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The role of social norms on preferences towards climate change policies: A meta-analysis

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HIGHLIGHTS

- Effective policy design is required in order to curb climate change.
- Using a meta-analysis, we find that mitigation actions are preferred over adaptation actions.
- Economic conditions play a crucial role for supporting efforts to combat climate change.
- Cultural and social dimensions are relevant for the acceptability of climate policies.
- Understanding social norms and cultural variables may help with the climate change debate.

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ABSTRACT

The present study provides a review of existing assessments of preferences for climate change mitigation and adaptation policies through a worldwide meta-analysis. In this study, we analyze the impact of social values and norms on preferences towards climate change adaptation and mitigation policies. In a sample of 58 international studies, we found that mitigation actions were preferred over adaptation actions, and that preferences towards climate change policies are affected by attitudes towards time and social norms. In particular, societies with a long-term orientation display greater support towards climate change policies. These results therefore reveal the role of social factors as being crucial in order to understand the acceptability of climate change policies at a worldwide level.

1. Introduction

The consequences of climate change are numerous and wide-ranging. Changes in temperatures and climate variability impact the environment and human health (United Nations Framework Convention on Climate Change, UNFCC, 2012)[1] and have significant economic impacts around the world (The Nature Conservancy, 2013). A number of recent, severe episodes related to climate change with clear economic implications were hurricane Sandy, which affected USA in 2012, and the typhoon Haiyan that caused more than 6000 deaths in 2013 in the Philippines, as well as the cold wave sweeping the USA in 2014, with temperatures below 50°. In general terms, the economic sectors that are most affected by this global climate change process are agriculture, forestry, energy and tourism (European Commission, 2012). Recent research has also shown that while no clear action is taken to curb global carbon emissions, climate change impacts could cost between 5% and 20% of the annual global gross domestic product of many countries (Hallegatte and Corfee-Morlot, 2011).

Due to these important economic and social consequences of climate change, a large number of policies have been developed around the world aimed at reducing the impact of such an important phenomenon. The most significant international agreement was the Kyoto Protocol, which came into effect in 2005. This treaty encouraged industrialized countries to stabilize emissions of greenhouse gases (GHG). However, and according to Schiermeier (2012), despite the existence of this protocol, global emissions have increased worldwide by 50% since 1990, a trend that has mainly been driven by the economic growth of China and other parts of Asia, South America and Africa. One of the main criticisms is that the Kyoto Protocol has not controlled for the free-rider

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[1] United Nations Framework Convention on Climate Change (UNFCC), http://unfccc.int/files/documentation/text/html/list_search.php?what=keywords&val=&valan=a&anf=0&id=10.

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problem, at the same time as having very few enforcement mechanisms (Helm, 2012).

Based on these considerations, climate change policies have become one of the major concerns and priorities around the world. However, and after many experimental policies and applications, one question remains unsolved: how should effective climate change policies be designed and articulated? This paper sheds light on the role of social norms on preferences (reflected by the willingness to pay [WTP]) for different types of climate control policies. These social factors are generally ignored in the architectural design of effective mitigation and adaptation strategies worldwide. In the following analysis, these factors have a strong explanatory power in terms of understanding acceptability and preferences towards climate change policies.

It should be acknowledged that in order for most climate change policies to be effective, behavioral changes have to take place, including a reduction of energy consumption, awareness of the issues, and a willingness to adopt (and pay) for newer and cleaner technologies. These strategies would go hand in hand with other mechanisms suggested by the UNEP (2009), such as promoting the construction of energy efficient buildings, sustainable transport, renewable energies, and the re-use of industrial and household wastes, among others. Therefore, understanding the role of social norms and the preferences of decision-makers and end-users is crucial in the process of promoting acceptability for control policies (Pollit and Shaorshadze, 2011).

Given the need to articulate policies to combat the global climate change process, and based on the fact that most require a change in consumption or production technologies, our goal is to identify the type of actions that are most preferred and accepted by citizens, assessing how the public's support for these policies (expressed by willingness to pay (WTP) estimates) is affected by multiple causing factors, including the country's degree of development, the cultural importance of compliance with obligations and rules, time preferences and other social norms. The identification of these factors may allow us to provide policy recommendations to guide future actions in order to improve policy design and increase the public's acceptability of climate control policies.

The rest of the paper is organized as follows: Section 2 provides background information on the relationship between behavioral economics and climate change. Section 3 presents the data sources used to create the meta-data set; Section 4 presents the econometric models and research hypotheses. Section 5 presents the results, and the paper concludes with the discussion and policy recommendations presented in Section 6.

2. Behavioral economics and climate change

Brekke and Johansson-Stenman (2008a, 2008b) highlighted the idea that climate change policies can be interpreted as a global public good, given that everyone can obtain benefits from them, while it is not possible to hinder or exclude others from enjoying their benefits. Traditional economic models consider that individuals are purely selfish in terms of consumption of public goods. However, Ostrom (2000) offered a theory against the selfishness hypothesis, concluding that there is a propensity to cooperate due to the growth of shared social norms. Bernheim and Rangel (2007) also support the idea of cooperation with the common goal, providing different views on human motivations. More recently, the field of behavioral economics has provided different explanations for specifically linking people's attitudes to the provision of public goods, showing the cognitive limitations of the traditional economic theory. In summary, studies from behavioral economics have shown that environmental justice and social norms also affect individual decisions, and therefore should be taken into account in traditional economic models. Furthermore, it is useful to understand that people act in a social context.

In this sense, when dealing with an issue as important as climate change, individuals are influenced by values and beliefs shared in groups for which they feel a sense of belonging (Hoffman, 2011). Brekke and Johansson-Stenman (2008a, 2008b) suggested that what may be rational for a single country (or individual) in isolation is globally suboptimal. In this social setting, one of the problems that can appear is the free-rider problem, and based on this aspect, important concepts such as conditional cooperation, reciprocity, altruism and norms shared by groups come to the fore in the climate debate.

Also, Grothmann and Patt (2005) concluded that in the analysis of adaptation policies, issues such as vulnerability and indicators of the perceived adaptive capacity are crucial when making predictions in terms of climate. They also point out the importance of the perception of risk, giving special attention to whether policies solely communicate risks, without giving adaptation options. This can lead towards people simply denying the risk, instead of taking actions that lead towards change.

Therefore, in order to improve the effectiveness of policies, it is very important to take into account social factors that can affect public opinion. Adger et al. (2009) indicate that some limits to adaptation policies are "endogenous to society" and that ethics, knowledge, risk and culture are important issues. More recently, Adger et al. (2013) highlighted that cultural dimensions are quite important, while it is likely that when cultural dimensions are ignored, policies will fail to be effective. For this reason, and due the importance of knowing how individuals assess the application of different programs and policies to combat climate change, we collected multiple valuation studies of preferences around the world and analyzed their results using a meta-regression analysis. We controlled for relevant factors such as traditional economic factors, as well as social norms and cultural values that have been often ignored.

3. Data description and data treatment

In this study we used a meta-analysis, a technique involving the statistical analysis of a large number of results from individual studies with the aim of combining the main conclusions (Glass et al., 1981; Barrio and Loureiro, 2010). According to Brouwer et al. (1999) this allows us to explain differences in outcomes found in single studies, taking into account the possible differences according to their characteristics, including factors such as the format of the questions or the measurements used. The benefits of this technique compared to qualitative analyses are that it does not prejudge the research results, and that it avoids a subjective weighting of studies in the interpretation of the findings (Brouwer et al. 1999). The potential disadvantages are a potential risk of bias selection of studies, and the possible existence of intra-study correlations between different observations from the same study (Wolf, 1986).

The data collection process and further analysis followed the recommendations of Nelson and Kennedy (2009) and Stanley et al. (2013). Due to the important heterogeneity of the climate control policies and programs in place, we classified them into three main types of actions: mitigation, adaptation or a mixture of both. For this purpose, we grouped the studies using the definitions used by the IPCC[2]. As a result, mitigation programs contain "*anthropogenic interventions to reduce the sources or enhance the sinks of greenhouse gases*;" while adaptation programs are defined as "*adjustment in natural or human systems in response to actual or expected*

[2] This information can be found in Klein et al. (2007).