FISHER COLLEGE OF BUSINESS – HONORS THESIS IN ACCOUNTING

Why do states adopt energy-driven tax incentives?

Patricia Taggart, Advisors: Jeffrey Hoopes, Patricia West, Neil Drobny

INTRODUCTION

Many U.S. states have adopted tax incentives to encourage the use of energy efficient technologies and renewable energy. While previous research examines the effectiveness of these incentives, this study examines factors which influence their adoption. The findings reveal that the ideology of a state's citizenry and a state's environmental climate have the greatest impact on the number and type of incentives adopted, respectively.

HYPOTHESES

1. States with higher total energy costs are more likely to adopt incentives.
2. States with higher levels of carbon dioxide emissions are more likely to adopt incentives.
3. States with greater solar potential are more likely to adopt solar power incentives.
4. A state's wealth does not influence the adoption of incentives.
5. Democratic leaning states are more likely to adopt environmental tax incentives.

METHODS

Sample Selection
- 50 U.S. states

Independent Variables
- State Environment– total energy costs, carbon dioxide emissions, average annual percentage of sunny days
- State Wealth – real GDP per capita, general fund balances
- State Politics – percentage of citizens that "lean Democratic"

METHODS

Dependent Variables
- Total number of tax incentives adopted per state
- Total number of solar power tax incentives adopted per state

Control Variables
- State income tax existence (dummy variable)
- Population
- Population density per square mile

Research Design

- Hypotheses 1,2,4,5 Regression Equation:

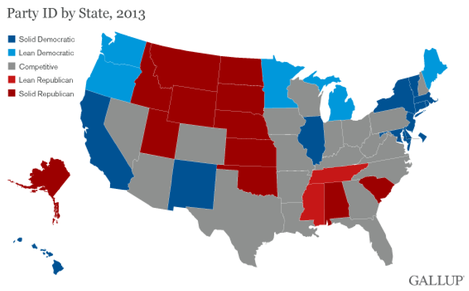
$$\textit{Total Number of Incentives} = \beta_0 + \beta_1 \textit{GDP per Capita} + \beta_2 \textit{Total Energy Costs} + \beta_3 \textit{Percent Lean Democratic} + \beta_4 \textit{Population} + \beta_5 \textit{Population Density per Square Mile} + \beta_6 \textit{Percentage of Sunny Days} + \beta_7 CO_2 \textit{ Emissions} + \beta_8 \textit{State Income Tax} + \beta_9 \textit{General Fund Balance} + \varepsilon$$

- Hypothesis 3 Regression Equation:

$$\textit{Number of Solar Incentives} = \beta_0 + \beta_1 \textit{GDP per capita} + \beta_2 \textit{Total Energy Costs} + \beta_3 \textit{Percent Lean Democratic} + \beta_4 \textit{Population} + \beta_5 \textit{Population Density per Square Mile} + \beta_6 \textit{Percentage of Sunny Days} + \beta_7 CO_2 \textit{ Emissions} + \beta_8 \textit{State Income Tax} + \beta_9 \textit{General Fund Balance} + \varepsilon$$

RESULTS

- States with higher annual percentages of sunny days are more likely to adopt tax incentives for solar power.
- Liberal states with a higher percentage of citizens that lean Democratic are more likely to adopt tax incentives for energy efficiency and renewable energy.
- State total energy costs, carbon dioxide emissions, and wealth are not related to the number of environmental tax incentives adopted.



Top 5 States with the Most Environmental Tax Incentives:

State	Number of Total Incentives	Political Leanings
Maryland	25	Solid Democrat
New Mexico	18	Solid Democrat
New York	13	Solid Democrat
Oregon	13	Lean Democrat
Arizona	12	Competitive

DISCUSSION

The findings reveal the complexity of tax politics in America:
- Solar incentive findings suggest that tax incentives are designed to take advantage of a state's natural resource availability.
- Findings that Democratic leaning states have more environmental tax incentives supports the assumption that Democrats generally favor policies to protect the environment, assuming these tax incentives do help the environment.
- Conversely, the findings challenge the conventional wisdom that Democrats oppose "tax cuts" for the rich, as nearly 50% of the state incentives included in the regression model require sufficient wealth for home ownership.
- In essence, tax cuts for the wealthy to promote economic growth are generally viewed to represent Republican tax policy, but in effect these incentives to promote Democratic ideals of environmental protection similarly act as tax cuts for the wealthy.
- Future research should further explore the relationship between political ideology and incentives adopted as well as the impact of a state's environmental climate on other types of renewable energy incentives adopted (wind, biomass, hydroelectric, etc.).

ACKNOWLEDGEMENTS

I would like to thank my committee members Dr. Jeffrey Hoopes, Dr. Patricia West, and Dr. Neil Drobny. I greatly appreciate their support, guidance, and feedback.