

# **States Take the Lead: The Determinants of State Environmental Policy Activity**

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February, 2012

Prepared for presentation at the State Politics and Policy Conference  
Houston, TX, February 16-18, 2012

## **Abstract**

Scholars have noted the high level of policy activity at the sub-national level in the United States when it comes to environmental policy. Current research has left unanswered questions regarding the determinants of environmental policy activity within states. The central question addressed in this study is why states vary in their level of environmental program support. This paper utilizes original data collected for the 50 states on a set of 18 environmental programs during the time period 1994-2007. These programs represent a variety of environmental areas including energy, sustainable development, climate change, and hazardous waste. Based on these data, an additive scale of environmental program activity is created and utilized as a dependent variable in a time-series, cross-sectional analysis. Findings indicate that a large variety of indicators are relevant to state environmental policymaking. Wealthy states with strong environmental interest groups, a large manufacturing presence and Democratic governments are most likely to maintain high environmental policy support. In addition, states with a large mining interest and lower emissions levels are less supportive.

In 2002, California enacted major legislation that requires new vehicles to meet a 30 percent emissions reduction by 2016. This statute has the capacity to drastically reduce greenhouse gas emissions in the state of California. Florida enacted legislation in 2008 that requires urban planning organizations to consider ways to reduce traffic and create efficient land use projects that will reduce greenhouse gas emissions. Georgia passed a brownfield redevelopment program in 1996 (amended in 1998 and 2002) that relieves some liability for those who purchase these contaminated properties. This type of program encourages the redevelopment of brownfields, which has the potential to increase cleanup of sites. These state policy adoptions are only a token glance at the vast number of environmental laws the American states have adopted in recent years.

The impact states have on environmental quality and public health is quite significant and implores further exploration of state environmental policy activity (Woods et al 2009). State environmental policy research typically examines factors behind individual policy adoptions, with less regard for general environmental activity. While there have been studies that consider state environmental commitment (e.g. Hays et al 1996; Bacot and Dawes 1997), findings vary and the data utilized in these studies are quite dated. Since these studies states have become increasingly active, especially in the areas of climate change and energy. The variation in state activity around these issues is left unexplained by current research.

The current environmental policy literature is also lacking in the use of a comprehensive dependent variables, such as an index of environmental action, that run over time. This analysis focuses on why states are generally environmentally active or inactive, rather than examining the determinants of individual adoptions. In addition, this study utilizes pooled cross-sectional, time-series data from 1994-2007, which provides a fairly up to date and long-run view of state

environmental activity. State statutes, administrative actions, and executive orders associated with a set of environmental policies are examined over time to provide a clear picture of environmental policy activity in the states. Internal determinants including political and economic variables are regressed on an environmental policy activity scale for the states. The design allows for an understanding of the dynamic process that occurs around environmental policy.

The central question addressed in this study is why states are more or less environmentally active in a given time period. From a democratic theory perspective it is expected that political actors will be responsive to their constituents and relevant interest groups. I argue that political, economic and environmental characteristics lead to differences in environmental activism among the American states. Results indicate that the ideal conditions for environmental action include a wealthy state with a liberal citizenry, Democratic control of the state legislature, a large manufacturing industry presence, high carbon emission levels, and a strong environmental interest group population.

### **Explaining State Policy Activity**

The state policy literature has focused on a variety of determinants for state policy adoptions. Early work concentrated on whether economic or political indicators were more influential in state policymaking (Dawson and Robinson 1963; Dye 1966; Lewis-Beck 1977), with findings often leaning towards the economy as the driving force. New advances in methodology point to the marginal impact politics has on state welfare policy, tax policy and lottery adoptions (Plotnick and Winters 1985; Cnudde and McCrone 1969; Berry and Berry 1992; 1990). In addition, new composite measures were developed to capture state public opinion, spending priorities and ideology (e.g. Wright, Erikson, McIver 1985; Jacoby and

Schneider 2001; and Berry et al 2007), which have demonstrated significance in a wide range of state politics studies. Using these measures numerous scholars have found politics to matter across several policy areas including welfare (e.g. Soss et al 2001), environment (Hays et al 1996) and health care policy (Hackey and Rochefort 2001).

Explanatory models for state policy adoption often center around three areas: internal models, regional diffusion, and national interaction (Berry 1994). Seminal works by Walker (1969), Gray (1973) and Canon and Baum (1981) find support for both internal determinants and diffusion explanations. This literature suggests that states with good fiscal health, professional capacity, and a willingness or interest in enacting new policy are the most likely to innovate (see Walker 1969, Canon and Baum 1981, Berry and Berry 1990). Walker (1969) finds that a number of characteristics are at play when states decide to innovate including education, per capita income and urbanization. Gray (1973) argues that Walker's work is too general and that states vary in their reasons for innovation depending on the issue area and time period of analysis. Since these prominent works scholars have found a variety of factors to be influential in state policy adoption. Considering the literature as a whole it seems that certain factors consistently show up as statistically significant predictors of policy adoption, including state fiscal health and legislative professionalism. For other predictors, their significance depends on the policy issue being examined.

The literature also points to the importance of policy entrepreneurs. It is argued that policy entrepreneurs move states to innovate because they invest time and resources, develop ideas or solutions to policy problems (Kingdon 1984; Walker 1981), interact with other policy actors to make things happen (Cobb and Elder 1984), and engage the public (Kingdon 1984).

Another major part of the policy innovation literature includes diffusion models. Diffusion of policy occurs when programs that are passed in one venue are emulated and implemented in other governments (state, national or local). Berry and Berry (1990) find that state lottery adoptions follow a diffusion pattern. In addition, tax innovation is partially explained by whether neighboring states also have the policies in place. Walker (1969) notes that if diffusion is going to occur there must be interactions between policy makers. In agreement with this argument, Mintrom and Vergari (1998) find that stronger policy networks lead to a greater likelihood that school choice policies will diffuse to other states.

For purposes of this work, diffusion is a smaller part of the picture on why states pursue environmental policy generally. States may be more likely to innovate with regard to a single program if neighboring states or leading states on environmental issues innovate first<sup>1</sup>, though general environmental activism is less likely to show this kind of diffusion. Given the fairly large number of programs examined here, it is less likely that each policy diffused in the same way and is outside the scope of this study.

### **Environmental Policy Literature**

State environmental policy literature utilizes many of the variables found to be important in more general state policy adoption research, though there are some additions. As previously discussed, evidence suggests that general state policy is affected by state fiscal health and political factors like ideology or partisanship. These variables are used in almost every state environmental policy study in addition to environmental specific measures such as pollution levels and environmental interest group population sizes.

Work regarding state environmental policy examines a range of environmental issues from hazardous waste to air pollution policy. Much of the early state environmental literature

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<sup>1</sup> For instance, Daley and Garand (2005) find that hazardous waste programs have diffused regionally.

had a primary focus on how states implemented federal mandates (Williams and Matheny 1984; Wood 1992). In addition, it is common for this literature to focus on singular areas of environmental policy. Studies have examined mining oversight (Hedge and Scicchitano 1994), air and water pollution (Potoski and Woods 2002; Ringquist 1993a, 1994), hazardous waste (Williams and Matheny 1984; Ringquist 1994), and overall state environmental effort (Bacot and Dawes 1996; Bacot and Dawes 1997; Hays et al. 1996).

The literature on environmental policy tends to follow one of four arguments regarding internal determinants of policy adoption: state fiscal capacity, political factors like ideology and interest groups, environmental conditions, and institutional capacity.

### **State Fiscal Capacity**

Several environmental policy studies have found a relationship between economic indicators and policy adoption. Ringquist (1994) finds that state policy action on water pollution and hazardous waste is mitigated by state revenue and per capita income. Similarly, Hedge and Scicchitano (1994) find that state wealth has an impact on mining oversight adoptions. This conclusion has been a consistent finding among several environmental policy scholars (e.g. Lester et al 1983, Lowry 1992; Hedge and Scicchitano 1994). Oftentimes environmental programs are costly and considered a luxury for many states. A wealthier state is likely to have any easier time finding adequate resources for such programs where the tradeoffs may not be as difficult.

### **Political Indicators**

Evidence suggesting that politics plays a significant role in environmental policy is relatively abundant, though results are mixed for ideology, with relatively few studies finding any impact. In two studies that look at general environmental activity ideology is not statistically

significant (Hays et al 1996; Bacot and Dawes 1997). More specifically, Hays et al (1996) examine the determinants of environmental policy commitment among the states utilizing the Green Index as their dependent variable<sup>2</sup>. The authors find that a series of political factors including legislative composition, professionalism and public opinion play an important role in state environmental activity, though their results show no effect for elite or citizen ideology. Using environmental program expenditures and interest groups rankings as their dependent variable, Bacot and Dawes (1997) also find no causal connection between ideology and environmental effort. Similarly Ringquist (1994) also finds no effect for ideology on hazardous waste policy and only a weak relationship between water policy and ideology.

A number of studies have noted the effect of environmental and industrial groups on environmental policy activity. Ringquist (1994) examines the determinants of state pollution control including water pollution and hazardous waste. The author finds that the higher saliency of water pollution control lends itself to be affected by interest groups more than hazardous waste policy. Ringquist finds that mining interests matter for water policy, causing a less stringent policy effort, though he finds no negative effects for manufacturing industries. This finding is consistent with work by Lowry (1992). The argument for this result is that the manufacturing industry prefers a level playing field where the government pays for a portion of the regulatory costs. This ensures that smaller companies will shy away from entering the market because of the relatively high costs of regulation. Given this, a larger manufacturing interest may result in a greater likelihood that a state will adopt certain environmental policies.

Several studies have found the environmental interest group population to be relevant. When looking at state environmental spending Newmark and Witko (2007) find that the

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<sup>2</sup> The Green Index is one of very few comprehensive environmental activity indicators for the states and includes state program adoptions and expenditures prior to 1990.



"strength of the environmental movement," or more simply the relative size of the environmental interest group population is the most important determinant in most environmental program areas. Similarly, Ringquist (1994) finds interest groups to be relevant for state water policy adoption, while Hays et al. (1996) find strong environmental group populations to be highly related to state environmental commitment. Despite these findings, the interest groups impact is not universal with a number of scholars finding no such influence (e.g. Bacot and Dawes 1997; Daley and Garand 2005).

### **Environmental Conditions**

Several scholars have noted that levels of environmental contamination are important determinants of policy action. For instance the number of hazardous waste sites in a state has been demonstrated to lead to a more comprehensive hazardous waste program (Lester et al 1983). Lowry (1992) also finds that pollution levels are an important indicator of environmental policy adoption through his examination of state water and air policy. Scholars have attempted to assess the influence of environmental characteristics by using population density as a proxy. The argument is made that states with more densely populated areas will be more committed to protecting the environment because of the high pollution levels associated with density (Hedge and Scicchitano 1994). Still, other scholars find that pollution levels have no impact on state action when looking at state environmental spending (Newmark and Witko 2007) or an index of environmental commitment (Hays et al 1996).

While the studies examined thus far have looked primarily at legislative activity, similar results are found when considering the actions of administrative agencies. Sapat (2004) is particularly interested in environmental policy innovation within administrative agencies. Sapat argues that agencies play an important role in creating new policy through bureaucratic

discretion. Several factors are presumed to impact whether agencies innovate including: capacity, state wealth, severity of the problem, political variables, and interest groups. These expectations are very similar to what is argued to determine legislative adoption and expenditures as well. Sapat's findings are consistent with expectations, though interest groups do not appear to be significant in this area. This is not entirely surprising as interest groups may tend to have a more direct impact on the legislature, with their impact filtering down to agencies indirectly.

While this literature provides important insight into the determinants of state environmental policy adoption, there has been little done with regard to general environmental policy activity at the state level. In addition, studies involving policy effort tend to examine one cross-section of time, making it difficult to understand environmental policymaking as a dynamic process. The study of state environmental policy is also in need of an update. The studies that have examined this question in a broad sense are somewhat dated and broad-based dependent variables are difficult to come by.

In addition, there are a number of inconsistencies in state policy research findings. While Ringquist (1994) finds that interest groups play an important role in determining water policy action he finds no such evidence for this type of role in regards to hazardous waste policy. While this indicates a level of inconsistency it is important to note the diverse nature of environmental policy. It could be that more salient issues tend to garner more interest group action, though Newmark and Witco (2007) find that in every policy area they study, interest groups play a role.

There are also conflicting studies in regards to the impact of ideology and public opinion on environmental policy. Hedge and Scicchitano (1994) find that liberalism is a significant contributor while numerous scholars do not (e.g. Newmark and Witko 2007; Bacot and Dawes

1997; Ringquist 1994). The confusion that comes out of the relatively inconsistent studies may partly be the result of different measurements or unspecified models. There is significant variation in the predictors of environmental policy with some leaving out a measure of interest groups and others excluding political variables like legislative partisanship. In addition, there are varying choices of measurement for ideology with some authors using a measure developed by Wright, Erikson, and McIver (1985) that utilizes public opinion data, while others use measures developed by Norrander (2001) or Berry et al. (2007). In addition, some models include both elite and citizen ideology, which are likely to be highly collinear and could lead to neither demonstrating an impact. It could also simply point to the important differences across particular environmental issues. The study conducted here examines a variety of environmental policies and will provide additional insight into the puzzles left unanswered by current environmental politics research.

### **Design and Analysis**

An analysis of pooled time-series, cross-sectional data consisting of 18 environmental programs will be conducted over the period of 1994-2007, for the fifty states. The time period is selected in part because it encompasses very active (or inactive depending on the state) years for the states on environmental policy. Much variation occurred during the years that will be examined and data availability allows for a fairly current assessment of policy<sup>3</sup>. The programs are related to hazardous waste, sustainable development, climate change and energy<sup>4</sup>.

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<sup>3</sup> While program activity data is collected through 2009, relevant predictor variables for the model only extend to 2007.

<sup>4</sup> The program list includes: public benefit funds, green building standards for both public and commercial buildings, Renewable Portfolio Standards, Climate Action Plans, brownfield voluntary cleanup program, vehicle emission standards, climate advisory board, biofuel incentives; green power purchasing for state facilities, green pricing for consumer electricity, appliance efficiency standards, smart growth and vehicle miles traveled (VMT) standards, advanced coal technology, GHG emission targets, net metering, mercury usage, and regional climate change initiatives.

The dependent variable is constructed by taking the first difference from an additive scale of the 18 aforementioned programs<sup>5</sup>. As such, the variable is the number of programs in a given year a state has enacted of the 18 included in this study. This variable is presented graphically below.

[Figure 1 about here]

The data utilized in this analysis consist of pooled time-series cross-section (TSCS) data. This means that the data are characterized by repeated yearly observations (14 years) by the fixed unit of 49 states<sup>6</sup>.

There have been a number of state policy studies utilizing time-series, cross-section data (e.g. Fiorina 1994; Fording 1997; Smith 1997; Su et al 1993), though very few have examined state environmental policy in this manner. One exception is work by Daley and Garand (2005), who examine state hazardous waste policy adoption.

In order to test the determinants of environmental policy action a random walk with drift model is utilized with standard errors clustered by state. This model is ideal for non-stationary time series data with a variance that approaches infinity as time does. Given the characteristics of the data used here, it is best to examine the change (or first difference) in environmental activity from one year to the next, rather than try to examine the level each year. By using the first difference this removes the consistent upward trend in the data and removes autocorrelation in the residuals<sup>7</sup>. Where a state's environmental activity is today is a function of where it was yesterday plus that states drift and error.

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<sup>5</sup> A calculation of Chronbach's alpha was done to test the reliability of the additive scale. The resulting alpha was strong at .876.

<sup>6</sup> Nebraska is dropped from the model because of its unique institutional structure-a unicameral legislature and non-partisan elections.

<sup>7</sup> Breusch-Godfrey test demonstrates no correlation in the residuals over time.

## **Independent Variables**

Previous literature discussed provides important theoretical and empirical evidence for inclusion of economic, political and more general state level characteristics as determinants of environmental policy activity. Findings from relevant studies of state policy and environmental policy more specifically indicate that a variety of factors are at play in determining policy action, rather than a single driving force.

State politics literature has consistently found that state economic conditions play an important role for environmental policy activity (see Walker 1969; Richard and Robinson 1963; Ringquist 1994). Given this, state wealth, as measured by per capita personal income, will be utilized. It is argued that a wealthier state will be more likely to support environmental policy given its increased capacity to deal with the potential costs involved. Wealth is particularly important because states have a number of policy areas that demand a great deal of their budgets. A state with a greater amount of resources will be more inclined to pursue potentially costly environmental policy.

Several political independent variables will be examined including ideology, interest group strength, and measures for party of the governor and the majority in the state legislature. Ideology is found in numerous studies to be an important contributor to both state policy generally and environmental policy action in particular (e.g. Berry and Berry 1990; 1992; Ringquist 1994, Hays et al. 1996). It is expected that liberal states will be more likely to support environmental policy legislation. Studies on environmental policy in the states have been inconsistent as to whether state liberalism has an impact on policy outcomes and this research will help settle these inconsistencies. The issue of climate change often divides the public on ideological lines, increasing the likelihood that political ideology will matter in this case.

Research on the United States Congress demonstrates that voting records of conservatives are consistently less supportive of environmental policy than those of their liberal counterparts (Kamieniecki 1995). Research has also demonstrated differences within the public on climate change by ideology (Dunlap et al 2001). It is thus expected that as a state's liberalism among the public increases the likelihood of that state pursuing environmental policy will also increase. This study uses a citizen ideology measure developed by Berry, Ringquist, Fording, and Hanson (1998). The Berry et al measure varies over time across the 50 states and estimates ideology on a conservative to liberal scale, ranging from 0 to 100. These characteristics make the measure ideal for this study.

Governors and members of the state legislature have played important roles in a number of environmental issues. Given this, it is important to incorporate both in the model. A dummy variable for the party of the governor is included along with a dummy variable for which party controls the state legislature. It is expected that Democratic elected officials will be more supportive of environmental activism.

As previously argued, the strength of environmental groups should also play a role in such a salient issue, though their impact may be counteracted by a strong industrial presence. Environmental interest group strength will be measured through Sierra Club membership per capita. While the Sierra Club is not the only environmental interest group, it provides an adequate representation of the broader interest group population associated with the environment. It is a very active organization with a large membership, that addresses all of the environmental issues included in this study. It is expected that the larger the environmental interest group community, the more likely a state will have a robust environmental policy record.

On the other side of the environmental interest is often the industrial interest group population; however, industry is not always consistently in opposition to environmental programs. Given this potential nuance, industries will not be lumped together in this analysis with separate variables addressing mining and manufacturing. The measure for each of these industries is the proportion of a state's gross state product (GSP) that comes from mining and from manufacturing. While these measures are imperfect they are the best cross-state measure available and have been utilized by other scholars (e.g. Daley and Garand 2005). A state that has a large mining industry, and presumably a large mining interest group population, would be less likely to adopt stringent environmental policy. This expectation is consistent with findings by Ringquist (1994).

A large manufacturing presence has actually been demonstrated to increase the likelihood of environmental policy adoption in some environmental studies (e.g. Lowry 1992). Hays et al (1996) also note the varying findings regarding industrial influence. The case suggesting that manufacturing industries might favor these policies is somewhat complex. The argument suggests that some businesses prefer that government oversee regulation and thus incur a portion of the regulatory costs. This levels the playing field so that smaller companies may be hesitant to enter the market for fear of paying the remaining high regulatory costs (Hays et al 1996). So, in some circumstances, the manufacturing industry may actually prefer environmental laws be passed. Another reason that manufacturing industry presence may lead to environmental action is that they cause environmental problems just by being there.

Moving on to broader state-level conditions, it is expected that pollution severity may play a role in state policy. As the level of CO<sub>2</sub> emissions increase a state may be more likely to pursue climate change policy, though the literature regarding the effect of environmental

variables on environmental policy activity is very mixed. States with severe air pollution have more to gain from curbing greenhouse gases than other states, though in some cases states with high emissions may have an interest in protecting their industries. Given these two different possibilities, it is expected that emissions will have an impact, though direction is uncertain.

Finally, region is included in the model to account for the tendency of particular regions to be more active than others when it comes to environmental policy. This variable has been utilized in state politics literature as a proxy for political culture (e.g. Erikson, Wright, McIver 1993), a term originally coined by Daniel Elazar (1966). Scholars have expanded on Elazar's original typology, creating new measures of political culture (e.g. Lieske 1993; Hero and Tolbert 1996). Certain states may have a shared value system that makes them more likely (or less likely) to be environmentally active and thus region is included to account for this possibility. Previous environmental policy work has included a dummy variable for the south (e.g. Bacot and Dawes 1997), though I will include other regions as well, given the potential for additional regional differences. This variable is broken down into four regions: northeast, midwest, south and west. Current research suggests that the northeastern and western regions of the United States tend to be aggressive in the pursuit of environmental legislation while the south often lags behind<sup>8</sup>.

### **Findings**

Table 5 presents the results of the regression analysis. The model accounts for 17.7 % of the variance in environmental policy activity. The variables can be broken down by the various internal factors they address including economics, politics, interest groups, environmental, and geographic considerations.

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<sup>8</sup> Additional variables that were considered include state partisan competition, population density and EPA region. These variables were not statistically significant and left the results unchanged.



[Table 1 about here]

When examining the economic indicator in the model the results are as expected. A one unit increase in per capita income increases the expected value of the environmental policy index the following year by .028, with a 95 percent confidence interval of .012, .043. As a state becomes wealthier, it becomes more environmentally active. This finding is consistent with the notion that wealthier states have a higher capacity to innovate. The competition for scarce funding is less severe and resources are more readily available for use on these types of programs. The graph below demonstrates the impact of this variable on the change in environmental policy activism the following year.<sup>9</sup>

[Figure 2 about here]

Results also indicate that politics matters. The presence of a Democratically controlled legislature increases the expected value of the environmental policy index by .221 the year after the change. On average, a state with a Democratic legislature is more likely to be environmentally active. The party of the governor only has a significant effect when comparing independent governors to Republican governors, with the expected value of the index going up by .165 the year after an independent governor is in place<sup>10</sup>. There is no significant difference between Democratic and Republican governors. This finding comes with initial surprise though there have been a number of governors on both sides of the political spectrum to champion environmental programs during the time period examined here. For instance, a number of Republican governors in progressive states, including Governor Schwarzenegger of California

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<sup>9</sup> This effect is under a Democratic Legislature, Democratic Governor, and a slightly higher than average per capita income with the remaining variables held at their means and a 90% confidence interval.

<sup>10</sup> Of course this is a very limited comparison with the independent category including 15 data points (Governors Angus King of Maine and Jesse Ventura of Minnesota)

and Governor Romney of Massachusetts, were just as likely (if not more likely in some cases) to champion environmental programs. The measure for citizen ideology is also significant. The results indicate that ideological liberalism leads to greater environmental activism and the effect of this variable is demonstrated below.<sup>11</sup>

[Figure 3 about here]

State industrial interests are demonstrated to have an impact on the change in environmental policy activity, though there is variation among industries in terms of directional impact. More specifically, if a state has a larger mining industry presence it is lower on the environmental activity scale, though this variable is not significant. On the other hand, manufacturing industry presence actually increases the likelihood of programs being enacted with the coefficient being positive and significant at 1.47 (see graph below).<sup>12</sup>

[Figure 4 about here]

As previously discussed, manufacturing industries can be supportive of environmental regulation and this finding is not entirely surprising. It is possible that a larger manufacturing industry sector makes concerns over hazardous waste and other pollutants that come from these industries more salient to the public, leading to increased environmental effort among political actors.

Environmental interest group pressure also exudes an effect on environmental activity with per capita membership in the Sierra Club producing a significant change in environmental activism. A one-unit change in membership leads to an expected increase of .053 in the environmental activism index after the change occurs (see graph below).

[Figure 5 about here]

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<sup>11</sup> This effect is in the western region under a Democratic Legislature, Democratic Governor, and a slightly higher than average per capita income with the remaining variables held at their means and a 90% confidence interval.

<sup>12</sup> This effect is in the western region under a Democratic Legislature, Democratic Governor, and a slightly higher than average per capita income with the remaining variables held at their means and a 90% confidence interval.

This provides support for the notion that elected officials take into consideration the arguments of environmental interest groups.

Environmental variables also influence policy activity. CO<sub>2</sub> emissions are positive and significant, indicating that as states' carbon emissions increase they are more apt to be environmentally active. This finding indicates that states are pursuing programs that can alleviate environmental concerns. This is counter to the argument that states with high emissions will protect the industries that create them.

Region is found to have an effect on environmental policy action as well. When comparing other regions to the northeast only the south is significantly different. The south is less likely to be environmentally active from year to year and shifting from the northeast to the south yields an expected .267 reduction in the activism index for the following year. The west is also much more likely to be environmentally active than the south, with a shift resulting in an expected .407 reduction in environmental activism.

To make the effect of these predictors even more clear, it is important to look at the differences in the long-term environmental effort trends, depending on the level (or category) of each independent variable.<sup>13</sup> The graph below demonstrates the difference in the level of environmental activism (or the number of programs enacted) over time between states with Republican and Democratic legislatures. The other independent variables are held at their means and the difference occurs at the beginning of the time-series.

[Figure 6 about here]

As we see in the graph, as time progresses the difference between a state with a Republican legislature and one with a Democratic legislature is quite pronounced. At the end of the time

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<sup>13</sup> The predicted trends have a 90 percent confidence interval. The error increases over time as the prediction becomes more uncertain.

period a state with a Democratic legislature is expected to have enacted three additional programs. States that fit this pattern over a large time period include Connecticut, which maintained a Democratic legislature during the entire time period studied here and Utah, which has had a Republican legislature through the length of the time period.

Another variable of interest is per capita income. Holding the continuous variables at their means in a state with a Democratic legislature and Democratic Governor we see the difference in the trend between a state with a per capita income in the 1<sup>st</sup> quartile and a state with a per capita income in the 3<sup>rd</sup> quartile.

[Figure 7 about here]

Fitting this comparison among the states are Massachusetts, with a consistently high per capita income, and Indiana with a relatively low per capita income over time. Both political and economic indicators demonstrate substantive differences in the expected trend of environmental activism.

Next I look at the difference in the long term trend for states with Sierra Club memberships in the 1<sup>st</sup> quartile and the 3<sup>rd</sup> quartile, in addition to the states with their manufacturing percent of GSP in the 1<sup>st</sup> and 3<sup>rd</sup> quartile (holding other variables at their means and modes). This yields the trends presented in Figures 13 and 14.

[Figure 8 about here]

The expected difference in environmental effort trends for a high environmental interest group population is two additional policy enactments by the end of the time period. There are a number of states that maintain large environmental interest group populations across a large span of time. For example, California, Connecticut, Colorado, Hawaii and New Mexico all stay consistently in

the upper ranges. On the lower end are states like Alabama, Arkansas, West Virginia and Oklahoma.

For manufacturing it is expected that an additional 2.5 policies will be passed over time for states with a relatively high manufacturing presence. States fitting this comparison are Michigan, Indiana, North Carolina at the high end and Wyoming, Nevada, and Florida at the low end.

[Figure 9 about here]

The trends just identified show us how differences in state level predictors can lead to large differences in policy activity as time progresses. The variance in year one is relatively small, but looking long term these differences are quite meaningful, resulting in policy activity that looks very different depending on the level of these independent variables.

### **Conclusions**

In this paper I develop a model of state environmental activity and test a number of internal determinants of this activity. Previous research has tended towards examining individual program adoptions and single cross-sections of time. Work that has examined more general environmental effort is fairly dated and takes a different modeling approach than what is used here. There are a number of interesting and important ideas to take away from the results. It is clear from these findings that a number of factors play a role in environmental policy activism. From these results the most ideal conditions for policy action include a Democratic legislature in a state whose pollution concerns, environmental interest group population and geographic position make it more likely to address environmental issues. In addition, wealthy states are better able to devote portions of their budget to environmental problems.

The nuanced position of industrial interests is also worthy of note. While popular accounts typically pit environmental interests against industrial ones, this notion does not always ring true. While the variables used in this model may not be perfect indicators for the industrial interest group population, they arguably get at what the presence of these industries does to effect environmental policy activity. At present there are many inconsistent findings associated with manufacturing. Results here provide some evidence that presence of manufacturing industries may bring environmental concerns to the forefront of people's minds.

Scholarly literature has consistently found that a mining industry presence leads to less stringent policy action and enforcement of environmental policies. While the size of the mining industry produces a negative coefficient, meaning less environmental activity, it is not statistically significant. This implies that this industry is not as persuasive to political leaders as are the general public and environmental groups. This might be because the industry is active on a limited range of issues.

These findings also indicate that change is incremental. A change in interest group populations or who governs initially produces a very small change in policy enactments. Over time this change becomes more pronounced, though is still relatively slow. It is several factors working together that produce more significant change in environmental policy activism.

While this study helps explain the most ideal conditions for state environmental action, questions remain as to whether the policies examined have positive outcomes for environmental quality. This analysis also does not directly consider the possible diffusion of individual programs across states and future research would do well to examine this issue. The findings in this study paint an interesting picture of why states are addressing environmental issues. It

appears that state governments are fairly responsive to the demands of their citizenry and interest group populations, leading them to tackle environmental problems when the need is there.

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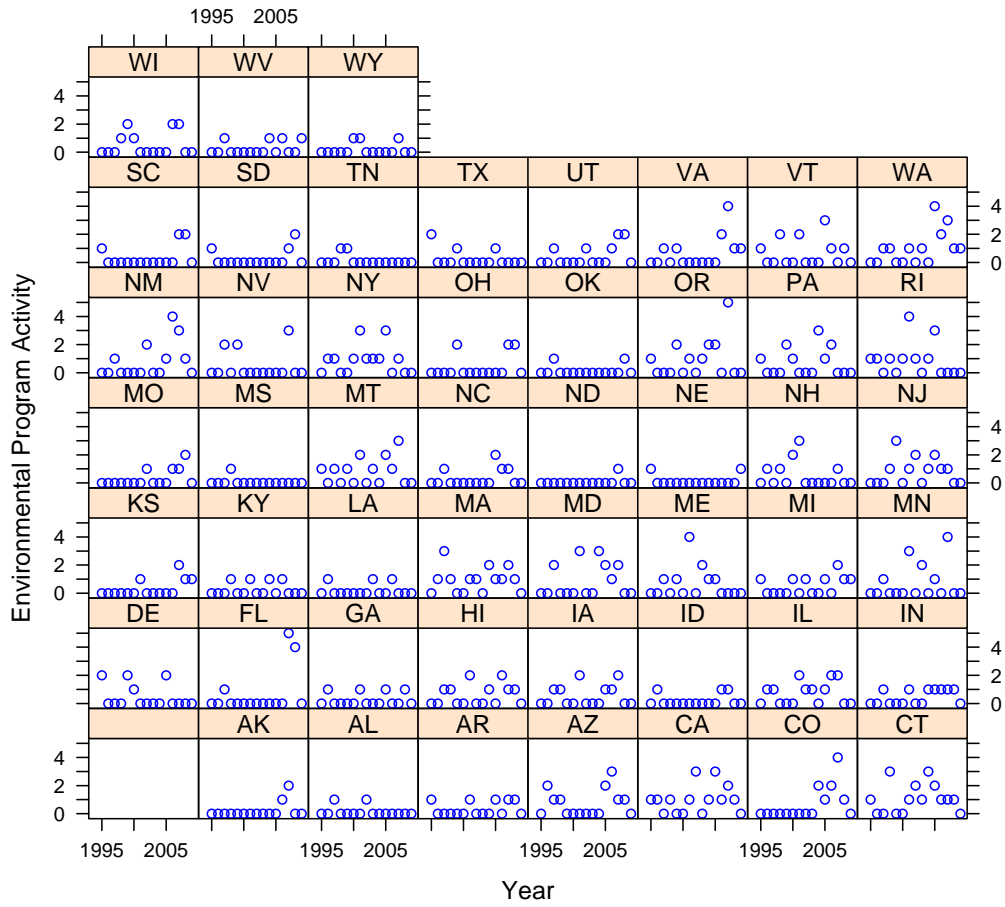


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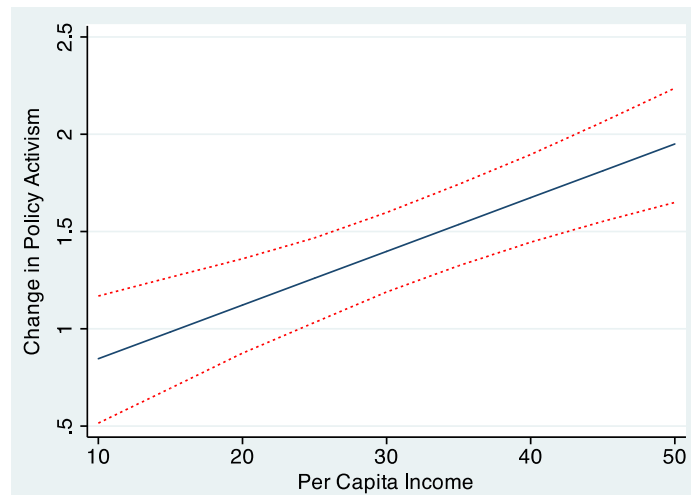
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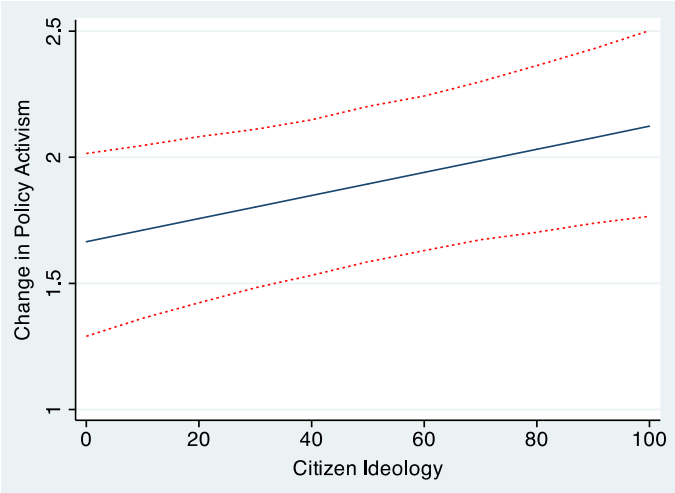
**Figure 1: Change in Environmental Program Action**



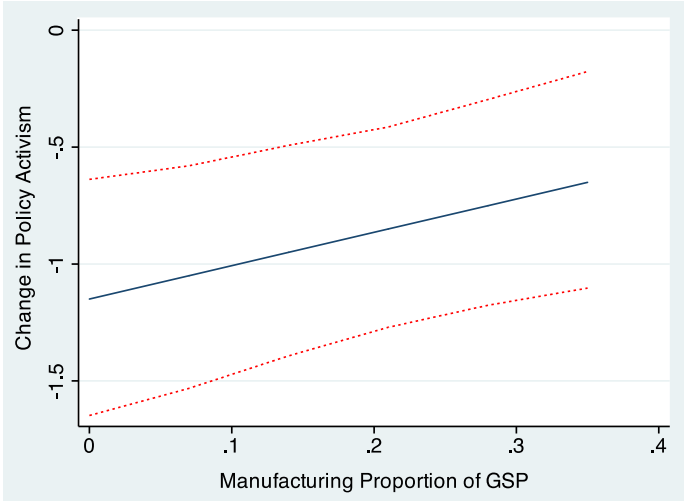
**Figure 2: Expected Change in Policy Activism as Per Capita Income Increases**



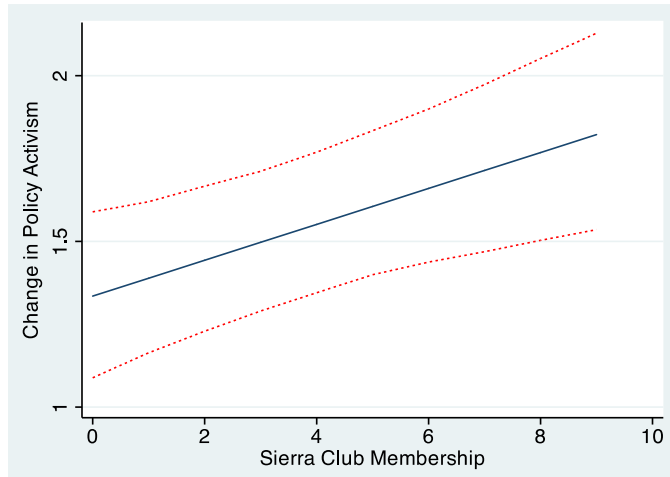
**Figure 3: Expected Change in Policy Activism as Citizen Ideology Moves from Conservative to Liberal**



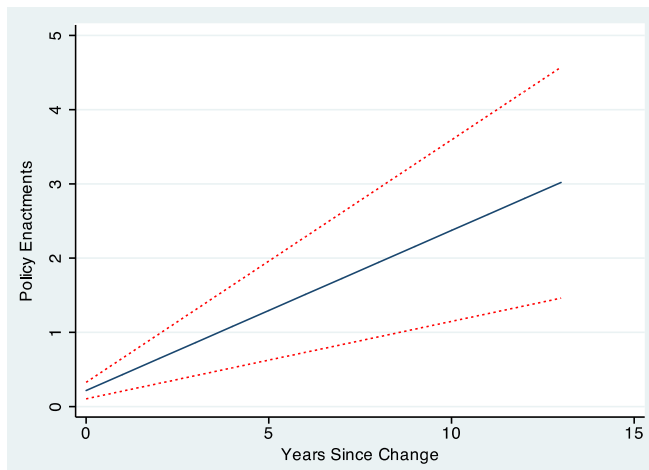
**Figure 4: Expected Change in Policy Activism as Manufacturing Industry Size Increases**



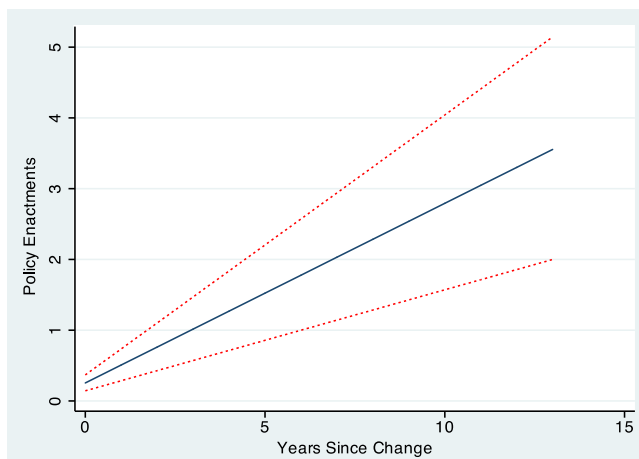
**Figure 5: Expected Change in Policy Activism as Per Capita Sierra Club Membership Increases**



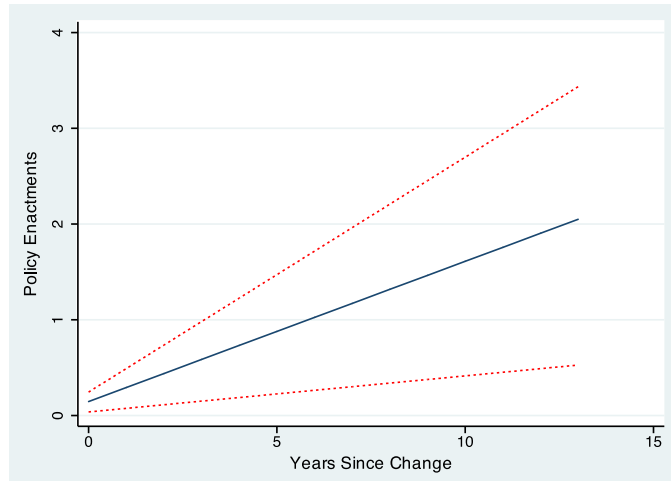
**Figure 6: Expected Difference in the Number of Policy Enactments Between a Republican Legislature and a Democratic Legislature**



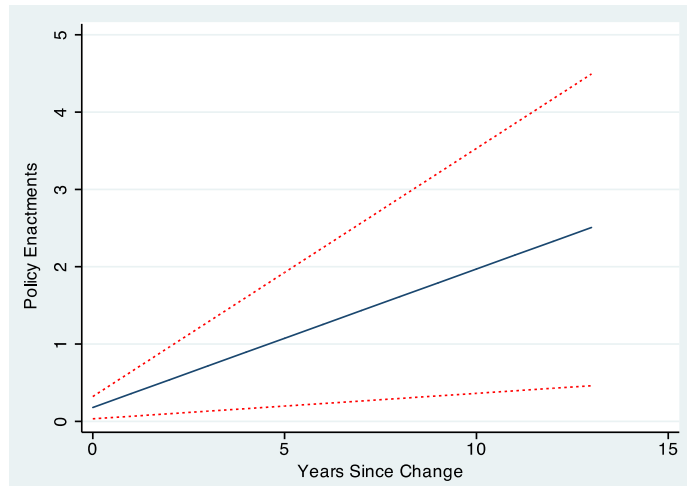
**Figure 7: Expected Difference in the Number of Policy Enactments when Comparing Low and High Per Capita Incomes**



**Figure 8: Expected Difference in the Number of Policy Enactments when Comparing Low and High Sierra Club Membership**



**Figure 9: Expected Difference in the Number of Policy Enactments when Comparing Low and High Manufacturing Proportion of GSP**



**Table 1: Random Walk with Drift, Clustered Standard Errors**

Independent Variable	Coefficient	Standard Error	P-Value
Time	0.038*	0.009	0.000
Per Capita Income	0.25*	0.007	0.001
Citizen Ideology	0.006*	0.002	0.018
Independent Governor	0.138*	0.054	0.013
Democratic Governor	-0.034	0.049	0.484
Democratic Legislature	0.204*	0.061	0.002
CO <sub>2</sub> Emissions	0.400*	0.148	0.009
Sierra Club Membership	0.058*	0.024	0.018
Mining Percent of GSP	-0.001	0.011	0.377
Manufacturing Percent of GSP	1.514*	0.599	0.015
West	0.133	0.093	0.156
South	-0.255*	0.104	0.018
Midwest	-0.159	0.084	0.063
Intercept	-1.085		
N	636		
R-Squared	.174		

\* Statistically significant from 0 at the  $\alpha = .05$  level, two-tailed test