

WHO SHOULD PAY FOR THE COSTS OF THE GERMAN ENERGY TRANSITION? A MICROECONOMETRIC ANALYSIS OF PREFERENCES FOR DIFFERENT BURDEN SHARING RULES

Elke Groh, University of Kassel, +49 561 804-3044, elke.groh@uni-kassel.de
Andreas Ziegler, University of Kassel, +49 561 804-3038, andreas.ziegler@uni-kassel.de

Overview

Previous international climate negotiations have shown that their success involves at least three challenges: First, such agreements at the government level require the acceptance by citizens of the respective countries. Second, it can be assumed that countries and their domestic citizens only accept climate agreements if they perceive them to be fair. Third, the outcomes of international climate agreements eventually have to be translated into national regulations to reduce greenhouse gas emissions. Against this background, several empirical studies have already analyzed individual attitudes towards climate change (e.g. Dai et al., 2015; Ziegler, 2015) as well as voluntary climate protection activities (e.g. Lange et al., 2014), which are an important complement of national regulations such as market-based instruments like emission trading systems. In addition, former studies have examined preferences for sharing the mitigation costs across countries of both agents involved in climate policy and citizens (e.g. Lange et al., 2010; Schleich et al., 2016).

However, the individual perception of a fair burden sharing is not only important for international climate agreements, but also for the acceptance and support of national regulations. Against this background, this paper examines the preferences for burden sharing rules in the context of the German energy transition towards renewable energies, which is one of the most challenging national climate and energy policy measures worldwide. We focus on three common burden sharing rules for the distribution of costs, namely the equal-pay rule where everyone should bear the same share of costs, the ability-to-pay rule where each household should contribute to the costs according to its income, and the polluter-pays rule where each household should contribute to the costs according to its energy consumption. It should be noted that we consider burden sharing principles which refer to the distribution of costs on a national level and not to the distribution of emission rights at the international level as in former studies.

Studies that examine the preferences for burden sharing rules for national climate and energy policy measures are rare so far (e.g. Atkinson et al., 2000; Dietz and Atkinson, 2010). They mainly focus on the relationship between economic self-interest and preferences for the application of single burden sharing rules for specific climate protection measures. However, these studies do not consider, for example, the effects of individual beliefs such as political identification or social norms which have been found to be relevant for preferences for redistribution (e.g. Alesina and Guiliano, 2011) or environmental taxes (e.g. Kallbekken and Sælen, 2011).

Methods

The empirical analysis is based on data from a computer-assisted telephone survey that was conducted between March and Mai 2015 among more than 2000 respondents. The sample is representative for all German households with a landline or mobile connection who state to know the German energy transition. The agreement to the three burden sharing rules is measured by five ordered response categories ranging from “totally disagree” to “totally agree”, respectively. Since the three corresponding dependent variables are ordered and in addition possibly mutually correlated, we mainly apply multivariate ordinal probit models in our microeconomic analysis. We consider three main groups of explanatory variables which refer to economic self-interest, environmental awareness, and further social values and norms besides common socio-demographic variables.

Results

The descriptive statistics show that the polluter-pays rule has the highest agreement for sharing the costs of the German energy transition followed by the ability-to-pay rule. Furthermore, combinations of the polluter-pays rule and the ability-to-pay rule have a higher support than combinations containing the equal-pay rule. Our econometric analysis shows that the probability of agreeing with the equal-pay rule is not significantly driven by economic self-interest, but by a low social political identification, a high liberal political identification and low environmental awareness. In contrast, economic self-interest matters for the support of the ability-to-pay rule since a higher (equivalent) income has a significantly negative effect. Furthermore, a social identification leads to a significantly higher probability of agreeing with the ability-to-pay rule. Economic self interest also affects the support of the polluter-pays rule since a higher energy consumption of the household has a significantly negative effect. Further, a conservative identification, and a high environmental awareness have significantly positive effects. In addition, individuals who agree with measures of the German energy transition significantly more often support the polluter-pays rule.

Conclusions

Our empirical analysis reveals that preferences for burden sharing rules in the context of the German energy transition are determined by economic self-interest, environmental awareness, and further social values such as political identification. The positive effects of the support of the energy transition on the polluter-pays rule suggest that this group of households particularly agree with the burden sharing rule that is most acceptable in the population. Overall, it seems that a combination of the polluter-pay rule and the ability-to-pay rule is most promising in the allocation of costs for national climate protection policies, even though economic self-interest can lead to a refusal of the ability-to-pay rule by some population groups.

References

- Alesina, A. and P. Giuliano (2011), Preferences for redistribution, *Handbook of Social Economics*, Volume 1, Chapter 4, 93-132.
- Atkinson, G., F. Machado, and S. Mourato (2000), Balancing competing principles of environmental equity, *Environment and Planning A* 32(10), 1791-1806.
- Dai, J., M. Kesternich, A. Löschel, and A. Ziegler (2015), Extreme weather experiences and climate change beliefs in China: An econometric analysis, *Ecological Economics* 116, 310-321.
- Dietz, S. and G. Atkinson (2010), The equity-efficiency trade-off in environmental policy: Evidence from stated preferences, *Land Economics* 86(3), 423-443.
- Kallbekken, S and H. Sælen (2011), Public acceptance for environmental taxes: Self-interest, environmental and distributional concerns, *Energy Policy* 39(5), 2966-2973.
- Lange, A., A. Löschel, C. Vogt, and A. Ziegler (2010), On the self-interested use of equity in international climate negotiations, *European Economic Review* 54(3), 359-375.
- Lange, A., C. Schwirplies, and A. Ziegler (2014), *On the interrelation between carbon offsetting and other voluntary climate protection activities: Theory and empirical evidence*, MAGKS Discussion Paper No. 47-2014.
- Schleich, J., E. Dütschke, C. Schwirplies and A. Ziegler (2016), Citizens' perceptions of justice in international climate policy: An empirical analysis, *Climate Policy* 16 (1), 50-67.
- Ziegler, A. (2015), *On the relevance of ideological identification and environmental values for beliefs and attitudes toward climate change: An empirical cross country analysis*, MAGKS Discussion Paper No. 16-2015.