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## Article

# Social Influences on Policy Preferences: Conformity and Reactance

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### INTRODUCTION

It is well-known that in general, people's judgments, choices, and decisions are greatly influenced by social norms.<sup>1</sup> Classic research has shown that social norms may influence our stated views about the lengths of lines, and even our ability to discriminate among colors.<sup>2</sup> There is also evidence that people

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1. By now, multiple studies have documented this phenomenon. For notable examples, see *infra* Part I.

2. See, e.g., Solomon E. Asch, *Studies of Independence and Conformity: A Minority of One Against a Unanimous Majority*, 70 *PSYCHOL. MONOGRAPHS* 1, 68–70 (1956) (finding that people are influenced by their peers' views about the length of lines). See also SERGE MOSCOVICI, *SOCIAL INFLUENCE AND SOCIAL CHANGE* 54–55 (Carol Sherrard & Greta Heinz trans., 1976) (finding that people's ability to distinguish between colors is also affected by their peers' opinions).

adjust their behavior to conform with the behavior of others, and that social norms (and specifically public opinion) may affect people's moral judgments as well.<sup>3</sup> At the same time, research on the influence of social norms on people's *policy preferences* remains scarce.<sup>4</sup> This Article examines whether exposure to information about public opinion may affect people's policy judgments in significant ways. In short, we find that it does. People often move in the direction of conformity with public opinion. But in some contexts, they do not—and they might even show reactance.<sup>5</sup>

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3. See, e.g., Leonard Berkowitz & Nigel Walker, *Laws and Moral Judgments*, 30 *SOCIOMETRY* 410, 421–22 (1967) (finding that one's moral judgments concerning different forms of conduct, like homosexual relationships, are significantly affected by the opinion of one's peers; and that the "peer consensus" effect is greater than the effect of knowledge as to the existence of criminal laws regarding the specified behavior).

4. Relatively few studies address this issue. For notable exceptions, see Matthew J. Hornsey et al., *On Being Loud and Proud: Non-Conformity and Counter-Conformity to Group Norms*, 42 *BRIT. J. SOC. PSYCHOL.* 319 (2003) (examining the influence of group norms on Australian students' attitudes toward recognition of gay couples and government apology to Aborigines, and finding that people are influenced by the group norm, even with respect to attitudes of social significance, but may experience counterconformity if their attitude has a strong moral basis); Joanne R. Smith & Winnifred R. Louis, *Do as We Say and as We Do: The Interplay of Descriptive and Injunctive Group Norms in the Attitude-Behaviour Relationship*, 47 *BRIT. J. SOC. PSYCHOL.* 647 (2008) (examining the relative effects of descriptive and injunctive norms, and in-group and out-group norms, in the context of different campus policies, such as the introduction of comprehensive examinations at Australian universities).

5. Reactance is generally defined as an individual's negative response when a freedom has been threatened or lost. Reactance is typically inferred when people adopt a position or behavior opposite from the behavior or position advocated or when they perceive the behavior or object associated with the threatened freedom to be more attractive. See, for example, SHARON S. BREHM & JACK W. BREHM, *PSYCHOLOGICAL REACTANCE: A THEORY OF FREEDOM AND CONTROL* 4 (1981) [hereinafter BREHM, *PSYCHOLOGICAL REACTANCE*] (stating, inter alia, that "[i]n addition to direct behavioral consequences, reactance affects the subjective attractiveness of potential outcomes"); ROBERT A. WICKLUND, *FREEDOM AND REACTANCE* (1974); Thomas Hammock & Jack W. Brehm, *The Attractiveness of Choice Alternatives when Freedom to Choose is Eliminated by a Social Agent*, 34 *J. PERSONALITY* 546 (1966); Stephen A. Rains, *The Nature of Psychological Reactance Revisited: A Meta-Analytic Review*, 39 *HUM. COMM. RES.* 47 (2013); Stephen Worchel & Jack W. Brehm, *Effects of Threats to Attitudinal Freedom as a Function of Agreement with the Communicator*, 14 *J. PERSONALITY & SOC. PSYCHOL.* 18 (1970). For example, raising the legal drinking age in the United States from nineteen to twenty-one resulted in increased drinking rates among underage college students. Ruth Engs & David J. Hanson, *Reactance Theory: A Test with Collegiate Drinking*, 64 *PSYCHOL. REP.* 1083, 1085 (1989).

In a series of experimental studies, we randomly assigned participants to two different “majority opinion” conditions (“majority support” and “majority opposition”) and asked them to state their opinion about various proposed governmental policies. Under the majority-support condition, participants were asked to assume that most Americans supported the proposed policy, whereas under the majority-opposition condition they were asked to assume that most Americans opposed it. This experimental manipulation allowed us to test the effect of information about the majority opinion on people’s support for different proposed policies.

We focus throughout on “soft” (or libertarian paternalist) interventions in the form of nudges, generally understood as behaviorally informed interventions aimed at steering people in desired directions while preserving their freedom to choose.<sup>6</sup> These interventions—including informational campaigns, warnings (for example, about the risks of smoking) and default arrangements (such as automatic enrollment plans)—have gained significant attention, and have been used to promote social welfare in multiple countries during the last decade.<sup>7</sup>

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6. For a general overview of nudges and their potential impact on people’s behavior and welfare, see RICHARD H. THALER & CASS R. SUNSTEIN, *NUDGE: IMPROVING DECISIONS ABOUT HEALTH, WEALTH AND HAPPINESS* (2008). One well-known example of a nudge, which has been extensively implemented in the United States, is automatic enrollment in retirement savings programs. In such programs, as soon as employees become eligible for the savings plan, they are automatically enrolled unless they explicitly opt out. This design—switching the default from “no participation” to “participation”—counteracts employees’ procrastination and status-quo bias. See Brigitte C. Madrian & Dennis F. Shea, *The Power of Suggestion: Inertia in 401(k) Participation and Savings Behavior*, 116 Q.J. ECON. 1149 (2001). For an elaborate definition of libertarian paternalism, see Cass R. Sunstein & Richard H. Thaler, *Libertarian Paternalism Is Not an Oxymoron*, 70 U. CHI. L. REV. 1159 (2003). For a critical analysis of libertarian paternalism, see RICCARDO REBONATO, *TAKING LIBERTIES: A CRITICAL EXAMINATION OF LIBERTARIAN PATERNALISM* (2012).

7. For a general overview of the use of behaviorally informed approaches in public policy, see CASS R. SUNSTEIN, *SIMPLER: THE FUTURE OF GOVERNMENT* (2013) (exploring applications of behavioral tools by regulatory agencies); William J. Congdon & Maya Shankar, *The White House Social & Behavioral Sciences Team: Lessons Learned from Year One*, 2 BEHAV. SCI. POL’Y 93 (2016); David Halpern & Michael Sanders, *Nudging by Government: Progress, Impact & Lessons Learnt*, 2 BEHAV. SCI. & POL’Y 53 (2016) (exploring how behavioral insights have been applied by U.S. and U.K. government agencies to nudge individuals towards more economically beneficial choices); Brigitte C. Madrian, *Applying Insights from Behavioral Economics to Policy Design*, 6 ANN. REV. ECON. 663 (2014) (exploring how behaviorally informed policy can

Nudges have been adopted as policy tools in a variety of important areas, including health care, environmental protection, and savings programs.<sup>8</sup>

We focus on these interventions in part to keep the topic as tractable as possible, and in part on the ground that a growing body of work explores how people respond to such interventions in the absence of social influences.<sup>9</sup> We expect, however, that

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remedy market failures that result from psychological biases, and assessing the impact and relative cost-effectiveness of behaviorally informed interventions). For the use of warnings, disclosure mandates, and informational campaigns, see OMRI BEN-SHAHAR & CARL E. SCHNEIDER, *MORE THAN YOU WANTED TO KNOW: THE FAILURE OF MANDATED DISCLOSURE* (2014); Ryan Bubb, *TMI? Why the Optimal Architecture of Disclosure Remains TBD*, 113 MICH. L. REV. 1021 (2015); Christine Jolls & Cass R. Sunstein, *Debiasing Through Law*, 35 J. LEGAL STUD. 199 (2006). For the use of default arrangements, such as automatic enrollment plans, see Richard Thaler & Shlomo Benartzi, *Save More Tomorrow™: Using Behavioral Economics to Increase Employee Saving*, 112 J. POL. ECON. S164, S169, S183–86 (2004); Madrian & Shea, *supra* note 6.

8. For the use of such tools to promote health, see Julie S. Downs et al., *Strategies for Promoting Healthier Food Choices*, 99 AM. ECON. REV. 159 (2009); Lucia A. Reisch, Cass R. Sunstein & Wencke Gwozdz, *Beyond Carrots and Sticks: Europeans Support Health Nudges*, 69 FOOD POL'Y 1 (2017). For the use of nudges to enhance environmental protection, see NEW PERSPECTIVES FOR ENVIRONMENTAL POLICIES THROUGH BEHAVIORAL ECONOMICS (Frank Beckenbach & Walter Kahlenborn eds., 2016); Felix Ebeling & Sebastian Lotz, *Domestic Uptake of Green Energy Promoted by Opt-Out Tariffs*, 5 NATURE CLIMATE CHANGE 868 (2015); Simon Hedlin & Cass R. Sunstein, *Does Active Choosing Promote Green Energy Use? Experimental Evidence*, 43 ECOLOGY L.Q. 107 (2016). For the use of nudges to increase employees' savings, see Madrian & Shea, *supra* note 6; Thaler & Benartzi, *supra* note 7.

9. See, e.g., William Hagman et al., *Public Views on Policies Involving Nudges*, 6 REV. PHIL. & PSYCHOL. 439, 440–42 (2015) (examining public attitudes toward multiple nudges, finding, for example, that people prefer pro-self over prosocial nudges); Janice Y. Jung & Barbara A. Mellers, *American Attitudes Toward Nudges*, 11 J. JUDGMENT & DECISION MAKING 62, 62–63 (2016) (exploring the factors influencing people's attitudes toward nudges, such as personality traits, cultural and social worldviews, and specific characteristics of nudges); Astrid F. Junghans et al., *Under Consumers' Scrutiny: An Investigation Into Consumers' Attitudes and Concerns About Nudging in the Realm of Health Behavior*, 15 BMC PUB. HEALTH 336, 226 (2015) (exploring consumers' knowledge and attitudes toward nudges in the United Kingdom, while focusing on health nudges); Lucia A. Reisch & Cass R. Sunstein, *Do Europeans Like Nudges?*, 11 J. JUDGMENT & DECISION MAKING 310, 319–22 (2016) (finding that there is broad public support in various European nations for multiple kinds of nudges); Cass R. Sunstein, *Do People Like Nudges?*, 68 ADMIN. L. REV. 177, 222–23 (2016) (revealing a widespread support for nudges, at least of the kind that Democratic societies have employed or seriously considered in recent years); Ayala Arad & Ariel Rubinstein, *The People's Perspective on Libertarian-Paternalistic Policies* 26–27 (Oct. 2017) (unpublished manuscript), <http://arielrubinstein.tau.ac.il/papers/LP.pdf> (exploring people's attitudes to-

our central findings would hold for more aggressive interventions as well (with the qualifications discussed in Part IV).

We find that the effect of majority opinion on people's support of governmental policies depends largely on a single factor: whether people's *antecedent opinions on the matter are fixed and firm*. People's attitudes are likely to move in the direction of the majority in domains in which they lack clear convictions; when they have such convictions, the view of the majority matters less, and sometimes not at all.

These findings are consistent with other evidence, both experimental and real world, that people are relatively impervious to social influences when their antecedent convictions are firm.<sup>10</sup> For example, federal appellate judges are greatly influenced by their panel colleagues in many areas of the law, but not in the context of abortion and capital punishment, where we can expect fixed convictions.<sup>11</sup> Indeed, we find that in ideologically contentious contexts, exposure to the majority opinion can even *backfire*. Disclosure of social norms might produce reactance on the part of the people belonging to the minority, thus intensifying their commitment to their original belief.<sup>12</sup> We offer preliminary evidence about the kinds of situations in which reactance will occur.<sup>13</sup>

As we shall show, our findings have significant implications for policymakers who seek to build support for, or opposition to, certain policies or tools. In many contexts, a clear or

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ward various nudges, and finding, inter alia, that people prefer deliberative and educative nudges to intuitive or automatic interventions, even if the latter are proven more effective).

10. See, e.g., CASS R. SUNSTEIN ET AL., *ARE JUDGES POLITICAL? AN EMPIRICAL ANALYSIS OF THE FEDERAL JUDICIARY* (2007) [hereinafter SUNSTEIN ET AL., *JUDGES*]; Hornsey et al., *supra* note 4. These findings are also consistent with social judgment theory, which suggests that people who are highly invested in a particular issue are less likely to be influenced than those who are not as invested. See, e.g., MUZAFER SHERIF & HADLEY CANTRIL, *THE PSYCHOLOGY OF EGO-INVOLVEMENTS: SOCIAL ATTITUDES & IDENTIFICATIONS* (1947); MUZAFER SHERIF & CARL I. HOVLAND, *SOCIAL JUDGMENT: ASSIMILATION AND CONTRAST EFFECTS IN COMMUNICATION AND ATTITUDE CHANGE* (1961).

11. SUNSTEIN ET AL., *JUDGES*, *supra* note 10, at 54–57.

12. Indeed, as Brehm & Brehm observe, “[r]eactance theory . . . suggests that individuals will sometimes be motivated to resist or act counter to attempted social influence, such as mass persuasion . . . .” See BREHM, *PSYCHOLOGICAL REACTANCE*, *supra* note 5, at 4.

13. Our evidence is consistent with previous findings showing reactance. For references, see *infra* note 43.

pointed reference to the majority's views can attract people to its position. But for some groups, the majority's view will have no impact—and for others, it will even prove counterproductive.

We offer a general qualification before we begin. The range of real-world policy issues is of course very large, even within the category of soft interventions, and we explore only a small subset of them here. Moreover, some of our results are merely suggestive. We do find effects for conformity, nonconformity, and reactance, but the magnitude of our findings is often relatively small. For some of our hypotheses, the support must be taken as tentative. But in view of their connection with firmly established findings in other domains, not involving policy preferences,<sup>14</sup> our expectation is that our findings would generally hold after more extensive investigation.

The Article proceeds as follows. Part I presents the background and motivation behind this project. It briefly surveys the literature on social influences, while focusing on the limited evidence indicating that social norms—and majority opinion in particular—may affect people's policy judgments.

In Part II, we report the findings of our first experimental study, showing that across a wide range of policies, people's judgments are affected by the (perceived) majority opinion, and that they might experience reactance in ideologically contentious cases. In Part III, we present a second experiment, whose findings suggest that the impact of the majority opinion on people's policy judgments is moderated by the strength of their antecedent convictions.

Part IV extends the previous studies in two ways. First, it investigates whether exposure to information on the majority opinion influences people's attitudes not only toward policy *ob-*

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14. For conformity effects, see *infra* Part I. For reactance in other contexts, see, for example, Kareem Haggag & Giovanni Paci, *Default Tips*, 6 AM. ECON. J. APPLIED ECON. 1, 16–17 (2014) (finding that higher default tip suggestions in taxi cabs in New York led to lower likelihood of tipping, although the average tipping rates went up); Hedlin & Sunstein, *supra* note 8, 137–40 (finding that participants presented with an active-choosing green policy were more likely to enroll in the green energy program than were those who were automatically defaulted to such a program and were provided the opportunity to opt out, thereby indicating reactance triggered by the use of defaults); Debra J. Ringold, *Boomerang Effects in Response to Public Health Interventions: Some Unintended Consequences in the Alcoholic Beverage Market*, 25 J. CONSUMER POL'Y 27, 51–53 (2002) (finding reactance in the context of health interventions); Arad & Rubinstein, *supra* note 9, at 6–12 (finding that default rules may sometimes backfire in the context of employees' savings plans).

jectives but also toward the policy *tools* by which these objectives are to be advanced. Second, it further explores whether people show nonconformity or reactance to the (perceived) majority opinion when they discover that they hold a minority position. In Part V, we discuss the implications, limitations, and future directions of this research.

## I. BACKGROUND AND MOTIVATION

Social norms, whether descriptive (what people think and how they behave) or injunctive (what people approve or disapprove of), influence people's perceptions and behavior in meaningful ways across a wide array of contexts.<sup>15</sup> These include drug and alcohol use,<sup>16</sup> violent conduct,<sup>17</sup> volunteer work,<sup>18</sup> charity donation,<sup>19</sup> physical exercise,<sup>20</sup> and safe-sex behavior.<sup>21</sup>

15. See, for example, Robert B. Cialdini et al., *A Focus Theory of Normative Conduct: Recycling the Concept of Norms to Reduce Littering in Public Places*, 58 J. PERSONALITY & SOC. PSYCHOL. 1015, 1024–25 (1990) (showing that social norms affect people's littering behavior, while exploring the comparative power of injunctive and descriptive norms); Raymond R. Reno et al., *The Transsituational Influence of Social Norms*, 64 J. PERSONALITY & SOC. PSYCHOL. 104, 111 (1993) (comparing the power of injunctive and descriptive social norms in the context of littering behavior).

16. See Brian McMillan & Mark Conner, *Applying an Extended Version of the Theory of Planned Behavior to Illicit Drug Use Among Students*, 33 J. APPLIED SOC. PSYCHOL. 1662, 1663–67 (2003); Clayton Neighbors et al., *Targeting Misperceptions of Descriptive Drinking Norms: Efficacy of a Computer-Delivered Personalized Normative Feedback Intervention*, 72 J. CONSULTING & CLINICAL PSYCHOL. 434, 434–35 (2004). *But see* Henry Wechsler et al., *Perception and Reality: A National Evaluation of Social Norms Marketing Interventions to Reduce College Students' Heavy Alcohol Use*, 63 J. STUD. ON ALCOHOL 484, 491–92 (2003) (finding that social norms marketing programs did not reduce alcohol use on college campuses).

17. See David Henry et al., *Normative Influences on Aggression in Urban Elementary School Classrooms*, 28 AM. J. COMMUNITY PSYCHOL. 59, 61 (2000); Paul Norman et al., *The Theory of Planned Behavior, Descriptive Norms, and the Moderating Role of Group Identification*, 35 J. APPLIED SOC. PSYCHOL. 1008, 1010–12 (2005).

18. Jeni Warburton & Deborah J. Terry, *Volunteer Decision Making by Older People: A Test of a Revised Theory of Planned Behavior*, 22 BASIC & APPLIED SOC. PSYCHOL. 245, 255 (2000) (finding that older people are likely to volunteer to fulfill perceived subjective and behavioral norms).

19. Bruno S. Frey & Stephan Meier, *Social Comparisons and Pro-Social Behavior: Testing "Conditional Cooperation" in a Field Experiment*, 94 AM. ECON. REV. 1717, 1720–21 (2004).

20. Ryan E. Rhodes & Kerry S. Courneya, *Investigating Multiple Components of Attitude, Subjective Norm, and Perceived Control: An Examination of the Theory of Planned Behaviour in the Exercise Domain*, 42 BRIT. J. SOC. PSYCHOL. 129, 142–43 (2003).

In particular, studies show that supplying people with information about how their peers or other community members behave may significantly affect their conduct.<sup>22</sup> In some prominent research, homeowners were provided with information comparing their energy use to that of their neighbors in order to promote household energy conservation. The central finding is that if people discover that their energy use is above the average energy consumption of people in similar conditions, they significantly reduce their energy use.<sup>23</sup>

Similarly, studies of tax compliance find that informing taxpayers that most residents in their local area have already paid their taxes dramatically increases tax payment rates.<sup>24</sup> A growing body of literature also documents peer effects in financial decision-making. Information about peers' behavior influences people's retirement savings choices,<sup>25</sup> entrepreneurship decisions,<sup>26</sup> and stock market participation.<sup>27</sup> Lastly, studies

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21. Katherine M. White et al., *Safer Sex Behavior: The Role of Attitudes, Norms, and Control Factors*, 24 J. APPLIED SOC. PSYCHOL. 2164, 2184–88 (1994).

22. See, e.g., Cialdini et al., *supra* note 15, at 1024–25 (showing that injunctive and descriptive norms affect people's littering behavior).

23. Hunt Allcott, *Social Norms and Energy Conservation*, 95 J. PUB. ECON. 1082, 1084 (2011). Importantly, it is hard to specify the causal effect from this study, since the program combines social norms information with recommendations on how to reduce consumption, making it hard to distinguish between the effect of the social norms information, the tips on how to reduce consumption, and the increase in consumers' awareness as a result of receiving the report. For critical analysis, see Daniel Schwartz et al., *The Hawthorne Effect and Energy Awareness*, 110 PROC. NAT'L ACAD. OF SCI. 15242, 15242–46 (2013) (finding that merely providing participants with reminders that they are participating in a study of household electricity use significantly reduce their electricity use); George Loewenstein et al., *Disclosure: Psychology Changes Everything*, 6 ANN. REV. ECON. 391, 408–09 (2014). See also Hunt Allcott & Todd Rogers, *The Short-Run and Long-Run Effects of Behavioral Interventions: Experimental Evidence from Energy Conservation* 4–5 (Nat'l Bureau of Econ. Research, Working Paper No. 18492, 2013) (examining the long-run effects of behavioral interventions on consumers' energy consumption patterns).

24. Loewenstein, *supra* note 23, at 408 (citing the 2010–2011 annual report of the Behavioral Insights team).

25. Esther Duflo & Emmanuel Saez, *Participation and Investment Decisions in Retirement Plan: The Influence of Colleagues' Choices*, 85 J. PUB. ECON. 121, 145–46 (2002).

26. Josh Lerner & Ulrike Malmendier, *With a Little Help From My (Random) Friends: Success and Failure in Post-Business School Entrepreneurship*, 26 REV. FIN. STUD. 2411, 2446–47 (2013).

27. Jeffrey R. Brown et al., *Neighbors Matter: Causal Community Effects and Stock Market Participation*, 63 J. FIN. 1509, 1530 (2008); Harrison Hong

have found that providing information about peer conduct may shift people's behavior toward the norm in domains related to preferences and tastes, such as music downloads and even restaurant menu selections.<sup>28</sup>

In light of the evident power of social norms, the past two decades have seen a surge of studies examining the effectiveness of programs delivering information about these norms in order to encourage prosocial behavior in areas such as littering, gambling, recycling, environmental conservation, voting, and charitable donation.<sup>29</sup> But in spite of pervasive evidence that social norms affect people's perceptions and behavior, there is relatively little research on the potential role of social norms, and majority opinion in particular, in shaping people's policy preferences.<sup>30</sup> Research on the impact of majority opinion on

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et al., *Social Interaction and Stock-Market Participation*, 59 J. FIN. 137, 161–62 (2004). For a broader review of the literature on herding, peer effects, and related phenomena in financial decision-making, see generally John Beshears et al., *The Effect of Providing Peer Information on Retirement Savings Decisions*, 70 J. FIN. 1161 (2015); David Hirshleifer & Siew Hong Teoh, *Herd Behaviour and Cascading in Capital Markets: A Review and Synthesis*, 9 EUR. FIN. MGMT. 25 (2003).

28. Hongbin Cai et al., *Observational Learning: Evidence from a Randomized Natural Field Experiment*, 99 AM. ECON. REV. 864, 886 (2009) (showing the effect of social norms on entrée selection in restaurants); Matthew J. Sanganik et al., *Leading the Herd Astray: An Experimental Study of Self-fulfilling Prophecies in an Artificial Cultural Market*, 71 SOC. PSYCHOL. Q. 338, 341 (2008) (showing the effect of social norms on music downloads).

29. Frey & Meier, *supra* note 19, at 1717; Alan S. Gerber & Todd Rogers, *Descriptive Social Norms and Motivation to Vote: Everybody's Voting and so Should You*, 71 J. POL. 178, 187–88 (2009) (describing how people are more likely to vote after hearing that other people are voting); Noah Goldstein et al., *A Room With a Viewpoint: Using Normative Appeals to Motivate Environmental Conservation Behaviors in a Hotel Setting*, 35 J. CONSUMER RES. 472, 477 (2008) (discussing a study showing how hotel guests exposed to descriptive norms were more environmentally conscious); Mary E. Larimer et al., *Normative Misperception and the Impact of Descriptive and Injunctive Norms on College Student Gambling*, 17 PSYCHOL. ADDICTIVE BEHAV. 235, 241 (2003) (showing that the more prevalent people thought gambling was, the more likely they were to gamble); P. Wesley Schultz, *Changing Behavior with Normative Feedback Interventions: A Field Experiment on Curbside Recycling*, 21 BASIC & APPLIED SOC. PSYCHOL. 25, 32 (1999) (indicating that “group feedback and individual feedback” increased tendencies towards recycling); P. Wesley Schultz et al., *The Constructive, Destructive, and Reconstructive Power of Social Norms*, 18 PSYCHOL. SCI. 429, 432–33 (2007) (“longer-term results indicate that the effects of the normative messages continued to be strong even 4 weeks after the initial intervention.”).

30. See *supra* note 4, for preliminary evidence as to the effect of social norms in such contexts.

people's attitudes toward soft governmental interventions is particularly scarce, in spite of the growing prominence of such interventions in public policy.<sup>31</sup>

Importantly, social norms have been shown to affect people's moral judgments in various domains. In a classic study conducted by Berkowitz and Walker in the United Kingdom in 1967, peer consensus—overwhelming approval or disapproval of homosexuality—led to a greater shift in moral judgments than exposure to information about legal rules defining homosexuality as legal or illegal.<sup>32</sup> Similarly, the political science literature has examined the effect of exposure to political polls (and, by proxy, public opinion) on voting behavior.<sup>33</sup> Studies have found that after being exposed to political polls, voters' preferences may shift in the direction of the leading candidate in what has been termed the “bandwagon effect”<sup>34</sup>—or instead move towards the losing candidate in what has been termed the “underdog effect.”<sup>35</sup> These findings suggest that public opinion may play a role in shaping people's policy judgments.

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31. There is, however, preliminary experimental evidence as to the impact of political cues on people's support for, or opposition to, behavioral policy interventions. See David Tannenbaum et al., *On the Misplaced Politics of Behavioural Policy Interventions*, 1 NATURE HUM. BEHAV. 1, 3–5 (2017).

32. Berkowitz & Walker, *supra* note 3.

33. For a thorough overview of the political sciences literature on this issue, see Diana C. Mutz, *Impersonal Influence: Effects of Representations of Public Opinion on Political Attitudes*, 14 POL. BEHAV. 89, 91–92 (1992).

34. See, e.g., PAUL FELIX LAZARFELD ET AL., THE PEOPLE'S CHOICE: HOW THE VOTER MAKES UP HIS MIND IN A PRESIDENTIAL CAMPAIGN, 120–21, 150–51 (1944) (exploring the roles of interpersonal interactions and the media in shaping people's opinions on election candidates); Catherine Marsh, *Back on the Bandwagon: The Effect of Opinion Polls on Public Opinion*, 15 BRIT. J. POL. SCI. 51, 52–53 (1985) (showing that exposure to poll trends can have a significant effect on an individual's own view); Robert Navazio, *An Experimental Approach to Bandwagon Research*, 41 PUB. OPINION Q. 217, 219 (1977) (finding that exposure to a national poll may generate a bandwagon effect on some groups, and an opposite effect on others).

35. See, e.g., Stephen J. Ceci & Edward L. Kain, *Jumping on the Bandwagon with the Underdog: The Impact of Attitude Polls on Polling Behavior*, 46 PUB. OPINION Q. 228, 239–40 (1982) (examining people's views towards candidates after exposure to national polls, indicating that this can lead to a decrease in support for the dominant candidate even when it does not lead to support for less dominant candidates, in what is termed “oppositional reactivity”); Daniel W. Fleitas, *Bandwagon and Underdog Effects in Minimal-Information Elections*, 65 AM. POL. SCI. REV. 434, 438 (1971) (finding that exposure to polling information can be insufficient and that a qualitative stimulus is required to produce support for underdog candidates in minimal-information elections such as local non-partisan contests). See generally POLL-

In this article we experimentally explore the impact of exposure to information about the majority opinion on people's attitudes toward different governmental policies in various domains, mainly focusing on "soft" libertarian policies, or nudges.<sup>36</sup> It has been found that without exposure to the views of others, people generally support such policies when they are perceived as promoting legitimate goals, as reflecting widely-held beliefs, or as enhancing the interests or values of the majority.<sup>37</sup> Our question here is simple: Does merely informing people that the majority of the public supports or opposes such policies affect support for these policies?

In theory, disclosure of information about the majority opinion may influence people's views for two familiar reasons:

(1) *Informational Signal*. Public opinion provides information about what most people think is right or good, and may reveal information relevant to a person's conclusions.<sup>38</sup> To that extent, it can serve as a heuristic for determining the right answer or the optimal solution. On one view, crowds are wise, and so individuals rationally defer to them.

(2) *Normative Influence*. People may wish to adhere to the majority in light of reputational concerns, fearing that deviat-

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ING AND PRESIDENTIAL ELECTION COVERAGE (Paul J. Lavrakas and Jack K. Holley, eds., 1991).

36. Notably, there are also studies examining the effect of *cognitive mechanisms* on people's policy preferences. See, e.g., Michael M. Bechtel et al., *Reality Bites: The Limits of Framing Effects for Salient and Contested Policy Issues*, 3 POL. SCI. RES. & METHODS 683, 689–93 (2015) (examining how voters respond to framing effects and partisan cues in their support for a referendum on immigration policy in Switzerland); Avital Moshinsky & Maya Bar-Hillel, *Loss Aversion and Status Quo Label Bias*, 28 SOC. COGNITION 191, 193 (2010) (revealing that people's status quo bias and loss aversion affect their policy preferences, such that a policy's attractiveness increases if it is perceived as the status quo).

37. See, e.g., Reisch & Sunstein, *supra* note 9, at 311; CASS R. SUNSTEIN, WHICH NUDGES DO PEOPLE LIKE? A NATIONAL SURVEY 1, 5 (2015) [hereinafter SUNSTEIN, NATIONAL SURVEY]. See also Junghans et al., *supra* note 9, at 11–13 (noting, for example, that "people readily distinguished marketing as a source of negative external influence, because unlike nudges, the targeted behaviors by marketing techniques were not always in the interests or advantage of the consumers").

38. See, e.g., Abhijit V. Banerjee, *A Simple Model of Herd Behavior*, 107 Q.J. ECON. 797, 802 (1992); Sushil Bikhchandani et al., *A Theory of Fads, Fashion, Custom, and Cultural Change as Informational Cascades*, 100 J. POL. ECON. 992, 993 (1992); Glenn Ellison & Drew Fudenberg, *Rules of Thumb for Social Learning*, 101 J. POL. ECON. 612, 613 (1993). See generally ROGER BROWN, SOCIAL PSYCHOLOGY (2d ed. 1986).

ing from the social norm may be costly insofar as it might generate social sanctions.<sup>39</sup>

Interest in reputation is, of course, strongest if one expresses one's views in public. However, information about public opinion can have force even if one's views remain private. For example, empirical evidence indicates that environmental nudges, such as green defaults, can make people feel particularly guilty about opting out if they think that there are strong moral justifications for accepting the default.<sup>40</sup> Generally, it has been found that people feel shame when they violate social norms.<sup>41</sup> People may therefore shift their opinion in order to avoid the feeling of shame that results from defying the social custom.<sup>42</sup>

In the specific context of governmental policies, and especially nudges, people may choose to defer to the majority opinion due to their respect for democratic self-government and majority rule in particular. Furthermore, information about

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39. See, e.g., George A. Akerlof, *A Theory of Social Custom, of Which Unemployment May be One Consequence*, 94 Q.J. ECON. 749, 766 (1980); Douglas B. Bernheim, *A Theory of Conformity*, 102 J. POL. ECON. 841, 848 (1994). In particular, people may want to share the opinions of those they consider to be a part of their in-group, aspiring to be insiders rather than outsiders by espousing the same views as their peers. See, e.g., GEORGE A. AKERLOF & RACHEL KRANTON, *IDENTITY ECONOMICS: HOW IDENTITIES SHAPE OUR WORK, WAGES AND WELL-BEING* 28 (Princeton, 2010); See also Vincent Price, *Social Identification and Public Opinion: Effects of Communicating Group Conflict*, 53 PUB. OPINION Q. 197, 198 (1989) (showing that when the opinions of specific groups are represented by the media, they may significantly influence the opinions of readers identifying with the relevant group).

40. See, e.g., Hedlin & Sunstein, *supra* note 8, at 129–30 (“Guilt . . . played an important role in our study, as participants who encountered the active-choosing policy experienced relatively high levels of guilt.”); Aristeidis Theotokis & Emmanouela Manganari, *The Impact of Choice Architecture on Sustainable Consumer Behavior: The Role of Guilt*, 131 J. BUS. ETHICS 423, 426–28 (2015) (studying interventions targeted at encouraging customers to reuse towels, and suggesting that guilt may significantly contribute to the effectiveness of a towel reuse default, as “consumers experience higher levels of guilt in the opt-out policy, because the anticipated environmental harm is an outcome of their actions”).

41. JON ELSTER, *EXPLAINING SOCIAL BEHAVIOR: MORE NUTS AND BOLTS FOR THE SOCIAL SCIENCES* 146–47 (rev. ed. 2015) (suggesting, inter alia, that “[n]orm violators may suffer guilt or shame, whereas those who observe the violation feel anger or contempt”).

42. See, e.g., Simon Hedlin, *Is Guilt a Good Motivator for Pro-social Behaviour?: Using Choice Architecture to Promote Environmentally-Friendly Actions*, ANGLE (Oct. 9, 2015), <https://www.anglejournal.com/article/2015-10-is-guilt-a-good-motivator-for-pro-social-behaviour-using-choice-architecture-to-promote-environmentally-friendly-action>.

majority opinion may send a signal not only as to the normative desirability of a certain policy, but also as to its potential effectiveness, since an unpopular policy is likely to fail.

All of these channels may operate either consciously or subconsciously and influence people's policy attitudes in meaningful ways, shifting their views in the direction of the majority. On the other hand, there is some evidence that when people are told that they hold a minority opinion they might show *nonconformity* or *reactance*, becoming entrenched in their convictions or self-consciously rejecting widespread views.<sup>43</sup> For example, social identity research has found that when people have strong antecedent commitments, learning that they hold a minority opinion leads to greater engagement in actions that express those antecedent commitments.<sup>44</sup> Some researchers have similarly found that when people's attitudes are rooted in a strong moral stance that conflicts with the majority opinion, they report stronger intentions to behave publicly in accordance with their own values.<sup>45</sup>

With these findings in mind, we tested whether people belonging to certain ideological groups exhibit nonconformity or reactance when informed that the position typically associated

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43. See, e.g., Bechtel et al., *supra* note 36, at 684–85 (finding that voters tend to increase support for the position that corresponds to their preexisting partisan affiliations when faced with conflicting evidence or cues); Hornsey et al., *supra* note 4, at 333 (finding evidence that people “with a strong moral basis to their attitude intended to react against the group norm” (emphasis omitted)).

44. See, for example, Barak-Corren et al., *The Provocative Effect of Law: Majority Nationalism and Minority Discrimination* 1, 23 (June 28, 2017) (unpublished working paper), <https://ssrn.com/abstract=2994244> (finding that people who oppose “majority nationalism” laws respond to the enactment of such laws with a certain type of psychological reactance, becoming more inclusive and generous toward the minorities whose freedoms are threatened).

45. Hornsey et al., *supra* note 4, at 333; Winnifred R. Louis et al., *Speaking Out on Immigration Policy in Australia: Identity Threat and the Interplay of Own Opinion and Public Opinion*, 66 *J. SOC. ISSUES* 653, 670 (2010) (finding that in Australian immigration policies, people may be more willing to publicly express their opinions when they believe their views are becoming less popular, providing evidence for “active resistance” rather than “a spiral of silence”). But see Hornsey et al., *Effects of Norms Among Those with Moral Conviction: Counter-Conformity Emerges on Intentions but Not Behaviors*, 2 *SOC. INFLUENCE* 244, 268 (2007) (finding that when looking at “speaking-out behaviors” rather than intentions, the counter-conformity patterns disappeared and concluding that “participants with a strong moral basis for their attitudes intended to counter-conform, but when put in a position to act this resolve disappears”).

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with their ideological group conflicts with the majority opinion. We predicted that in the context of ideologically controversial policies (such as policies related to abortion), members of different ideological groups would exhibit reactance, such that their support of a policy in line with their ideological viewpoint will be *higher* when they learn that the majority opposes it than when they learn that the majority supports it. At the very least, we predicted that ideological group members will exhibit resistance to majority opinion, displaying similar support levels in such circumstances.

## II. STUDY ONE: CONFORMITY AND REACTANCE

In the first study, we examined whether the majority opinion affects people's attitudes and opinions when evaluating different public policies. Our hypotheses were twofold:

(1) When asked to evaluate different governmental policies, people will be influenced by information about the majority opinion, shifting their attitudes in its direction.

(2) People will exhibit nonconformity or reactance if the majority opinion conflicts with a fixed and firm conviction on their part.

More specifically, we hypothesized that members of politically ideological groups will exhibit nonconformity or reactance if the majority opinion conflicts with a deeply held belief associated with their ideological group. In other words, we predicted that liberal and conservative participants will become even more committed to their views with respect to an ideologically controversial policy (such as a policy related to abortion) once they realize that they hold a minority position. Otherwise, we predicted that they will simply display nonconformity, resisting the influence of the majority opinion and remaining entrenched in their original position.

### A. SAMPLE AND DESIGN

We recruited an online sample of 422 participants, using Amazon's Mechanical Turk.<sup>46</sup> Participants who failed to answer

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46. Amazon Mechanical Turk ("Mturk") is an online marketplace giving "businesses and developers access to an on-demand, scalable workforce." AMAZON MECHANICAL TURK, <https://www.mturk.com/mturk/welcome> (last visited Feb. 1, 2018). It is commonly used by researchers to recruit participants in exchange for small sums of money. By now, Mturk has been studied extensively, and its population samples have been found to be more representative of the

all of the questions in the survey were excluded from the study. The final sample included 412 participants, who were all eighteen years of age or older (46% were female and 77% were white). Within the sample, 49% of the participants identified as liberal, 27% identified as moderate, and 24% identified as conservative.<sup>47</sup>

Participants were presented with six proposed policies designed to address different issues and were instructed to assume (hypothetically) that the government is considering whether to adopt them. As noted, we focused on “soft” interventions in the form of nudges. A wide variety of issues and interventions were deliberately chosen so as to test the generalizability of our findings. For example, some policies involved “System 1” nudges, such as defaults or automatic enrollment plans, which target or benefit from an individual’s automatic processing, whereas other policies involved “System 2” nudges, like educational campaigns, which target or benefit from deliberative processing.<sup>48</sup> The following policies were chosen and presented to participants in random order:

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national population than convenience samples (like undergraduates), although its respondents are generally “wealthier, younger, more educated, less racially diverse, and more Democratic” than national samples.” Tess Wilkinson-Ryan, *The Perverse Consequences of Disclosing Standard Terms*, 103 CORNELL L. REV. 117, 150 (2017) (citing Andrew R. Lewis et al., *The (Non) Religion of Mechanical Turk Workers*, 54 J. SCI. STUDY RELIGION 419, 419–20 (2015)). See also Kristin Firth et al., *Law and Psychology Grows Up, Goes Online, and Replicates 1* (U. Pa. L. Sch., Public Law Research Paper No. 17-38, 2017), <https://ssrn.com/abstract=3020401> (finding that MTurk samples are “highly reliable and useful”).

47. Participants were asked to report their political ideology on a five-item scale, from very conservative to very liberal. Those who stated that they are either liberal or very liberal were categorized as liberals, those who indicated that they are either conservative or very conservative were categorized as conservative, and those who reported that they are moderate were categorized as such. We note that the sample is more liberal than the general population. See Lydia Saad, *U.S. Conservatives Outnumber Liberals by Narrowing Margin*, GALLUP NEWS (Jan. 3, 2017), <http://news.gallup.com/poll/201152/conservative-liberal-gap-continues-narrow-tuesday.aspx> (reporting the results of a 2016 poll in which 36% of Americans identified as conservative, 34% as moderate, and 25% as liberal).

48. System 1 refers to cognitive processes that are fast, automatic, and unconscious, while System 2 is considered slow, deliberative, and conscious. For a general analysis of the distinction between System 1 and System 2, see DANIEL KAHNEMAN, *THINKING, FAST AND SLOW* 1 (2011); Jonathan St. B. T. Evans, *Dual-Processing Accounts of Reasoning, Judgment, and Social Cognition*, 59 ANN. REV. PSYCHOL. 255 (2008). Some of the literature on nudging distinguishes between System 1 and System 2 nudges. See, e.g., Bubb, *supra*

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*Organ Donation.* Participants were instructed to assume that the government is considering adopting a policy where Department of Motor Vehicle (DMV) forms will ask new drivers if they wish to become organ donors, requiring them to check an opt-out box saying, “No, I do not wish to register at this time” if they do not wish to become donors, and automatically registering new drivers who do not check the box as organ donors.

*Anti-abortion.* Participants were instructed to assume that the government is considering adopting a policy that requires women to hear a fetus’ heartbeat before having an abortion.

*Last Name Change After Marriage.* Participants were instructed to assume that the government is considering adopting a policy where women who get married take their husbands’ family name by default, unless they actively indicate that they wish to keep their maiden name.

*Green Energy.* Participants were instructed to assume that the government is considering adopting a policy that requires large electricity providers to adopt a system in which consumers would be automatically enrolled in a green (environmentally friendly) energy supplier. Consumers could opt out if they wished.

*Retirement Savings.* Participants were instructed to assume that the government is considering requiring employers to adopt a system in which employees would be automatically enrolled in a pension plan. Employees could opt out if they wished.

*Gender Reassignment.* Participants were instructed to assume that the government is considering adopting a public education campaign informing people that it is possible for them to change their gender and explaining the possible clinical treatment available to this end.

Participants were randomly assigned to one of two conditions: (1) majority support or (2) majority opposition. In the majority-support condition, participants were instructed to assume that most Americans supported each of the six policies,

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note 7, at 1026–28. System 1 nudges include graphic warnings, default rules, and automatic enrollment plans, while System 2 nudges include statistical information and factual disclosures. For empirical studies of people’s attitudes toward these two types of nudges, see, for example, Jung & Mellers, *supra* note 9, at 65–70; Cass R. Sunstein, *People Prefer System 2 Nudges (Kind of)*, 66 DUKE L.J. 121, 155–57 (2016).

whereas in the majority-opposition condition, participants were instructed to assume that most Americans opposed them. For example, in the context of green energy, participants were instructed to assume either that most Americans *support* a policy requiring large electricity providers to adopt a system in which consumers would be automatically enrolled in a green energy supplier or that most Americans *oppose* such a policy. Participants were subsequently asked to indicate whether they supported or opposed the suggested policy on a five-item Likert scale (1 = strongly oppose; 3 = neither oppose nor support; 5 = strongly support).

If the first hypothesis—that information about the majority opinion leads people to shift their policy views in the direction of the majority—is correct, then we should expect to see significantly higher levels of support when participants learn that most Americans support a proposed policy than when they learn that the majority of the public opposes it.

As noted, our second hypothesis was that people may exhibit nonconformity (no favorable reaction to the majority opinion) or reactance (counter-conformity) if the majority opinion conflicts with a fixed and firm conviction on their part. In particular, we predicted that people will exhibit nonconformity or reactance if the majority opinion conflicts with a deeply held belief that they hold. To test the second hypothesis, participants were asked at the end of the survey to indicate their political ideology on a five-item Likert scale (1 = very liberal, 3 = moderate, 5 = very conservative). We then looked for interactions between participants' political ideology and the majority opinion treatment in the data gathered around participants' support for the following ideologically controversial policies: anti-abortion, gender reassignment, and last name change after marriage.

With respect to reactance, we hypothesized that when informed that they hold a minority position, people would increase their support for a proposed policy that is consistent with their ideology, and likewise, increase their opposition to a proposed policy that conflicts with it. For example, we hypothesized that when people who identify as liberal learn that they hold a minority position with respect to a proposed policy aimed to discourage women from pursuing abortion, they will increase their opposition to the policy, and that conservative partici-

pants will accordingly increase their support for that policy once they realize that most Americans oppose it.<sup>49</sup>

If the reactance hypothesis is correct, then we should expect to see higher levels of support for a conservative policy (like the anti-abortion nudge) among conservative participants when they learn that most Americans oppose the policy than when they learn that the majority of the public supports it. In a similar vein, we should expect to see higher levels of opposition to such a policy among liberal participants when they learn that most Americans support it than when they learn the opposite.

## B. METHODS AND RESULTS

We conducted two-sample t-tests comparing mean support scores across majority-opinion conditions (that is, majority support compared to majority opposition), as well as simple and multiple linear regressions to predict mean support scores from the majority opinion.<sup>50</sup> In the multiple regression model, the dependent variable was subjects' support for each proposed policy, reported on a five-item Likert scale, from strongly oppose to strongly support (hereafter "policy support score"). The independent variable was the majority-opinion condition (majority support or majority opposition), and demographic factors (age, gender, political ideology, education, race, and income) were included as controls.<sup>51</sup> We also controlled for participants' preliminary opinions about each policy and the importance they attributed to each issue.<sup>52</sup>

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49. We had no clear hypothesis as to how moderate participants would react when they learned they hold a minority position.

50. See regression tables in the Appendices.

51. Political ideology, education, and income were treated as continuous variables. For example, political ideology was reported on a five-item scale from very liberal to very conservative. Race was transformed into a dummy variable (white and nonwhite) in light of the distribution of the sample (77% white, 8% African-American, 7% Asian, and a remaining mix of other categories).

52. For this purpose, participants were asked to state whether they agree or disagree with statements like "people are not saving enough for retirement" or "abortion is morally wrong" on a five-item Likert scale. We treated participants' preliminary opinions as continuous variables. Participants were also asked to report how important each policy issue was to them on a five-item Likert scale. We treated importance as another continuous variable. It is important to note that participants were presented with these questions *before* they were asked for their opinion about the proposed policies. Admittedly, answering these questions may have influenced participants' responses concern-

Our first hypothesis was that information about the majority opinion will lead people to shift their policy views in the direction of the majority. This hypothesis was supported by the results of four of the six policies proposed to participants. We found a significant effect in the expected direction for the organ donation policy, the green energy policy, the retirement savings policy, and the gender reassignment policy.<sup>53</sup> However, we found no such effect for the anti-abortion and last-name-change-after-marriage policies.<sup>54</sup> We emphasize that even after controlling for participants' preexisting opinions about abortion and women's decisions to keep their maiden name, and for the importance they ascribed to each of these issues, the majority opinion had no significant effect on people's judgments.<sup>55</sup> Table 1 shows mean support scores for each policy across the majority-support and majority-opposition conditions.

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ing their attitudes toward the proposed policies. It is therefore possible that participants showed stronger resistance to the majority-opinion treatment than they otherwise would have if they had not been primed to think about their opinions beforehand.

53. For organ donation:  $M_{\text{Support}} = 3.41$ ,  $SD = 1.35$ ;  $M_{\text{Opposition}} = 3.11$ ,  $SD = 1.37$ ;  $t(412) = 2.17$ ,  $p < 0.05$ . For green energy:  $M_{\text{Support}} = 3.9$ ,  $SD = 1.11$ ;  $M_{\text{Opposition}} = 3.65$ ,  $SD = 1.32$ ;  $t(412) = 2.31$ ,  $p < 0.05$ . For retirement savings:  $M_{\text{Support}} = 3.67$ ,  $SD = 1.19$ ;  $M_{\text{Opposition}} = 3.48$ ,  $SD = 1.18$ ;  $t(412) = 1.65$ ,  $p < 0.1$  (note that this difference is only marginally significant). For gender reassignment:  $M_{\text{Support}} = 3.20$ ,  $SD = 1.4$ ;  $M_{\text{Opposition}} = 2.92$ ,  $SD = 1.43$ ;  $t(412) = 1.97$ ,  $p < 0.05$ .

54. For anti-abortion:  $M_{\text{Support}} = 2.5$ ,  $SD = 1.58$ ;  $M_{\text{Opposition}} = 2.55$ ,  $SD = 1.53$ ;  $t(412) = -0.57$ ,  $p = 0.7$ . For last name change:  $M_{\text{Support}} = 2.5$ ,  $SD = 1.33$ ;  $M_{\text{Opposition}} = 2.47$ ,  $SD = 1.28$ ;  $t(412) = 0.26$ ,  $p = 0.4$ .

55. We controlled for participants' preliminary opinions and the importance they attached to these issues using a multiple linear regression model as described in the beginning of Part II.B. For coefficients and standard errors, see Appendix I. Unsurprisingly, participants' preliminary opinions significantly affected their support for the different policies in the predicted direction. For anti-abortion:  $b = 0.56$ ;  $SE = 0.049$ ;  $p < 0.01$  and for last name change:  $b = 0.273$ ;  $SE = 0.07$ ;  $p < 0.01$ .

**Table 1: Mean Support Scores Across Conditions and Policies**

Condition or Policy	Majority Support	Majority Opposition	Significant Difference?
Organ Donation	3.41	3.11	Yes ( $p < 0.05$ )
Green Energy	3.9	3.65	Yes ( $p < 0.05$ )
Retirement Savings	3.67	3.48	Marginally ( $p < 0.1$ )
Gender Reassignment	3.2	2.92	Yes ( $p < 0.05$ )
Last Name Change	2.5	2.47	No
Anti-abortion	2.5	2.55	No

Since it can be difficult to interpret the magnitude of the effect by looking solely at the differences in mean support scores, we also compared participants' attitudes in terms of percentages of support. We did this by dichotomizing participants' responses on the five-point support scale and dividing participants into two groups: supporters and opponents. The scale was dichotomized such that participants who indicated that they supported or strongly supported a policy (four or five on the scale) were classified as supporters, and participants who either opposed or neither supported nor opposed the policy were classified as opponents. Figure 1 below shows the difference in support rates under the majority-support and majority-opposition conditions.<sup>56</sup>

56. Note that because Figure 1 shows proportions of support, each bar implicitly communicates the proportion of opposition which can be calculated by subtracting the percent of support from one hundred.

**Figure 1: Support Rates for Policies Across Majority Opinion Conditions**

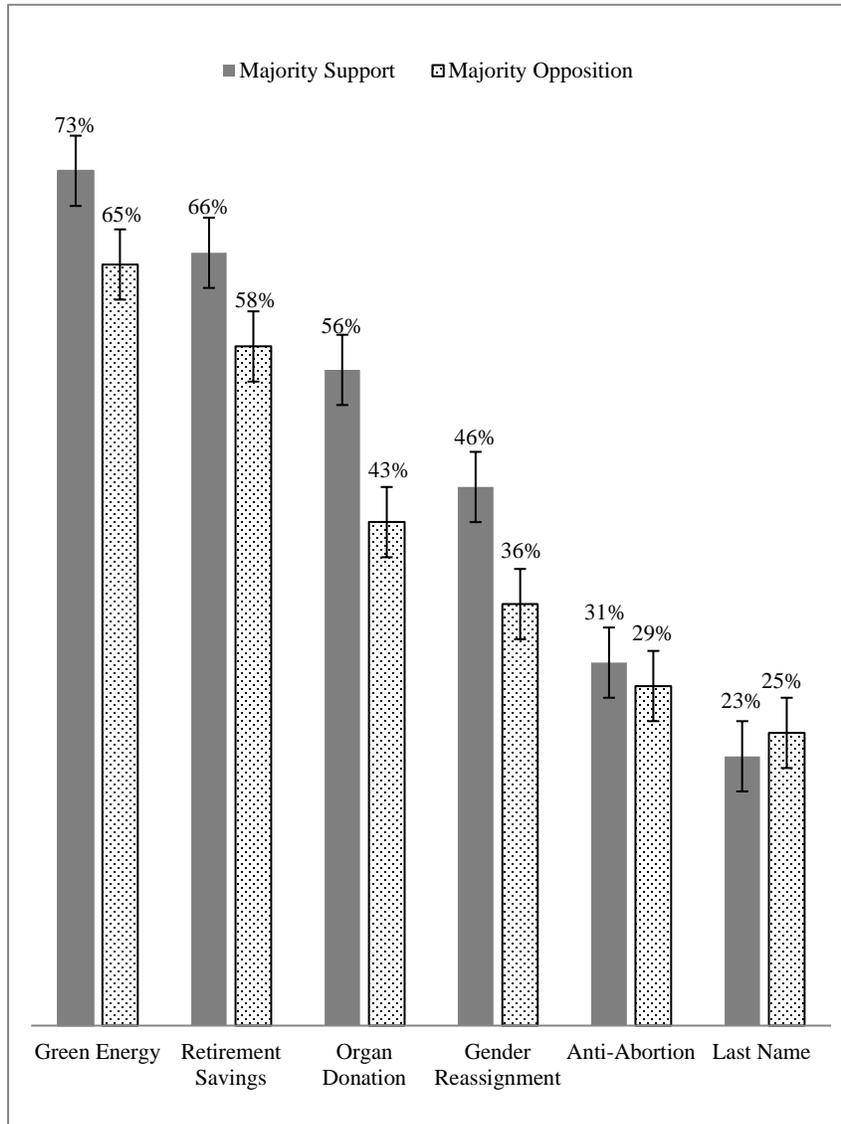


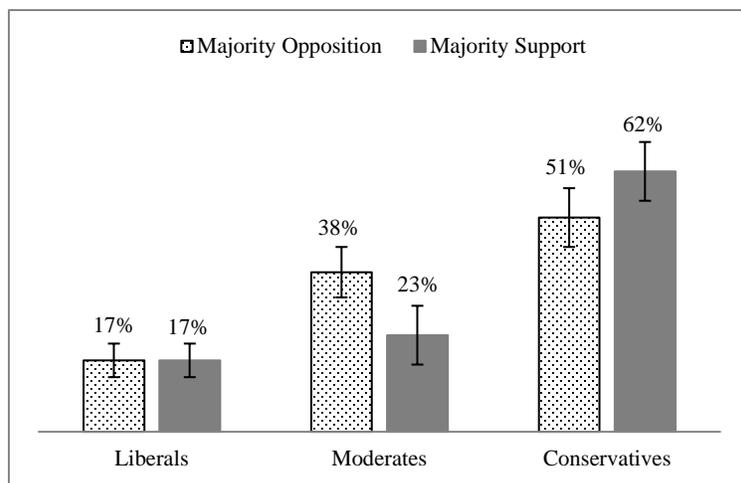
Figure 1 reveals that the proportions of participants supporting the organ donation, green energy, retirement savings, and gender reassignment policies were significantly larger in the majority-support condition than in the majority-opposition

condition.<sup>57</sup> By contrast, there were no significant differences across conditions in proportion of support for the anti-abortion and last-name-change-after-marriage policies.

As noted, our second hypothesis was that members of different ideological groups might exhibit nonconformity or reactance. In order to test this hypothesis, we also examined interactions between participants' political ideology and the majority opinion treatment in the anti-abortion, last name change, and gender reassignment policies.

The results were somewhat puzzling. They revealed a significant interaction only in the domain of the anti-abortion policy, and even there, the pattern was complex and not what we anticipated. Conservative and liberal participants displayed statistically equivalent levels of support under the majority-support and the majority-opposition conditions. By contrast, moderate participants became marginally significantly more likely to oppose the anti-abortion policy when informed that most Americans supported the policy than when informed that most Americans opposed it. Figure 2, below, shows these results.

**Figure 2: Anti-abortion Policy: Interaction Between Majority Opinion and Political Ideology**



57. Using a chi-square test, the differences across conditions in the green energy, retirement savings, organ donation, and gender reassignment policies are significant at the 5% level.

This figure illustrates support rates across conditions for subjects identifying as liberal, moderate, and conservative. The figure reveals that 62% of the conservative subjects were supportive of the anti-abortion policy when informed that most Americans supported it, compared to 51% who supported the policy when informed that most Americans opposed it. Importantly, however, this difference was not significant, thus suggesting nonconformity.<sup>58</sup> Like the conservatives, the liberal participants displayed nonconformity: they remained entrenched in their position, retaining similar levels of low support under both majority opinion conditions.<sup>59</sup> In contrast, the moderate participants seemed to exhibit reactance: while 38% of moderates were supportive of the anti-abortion policy when informed that most Americans opposed it, the level of support for this policy was marginally significantly smaller (23%) when subjects were informed that most Americans supported it.<sup>60</sup>

We do not have an explanation for the surprising difference between moderate and liberal participants on this score (and would not draw general lessons from it), except for a possible “floor effect”: the possibility that since liberals were extremely hostile toward the anti-abortion policy, the results would not be likely to show a significantly higher level of opposition under the majority-support condition, when compared to the majority-opposition condition.

### III. STUDY TWO: THE ROLE OF ANTECEDENT CONVICTIONS

The findings of the first study suggest that in certain domains, the majority opinion matters and it increases or decreases individual support for a policy. In other domains, the majority opinion has no such effect. These findings raise a natural question: What accounts for the variation in the effect of majority opinion across policies?

Preliminarily, we note that the anti-abortion and last name-change-after-marriage policies are plausibly seen to

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58. Under a chi-square test of the difference in support rates among conservatives across the majority-opinion conditions,  $\chi^2(1) = 1.3$ ,  $p = 0.2613$  for the difference in support rates.

59. Under a chi-square test of the difference in support rates among liberals across the majority-opinion conditions,  $\chi^2(1) = 0.004$ ,  $p = 0.95$ .

60. Under a chi-square test of the difference in support rates among moderates across the majority-opinion conditions,  $\chi^2(1) = 3.02$ ,  $p = 0.08$ .

share a common characteristic when compared to green energy, retirement savings, and organ donation; the former are more likely associated with core ideological and moral convictions.<sup>61</sup> This difference between the two groups of policies makes it plausible to hypothesize that people typically feel more strongly about the former policy issues than about the latter. The results may therefore be interpreted as supporting a hypothesis that fits with other findings: informing people about the majority opinion is likely to move their attitudes toward public policies when they lack firm convictions, but will have a lesser or no effect when they have such convictions.<sup>62</sup> Drawing on the findings of the first study, we tested this hypothesis with a second experiment.

#### A. PRETEST SURVEY OF PEOPLE'S CONVICTIONS

We began by conducting a pretest survey aimed at identifying two types of policies: (1) policies for which people generally have clear convictions; and (2) policies for which people generally lack clear convictions. Because we were interested in understanding how strongly participants felt about the different policy issues, we held the type of policy tool constant—an educational campaign consisting of vivid stories and images—and varied only the policy objectives.<sup>63</sup>

The sample of the pretest survey consisted of 428 participants obtained through Amazon's Mechanical Turk (eighteen years of age or older; 47% female; 76% white). Participants were instructed to assume that the government is considering different public policies and were subsequently asked how

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61. Admittedly, gender reassignment can also be seen as tightly related to moral perceptions, but as the policy was only meant to “inform people about the possibility of changing their gender,” it may have been seen as less ideologically controversial than policies requiring women to hear fetus' heartbeat before having an abortion or defaulting married women to bear their husbands' family name.

62. See, e.g., SUNSTEIN ET AL., *JUDGES*, *supra* note 10, at 147–50.

63. The nine policy objectives examined in the pretest study were: (1) to encourage women to refrain from having abortions; (2) to encourage people to support the legalization of physician-assisted suicide nationwide; (3) to encourage people to refrain from discriminating against others on the basis of sexual orientation; (4) to encourage people to refrain from having a baby outside of marriage; (5) to encourage people to refrain from smoking; (6) to encourage people to refrain from overeating; (7) to encourage people to buy fuel-efficient cars; (8) to encourage people to register as organ donors; and (9) to encourage people to refrain from texting while driving.

strongly they felt about these policies (on a five-item Likert scale from not at all strongly to extremely strongly) and how related their position was to their core values, beliefs, and convictions (on a five-item Likert scale from not at all related to extremely related). We then combined these items to form an opinion strength index, with higher scores meaning that participants had, on average, firm and fixed opinions concerning the relevant policy issue. Although there is no single agreed-upon operationalization of attitude or opinion *strength*, these (or similar) items, measuring attitude extremity and centrality, are commonly used in psychological studies.<sup>64</sup>

Since we were interested in examining whether the majority opinion effect interacts with attitude strength, we used the two policies with the highest opinion-strength scores (the anti-abortion and sexual orientation antidiscrimination policies) and the two policies with the lowest opinion-strength scores (the fuel efficiency and anti-obesity policies) in the second experiment.<sup>65</sup>

Participants were instructed to assume that the government is considering the following public education campaigns:

*Anti-Abortion.* A campaign designed to encourage women to refrain from having an abortion.

*Sexual Orientation Antidiscrimination.* A campaign designed to encourage people to refrain from discriminating against others on the basis of sexual orientation.

*Fuel Efficiency.* A campaign designed to encourage people to buy fuel-efficient cars.

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64. See, e.g., Robert P. Abelson, *Attitude Extremity*, in *ATTITUDE STRENGTH: ANTECEDENTS AND CONSEQUENCES* 25 (Richard E. Petty & Jon A. Krosnick eds., 1995); Alice H. Eagly & Shelly Chaiken, *The Psychology of Attitudes* 29 (1993); Charles M. Judd & Markus Brauer, *Repetition and Evaluative Extremity*, in *ATTITUDE STRENGTH: ANTECEDENTS AND CONSEQUENCES* 43 (Richard E. Petty & Jon A. Krosnick eds., 1995); Charles M. Judd & Jon A. Krosnick, *Attitude Centrality, Organization, and Measurement*, 42 *J. PERSONALITY SOC. PSYCHOL.* 436, 445 (1982); Hornsey et al., *supra* note 4, at 324 (measuring moral basis for attitude). For an overview of the different operationalization methods for attitude strength, see Linda J. Skitka et al., *Moral Conviction: Another Contributor to Attitude Strength or Something More?*, 88 *J. PERSONALITY SOC. PSYCHOL.* 895, 895–96 (2005).

65. The differences in opinion strength scores were significant across all nine policies, yet we chose the two with the highest scores (anti-abortion, with an opinion strength score of 3.74, and sexual orientation antidiscrimination, with an opinion strength score of 3.60 on a five-item scale) and the two with the lowest ones (fuel efficiency, with an opinion strength score of 2.89, and anti-obesity, with an opinion strength score of 2.84).

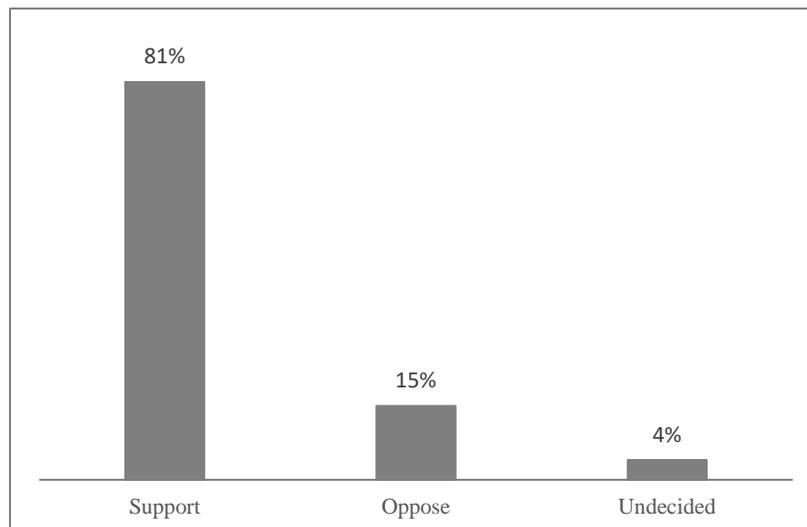
*Anti-Obesity.* A campaign designed to encourage people to refrain from overeating.

#### B. SAMPLE & DESIGN

The sample of the second study included 804 Amazon Mechanical Turk participants (eighteen years of age or older; 53% female; 75% white). As in the first experiment, participants were randomly assigned to one of two conditions—majority support and majority opposition. In each condition, participants were asked about four proposed education campaigns (presented in randomized order): the two that received the highest opinion-strength score (the anti-abortion and sexual orientation antidiscrimination campaigns) and the two that received the lowest opinion-strength score (the fuel efficiency and anti-obesity campaigns) in the pretest survey.

In Study 1, we simply instructed participants to assume that most Americans supported or opposed each considered policy. In Study 2, by contrast, we used numeric figures and a graphic illustration in order to make the majority opinion information more realistic, vivid, and salient. In the majority-support condition, participants were instructed to assume that according to a recent survey, 81% of Americans support the proposed campaign, 15% oppose it and 4% are undecided, whereas under the majority-opposition condition they were instructed to assume that according to a recent survey, 81% of Americans opposed the policy, 15% support it, and 4% are undecided. Participants were also presented with the below graphic illustration of the hypothetical opinion poll results.

#### Illustration 1: Hypothetical Opinion Poll Results Given to Participants



Under both majority opinion conditions, participants were asked to indicate whether they supported or opposed the proposed campaign on a five-item Likert scale (from strongly oppose to strongly support). We hypothesized that there would be a significant interaction between the majority opinion treatment and attitude strength, such that the majority opinion effect for the policies receiving the lowest opinion-strength scores (the fuel efficiency and anti-obesity policies) would be significantly greater than the effect for the policies receiving the highest opinion-strength scores (the anti-abortion and sexual orientation antidiscrimination policies).

### C. METHODS & RESULTS

We conducted two-sample t-tests comparing mean support scores across majority-opinion conditions (that is, majority support compared to majority opposition), as well as simple and multiple linear regressions.<sup>66</sup> In the multiple linear regression model, the dependent variable was policy support score and the independent variable was the majority-opinion condition (majority support or majority opposition). Demographic factors (age, gender, political ideology, education, race, and income), as well as participants' preliminary opinion about the issue, were included as controls.<sup>67</sup>

Using a mixed-effects model, we also regressed participants' support score on the majority opinion treatment, the attitude strength (high-opinion strength or low-opinion strength), and the interaction between these two variables.

In this study, the majority opinion had a significant effect on support scores across all policies except for the anti-abortion policy.<sup>68</sup> To that extent, the findings provide strong support for

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66. See regression tables in Appendix 2.

67. As in the first experiment, age, education, income, political ideology, and preliminary opinion were treated as continuous variables, and race was transformed into a dummy variable (White or Nonwhite) in light of the distribution of the sample.

68. For anti-abortion,  $M_{\text{Opposition}} = 2.46$ ,  $SD = 1.52$ ;  $M_{\text{Support}} = 2.62$ ,  $SD = 1.48$ ;  $t(802) = -1.46$ , ( $p = 0.14$ ). Under a simple linear regression,  $b = 0.155$ ;  $SE = 0.106$ ;  $p = 0.14$ . Yet, when controlling for demographics and preliminary opinion, the effect of the majority opinion treatment becomes significant at the 5% level. For the anti-obesity policy,  $M_{\text{Opposition}} = 3.5$ ,  $SD = 1.27$ ;  $M_{\text{Support}} = 4.01$ ,  $SD = 1.1$ ;  $t(802) = -6.09$ ,  $p < 0.001$ . Under a simple linear regression,  $b = 0.47$ ;  $SE = 0.08$ ;  $p < 0.001$ . For the sexual orientation antidiscrimination policy,  $M_{\text{Opposition}} = 3.94$ ,  $SD = 1.3$ ;  $M_{\text{Support}} = 4.26$ ,  $SD = 1.13$ ;  $t(802) = -3.7$ ,  $p < 0.001$ . Under a simple linear regression,  $b = 0.24$ ;  $SE = 0.07$ ;  $p < 0.001$ .

our first hypothesis in Study 1: People generally shift their policy judgments in the direction of the majority. Table 2 shows mean support scores under both majority opinion conditions across the four policies.

**Table 2: Mean Support Scores across Conditions and Policies**

Policy	Opinion Strength Score	Majority Support	Majority Opposition	Significant Difference?
Anti-Abortion	3.74	2.62 (1.48)	2.46 (1.52)	No ( $p < 0.14$ )
Sexual Orientation	3.6	4.26 (1.13)	3.94 (1.3)	Yes ( $p < 0.001$ )
Fuel Efficiency	2.89	4.00 (1.1)	3.68 (1.19)	Yes ( $p < 0.001$ )
Anti-Obesity	2.84	4.01 (1.1)	3.5 (1.27)	Yes ( $p < 0.001$ )

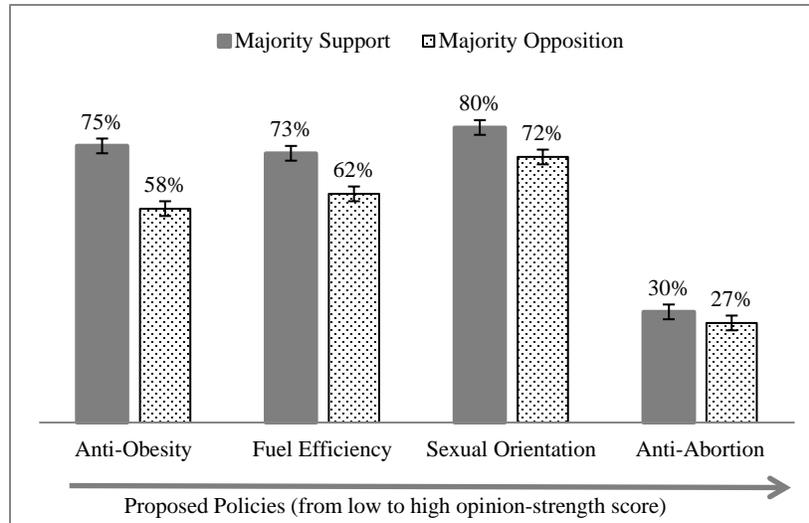
As in Study 1, we also dichotomized the scales by the scale midpoint to produce binary support or disapproval decisions. Participants who indicated that they (either somewhat or strongly) supported a policy (4 or 5 on the scale) were classified as supporters, allowing us to compare support rates across majority opinion conditions.

Figure 3 shows the observed differences in support rates across majority opinion conditions and policies, from the policy obtaining the lowest opinion-strength score (the anti-obesity policy) on the left to the policy obtaining the highest opinion-strength score (the anti-abortion policy) on the right.

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For the fuel efficiency policy,  $M_{\text{Opposition}} = 3.68$ ,  $SD = 1.19$ ;  $M_{\text{Support}} = 4.00$ ,  $SD = 1.1$ ;  $t(802) = -3.95$ ,  $p < 0.001$ . Under a simple linear regression,  $b = 0.265$ ;  $SE = 0.07$ ;  $p < 0.001$ .

**Figure 3: Support Rates for Policies across Majority Opinion Conditions**



As Figure 3 illustrates, support rates remained almost constant across conditions in the context of the anti-abortion policy (30% support under the majority-support condition, compared to 27% support under the majority-opposition condition), but they varied across conditions in the context of the three remaining policies.<sup>69</sup> Notably, the largest difference was observed in the context of the anti-obesity campaign, which obtained the lowest opinion-strength score. While 74% of subjects supported it under the majority-support condition, only 59% supported it under the majority-opposition condition.<sup>70</sup>

We found qualified support for our central hypothesis in Study 2. The effect of majority opinion on support score was significantly larger in the lowest opinion strength policy (anti-obesity) than in the highest opinion strength policy (anti-abortion) ( $p < 0.002$ ). At the same time, the interaction between the policy type (high versus low opinion-strength score) and majority opinion treatment was only marginally significant ( $p =$

69. The differences across conditions in the anti-obesity, fuel efficiency, and sexual orientation antidiscrimination policies are significant at the 1% level. The difference across conditions in the anti-abortion policy is not significant ( $p = 0.14$ ).

70.  $\chi^2(1) = 103.22, p < 0.001$ .

0.057). Moreover, the difference in the effect of majority opinion on support scores for the sexual orientation antidiscrimination and for the fuel efficiency policies was insignificant ( $p < 0.9$ ).<sup>71</sup>

We therefore note a challenge for our hypothesis, which is that support rates were not differently affected by majority opinion in the context of the sexual orientation antidiscrimination and the fuel efficiency policies. It is possible that while many people have strong initial commitments with respect to discrimination on the basis of sexual orientation, they are also aware that norms have been changing on that issue. It follows that they might be attentive to public opinion, even if they begin with strong antecedent convictions (note as well that the opinion strength score was stronger for the anti-abortion policy than for the sexual orientation antidiscrimination policy).

#### IV. STUDY THREE: NUDGES VERSUS BANS

The third study was designed to test whether exposure to majority opinion influences people's attitudes not only toward the policy objectives, but also toward the policy tools by which the objectives are to be advanced. Put differently, our question here is whether the effect of the majority opinion differs across different regulatory *tools*, even if we hold the policy objective constant. We are particularly interested in comparing soft tools (nudges), like educational campaigns or graphic warnings, to more coercive tools, like mandates or bans. Can people be nudged to favor or oppose nudges? To favor or oppose bans?

Drawing on the findings of our second study, our hypothesis was that if people strongly support or oppose a certain policy tool, they will be reluctant to adjust their evaluation of a certain policy toward the direction of the majority, keeping the policy objective constant. In other words, we hypothesized that, in the context of policy tools about which people typically have strong and well-formed opinions, the majority opinion will generate a lesser effect than in the context of tools about which people do not feel as strongly.

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71. Under a mixed-effect model, the marginal means of support score for each policy under the two majority opinion treatments were computed, and the difference between the difference in means for majority support and majority opposition under the sexual orientation antidiscrimination and fuel efficiency policies was insignificant ( $b = 0.001$ ;  $SE = 0.11$ ;  $p < 0.9$ ).

Preliminary research suggests that Americans prefer nudges to bans.<sup>72</sup> Moreover, increasing evidence suggests that Americans do not oppose or support nudges as such, but are usually influenced above all by the goal that particular nudges aim to advance.<sup>73</sup>

Building on this evidence, we hypothesized that in general, (a) people will be influenced by the majority opinion in their support for proposed nudges; and (b) will be significantly more supportive of nudges when they learn that most Americans favor them. We also hypothesized that the majority opinion will have a lesser effect on people's willingness to support bans (assuming that both are set to advance the same policy objectives).

A second goal of this study was to examine whether people's views about apparently paternalistic governmental interventions interact with the majority opinion treatment, and to compare this interaction across the different policy tools. For this purpose, participants were asked to indicate on a five-item Likert scale whether they agree or disagree that "the government should prevent people from hurting themselves, even if that includes forcing them to act, or refrain from acting, according to their best interests" (1 = strongly disagree; 3 = neither agree nor disagree; 5 = strongly agree).<sup>74</sup> This question allowed

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72. See, e.g., CASS R. SUNSTEIN, *THE ETHICS OF INFLUENCE: GOVERNMENT IN THE AGE OF BEHAVIORAL SCIENCE* 135 (2016) ("[M]any people do oppose mandates as such, even when they are enthusiastic about the underlying ends, and are supportive of nudges that are designed to promote those ends."). See also Arad & Rubinstein, *supra* note 9, at 20 (finding that when holding the policy objective constant, people in the U.S., Germany, and Israel generally prefer "softer" interventions to more coercive interventions in the form of taxes or bans). For a discussion of a similar finding within Denmark, see Sofie Kragh Pederson et al. *Who Wants Paternalism*, 66 *BULL. ECON. RES.* S147 (2014).

73. See SUNSTEIN, *NATIONAL SURVEY*, *supra* note 37, at 14–15; Tannenbaum et al., *supra* note 31, at 1. Most strikingly, Tannenbaum et al. found that people are significantly more likely to approve of nudges as general policy tools when they favor the particular political objectives used to illustrate them or the policymakers that applied them. They also found that people's attitudes toward the policy objectives promoted by the nudge were a far stronger predictor than their attitudes towards the role of government in protecting people from harming themselves. Although libertarians were significantly less supportive of nudges than paternalists, individual differences in attitudes toward the policy objectives of the nudges were significantly more predictive of people's support for proposed nudges.

74. This statement is a variation of items used by Kahan et al. to measure participants' worldviews. See, e.g., Dan M. Kahan et al., *Cultural Cognition of Scientific Consensus*, 14 *J. RISK RES.* 147, 173 (2011).

us to explore whether the majority opinion interacts with people's judgments about the acceptability of paternalistic governmental intervention.

In order to facilitate the analysis and interpretation of the results, participants were divided into three groups according to their responses: (1) participants who either strongly or somewhat agreed that the government should prevent people from hurting themselves were classified as "coercive paternalists"; (2) participants who strongly or somewhat disagreed with that statement were classified as "libertarians"; and (3) participants who neither agreed nor disagreed were classified as "neutral." In our sample, there were 42.5% libertarians (225 participants), 16% neutrals (86 participants), and 41.5% coercive paternalists (219 participants).

We hypothesized, with some tentativeness, that when asked to evaluate a coercive paternalistic policy (as we call it), both libertarians and coercive paternalists (as we call them) would show either reactance or nonconformity to the majority opinion. In short, libertarians would become more hostile towards the proposed policy when informed that most Americans support it, whereas coercive paternalists would become more extreme in their support of the policy when learning that most Americans oppose it. More weakly, we hypothesized that participants who fell in these categories might simply fail to conform to the majority opinion in the context of coercive paternalistic policies, in light of their strong antecedent convictions on the matter.

#### A. SAMPLE AND DESIGN

The sample consisted of 533 participants from Amazon Mechanical Turk (eighteen years of age or older, 41% female; 62% white). Overall design was a fully crossed two (policy tool: ban or nudge) by two (majority opinion: majority support or majority opposition) between-subjects design. For the purpose of examining how people's views of certain policy tools interact with the majority opinion treatment, we held the policy objective (to discourage people from smoking) constant across conditions. To keep the analysis as simple as possible, we studied only one policy area (cigarette smoking), acknowledging that a full account would require a far broader range of areas.

Participants were randomly assigned to one of two policy tool conditions. In the nudge condition they were instructed to

assume that the government is considering requiring graphic warnings on cigarette packages, whereas in the ban condition they were instructed to assume that the government is considering adopting a ban on cigarette smoking. Participants read as follows:

*Ban Condition.* “Assume that the federal government is considering adopting a total ban on cigarette smoking. This means that the sale of cigarettes will be outlawed.”

*Nudge Condition.* “Assume that the federal government is considering requiring graphic warnings on cigarette packages. The proposed warnings will include pictures of people suffering from smoking-related diseases, such as cancer.”

Under both the ban and the nudge conditions, participants were instructed to assume that they were part of a national survey concerning public behavior and attitudes regarding smoking. They were provided various pieces of information about Americans’ smoking habits and were subsequently randomly assigned to one of two majority opinion conditions: majority support and majority opposition (as in Study 2).<sup>75</sup> They were then asked to indicate whether they supported or opposed the proposed policy on a five-item Likert scale (1 = strongly oppose; 3 = neither support nor oppose; 5 = strongly support).

## B. METHODS AND RESULTS

We conducted two-sample t-tests comparing mean support scores across majority-opinion conditions (that is, majority support compared to majority opposition), as well as simple and multiple linear regressions.<sup>76</sup> In the multiple linear regression model, the dependent variable was support score toward each proposed policy, and the independent variable was the majority opinion condition (majority support or majority opposition). Participants’ views with respect to paternalism (libertarian, neutral, or coercive paternalist), demographic factors (age, gender, political ideology, education, race, and income), and participants’ preliminary opinion about the issue, were included as

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75. Under the “majority support” condition, they were instructed to assume that 81% of Americans support the proposed policy, 15% oppose it and 4% are undecided, whereas under the “majority opposition” condition they were instructed to assume that 81% of Americans oppose the policy, 15% support it and 4% are undecided. Under both conditions, participants were also presented with a graphic illustration of the results, as in Study 2.

76. See regression tables in the appendices.

controls. An interaction term between paternalistic ideology and the majority opinion treatment was also included.

As expected, information about the majority opinion significantly influenced people's attitudes toward the proposed nudge. Support scores under the majority-support treatment were significantly higher than under the majority-opposition treatment.<sup>77</sup> By contrast, the majority opinion did not significantly change people's views with respect to the proposed ban. Table 3 shows mean support scores under both majority opinion conditions across the two policy tools.

**Table 3: Mean Support Scores across Conditions and Tools**

Policy Tool	Majority Support	Majority Opposition	Significant Difference?
Nudge	4.1	3.8	Yes ( $p < 0.05$ )
Ban	3.4	3.3	No

In terms of support rates (that is, percentages of support for the policies), we find similar results. Figure 4 illustrates these findings. It shows differences in support rates across the different policies (supporters are those who indicated that they either somewhat or strongly supported the policy).

77. Under a multiple linear regression of support scores,  $b$  (for the majority opinion treatment) = 0.305; SE = 0.151;  $p < 0.05$ .

**Figure 4: Support Rates across Conditions -  
Nudge versus Ban**

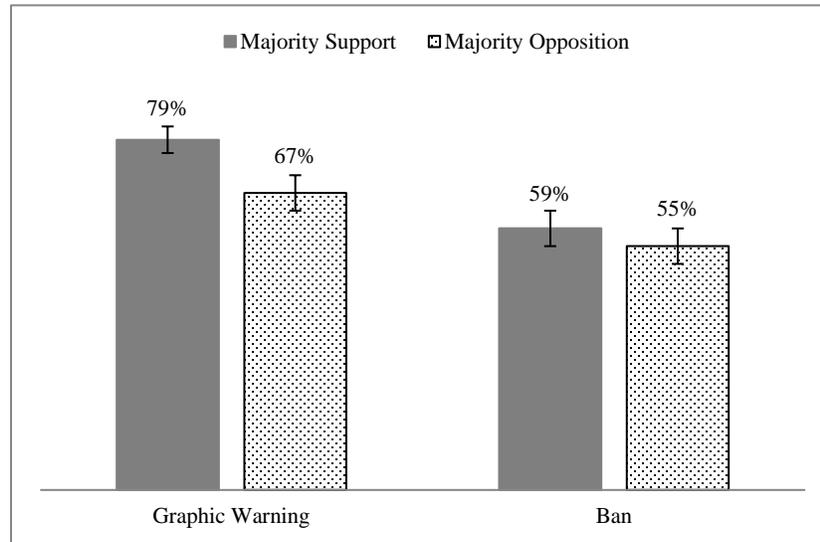


Figure 4 shows that while the difference in support is significant under the nudge condition, there is no significant difference in support under the ban condition. Support rates for the graphic-warning nudge were significantly higher under the majority-support than under the majority-opposition condition (79% and 67%, respectively). By contrast, they remained almost constant (and were not significantly different) in the context of a total ban on cigarette smoking (55% under majority opposition versus 59% under majority support).

### C. CONFORMITY & REACTANCE

We also explored whether the effect of the majority opinion treatment on participants' support for the suggested policies is moderated by their ideological views on paternalistic governmental interventions. Recall in this regard that participants were asked to indicate on a five-item Likert scale whether they agreed or disagreed that "the government should prevent people from hurting themselves, even if that includes forcing them to act, or refrain from acting, according to their best interests." As noted, they were categorized as libertarian, neutral, or coercive paternalist according to their responses.

Predictably, libertarians were significantly more supportive of the nudge than the ban, and coercive paternalists were significantly more supportive of both the nudge and the ban than were libertarians. Table 4 shows percentages of support for each policy tool among libertarians and coercive paternalists.

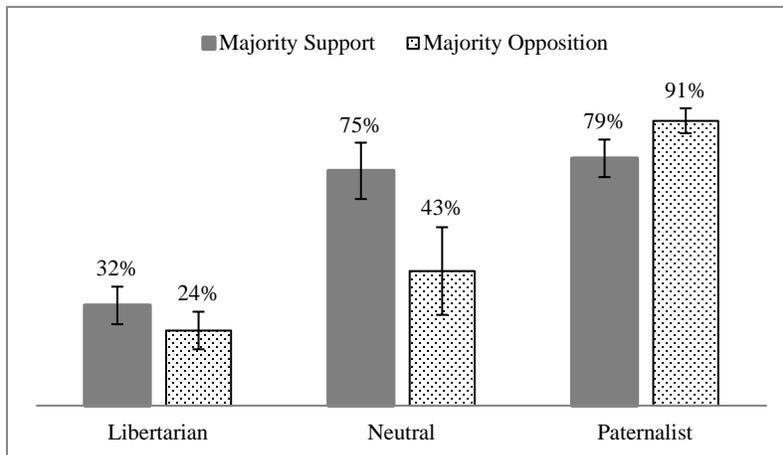
**Table 4: Percentages of Support for Each Tool:  
Libertarians v. Coercive Paternalists**

Percentage of Policy Support	Nudge (Graphic Warnings)	Ban
Libertarians	63%	28%
Coercive Paternalists	82%	85%

Notably, ideology concerning governmental intervention was a significantly stronger predictor of support scores for the ban than for the nudge.<sup>78</sup>

Under the ban scenario, we found a significant interaction between participants' views about paternalism and the majority opinion treatment. Figure 5 below shows these results.

**Figure 5: Do you Support or Oppose the Proposed Ban on Smoking?**



78. The standardized coefficient of paternalistic ideology was 2.8 times bigger in the ban condition than in the nudge condition (z-statistics were 10.59 and 3.81, respectively).

Figure 5 displays support rates across conditions for those characterized as libertarians, neutrals, and coercive paternalists under the ban scenario. The neutrals were significantly influenced by the majority opinion in the predicted direction, displaying significantly higher levels of support under the majority-support treatment than under the majority-opposition treatment (75% versus 43%).<sup>79</sup> By contrast, libertarians were not significantly affected by the majority opinion treatment. Their levels of support under the majority-support condition were not significantly different from their support levels under the majority-opposition condition (32% versus 24%).<sup>80</sup> Coercive paternalists, however, were significantly *more* supportive of the ban when informed that most Americans *opposed* it than when informed of the opposite (91%, compared to 79%). This difference strongly indicates reactance.<sup>81</sup>

Figure 6 displays support rates across majority opinion conditions for those characterized as libertarians, neutrals, and coercive paternalists under the nudge scenario. As this figure illustrates, support rates for the nudge among neutral participants significantly differed across conditions: 85% of the neutral participants supported the nudge under the majority-support condition, compared to only 62% in the majority-opposition condition.<sup>82</sup> In contrast, support rates among coercive paternalists were not significantly different across majority opinion conditions: 80% of coercive paternalists supported the nudge under the majority-opposition condition, compared to 83% under the majority-support condition.<sup>83</sup>

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79.  $b = 0.38$ ;  $SE = 0.16$ ;  $p < 0.05$  for support rates ( $\chi^2(1) = 3.93$ ,  $p < 0.05$ ). In terms of support scores,  $F(1, 36) = 5.78$ ,  $p < 0.05$ .

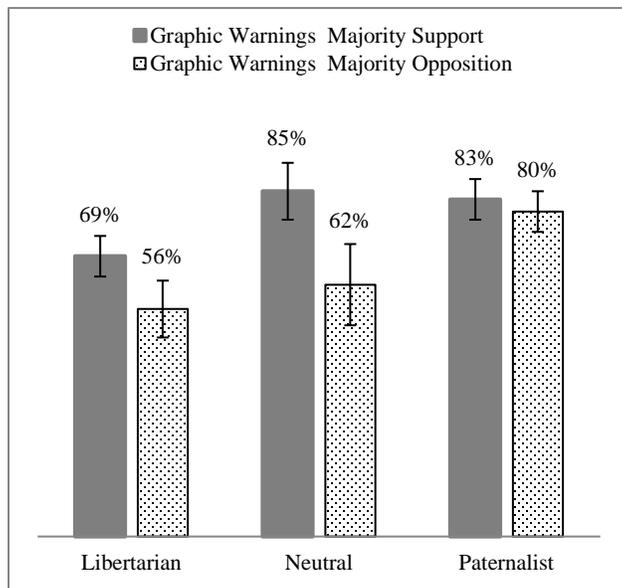
80.  $\chi^2(1) = 0.83$ ,  $p = 0.36$  for support rates;  $F(1, 116) = 0.11$ ,  $p = 0.74$  for support scores.

81.  $b = -0.15$ ;  $SE = 0.07$ ;  $p < 0.05$  for support rates; and  $b = -1.576$ ;  $SE = .446$ ;  $p < 0.01$  for support scores ( $F(1, 108) = 4.85$ ,  $p < 0.05$ ).

82.  $t(46) = 1.87$ ,  $df = 46$ ,  $p < 0.05$ .

83.  $b = 0.04$ ;  $SE = 0.07$ ;  $p = 0.58$ .

**Figure 6: Do you Support or Oppose the Proposed Graphic Warnings?**



As illustrated in Figures 5 and 6, libertarians displayed significantly higher levels of support under the majority-support condition than its opposite in the context of a nudge,<sup>84</sup> but retained similar levels of opposition to the ban across majority opinion conditions (the difference in support rates was not significant). This finding suggests that their opposition to bans (at least in the context of cigarette smoking) is fixed and firm.

## V. DISCUSSION

We find that people's policy judgments are significantly affected by information about the majority opinion. Across a wide range of policies, people's evaluations shift as a result of learning what most other Americans think. These findings complement a long line of literature documenting the impact of social norms on people's judgments and decisions. The findings reveal that even in the context of policy judgments, people are affected by the majority opinion in significant ways. On policies related

84.  $b = 0.18$ ;  $SE = 0.09$ ;  $p < 0.05$ .

to retirement savings, obesity, fuel efficiency, organ donation, and even discrimination on the basis of sexual orientation, levels of support were significantly influenced by people's perception of majority opinion—sometimes enough to turn minority support into majority support, or vice-versa.

At the same time, our findings provide evidence that if people hold strong antecedent convictions on a certain policy objective, they are less likely to be influenced by what the majority thinks. On policies related to abortion, for example, we found no significant difference in support levels across majority opinion conditions. When people's convictions are fixed and firm, they are less likely to be moved by the majority's view. While this conclusion is not especially surprising, it has the virtue of specifying the boundary condition for our central findings here.

At least in the context of smoking, we find the same basic results for policy *tools*. The implication is that while people's perceptions of public opinion will not significantly affect their attitudes toward policy tools about which they already have a fixed opinion, it will likely affect people's attitudes when they lack such an opinion.<sup>85</sup> In the context of the proposed ban on smoking, participants who did not have a strong position about paternalistic governmental interventions were significantly affected by the majority opinion, shifting their views in its direction. By contrast, libertarians remained firm in their opposition to a total ban on smoking, and coercive paternalists exhibited reactance, demonstrating greater support for the proposed ban when informed that they hold a minority position than when informed the opposite.

Admittedly, the paper's findings are preliminary and should be taken with caution. We explored a limited number of objectives and tools, and we did not always find reactance or conformity when we expected to find one or the other. As we have emphasized, it is possible that in certain domains, participants may have found it difficult to assume that the majority supports or opposes a certain policy; this raises questions as to whether our experimental manipulation always worked as planned. Future research would help verify the robustness and generalizability of our results.

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85. For a similar finding, see Tannenbaum et al., *supra* note 31.

Several future research directions would be valuable. First, it would be useful to learn more about the relative effect of different social identity groups on people's policy preferences. In this study, we looked only at the impact of exposure to the majority opinion within American society on people's policy preferences. But people may well be strongly influenced by the opinion of members of social identity groups to which they feel more tightly connected, such as peers, friends, or groups holding the same ideological or political viewpoint.<sup>86</sup> In short, the source of opinion matters, not merely the number of people who hold it.

Second, it would be valuable to make more progress in specifying the mechanisms underlying social influences: Are people influenced by the majority opinion for informational or normative reasons? Do people wish to adhere to the wisdom of the crowds or do they fear that deviating from the prevailing viewpoint might generate social sanctions? These questions might be answered by manipulating the source of the social norms information in an experimental setting.

Third, it is important to make more progress in understanding the kinds of situations in which people are likely to exhibit reactance or counter-conformity. Our findings provide preliminary evidence that people can resist, or even react against, the majority opinion in the context of both policy tools and objectives about which they feel strongly. In the future, it should be possible to map the policy issues and tools in which information about the majority opinion might generate reactance or counter-conformity.

### CONCLUSION

We find that exposure to information about the majority opinion can significantly influence people's policy preferences. In short, people can be nudged to favor or to oppose nudges. But there are important qualifications.

In policy domains in which people lack fixed and firm convictions, information about the majority opinion is highly likely to affect people's support for particular policies. By contrast, such an effect is less likely in domains in which people have firm antecedent convictions. In such contexts, exposure to the

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86. See, e.g., Deborah J. Terry et al., *Attitude-Behaviour Relations: The Role of In-group Norms and Mode of Behavioural Decision-making*, 39 BRIT. J. SOC. PSYCHOL. 337, 337 (2000).

majority opinion might even generate reactance among those who reject that opinion.

Preliminary and partial though they are, these findings offer a general lesson: Social norms—particularly majority opinion—can be powerful tools for policymakers. If their goal is to increase people's support for a certain policy, they might be able to make progress simply by informing them that many or most people already support it. At the same time, the findings offer a clear warning: If people's convictions are fixed and firm, that information may have no effect—and it might even be counterproductive.