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Are acceptance, support, and the factors that affect them, different? Examining perceptions of U.S. fuel economy standards

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ABSTRACT

Understanding the acceptance of and support for transportation policies focused on the environment, such fuel economy standards, is important because of the positive impact policies can have on the environment and overall sustainability goals. This study investigates the acceptance of and support for fuel economy standards through an online survey of Maine residents. Specifically, we assess the Corporate Average Fuel Economy (CAFE) standards, which aim to increase fuel economy of vehicles, while decreasing greenhouses gas emissions and foreign fuel dependence in the United States. We assess how perceptions of the policy and economic views of the market affect acceptance and support. We differentiate acceptance and support on two dimensions, a temporal and attitudinal–behavioral dimension. In doing so, we improve upon traditional measures of these variables and provide evidence that acceptance and support are distinct constructs. We find that perceived fairness, perceived effectiveness, and a subscription to a free-market ideology play a role in acceptance and support. The implications of the findings are discussed in relation to survey methods, policy communications, and an interdisciplinary understanding of environmental policy.

Introduction

Environmental policies correct failures and inefficiencies of the market, and in doing so, address problems related to sustainability: greenhouse gas emissions, pollution, land-use change, loss of biodiversity, etc. Economically speaking, the market does not account for negative externalities, such as greenhouse gas emissions, so environmental policies are created to minimize the externality and bring about balance in the market (Jaffe et al., 2005). From a sustainability perspective, these policies help ensure that there are enough resources for future generations (both human and non-human).

Fuel economy standards are one type of environmental policy, which affect the transportation sector. These standards are used to decrease greenhouse gas emissions, and in some cases, foreign dependence on oil, while increasing fuel economy of vehicles. Fuel economy standards, along with the information labels affixed to vehicles at automobile dealerships, have been shown to be an effective way to reduce the growth rate of energy consumption (Mahlia et al., 2013). Information labels educate consumers about the fuel economy of a vehicle for purchase, along with the annual fuel cost, potential fuel savings, and

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provide smog, fuel economy, and greenhouse gas ratings. Fuel economy standards can be either mandatory or voluntary, although mandatory standards are more effective for desired rapid changes (Mahlia et al., 2013).

Fuel economy standards are only one type of policy instrument aimed at reducing emissions or increasing fuel economy. Alternative instruments exist such as fuel taxes or "feebate" systems which impose fees or provide rebates, depending upon the fuel efficiency of the vehicle (Anderson et al., 2011). In the United States, the Corporate Average Fuel Economy (CAFE) standards represent the existing policy instrument of choice, but they do not include fuel taxes or a "feebate" system. The CAFE standards are discussed in more detail in section 'CAFE standards'.

Standards such as CAFE can also create a market transformation. The fuel economy information labels provide a fair and equitable foundation to compare the energy efficiency of vehicles. In theory, vehicles with the most competitive cost and highest energy ratings will be more desirable than other vehicles, thus increasing consumer demand for these vehicle types and transforming the market (Mahlia et al., 2013). Conversely, the standards also require that automakers supply more energy efficient vehicles, thus shifting the supply side of the market (Anderson et al., 2011) as well as the market of the technologies required to provide those lower emissions (Jaffe et al., 2005).

It is uncertain whether fuel savings exceed the cost of fuel economy standards. This uncertainty, which undoubtedly has policy implications, is partly due to the debate as to whether an "energy paradox" exists in the automobile market (Allcott and Wozny, 2012; Bento et al., 2010; Greene et al., 2013). Broadly speaking, the energy paradox refers to an undervaluation of the future costs of energy compared to current costs. This paradox can be explained by factors related to both market-failure and non-market-failure (Jaffe and Stavins, 1994). It is possible that the energy paradox also impacts perceptions of fuel economy standards (see Greene (2010), Hefland and Wolverton (2009) for a review of consumers' valuation of fuel economy).

Understanding the acceptance of and support for environmental policies, such as the CAFE standards is important because of the positive impact policies can have on the environment and overall sustainability goals. Without acceptance and support of the public, policies are unlikely to pass through legislative processes, or remain standing when challenged. Understanding what conditions affect acceptance and support of environmental policies can help government officials craft and maintain policies that have public appeal, as well as environmental and socioeconomic benefits. Furthermore, transportation planners would benefit from a better understanding of what is acceptable and/or supported within their local context.

As researchers, fully understanding acceptance and support cannot be accomplished if we do not empirically distinguish the two concepts. As discussed by Dreyer and Walker (2013), these concepts have been used interchangeably within the literature, without operational definitions or standard measurement scales. To address this issue, we have chosen to explore both acceptance and support of environmental policies using the CAFE standards as our policy example. This provides a framework to better understand acceptance of and support for policies and the relationships among variables of interest such as perceived fairness, effectiveness, and a subscription to a free-market ideology.

We begin with an overview of the literature on acceptance and support of environmental policies and renewable energy technologies and then describe the CAFE standards in more detail. The review leads into a description of the survey methods and results. We conclude with a discussion of our results and the implications for environmental policies.

Acceptability, acceptance, and support

In general, support and acceptance have not been operationally defined within the environmental or transportation policy literature. Recently, there has been a call to operationally define these terms (Dreyer and Walker, 2013; Batel et al., 2013). Operationally defining, and thus distinguishing these terms from one another, is important for not only theoretical reasons, but also empirical and applied policy reasons. The interchangeable use of these terms has led to a lack of specificity in existing empirical measures. As a result, it is possible that studies have measured acceptance instead of support or support instead of acceptance. Problems may arise from this mix-up, especially when policy decisions are based on potentially erroneous data. In addition, depending upon the policy context, it may be important to stress one concept over the other. Without understanding the differences between acceptance and support, one could not target support over acceptance, or vice versa, when designing policy communications.

When speaking about favorable or unfavorable evaluations/attitudes of an environmental policy, some researchers prefer the term "support" and use it consistently throughout their writing (Dietz et al., 2007; Leiserowitz et al., 2012), while others use the term "acceptance" or "acceptability" interchangeably with support (Gross, 2007; Schuitema et al., 2010; Steg et al., 2005, 2006; Swim et al., 2011; Wegener and Kelly, 2008). In addition, Stern et al. (1999) identify and describe three dimensions of support for environmentalism: citizen action, policy support and acceptance, and personal sphere behavior. However, within the second dimension, policy support and acceptance, no description of the similarities and differences between policy support and policy acceptance or policy acceptability is offered. These examples highlight the lack of common definitions and understanding of acceptance and support.

It has been established that acceptance of a policy differs from acceptability of a policy. Acceptability is a favorable or unfavorable evaluation of a policy before implementation, whereas acceptance is the evaluation after implementation (Schade and Schlag, 2003; Schuitema et al., 2010). Schade and Schlag include a behavioral component in their definition of acceptance, whereas other researchers see the behavioral component existing within support (Dreyer and Walker, 2013).

Recently, a few scholars have attempted to operationalize acceptance and/or support for renewable energy technologies (RET) and the associated RET infrastructure. Rau et al. (2012) examined the determinants of RET acceptance and the