, the binary code does not show any variance anymore. In order to analyze the

effect of our instrument on the policy stringency after the RPS has been enrolled; we apply a Tobit regression model. It allows using a stringent metric, the ISI (Yin and Powers, 2010), as the dependent variable.

$$ISI_{it} = \lambda_0(t) + \beta_1 CEI_{it}^R + \beta_2 REI_{it}^R + \beta' Z_{it} + \varsigma_i + \varepsilon_{it} \quad (2)$$

Results and Conclusions

This article combined theoretical reasoning and empirical analysis. We applied the common agency model developed by Dixit et al. (1997) to the puzzle of renewable energy policy making. Henceforward we elaborated model specifications that explained how the decisions of policymakers (i) to enact a RPS and (ii) to set the stringency of the RPS after enactment are driven by both social welfare considerations and financial contributions from private industrial interests.

We went on to quantify the financial contributions by conventional energy interests (CEI) and renewable energy interests (REI) that were donated to U.S. state-level policymakers between 1998 and 2010. We found that CEI contribute more to Republicans than to Democrats while REI contributions are mostly given to Democrats.

By means of a proportional hazard model, we revealed statistically significant links between the contributions and the likelihood of a state to adopt a RPS. In short, CEI contributions have a negative impact on the probability of RPS adoption while REI contributions have a positive impact. We conclude that policymakers are sensitive to private interest contributions. REI contributions signal support for a RPS while CEI contributions indicate opposition. We assume that policymakers know that REI benefit from a RPS while CEI prefer its absence. Thus, the hazard model showed that this presumable connection stands up to empirical scrutiny. Public health issues, proxied by the EPA's non-attainment area index, also have a driving effect on the likelihood of RPS adoption. On the other hand, the odds are also affected by public opinion. The impact of our control for a Republican leaning public option turned out to be negative.

By means of a tobit regression model, we revealed similar but less significant links. After a RPS is implemented, REI contributions appear to have a positive impact on the stringency of the policy. In contrast, CEI contributions come with a negative impact. The same controls, public health and public opinion, remain robust for all model specifications.

From a theoretical perspective the results verify our key hypothesis. They prove that policymakers set the optimal level of RES-E not only by maximizing benefits over social welfare but they also integrate financial contributions from private industrial interests. From an empirical perspective the results show that policymakers pay back the financial contributions by means of policy choices and – albeit limited – also by policy stringency. Future studies should not rely on binary codes to assess the impact of private interests anymore but should use more nuanced indicators such as our financial contributions.

References

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