



Analysis

Citizens' Acceptance of Climate Change Adaptation and Mitigation: A Survey in China, Germany, and the U.S.

Claudia Schwirplies

University of Hamburg, Department of Economics, Von-Melle-Park 5, 20146 Hamburg, Germany

ARTICLE INFO

JEL Classifications:

H41
Q54
Q58

Keywords:

Adaptation
Mitigation
Climate change
Policy preferences

ABSTRACT

The ambitious goals to limit global warming can only be reached with a broad acceptance and participation of the general public. This paper relies on surveys among citizens in China, Germany and the U.S. and investigates the determinants of the acceptance of national and international adaptation and mitigation efforts. The empirical findings indicate that specific beliefs and environmental awareness are important drivers in all three countries, while political attitudes and socio-economic characteristics are the main sources of cross-country heterogeneity. The study thereby points at important starting points and target groups for raising the acceptance of national and international climate policy.

1. Introduction

In November 2016, the Paris Agreement (UNFCCC, 2015) to address climate change officially entered into force. This is celebrated as a landmark achievement worldwide, but for the international community the concrete implementation of the agreement in order to reach the associated emission abatement targets will be the greatest challenge. Undoubtedly, comprehensive changes in economies and societies are necessary worldwide, which can only be realized with a broad acceptance and participation of both public and private actors. However, the scientific society doubts that achieving an agreement on international climate policy can still lead to lasting climate stability (e.g., IPCC, 2013). Thus, public and private actors cannot rely on climate change mitigation only, but additionally need to turn towards adaptation measures in order to cope with the unpreventable impacts of global warming (e.g., Klein et al., 2005; Stern, 2008; Aakre and Rübbecke, 2010).

This paper focuses on the group of citizens and empirically analyzes their acceptance of national and international climate policies. Specifically, I investigate the determinants of the acceptance of allocating national budgets to climate change adaptation (e.g., protection against natural events such as the building of dams or safeguarding of traffic routes) and mitigation measures (measures to reduce global greenhouse gas emissions) as well as of the perceived importance of these measures as issues in international climate negotiations.

In this respect, climate change adaptation is defined as response to the perceived or expected negative effects of climate change in order to

circumvent damages or exploit beneficial opportunities (e.g., IPCC, 2007; Hisali et al., 2011). This includes all efforts that are supposed to reduce the sensitivity and exposure, and increase the resilience to cope with the consequences of climate change (e.g., Yohe and Tol, 2002). Climate change mitigation includes all measures that help abating greenhouse gas (GHG) emissions (e.g., investments in the development of renewable energies or in increasing energy efficiency). While adaptation can be characterized as private or club good, mitigation measures are rather pure or impure public goods involving the well-known information and incentive problems (e.g., Nordhaus, 2006). Adaptation measures that decrease the severity of potential climate-related damages might therefore appear as the more attractive alternative (e.g., Tol, 2005; Onuma and Arino, 2011; Barrett, 2011) given the limited resources of each country.

For the success of national and international climate policy citizens' acceptance of allocating national budgets towards adaptation and mitigation measures is crucial. This acceptance and willingness to pay (WTP) for public adaptation and mitigation efforts is subject of a growing literature. Johnson and Nemet (2010) and Alló and Loureiro (2014) provide a comprehensive collection of these studies. For the acceptance of both adaptation and mitigation policies, age, gender, income, education, and environmental beliefs are identified as important determinants (Johnson and Nemet, 2010). In addition, political views and the perceived engagement of others in climate protection play an important role for the acceptance of public climate change mitigation, which has also been confirmed in more recent studies (e.g., Kotchen et al., 2013). Carlsson et al. (2012) add an international

E-mail address: claudia.schwirplies@uni-hamburg.de.

<https://doi.org/10.1016/j.ecolecon.2017.11.003>

Received 14 January 2017; Received in revised form 9 September 2017; Accepted 3 November 2017

Available online 20 November 2017

0921-8009/© 2017 Elsevier B.V. All rights reserved.

dimension to this literature by comparing these determinants for individuals in Sweden, China and the U.S. Their analyses reveal WTP estimates that are highest for Sweden and lowest for China with significant differences in the determinants.

This paper takes up the international dimension by considering citizens from China, Germany and the U.S. and their acceptance of national and international climate policy. The three countries were selected, because they are all large emitters and supposed to play a key role in future international climate policy. The analyses are based on survey responses of approximately 3400 citizens in the three countries and include various indicators that capture their beliefs about climate change, climate protection, and other countries' contributions, options for financing additional climate protection, their environmental awareness and political attitudes as well as socio-economic and socio-demographic characteristics.

The empirical findings suggest that the beliefs and environmental awareness are important drivers for the acceptance of climate policy in all three countries, while political attitudes and socio-economic characteristics are the main sources of cross-country heterogeneity. The study provides important insights into the determinants of the acceptance of national and international climate policy measures in the three countries. It thereby points at valuable starting points for raising this acceptance, which is crucial for reaching the ambitious climate policy goals, agreed on by the international community.

The paper proceeds with a description of the data in Section 2. Section 3 provides the analytical framework, before Section 4 discusses the empirical findings. Section 5 summarizes the results and draws conclusions.

2. Survey Administration and Description of the Data

The data for the following analyses were collected in almost identical web-based surveys which were conducted simultaneously in China, Germany and the U.S. in May and June 2013. In Germany and the U.S., the market research company GfK SE (Gesellschaft für Konsumforschung) drew a representative sample from their online panels. Respondents were invited via email to attend a self-administered questionnaire in a web-based online environment.

In China, an online-survey would probably lead to a systematic bias because internet access is typically lacking in rural areas and market research is less common than in Western countries. Therefore, participants were recruited by employees of GfK China in eleven core regions¹ and invited to centrally located test studios. In the test studios, respondents answered the survey questions without any interference by the GfK employees who were intensively briefed. Although this survey method differs from the online-in-home method in Germany and the U.S., it carefully tried to avoid biases due to regional conditions and interference to make the responses and results comparable across the three countries.

In all three countries, survey questions were developed together with a group of experts in the field of climate change adaptation and mitigation and also carefully pretested by these experts as well as a group of ordinary respondents in order to avoid ambiguity and misunderstandings. The questionnaire comprised five sections including the respondents' general personal beliefs regarding climate change, their own adaptation and climate-friendly activities, specific attitudes towards international climate policy and negotiations, their world view and values, as well as socio-economic and socio-demographic information. On average, the completion of the survey required about 30 min in all three countries. In total, 1430 Chinese, 1005 German, and 1010 U.S. respondents completed the questionnaire. The number of respondents included in the analyses below, however, is smaller for two

reasons. First, deniers of climate change were excluded from the ordered probit analysis (see discussion below). Second, each survey question involved a 'don't know/no answer' option in order to distinguish neutral from unsure responses and to address potential problems of central tendency and social desirability (see also Table 2).²

Before eliciting the acceptance of national and international climate policies, the problem of climate change was introduced³ and respondents were asked about their belief in global climate change. In order to circumvent potential distortions of the responses, respondents who selected the options 'Global climate change is not going to occur at all' and 'don't know/no answer' were not asked about their acceptance of climate policy, since they don't believe in climate change anyways. These respondents (i.e., 1.89% or 27 respondents from China, 9.95% or 100 respondents from Germany, and 21.19% or 214 respondents from the U.S.)⁴ were not considered in the ordered response analysis and treated as a separate category in the multinomial response analysis (see discussion below).

Respondents who, in contrast, believe that 'Global climate change is already occurring' or 'Global climate change is not happening now, but it will occur in the future' were then asked:

In response to the foreseeable global climate change two strategies are conceivable: Mitigating climate change by reducing the emission of greenhouse gas (e.g. carbon dioxide, methane) through climate protection measures, on the one hand, or adaptation measures to the consequences of climate change, on the other hand.

In your opinion, how strongly should these two responses be pursued by public authorities in China [Germany, the United States]?⁵

Respondents indicated their acceptance of (i) 'mitigation of climate change (e.g. advancement of renewable energy or energy-efficient technologies)' and (ii) 'adaptation measures relating to the consequences of climate change (e.g. provide protection against natural events like the building of dams, safeguarding of traffic routes)' on a symmetric scale with five ordered categories (i.e. 'very weakly', 'rather weakly', 'neither weakly nor strongly', 'rather strongly', and 'very strongly').

The distribution of responses is shown in Fig. 1 in Appendix B. For adaptation, these distributions look very similar in China and Germany. Here, more than two thirds of the respondents agree to the pursuit of adaptation measures by public authorities in their home country. In the U.S., this share is about 20 percentage points smaller and 'don't know' responses occur more frequently. Similarly, the agreement to pursuing mitigation measures is with around three quarters of the respondents very high in China and Germany, and the share of respondents who indicate 'very strongly' is significantly higher compared to adaptation measures.

Regarding international climate negotiations, the survey (among others) involved the following question:⁶

How important do you consider the following issues to be for international climate negotiations?

The perceived importance of (i) 'measures to reduce global

² For most of the questions that I used for the analyses the group of 'don't know/no answer' responses was large enough that I could include them in the analyses as a separate category. Only for a few questions such as education and political attitudes this was not possible. Overall, however, less than 50 observations were removed from the analyses due to missing answers in each country.

³ The exact wording of this introduction was: 'In the following climate change is understood to be a rise in the average global temperature over the past 150 years or in the future, resulting in weather and climate changes.'

⁴ For more details on the climate change beliefs see Ziegler (2017). Further analyses for China can, for example, be found in Dai et al. (2015).

⁵ Respondents were only asked about pursuing the two responses in their own country, not in the other two countries.

⁶ For further results on citizens' beliefs about international climate negotiations see Schleich et al. (2016).

¹ i.e. Beijing, Shanghai, Guangzhou, Shenyang, Wuhan, Chengdu, Shijiazhuang, Hefei, Lanzhou, Yinchuan, and Quanzhou.

متن کامل مقاله

دریافت فوری ←

ISIArticles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات