

Climate change: The relationship between causal beliefs, risk perceptions, and preferences for policy actions

G. Böhm¹, A. Bostrom², R. O'Connor³, & D. Hanss¹

¹ University of Bergen, Bergen, Norway

² University of Washington, Seattle, USA

³ National Science Foundation (NSF), Arlington, USA

The present paper presents a cross-national survey that explores climate change perceptions, mental models, and policy preferences of economics and business undergraduates from six countries: Austria, Bangladesh, Finland, Germany, Norway, and USA (total N = 664). The main research question is what role risk perceptions and causal beliefs play in the formation of policy preferences.

The general theoretical assumption is that mental models of the causes and consequences of a hazardous event influence perceived risk and perceived effectiveness of policy actions and that people tend to support those policies they expect to be effective in reducing the highest risks (e.g., Böhm & Pfister, 2000; Morgan, Fischhoff, Bostrom, & Atman, 2001; O'Connor, Bord, & Fisher, 1999).

Five constructs were measured, reduced to the following dimensions via factor analysis (explained variance ranges from 54% to 69%):

- **risk perception:** dread, moral responsibility, equity, known risk, controllability;
- **perceived causes:** environmentally harmful practices, carbon emissions, volcanoes;
- **perceived consequences:** societal and personal consequences;
- **perceived effectiveness** of policy actions: green practices, carbon policies, engineering solutions; and
- **support** for the same policy actions: green practices, carbon policies, engineering solutions.

Differences between countries are generally small. Bangladeshis differ from participants from other countries particularly

in that they perceive higher threat / dread. Germans and Norwegians support engineering solutions less than participants from other countries.

Regression analyses with one of the policy support factors as criterion and the other factors as predictors show that policy support can be predicted from people's risk perceptions and causal models (R^2 ranging from .39 to .51, all $p < .001$). Each of the policy support factors can be predicted from a policy-specific pattern of predictors. In all analyses, adding corresponding perceived causes and perceived effectiveness into the equation in addition to perceived risk adds significant and substantial amounts of explained variance; in all three models perceived effectiveness explains a larger proportion of variance than ascribed causes.

In sum, the results demonstrate the important role of causal beliefs in both risk perceptions and preferences for policy actions. The results imply that communicating the effectiveness of policy actions influences support for these actions more than providing causal knowledge alone. Future research may address the exact mediating roles of perceived risk, causal beliefs, and perceived policy effectiveness in shaping policy support.

References

- Böhm, G., & Pfister, H.-R. (2000). Action tendencies and characteristics of environmental risks. *Acta Psychologica, 104*, 317-337.
- Morgan M. G., Fischhoff, B., Bostrom, A., & Atman, C. J. (2001). *Risk communication: A mental models approach*. New York: Cambridge University Press.
- O'Connor, R. E., Bord, R. J., & Fisher, A. (1999). Risk perceptions, general environmental beliefs, and willingness to address climate change. *Risk Analysis 19*, 461-71.