

# Politics shapes individual choices about energy efficiency

Thomas Dietz<sup>a,1</sup>, Christina Leshko<sup>b</sup>, and Aaron M. McCright<sup>c</sup>

<sup>a</sup>Environmental Science and Policy Program, Animal Studies Program, Department of Sociology, Center for Systems Integration and Sustainability, <sup>b</sup>Environmental Science and Policy Program, Animal Studies Program, Department of Sociology, and <sup>c</sup>Department of Sociology, Lyman Briggs College, Michigan State University, East Lansing, MI 48864

Addressing climate change effectively will require policy actions by both government and the private sector. However, individuals' actions matter as well. Individuals' consumption decisions can significantly reduce greenhouse gas emissions (1). Political support from citizens is necessary (although not sufficient) for implementing policy. Until now, most research has treated environmentally significant consumption and political support for the environment as separate issues (2). However, as Gromet et al. make clear in PNAS, merging these robust but separate streams of research can provide useful insights (3). Gromet et al. show that political orientation—where one falls on the spectrum from liberalism to conservatism—influences both support for energy-efficiency policy and the decision to purchase an energy-efficient product.

## Politics of Policy Support

Well-funded campaigns have questioned the toxicity of lead, the health risks of tobacco, the effects of acid precipitation on ecosystems, and most recently, the reality of climate change (4, 5). The result has been delay in adopting public policy to address these problems. Conservatives have been the most receptive to questioning the reality of climate change so that over the last decade, the link between conservatism and climate change denial has strengthened (6, 7).

Scientists are frustrated by the strong effect of politics on public views about climate change. However, we acknowledge that many lay citizens have neither the time nor the scientific background to assess climate change research. Instead many consumers rely on trusted sources of information. Public trust in the scientific community remains high, although it is becoming polarized, with trust declining among conservatives (8). However, political messages signaling a lack of scientific consensus may effectively bypass trust in science; if scientists don't agree, then trust in science is irrelevant.

Gromet et al. (3) show that conservatives don't support energy efficiency when it is framed as a means of reducing carbon emissions. Survey respondents seem to be sending a political signal about climate change when they answer questions about energy efficiency. When views on climate change were taken into account, conservatism actually led to greater support for energy independence and reducing energy costs. Thus, conservatives are not opposed to energy efficiency per se; rather, they are opposed to energy efficiency linked to climate change. This parallels a similar finding by Whitfield et al., whereby environmentalism leads to greater support for nuclear power, but only when mistrust of the institutions that manage nuclear power is taken into account (9).

## Politics of Consumer Choice

Individuals affect the climate via their roles both as consumers and as citizens (2). About 38% of overall United States greenhouse gas emissions are from direct energy consumption by United States households (1). Additional emissions are embedded in the consumption of food, water, and other materials. Decades of research suggest that there is an energy-efficiency gap; it would be in the economic interest of households to consume less energy than they do. The gap is a result of decision-making processes that deviate substantially from standard models of utility maximization (10, 11) and from policies that are intended to promote efficiency but that are poorly designed (12).

Gromet et al. (3) show one kind of deviation from conventional utility maximization, including political considerations in consumption choices. When a product—a compact fluorescent light (CFL) bulb in their experiment—had a “Protect the Environment” label, political moderates and conservatives were less likely to purchase it than when no environmental signal was given.

Labeling did not affect the odds of a purchase by liberals. However, political orientation had an influence only when there was a substantial price difference between an energy-efficient and a conventional product. When both conventional bulbs and CFLs had identical prices, the more efficient product was almost always preferred regardless of political orientation or environmental label.

There is a logic to these decisions. It is hard to calculate if a difference in initial price between a conventional and a CFL bulb is balanced by lower operating costs of the CFL bulb. In the equal-price situation, no calculation was needed: the more efficient product was seen as more desirable by nearly everyone. However, when there is a premium to be paid for efficiency, signaling a product as “green” may make some consumers skeptical about its economic payoff and perhaps also increase the salience of the symbolic value of the purchase.

## What Next?

Gromet et al. (3) raise important questions about the interplay among values, political views, and the decisions we make as citizens and consumers. Like any initial integration of two distinct literatures, Gromet et al.'s work calls for replication and raises important questions. Do their results generalize to different sorts of environmentally consequential choices and to different political cultures? Can we develop a more integrative theory of environmentally significant behaviors? Linking the role of consumer and citizen is an initial step toward such a theory (2). Values, beliefs, norms, personal identity, trust, and political ideology each have been shown to influence environmental decision making (13–15). How do these factors work together in shaping decisions? How are these effects conditioned by socio-demographic characteristics, such as sex, ethnicity, and education? How do social networks influence environmental decision-making, and how are networks in turn shaped by our tendency to

Author contributions: T.D., C.L., and A.M.M. wrote the paper. Q:6

The authors declare no conflict of interest.

See companion article 10.1073/pnas.1218453110.

<sup>1</sup>To whom correspondence should be addressed. E-mail: tdietz@msu.edu.

seek like-minded individuals and avoid those who differ from us (16, 17)?

Are there other kinds of consumer choice where political orientation and values are important? We know that ideology and sex are strongly related to views about environmental and technological risk (18). Perhaps ideology and related values, norms, beliefs, trust, and identities influence both risk behaviors and support for risk-reduction policies broadly. Smoking, dietary choices, and the use of motorcycle helmets and automobile seat belts might provide a rich test bed for examining how our roles as consumers and as citizens intersect.

The implications of Gromet et al.'s (3) results for policy are suggestive, but further work is warranted before we develop policy design principles (12). Should environmental benefits be mentioned in campaigns to promote energy efficiency? Although Gromet et al. found a negative effect of such labels for conservatives when price difference was large, they found no effect when the prices for the two alternative products were equal. Thus, sound design of energy efficiency programs and other proenvironmental actions should take into account the price differences at which environmental signaling becomes important. Price matters, but it is not all that matters (11). And although environmental labeling did not increase the purchase probability of energy-efficient bulbs for those on the left, in this case the label may not have an impact because the environmental benefits of CFLs are well known. Perhaps green labeling

would encourage purchases by liberals and others when product features are less well known (19). Then green labeling may increase purchase probability for some and decrease it for others. Effective policy design would have to assess the net impact of environmental signaling by taking into account both the sizes of the labeling effects and the sizes of the populations positively and negatively affected.

Finally, Gromet et al. (3) remind us that policy support and consumer decisions depend not only on facts, but also on values. Public discourse on climate change is usually

framed as a debate about facts, especially about the state of the science (5, 20). However, such public debates may actually be more about differences in values than about reasoned disagreements on scientific facts. Perhaps our public discussions could be more constructive if we found ways to discuss values as well as facts.

**ACKNOWLEDGMENTS.** This research was funded in part by Michigan AgBio Research of Michigan State University, the Michigan State University Office of the Vice President for Research, and Graduate Study and National Science Foundation Social, Behavioral, and Economic Sciences Grant 1123762.

- 1 Dietz T, Gardner GT, Gilligan J, Stern PC, Vandenberg MP (2009) Household actions can provide a behavioral wedge to rapidly reduce US carbon emissions. *Proc Natl Acad Sci USA* 106(44):18452–18456.
- 2 Stern PC (2000) Toward a coherent theory of environmentally significant behavior. *J Soc Issues* 56(3):407–424.
- 3 Gromet DM, Kunreuther H, Larrick RP (2013) Political ideology affects energy-efficiency attitudes and choices. *Proc Natl Acad Sci USA*, 10.1073/pnas.1218453110.
- 4 Michaels D (2008) *Doubt Is Their Product: How Industry's Assault on Science Threatens Your Health* (Oxford Univ Press, New York).
- 5 McCright AM, Dunlap RE (2010) Anti-reflexivity: The American conservative movement's success in undermining climate science and policy. *Theory Cult Soc* 27:100–133.
- 6 Hamilton LC (2010) Education, politics, and opinions about climate change: Evidence for interaction effects. *Clim Change* 104(2):231–242.
- 7 McCright AM, Dunlap RE (2011) The politicization of climate change and polarization in the American public's views of global warming, 2001–2010. *Social Q* 52:155–194.
- 8 Guachat G (2012) Politicization of science in the public sphere: A study of public trust in the United States, 1974 to 2010. *Am Sociol Rev* 77(2):167–187.
- 9 Whitfield SC, Rosa EA, Dan A, Dietz T (2009) The future of nuclear power: Value orientations and risk perception. *Risk Anal* 29(3):425–437.
- 10 Attari SZ, DeKay ML, Davidson CI, Bruine de Bruin W (2010) Public perceptions of energy consumption and savings. *Proc Natl Acad Sci USA* 107(37):16054–16059.
- 11 Dietz T, Stern PC, Weber E (2013) Reducing carbon-based energy consumption through changes in household behavior. *Daedalus* 142(1):78–89.
- 12 Vandenberg MP, Stern PC, Gardner GT, Dietz T, Gilligan JM (2010) Implementing the behavioral wedge: Designing and adopting effective carbon emissions reduction programs. *Environ Law Rev* 40:10547–10554.
- 13 Dietz T, Fitzgerald A, Shwom R (2005) Environmental values. *Annu Rev Environ Resour* 30:335–372.
- 14 Schultz PW, Nolan JM, Cialdini RB, Goldstein NJ, Griskevicius V (2007) The constructive, destructive, and reconstructive power of social norms. *Psychol Sci* 18(5):429–434.
- 15 Bidwell D (2013) The role of values in public beliefs and attitudes towards commercial wind energy. *Energy Policy*, in press.
- 16 Henry AD, Pralat P, Zhang CQ (2011) Emergence of segregation in evolving social networks. *Proc Natl Acad Sci USA* 108(21):8605–8610.
- 17 Frank KA, Maroulis S, Belman D, Kaplowitz MD (2011) The social embeddedness of natural resource extraction and use in small fishing communities. *Sustainable Fisheries: Multi-Level Approaches to a Global Problem*, eds Taylor WW, Lynch AJ, Schechter MG (American Fisheries Society, Bethesda, MD).
- 18 McCright AM, Dunlap RE (2011) Cool dudes: The denial of climate change among conservative white males in the United States. *Glob Environ Change* 21(4):1163–1172.
- 19 Cohen MA, Vandenberg MP (2013) The potential role of carbon labeling in a green economy. *Energy Econ*, in press.
- 20 Dietz T (2013) Bringing values and deliberation to science communication. *Proc Natl Acad Sci USA*, in press.

# AUTHOR QUERIES

## AUTHOR PLEASE ANSWER ALL QUERIES

- Q: 1\_Please contact PNAS\_Specialist.djs@sheridan.com if you have questions about the editorial changes, this list of queries, or the figures in your article. Please include your manuscript number in the subject line of all e-mail correspondence; your manuscript number is 201307484.
- Q: 2\_Please (i) review the author affiliation and footnote symbols carefully, (ii) check the order of the author names, and (iii) check the spelling of all author names, initials, and affiliations. Please check with your coauthors about how they want their names and affiliations to appear. To confirm that the author and affiliation lines are correct, add the comment “OK” next to the author line. This is your final opportunity to correct any errors prior to publication. Misspelled names or missing initials will affect an author’s searchability. Once a manuscript publishes online, any corrections (if approved) will require publishing an erratum; there is a processing fee for approved erratum.
- Q: 3\_Please review and confirm your approval of the short title: Energy efficiency and politics. If you wish to make further changes, please adhere to the 50-character limit.
- Q: 4\_If your article contains links to Web sites (other than the SI links for your article), please verify that the links are valid and will direct readers to the proper Web page.
- Q: 5\_Author names may have been edited to match those provided during article submission; please check carefully and note your approval in the margin. (Your article cannot be published until your approval has been received.)
- Q: 6\_Please review the information in the author contribution footnote. PNAS requires all articles to have the author contributions listed. Typically, for a commentary article, “wrote the paper” is the only contribution. However, you may add others as you think necessary. The other standard contributions are “performed research,” “designed research,” “contributed new reagents/analytical tools,” and “analyzed data.”
- Q: 7\_Please provide an issue number for refs. 5, 7, 12, 13, and 18, if possible.
- Q: 8\_Please update “in press” with a doi or volume, issue, and page range in ref. 15, if possible.
- Q: 9\_Please update “in press” with a doi or volume, issue, and page range in refs. 19 and 20, if possible.
- 
-