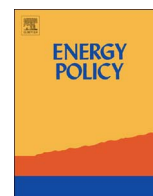




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An Affinity-to-Commons Model of Public Support For Environmental Energy Policy



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HIGHLIGHTS

- A commons-oriented model of citizen support for environmental energy policy is proposed (Thaler (2012)).
- A factor analysis identifies local tax shifts, green subsidies, and energy taxes (Schultz et al. (1995)).
- Community connections predict support for policies with employing subsidies (Sabatier (2006)).
- Connection to nature predicts support for policies using both sanctions and subsidies. (Stern et al. (1999)).

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ABSTRACT

As atmospheric CO₂ continues to rise above 450 PPM, policymakers struggle with uncertainty concerning predictors of citizen support for environmental energy policies (EEPs) and preferences for their design, topics which have received limited attention in empirical literature. We present an original model of policy support based on citizens' affinity-to-commons: pathways by which individuals enjoy natural public goods that in turn shape preferences between alternative policy mechanisms. We evaluate this model using a survey of southern California electricity customers, with results indicating the model's utility in predicting public support of EEP. Stronger community ties are associated with preferences for "pull"-type subsidies, whereas stronger connections to natural commons are linked to support for both "pull" and "push"-type sanctions. Findings have implications for coalition building as advocates may engender support for green energy policy by framing sanctions as protecting natural commons, and framing subsidies either in this same way and/or as producing benefits for communities.

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1. Introduction

Greenhouse gas (GHG) emissions from energy consumption fluctuate with the carbon intensity of the world's energy mix, the efficiency with which the global economy transforms energy into economic value, global GDP per capita, and population growth (Kaya and Yokobori, 1997; Hoffert et al., 1998; Ekins, 2004). In the face of mounting evidence that GHG emissions create thermal forcing on the Earth's climate system (Intergovernmental Panel on Climate Change IPCC et al., 2014; Van der Linden et al., 2015; Carlton et al., 2015; Chong and Ahmad., 2015), policymakers around the world are increasingly focusing attention on environmental energy policies (EEP) as key tools with which to mitigate climate change (Gollier and Tirole, 2015; Bodansky et al., 2015; Liu

et al., 2013). EEP works to improve public welfare by pricing environmental externalities – water, air, and carbon pollution – arising from energy markets. Markets respond to EEP interventions by improving the efficiency with which they consume energy (Lindén et al., 2006; Bye and Bruvold, 2008; Gillingham et al., 2009; Reddy, 2013) and, when policy interventions target carbon emissions, by reducing the carbon intensity of fuel stocks (United States Energy Information Administration [EIA], 2016). EEPs thus represent a set of core emission-reduction strategies and policy efforts to protect environmental public goods like clean air and a stable climate (Loftus et al., 2015; Vig and Kraft, 2015).

Around the world, EEP initiatives employ a variety of mechanisms to accomplish their goals. Mechanisms describe the nuts and bolts operation of policy interventions, including the rules that target specific sectors of society for change and apply incentives via "push"-type sanctions and "pull"-type subsidies. As examples, in Ireland the government levies a per-ton, CO₂-equivalent carbon tax on fossil fuels, and then uses the revenue to

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service national debts (Callan et al., 2009; Rosenthal, 2012); in Germany, the national Feed-in-Tariff levies a per-kWh surcharge on households and businesses to fund long-term, subsidized supply contracts for renewable energy producers (Laird and Stefes, 2009; Lewis and Wiser, 2007; Wüstenhagen and Bilharz, 2006). In the United States (U.S.), a federal Energy Star program awards tax credits for up to 30% of initial purchase costs for energy efficient appliances and constructions, and subsidizes investments in solar installations, geothermal heat pumps, and residential wind turbines (Jacobsen, 2014). Such diversity of tools gives policymakers flexibility in targeting multiple sectors to improve efficiencies and reduce carbon intensities. With this flexibility comes the challenge of structuring policies in ways that generate public support.

1.1. Contributions

Policymakers can benefit from an improved understanding of public preferences for EEP inasmuch as such understanding can aid them in building initial coalitions supporting new policy interventions and in sustaining those coalitions over time (Sabatier, 2006). Towards this goal, our work contributes to policy science in several respects. First, the current study proposes and tests a new theoretical model that links preferences for various policy mechanisms to what we call individuals' affinity to commons. Second, we use this model to examine fine-grained policy preferences among major formulations of EEP design, including local tax shifts, green subsidies, and public energy taxes. Finally, our study is the first to examine such preferences in the U.S., and in particular, in Southern California, a key constituency in a state recognized broadly as a leader in policy innovation and sustainable development (Fredriksson and Millimet, 2002; Mazmanian et al., 2013).

1.2. Studying Public Support for Environmental Energy Policy (EEP)

Despite the importance of EEP to addressing one of the world's most pressing problems of rising GHG emissions, understanding of individual-level support for EEP remains limited. With the exception of a handful of papers discussed below, most research into public support for EEP has occurred tangentially through studying predictors of environmental concern and residential pro-environmental behaviors.

Within this literature, a wealth of studies has examined the impact of political ideology on support for environmental policy (Clawson et al., 1998; Daniels et al., 2012; McCright et al., 2014). The evidence describes a shift in U.S. politics starting in the 1970s as conservatives increasingly argued for limited government intervention and expanded rights to exploit environmental resources in pursuit of economic opportunity (Buttel and Flinn, 1978; Van Liere and Dunlap, 1980; Jacques et al., 2008; Layzer, 2012). Several studies show that individuals who identify as conservative tend to oppose environmental policy efforts (Dunlap et al., 2001; Thompson, 2005) and question common justifications for environmental interventions (McCright and Dunlap, 2000; 2003).

Scholars have investigated other socio-demographic factors that might influence citizen support for environmental policy, but these inquiries have yielded more varied findings. For example, some find older age positively predicts environmental concern (Buttel, 1979; Samdahl and Robertson, 1989) while others find younger respondents more consistently exhibit pro-environmental attitudes (Van Liere and Dunlap, 1980; Jones and Dunlap, 1992). Still others find no significant impacts of age on environmental concern (Wandel and Bugge, 1997) or willingness to pay for environmental goods (Franzen and Vogl, 2013).

Studies of income, gender and education yield similarly mixed results. While Samdahl and Robertson (1989) find higher incomes negatively influence support for environmental regulation, Clark

et al. (2003) and Franzen and Vogl (2013) find higher income and female gender correlate with higher pro-environmental policy support and willingness to pay for environmental goods. Gender impacts also vary substantially among nations. In a broad cross-national survey of gender and environmental action, Hunter et al. (2004) find that women in Australia, New Zealand and the Netherlands are more likely than men to participate in environmental organizations while Polish women are significantly less likely than male counterparts to do the same.

Last, researchers have long observed more educated citizens exhibit higher levels of environmental concern (Klineberg et al., 1998) and willingness to pay (Franzen and Vogl, 2013). However, a recent examination by Liu et al. (2014) of three major U.S. surveys from 2004, 2007, and 2008 finds education has little effect in explaining environmental concern. For similarly mixed results on education effects in China, see Xiao et al. (2013).

Taken together, these findings raise the question of whether any socio-demographic factor may be expected to exhibit consistent impacts across national and/or cultural contexts – a topic beyond the scope of this paper. They also point to the diversity of dependent variables under study in the environmental public opinion literature generally, and the related challenge of relying on existing literature to anticipate patterns in EEP support specifically.

Nevertheless, a handful of valuable studies have focused on EEP support in particular as their dependent variable. In a foundational study on the psychological foundations of EEP support in the Netherlands, Steg et al. (2006) investigate respondents' support for EEP with a battery of 16 policy-specific questions. Building on this work, De Groot and Schuitema (2012) examine how the coerciveness and targeted behaviors of environmental interventions interact with political norms to shape policy acceptability. They find evidence that people prefer low-cost interventions, support pull-type subsidies over push-type sanctions, and deem sanctions more acceptable when a majority of their countrymen support a given measure. Together, these studies indicate public support is shaped at two levels: the policy level (e.g., costs and its operating mechanisms), and the individual level, where influences of policy may be moderated by psycho-social characteristics.

Several gaps thus persist in the nascent literature on EEP support. First, there remains limited understanding of socio-demographic predictors of EEP support, despite well-published work on related but distinct concepts of environmental concern, willingness to pay, and support for pro-environmental regulation broadly defined (Steg and Vlek, 2009). Second, while the handful of studies that focus on EEP have distinguished preferences for push- and pull-type policies, they neither offer nor test models regarding psychosocial factors that shape such preferences. As a result, a theoretical model illustrating the link between specific policy formulations and varying degrees and sources of citizen support has been absent in the literature. In the next section we develop and describe such a model.

2. The Affinity-to-Commons Model

We have developed an Affinity-to-Commons model, which theorizes strong links between key “commons-oriented” characteristics and support for specific EEP interventions. In doing so, the model draws upon insights from the Value-Belief-Norm (VBN) theory, socioecological systems, and institutional economics.

2.1. Theoretical underpinnings

VBN theory, developed by Stern et al. (1999), posits that pro-environmental behavior builds upon a linked chain of

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