

# Normative inference and ethical conservatism: evidence from a survey experiment

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## *Long Abstract*

### **1. Introduction: objectives and main research questions.**

The study of social norms has a long tradition in the social sciences, with several perspectives on what constitutes a collective behavioral pattern as a norm (Horne & Mollborn, 2020; Chung & Rimal, 2016). Despite definitional variations, scholars converge on two fundamental characteristics of social norms. First, social norms are self-enforcing behavioral patterns that function at the group level. Individuals comply with these norms when they expect others to do so, reinforcing conformity through coordination incentives, social sanctions, identity signaling, and the general tendency to follow group behavior (Legros & Cislighi, 2019). Second, social norms embody social expectations regarding appropriate and inappropriate actions in specific contexts (Fallucchi & Nosenzo, 2022). These expectations shape behavior through both external social pressures and internalized beliefs about appropriate conduct within a group.

A widely accepted psychological framework defines social norms through perceptions of how common or desirable a behavior is (Cialdini & Trost, 1998; Cialdini et al., 1991). Within this framework, descriptive norms refer to individuals' perceptions of what most people do, while injunctive norms reflect perceptions of what most people approve or disapprove of. Nevertheless, operational definitions help measure social norms using preferences and expectations. Bicchieri's (2006, 2016) framework, for instance, defines social norms as informal behavioral rules upheld by conditional preferences: individuals follow a norm when they believe that most others adhere to it (empirical expectations) and that most others think everyone should adhere to it (normative expectations). The interplay between descriptive (what

people do) and normative elements (what people think ought to be done) helps identify the presence of a social norm and determine the conditions under which it may change.

What emerges from both accounts is that individuals often rely on social norms as a salient point to interpret and effectively respond to social situations, particularly under conditions of uncertainty. In such contexts, social norms may serve not only as cognitive shortcuts that reduce ambiguity and provide behavioral guidance, but also as distinct predictors and moderators of behavior (Mackie et al., 2015; Park & Smith, 2007).

Although social expectations are important for identifying and measuring the existence of social norms, it is still unclear how the interplay between empirical and normative expectations contributes to bring about changes in collective behaviors (Andrighetto & Vriens, 2022; Bicchieri, 2016). It also remains unclear under what conditions providing normative or empirical information is more effective in enhancing behavioral change (Cislaghi & Heise, 2018), as well as which type of information is more influential depending on the valence of the collective behavior at stake – namely, whether it involves “positive” or “negative” behaviors. In this regard, Bicchieri and Kuang (2022 preprint) conducted a study to investigate the extent to which empirical and normative information impacts how people make inferences about, respectively, normative and empirical expectations, and to what extent different types of information may lead to varying inferences depending on the valence of the behavior in question.

They found an asymmetric inferential pattern for positive behaviors: individuals are more likely to infer normative endorsement (i.e., normative expectations) from the observed prevalence of a behavior than to infer its prevalence (i.e., empirical expectations) from normative endorsement. That is, people tend to assume that widely practiced positive behaviors are also broadly endorsed, with this inference being stronger than the reverse. In contrast, inferential patterns for negative behaviors are more variable. In approximately 45% of cases, the inference from empirical prevalence to normative endorsement is weaker than the reverse, suggesting that individuals are less inclined to assume that a negative behavior is normatively accepted simply because it is common. This asymmetry may have important implications for social norm dynamics, as individuals rely on information about both what others do and what others consider appropriate to form inferences, reach conclusions, and guide their own behavior.

Therefore, since assessing the robustness of this inferential pattern may provide insights into its potential role in norm change, our first purpose is to replicate their study to examine whether

the pattern is consistent in a different sample of the population, specifically the Italian population.

Furthermore, given that individuals tend to be selective in how they interpret new information about others' behaviors, particularly when such updates challenge the prevailing norms within their ideological framework (Anglin, 2019; Anderson et al., 2007), the second aim of our study is to investigate whether and to what extent ideological views influence individuals' receptivity to norm-related information.

Among the various ideological factors that may play a role, we focus specifically on conservatism, a complex construct encompassing social, psychological, and political dimensions (Stenner, 2009). Research suggests that individuals with stronger conservative tendencies tend to value stability and may experience apprehension toward social change (Becker, 2020). In particular, social conservatives exhibit cognitive rigidity, a strong need for structure, and a preference for moral absolutism (Chan, 2019; Crowson, 2009; Burke, 1790). These traits align with psychological changes associated with aging – such as increased responsibility, reduced openness to experience, and a heightened preference for certainty – which not only reinforce existing cognitive tendencies (Dennis et al., 2008; Jost et al., 2007) but also shape political convictions. Rather than emerging solely from rational deliberation, these convictions are influenced by cognitive styles, intuitive moral values (Graham et al., 2009; Haidt & Graham, 2007), and motivated social cognition (Janoff-Bulman, 2009; Jost & Amodio, 2012).

This body of empirical evidence has grown, showing that conservatives and liberals differ in their trust in scientific and experiential evidence, with conservatives generally exhibiting greater skepticism toward scientific claims, particularly on politically charged topics such as climate change and vaccinations. However, Stein et al. (2021) extend this line of inquiry by examining whether such differences persist even in evaluations of scientific and nonscientific perspectives on apolitical topics. Their findings highlight a fundamental cognitive distinction: conservatives tend to rely more on intuitive thinking and are more likely to view personal experience as a valid form of evidence, whereas liberals exhibit a stronger preference for empirical, scientific reasoning.

The conclusions drawn from Stein et al. (2021) might have significant implications for understanding how conservatives process empirical and normative information. While both liberals and conservatives valued scientific perspectives more than anecdotal ones, conservatives were more likely to see both as equally legitimate, reflecting a systematic bias toward equating intuitive and empirical evidence. Their greater trust in gut feelings and

personal experience – as opposed to external, data-driven information – could suggest that conservatives may be less receptive to normative and empirical expectations provided by external sources.

Taken together, these insights suggest that conservatives may be particularly resistant to new information, especially when it challenges their existing worldview and implies a shift from the established status quo. This resistance may stem from their reliance on intuitive reasoning and skepticism toward expert knowledge, which can make it more difficult to integrate new information with prior beliefs. As belief updating depends on this integration process, conservatives may be more inclined to discount both normative and empirical information about social expectations.

## **2. Pre-registration and data collection plan.**

We have pre-registered two studies.<sup>1</sup> The data collection will start at the end of September 2025.

### *2.1 Study 1*

In study 1, we examine how the type of information individuals receive impacts on the formation of their normative and empirical expectations. In particular, we investigate how individuals infer what is acceptable from hypothetical scenarios (i.e., vignettes) in which different types of information are provided: empirical information about what the majority of people do, or normative information about what people consider acceptable. We further investigate how perceived consequences of behavior, such as guilt and material cost for the society affect these inferences.

Study 1 is aimed at replicating the evidence collected by Bicchieri and Kuang (2022, manuscript under review) on the existence of asymmetry in inference processes, and how valence of behavior and perceived individual (guilt) and social consequences moderate inferences, either amplifying or dampening the effects of the type of information. So, the main hypotheses we aim to test in this study is the following.

H1: Asymmetric pattern of inference: The direction of inference is expected to vary with valence: for positive behaviors, participants should more readily infer endorsement from

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<sup>1</sup> Pre-registration available at: <https://aspredicted.org/4w7t-b9vm.pdf>

prevalence, whereas for negative behaviors they should more readily infer prevalence from endorsement.

H2: Social and individual-level costs as moderators of norm inference.

Perceived social consequences and individual-level costs (e.g., monetary cost and guilt) are expected to moderate the process of norm inference, either amplifying or dampening the effects of information.

- H2a (Social consequences): The tendency to infer that most people consider a behavior normatively appropriate, when informed that the majority performs it, will be stronger when individuals perceive greater positive social consequences. Conversely, The tendency to infer that most people consider a behavior normatively appropriate, when informed that the majority performs it, will be stronger (weaker) when individuals perceive greater positive (negative) social consequences.

- H2b (Guilt): When a behavior is associated with higher levels of guilt (psychological cost), individuals will be less likely to infer strong normative approval from empirical information.

- H2c (Monetary costs): When a behavior entails higher monetary costs, individuals will be less likely to infer strong empirical prevalence from normative information although such behavior is said to be widely approved.

## 2.2 Study 2.

Study 2 integrates these results, and it is aimed at testing how individual ideological orientation (especially conservatism) moderates the inference processes.

We aim to test the following hypothesis:

H3: Conservatism as a moderator of norm inference

Individual ideological orientation, particularly conservatism, is expected to moderate inference processes.

- H3a (General effect): Individuals with higher levels of conservatism will be less likely to update their empirical and normative expectations in response to new information, whereas less conservative individuals are expected to adjust their expectations more readily. This difference reflects conservatives' stronger prior beliefs, resistance to social change, and heightened sensitivity to uncertainty.

- H3b (Social consequences  $\times$  conservatism ): More conservative individuals may discount the weight of perceived social consequences, particularly when these imply social change, leading to weaker amplification or reduction compared to less conservative peers.
- H3c (Guilt  $\times$  conservatism): More conservative individuals may place less weight on guilt, because their responses are likely to be already shaped by moral convictions, leading to flatter patterns compared to less conservative peers.
- H3d (Monetary costs  $\times$  conservatism): Less conservative individuals may flexibly adjust their expectations and infer that behaviors with high economic costs are less prevalent, even if normatively approved. More conservative individuals, however, are expected to be more sensitive to resource-related risks and uncertainty, making them less likely to incorporate information when behaviors are costly.

### 2.3. Data collection plan.

Our data collection consists of three waves with the same participant sample, which form the basis for the two studies:

- Wave 1 (Pre-survey). Participants complete a pre-survey that gathers socio-demographic information and measures beliefs and opinions on societal and political issues. Part of these variables will be used as controls in both the studies, while those on opinion on societal and political issues will be used to construct the ideological conservatism index used in study 2.
- Wave 2 After a minimum two-week interval, participants complete the normative inference task (study 1), which examines how individuals draw normative inferences depending on the valence of the behavior and the type of information received.
- Wave 3 Following another temporal delay, participants complete the survey on social consequences and individual and societal costs, which are used as moderators in the analysis of the results of both study 1 and study 2.

We plan to collect data from 200 participants across three waves. We conducted a power analysis using simulated data that accounted for repeated measures and within-person correlations in our design. Based on these simulations, a sample size of 200 will provide 80% power at an alpha level of 0.05 to detect medium-sized effects, defined as Cohen's  $d = 0.5$  for

treatment effects and effects of conservatism, and Pearson's  $r = 0.3$  for associations with measures of social consequences and guilt.

## References

- Andrighetto, G., & Vriens, E. (2022). A research agenda for the study of social norm change. *Philosophical Transactions of the Royal Society A*, 380(2227), 20200411.
- Becker, J. C. (2020). Ideology and the promotion of social change. *Current Opinion in Behavioral Sciences*, 34, 6-11.
- Bicchieri, C. (2016). *Norms in the wild: How to diagnose, measure, and change social norms*. Oxford University Press.
- Bicchieri, C. , and Kuang, J. (2022). From is to ought and back: Variability and asymmetry in social inferences from norm information. (manuscript in prep.)
- Bourke, R. (2018). What is conservatism? History, ideology and party. *European Journal of Political Theory*, 17(4), 449-475.
- Chan, E. Y. (2019). Social (not fiscal) conservatism predicts deontological ethics. *Acta Psychologica*, 198, 102867.
- Chung, A. C. A., & Rimal, R. N. R. N. (2016). Social norms: A review. *Review of Communication Research*, 4, 01-28.
- Cialdini, R. B., & Trost, M. R. (1998). Social influence: Social norms, conformity and compliance.
- Cialdini, R. B., Kallgren, C. A., & Reno, R. R. (1991). A focus theory of normative conduct: A theoretical refinement and reevaluation of the role of norms in human behavior. In *Advances in experimental social psychology* (Vol. 24, pp. 201-234). Academic Press.
- Cislaghi, B., & Heise, L. (2018). Theory and practice of social norms interventions: eight common pitfalls. *Globalization and health*, 14, 1-10.
- Crowson, H. M. (2009). Are all conservatives alike? A study of the psychological correlates of cultural and economic conservatism. *The Journal of psychology*, 143(5), 449-463.
- Dennis, N. A., Hayes, S. M., Prince, S. E., Madden, D. J., Huettel, S. A., & Cabeza, R. (2008). Effects of aging on the neural correlates of successful item and source memory encoding. *Journal of experimental psychology: Learning, Memory, and Cognition*, 34(4), 791.
- Fallucchi, F., & Nosenzo, D. (2022). The coordinating power of social norms. *Experimental Economics*, 25(1), 1-25.

- Graham, J., Haidt, J., & Nosek, B. A. (2009). Liberals and conservatives rely on different sets of moral foundations. *Journal of personality and social psychology*, 96(5), 1029.
- Haidt, J., & Graham, J. (2007). When morality opposes justice: Conservatives have moral intuitions that liberals may not recognize. *Social justice research*, 20(1), 98-116.
- Horne, C., & Mollborn, S. (2020). Norms: An integrated framework. *Annual Review of Sociology*, 46(1), 467-487.
- Janoff-Bulman, R. (2009). Political attitudes and complexity: Responses from a motivational perspective. *Psychological Inquiry*, 20(2-3), 177-182.
- Jost, J. T., & Amodio, D. M. (2012). Political ideology as motivated social cognition: Behavioral and neuroscientific evidence. *Motivation and emotion*, 36, 55-64.
- Jost, J. T., Napier, J. L., Thorisdottir, H., Gosling, S. D., Palfai, T. P., & Ostafin, B. (2007). Are needs to manage uncertainty and threat associated with political conservatism or ideological extremity?. *Personality and social psychology bulletin*, 33(7), 989-1007.
- Legros, S., & Cislighi, B. (2020). Mapping the social-norms literature: An overview of reviews. *Perspectives on Psychological Science*, 15(1), 62-80.
- Mackie, G., Moneti, F., Shakya, H., & Denny, E. (2015). What are social norms? How are they measured. *University of California at San Diego-UNICEF Working Paper, San Diego*.
- Park, H. S., & Smith, S. W. (2007). Distinctiveness and influence of subjective norms, personal descriptive and injunctive norms, and societal descriptive and injunctive norms on behavioral intent: A case of two behaviors critical to organ donation. *Human Communication Research*, 33(2), 194-218.
- Peterson, J. C., Smith, K. B., & Hibbing, J. R. (2020). Do people really become more conservative as they age?. *The Journal of Politics*, 82(2), 600-611.
- Stein, R., Swan, A. B., & Sarraf, M. (2021). Hearing from both sides: Differences between liberal and conservative attitudes toward scientific and experiential evidence. *Political Psychology*, 42(3), 443-461.
- Stenner, K. (2009). Three kinds of "conservatism". *Psychological Inquiry*, 20(2-3), 142-159.

