

Rhetoric Matters: A Social Norms Explanation for the Anomaly of Framing[☆]

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Abstract

Ample evidence shows that certain words or ways of phrasing things can cause us to change our preferences. We demonstrate one mechanism for why this happens - “framing” evokes norms which then influence choice. We use a laboratory study to test the impact of describing a series of dictator games with either politically charged tax- or neutrally-framed language. Subjects’ political identities interact with these frames, causing changes in both norms and choices. Framing makes Democrats prefer equalized outcomes, and Republicans reluctant to redistribute payments even when it leaves them disadvantaged.

Keywords: framing, norms, social identity, altruism

[☆]We would like to thank Felix Albrecht, Yan Chen, David Cooper, Stefano DellaVigna, Martin Dufwenberg, Tore Ellingsen, Simon Gaechter, Erik Kimbrough, Stephen Leider, Daniele Nosenzo, Anya Samek, Charlie Sprenger, Alexander Vostroknutov, Roberto Weber, participants of the 2014 Economic Science Association, the University of Nottingham CeDex participants, and the University of Michigan School of Information Laboratory group. We would also like to thank Shlomo Dalezman for excellent research assistance. This research has been approved by the University of Michigan IRB. The financial support from the National University of Singapore through grants nos. R-122-000-165-133 and R-122-001-163-133 is gratefully acknowledged. This material is based also upon work supported by the National Science Foundation under grant no. SES 1243043. Declarations of interest: none

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Framing matters. Though most people think that we have stable preferences for how we approach choices, there is ample evidence that certain words or ways of phrasing things can cause us to change our preferences. The rhetorical technique of “framing” is defined as the act of describing a situation in such a way as to change the decision-maker’s conception of the acts, outcomes and associated contingencies for that situation (Tversky and Kahneman, 1981).¹ Previous research has documented the existence of framing in a number of contexts. For example, Tversky and Kahneman (1981); Larrick and Blount (1997), and Dufwenberg et al. (2011a) provide evidence that two versions of a decision problem that are transparently equivalent evoke different preferences when considered separately. Rugg (1941) demonstrates the effectiveness of framing in public opinion polling. In his study, 62% of respondents answered “no” to the question “Do you think the United States should allow public speeches against democracy?”, but only 46% of respondents answered “yes” to the question “Do you think the United States should forbid public speeches against democracy?”. Similarly, Nelson et al. (1997a) find that whether a rally by the Ku Klux Klan is framed as a free speech issue or a disruption of public order affects respondents’ tolerance levels for the Klan.

Because frames impact choice, our understanding of the mechanisms by which they do so can provide a way to make the consequences of framing more predictable. One explanation is that framing effects are driven by the asymmetry in how different information is encoded and processed (Tversky and Kahneman, 1981). An alternative explanation is that frames activate existing information in an individual’s memory, and subsequently influence how that individual weighs her beliefs (Nelson et al., 1997b). In this paper, we propose an additional explanation: frames invite different interpretations of acts and outcomes because they evoke different norms.

¹As noted by Kahneman (2000), there are several different ways to interpret “framing effect,” including an experimental manipulation that changes the description of the situation and a characterization of how players in a game conceptualize strategies. In our experimental design, we adopt the former interpretation (see also Dufwenberg et al., 2011a). Our design uses what Larrick and Blount (1997) define as “procedural framing,” where actions are described in different ways for structurally equivalent allocation procedures. As an example, in Liberman et al. (2004) the same prisoner’s dilemma game is framed as a “Wall Street Game” and a “Community Game.” This difference in framing leads to a difference in participants’ choices. See also Cookson (2000); Rege and Telle (2004); Dufwenberg et al. (2011a); Ellingsen et al. (2012) and Banerjee (2016).

The social identity model provides a window through which to observe a mechanism for the effect of framing (Akerlof and Kranton, 2000, 2005). Social identity describes the part of an individual’s sense of self that stems from their perceived membership with a social group. The utility derived from social identity comes from a desire to comply with the norms for an individual’s social identity (Akerlof and Kranton, 2000).²

In our experiment, we compare subject responses in a series of dictator games for those given a tax frame with those given a neutral frame. The difference in framing allows us to make a subject’s social identity salient and to evoke the associated norms for that identity. We then collect data in a separate treatment to elicit identity-dependent norms. While we follow the work of Krupka and Weber (2013), our primary focus is on the impact of a tax frame on norms for the dictator games.

We show that these frames cause respondents to apply different norms to the situation and cause them to act differently. We document this effect in the context of U.S. political identity (Republicans and Democrats). We then test whether a social identity model can explain our results. Two tests provide evidence that a social identity model predicts behavior better than a benchmarking model without norms.

Our main contribution is our experimental evidence on how frames evoke norms. The finding offers an additional mechanism, frame evoked norms, by which to predict how unstable preferences will be impacted by a frame. In addition, a novel application of the norm elicitation method developed by Krupka and Weber (2013), allows for sharper predictions regarding the likely impact of frames on behavior. In application to politics, this result raises the

²Each social group has a set of corresponding normative prescriptions (norms) for behavior that characterize how members of that group ought to behave in a particular situation. Social identity-dependent choice can explain a host of observed social phenomena such as ingroup bias (Terry and O’Brien, 2001; Wichardt, 2008; Goette et al., 2012), persistence of stereotypes (Steele and Aronson, 1995; Shih et al., 1999, 2006; Afridi et al., 2015), and labor disputes (Akerlof and Kranton, 2005). In addition, it has been shown to affect cooperation (Eckel and Grossman, 2005; Goette et al., 2006; Charness et al., 2007), coordination (Weber, 2006; Chen and Chen, 2011; McCarter and Sheremeta, 2013; Chen et al., 2014), behavior in markets (Li et al., 2011; Gneezy et al., 2012), and voting (Pickup et al., 2016, 2018b,a). Both field and laboratory experiments show that inducing a social identity or making an existing identity salient can shift time, risk and other-regarding preferences (Chen and Li, 2009; Benjamin et al., 2010; Butler, 2014).

interesting question of how divided we really are?³ The evidence suggests that Democrats and Republicans have different views on redistribution but that these differences seem to disappear when political identities are not made salient. It follows then that a key activity of political parties is to use rhetoric to frame choices for their members and pursue identity politics. These results can significantly advance the study of the post-neoclassical anomaly of “apparently” unstable preferences. It also furthers the study of rhetoric on behavior and political discourse.

Our second contribution is to advance how we can study social identity by eliciting identity-dependent norms. In our experiments, we use the frame treatment to evoke identity-dependent norms. In our experimental design, we rely on the same causality argument proposed by Krupka and Weber (2013): changes in norms predict changes in behavior in otherwise identical dictator games. However, unlike Krupka and Weber (2013), we use a framing treatment to evoke *identity-dependent* norms in order to show that these identity-dependent norms cause behavior changes that are consistent with the social identities. This novel approach introduces a new way to study a broad range of questions relating to the impact of social identity on behavior.

1. Theoretical Framework

The social identity model provides a theoretical framework to elucidate one mechanism, norms, through which frames can affect choice (Akerlof and Kranton, 2000, 2005). In their study, Akerlof and Kranton (2005) note that “...much of utility depends not only on what economists normally think of as *tastes*, but also on *norms* as to how people think that they and others *should* behave...views as to how people should behave depends upon the particular *situation*...”. Moreover, norms for how one should behave vary with one’s social identity. In their model, a person’s identity is seen in the

³One result that suggests that the impact of the frame depends on identity comes from Hardisty et al. (2010). In the study, the payments for an environmental cost are described as either “earmarked taxes” or “offsets.” They find that the framing of the payment changes expressed preferences for it by Republicans and Independents, but not by Democrats. The authors interpret their findings as an indication that the frame-induced behavior changes stem from changes in the norms that subjects apply to the situation. See also Blount and Larrick (2000), Koch (1998) and Allison et al. (1996). In other words, one reason why frames invite different interpretations of acts and outcomes is because they evoke different norms.

context of gains and losses in utility that result from behavior that conforms to or departs from the norms for that identity in that situation.⁴

This utility is separated into a value placed on monetary payoffs (which are affected only by actions $\mathbf{a} = (a_i, \mathbf{a}_{-i})$) and on adhering to social norms (N). These norms are affected by an individual's actions (a_i), everyone's social identities ($\mathbf{I} = (I_i, \mathbf{I}_{-i})$), and the situation (s):

$$U_i(\mathbf{a}, \mathbf{I}, s) = V_i(a_i | \mathbf{a}_{-i}) + \gamma_i N(a_i | \mathbf{I}, s), \quad (1)$$

where V captures a subject's utility over her monetary payoff, and is not dependent on either social identity or the situation.⁵

In the above specification, $N(\cdot)$ is the social norms function that maps utility over the appropriateness of an action in situation s undertaken by individual i (Krupka and Weber, 2013). In other words, when a person's social identity or situation changes, so does that individual's shared view of the appropriateness of the actions. This model assumes that identity-dependent social norms vary at the group level and, furthermore, are both exogenous and given at the individual level.⁶

⁴Akerlof and Kranton (2005) further notes that “The combination of *identity*, *social category*, *norms* and *ideal* allows parsimonious modeling of how utility functions change as people adopt different mental frames of themselves — that is, as they take on different possible identities. Economists have recently adapted from psychology the idea that utility depends upon how a situation is *framed* (Kahneman and Tversky, 1979). Identity describes one special way in which people frame their situation.”

⁵This formalization of the first term in the utility function follows Akerlof and Kranton (2005), who write “In a standard economic model, an individual's preferences are fixed, and utility depends only on pecuniary variables.” Regarding the second term, though Akerlof and Kranton (2000) characterize utility stemming from one's own identity only, we include own and others' identity in the norm function as a way of capturing the idea that the norms of behavior are determined by the identities of all participants. This is alluded to in Akerlof and Kranton (2000) in footnote 5: “...individual's self-concept may be formed by seeing oneself through the eyes of others...” This also finds resonance in Tajfel and Turner (1979), where they describe how one comes to hold an identity: “...the essential criteria for group membership...are that the individuals concerned define themselves and are defined by others as members of a group.” This idea is echoed in more recent papers, such as Barr et al. (2018).

⁶The endogenous selection of social identity is sometimes possible, as with choosing one's profession, and sometimes not possible, as with race or gender (cf. Akerlof and Kranton, 2000). Endogenous norm formation is not treated here, but we note that norm formation is likely to take some time, and therefore at a particular point in time, it is reasonable to think of the norm as given.

Finally, the γ_i term reflects the degree to which person i cares about complying with the social norms for her identity. In this model, the degree to which a person cares about adhering to any social norm is fixed. Intuitively, if an individual is characterized as a strong “norm follower,” then she will be a strong “norm follower” in any situation.

We follow Akerlof and Kranton (2005) in defining a situation as the context of “...when, where, how and between whom a transaction takes place.”⁷ We posit that framing can change this situation in at least two unique ways. First, it does so by changing an individual’s perception of the associated acts and outcomes. For example, if we alter the framing of the standard dictator game by changing the placement of the initial endowment so that it rests with the non-active second player, then a dictator must take money from this player to achieve a positive payoff for himself. Essentially, a payoff obtained in a dictator game through giving (as in the standard dictator game) is perceived differently from the same payoff obtained through taking (as in the altered dictator game). Second, frames can also change our situation by evoking a social identity and its associated norms. For example, when a dictator game is described as a tax redistribution, it may evoke a person’s political identity, making any transfer feel like a “handout.” We use both of these changes in our treatment.

2. Experimental Design

Our experiment relies on a between-subjects design to elicit subject behavior and beliefs about norms. We conduct two different experiments - a *choice experiment* and a *norms elicitation experiment* - with two different sets of subjects. Subjects in the *choice experiment* do not participate in the *norms elicitation experiment*, and vice-versa.

2.1. Choice experiment

We first discuss our *choice experiment*. Following the idea that frames can change behavior by evoking a social identity and its associated norms, we vary whether subjects are shown neutrally-framed or tax-framed dictator games.

⁷See also Ellingsen and Mohlin (2014) who define a situation as a “shared view of the set of participants and the relevant set of actions.”

This treatment is designed to evoke a U.S. political identity (Democratic or Republican) within our subjects.⁸

We deliberately select a frame on which the two political parties strongly differ: tax redistribution. This frame is chosen based on previous empirical work examining the impact of frames on behavior that differs across political party platforms. For instance, the 2012 and 2016 Democratic National Platforms, in multiple separate instances, advocate for the “wealthiest taxpayers to pay their fair share.” By contrast, the 2012 and 2016 Republican Platforms “reject the use of taxation to redistribute income.” Similarly, a Pew Research Center/USA TODAY survey conducted in January of 2014 shows that, for the question “How much should the government do to reduce the gap between the rich and everyone else,” 88% of liberal Democrats answer “A lot” or “Some,” compared to only 40% of conservative Republicans.

These platform differences are what we use to construct the tax frame. In the tax-framed treatment, we characterize the dictator game as a wealth redistribution decision, the endowments as initial wealth, and the allocation as a government transfer initiated through the subject’s choice. The wording of the tax-framed treatment is:

In this economy your wealth is X token(s) and your match’s wealth is Y token(s). Use the slider to indicate whether you want the government involved and how large or small the redistribution should be.

By contrast, the wording of the neutrally-framed treatment is:

⁸We target these two political social identities because political identity is a “home-grown” identity (i.e., one that subjects bring with them to the laboratory) that U.S. subjects tend to have internalized by the time they reach adulthood. Kranton et al. (2016) review several different approaches to studying homegrown versus lab-created identities. Not only do most U.S. adults possess a political identity, but this identity also exerts high influence on their choices during the decision-making process. Iyengar and Westwood (2015) find that the impact of political identity on judgment and behavior exceeds even that of racial identity. Pickup et al. have several papers examining how political identities affect voting through social norms. They find that voters are willing to pay a personal cost (vote against their own interests) in order to comply with the norms of their political identity (Pickup et al., 2016, 2018a), and that the personal cost causes the social norms to be strengthened (Pickup et al., 2018b). In our study, we restrict our subjects to U.S. citizens and allow subjects to participate in only one of the treatments.

For this decision you own X token(s) and the other person owns Y token(s). You have the opportunity to give any amount of your X token(s) to the other person or to take any amount of the Y token(s) from the other person for yourself.⁹

Within each treatment, subjects make eleven dictator game decisions. For each dictator game, there are a total of 10 tokens to split between the dictator and a receiver. The eleven dictator games reflect the eleven possible ways to split the initial 10-token endowment, from a situation where the dictator starts with 10 tokens and the receiver starts with none (the standard dictator game), to a case where the dictator starts with no tokens and the receiver starts with all 10. Thus, our initial endowments vary within each subject. We vary the initial endowment because, based on the party platforms, we expect that the endowments will impact dictator choices differently for subjects who identify as Democrats or Republicans: In order to achieve equal allocations, a Democrat will be *willing* to give or take wealth depending on the initial endowment, while a Republican will be *unwilling* to give or take wealth regardless of the initial endowment. Because we know the party platforms, we can make predictions about how changes to initial endowments will affect behavior for Republicans and Democrats.

There is a stream of experimental work examining the effect of varying the initial endowment in the dictator game. Most of this work uses a between-subjects treatment that places the entire initial endowment with the dictator (in one treatment) or with the recipient (in the other treatment) and finds that dictator behavior is not affected by who starts with the endowment (Dreber et al., 2013; Grossman and Eckel, 2015; Halvorsen, 2015; Hauge et al., 2016; Goerg et al., 2017). On the other hand, Grossman and Eckel (2012) and Krupka and Weber (2013) use a between-subjects design comparing a standard dictator game, where the entire endowment starts with the dictator, to a non-standard game, where the initial endowment is divided equally between the dictator and the recipient. These papers find that changing the initial endowment distribution causes a significant change in behavior, suggesting that non-extreme initial endowment comparisons might

⁹For the situation where the subject is endowed with all 10 tokens, the subject reads: “You have the opportunity to give any amount of your 10 tokens to the other person.” For the situation where her receiver is endowed with all 10 tokens, she instead reads: “You have the opportunity to take any of the 10 tokens from the other person.”

result in behavioral changes. There is also some evidence that sequentially exposing subjects to different initial endowments affects dictator behavior (Visser and Roelofs, 2011; Korenok et al., 2014). These systematic differences could explain why variation in the initial endowments sometimes does and sometimes does not affect dictator behavior.¹⁰ However, these papers are not easily amenable to comparison. In the discussion section, we present evidence that shows that our dictators’ significant behavioral differences are largely due to our within-subjects design rather than our inclusion of non-extreme initial endowment distributions.

We first administer the games for each group. Then, after subjects complete the decision making rounds, we administer a 5-item demographic questionnaire which is the same regardless of treatment. The questionnaire elicits the degree to which each subject self-identifies as a Republican or a Democrat by asking the question “In politics, as of today, do you consider yourself:” with a response scale that includes the choices “A Republican,” “Leaning more towards the Republican Party,” “Leaning more towards the Democratic Party,” and “A Democrat.”¹¹ In our analysis, a subject’s response to this question determines the subject’s political identity. Thus, when we refer to a “tax-framed Republican,” we are referring to a subject who both is in our tax-framed treatment and self-identifies as a Republican/leaning Republican.

Upon completion of the questionnaire, each subject is randomly paired with another subject. A random dictator game is then selected for each pair, and a random subject in each pair is selected to be the dictator. That dictator’s decision is then implemented.

¹⁰There are also studies showing that gender (Kettner and Ceccato, 2014; Chowdhury et al., 2017), stake size (Leibbrandt et al., 2015), or social norm interventions (Farrow et al., 2018) can interact with the initial endowment to change dictator behavior. A separate stream of experimental work has shown that increasing the dictator’s choice set to include taking options changes behavior (List, 2007; Bardsley, 2008; Bosman and Van Winden, 2002; Eichenberger and Oberholzer-Gee, 1998; Swope et al., 2008; Zhang and Ortmann, 2012; Cappelen et al., 2013). For related work in a VCM setting, see Andreoni (1995); Dufwenberg et al. (2011b); Grossman and Eckel (2012); Brewer and Kramer (1986); McCusker and Carnevale (1995); Sell and Son (1997); Sonnemans et al. (1998); van Dijk and Wilke (2000); Brandts and Schwiieren (2009).

¹¹This question is adapted from Gallup’s standard party identification question, in use since 1944 (Gallup, 1991).

2.2. Norms elicitation experiment

In addition to our *choice experiment*, we conduct a *norms elicitation experiment* with a different set of subjects. In our *norms elicitation experiment*, these subjects are randomly assigned to treatments in which dictator games are described using either a neutral or tax frame. This experiment differs from the *choice experiment* in that it elicits subjects' beliefs about social norms rather than asking them to make redistribution choices.

To elicit social norms, we follow the procedures developed in Krupka and Weber (2013). That is, we describe a specific dictator game and a specific action and ask subjects to rate the “social appropriateness” of that action in that game. For example, we describe a scenario where a dictator is endowed with 10 tokens (the standard dictator game) and transfers 0 tokens to the recipient. In this case, the subject is asked to judge the appropriateness of this action using the following rating scale: “very socially appropriate,” “socially appropriate,” “somewhat socially appropriate,” “somewhat socially inappropriate,” “socially inappropriate,” and “very socially inappropriate.” This six-category scale follows that of Krupka et al. (2016). The subject is asked to make these judgments as part of a coordination game in which she is paid if her rating of the appropriateness of the action matches that of another random subject.

Krupka and Weber (2013) provide evidence that collectively-recognized social norms create focal points in a matching game (see also Goerg and Walkowitz 2010; Schelling 1980; Mehta et al. 1994; Sugden 1995). Here, subjects have an incentive to anticipate and match how others will rate an action as socially appropriate or inappropriate.¹² If there is a social norm that some actions are more or less socially appropriate, respondents are expected

¹²Others have adapted the procedures in Krupka and Weber (2013) to elicit norms for a variety of games. For example, Kimbrough and Vostroknutov (2016), Gächter et al. (2017), Veselý (2015), Erkut et al. (2015), D’Adda et al. (2015), Gangadharan et al. (2016), and Banerjee (2016) examine norm compliance across a variety of games using the Krupka and Weber norm elicitation protocol. However none of these studies examines identity-dependent norms. Yet a different approach to eliciting norms is to use third party advisors (Schram and Charness, 2011); however, this approach is more challenging to adapt to the study of identity-dependent norms. Another similar alternative is used in Bicchieri and Chavez (2010), where norms are elicited by asking proposers and responders in an Ultimatum Game to guess how many responders perceive each of the proposers’ options as a fair option. However, this approach would limit what we would be able to say about a “set” of appropriate actions.

to draw on this shared perception in their attempts to match others' ratings.

In our *norms elicitation experiment*, we limit the presentation of scenarios to three: where the dictator is initially endowed with 10 tokens, with 5 tokens, and with 0 tokens. For each scenario, subjects play the ratings coordination game for each of the eleven possible actions (dictator allocates from 0 to 10 tokens for herself). Thus, they play a total of 11 coordination games in each scenario before moving to the description of the next scenario.¹³

2.3. *Experimental Procedure*

Our subjects are workers from Amazon Mechanical Turk (MTurk).¹⁴ Workers on MTurk perform small tasks set by requesters, who then pay the workers for completing the tasks. For economics experiments, workers are paid a standard flat rate plus a bonus which depends on their actions in the experiment. Requesters also pay Amazon a 20% commission for completed tasks. In this sense, the flat rate corresponds to a show-up fee, the bonus corresponds to incentives, and the commission corresponds to fees one might pay to use a lab in a traditional economics laboratory experiment.

In our *choice experiment*, subjects first complete an unincentivized 10-item questionnaire.¹⁵ They then proceed to the dictator games. Figure

¹³Subjects read about each of these three scenarios, but the order in which they read about them is randomized. In total, each subject in the *norms elicitation experiment* plays 33 coordination games.

¹⁴MTurk was started in 2005 as a spot market for labor. It is now commonly used for experimental research. The population of MTurk workers is at least as representative of the U.S. population as traditional subject pools and several classic experiments have been replicated online such as the prisoner's dilemma, priming, and framing experiments (Horton et al., 2011; Chandler and Kapelner, 2013; Paolacci et al., 2010). Further, Huff and Tingley (2015) compare individual and political characteristics of MTurkers against respondents of the Cooperative Congressional Election Survey and find that the groups are largely similar. Although MTurk workers take on many tasks (often working for two hours a day on such tasks), it is unlikely that they will have encountered the norms rating activity in previous tasks because the norms rating activity has not yet been used in an online setting. It is possible that they have encountered the dictator game before and may have "set" or "routine" responses to such games. However this is less concerning because our treatments vary the tax frame rather than the task. So, if we observe that tax-framed subjects behave differently from neutrally-framed subjects on the same task, we can still attribute this change in behavior as being due to the effect of the frame.

¹⁵The unincentivized questionnaire has three components. First, subjects are shown five pairs of headshots and asked to choose the more attractive one in each pair. Second, subjects are asked to look at two pictures of people in lines and to choose which line

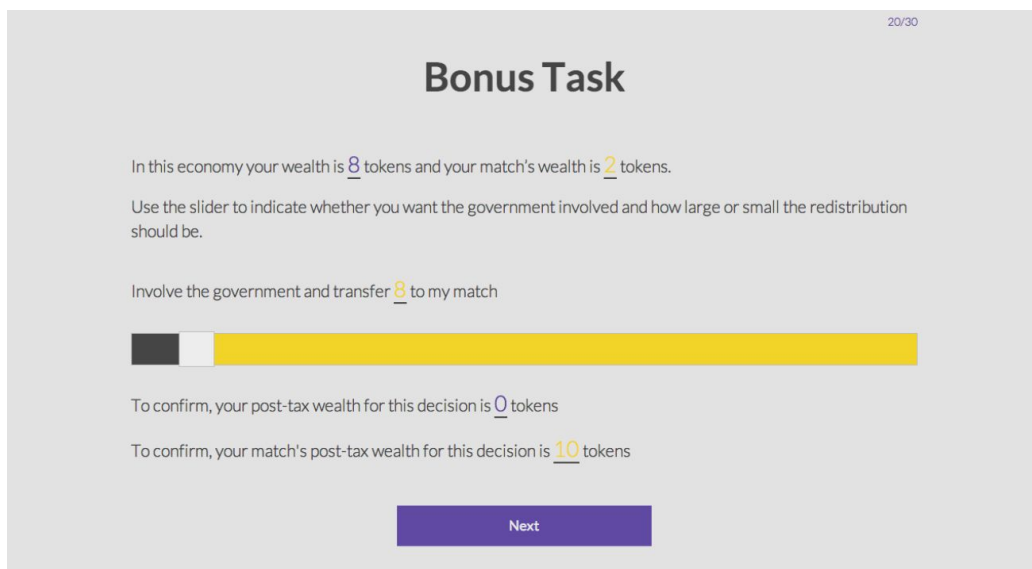


Figure 1: Screenshot of the *choice experiment* redistribution task for tax-framed subjects. The white slider element starts in the “neutral” position which is located either to the left or to the right of the slider (this is randomized). The slider must be moved off of the neutral position for the subject to indicate her choice (the slider depicted here has already been moved). The numbers on the screen also dynamically update as the slider is moved to reflect the action being taken and the outcome of that action.

1 presents a screenshot of a dictator decision that tax-framed subjects encounter. The depicted decision is one where the initial endowment for the dictator is 8 tokens and for the receiver is 2 tokens.¹⁶ The dictator indicates her decision by moving the white box along the slider (in Figure 1, the slider has already been moved to indicate a transfer of 8 tokens to the receiver). The subject cannot move on to the next screen until she actively moves the slider. The neutral position of the slider is left/right randomized for each decision. Once the dictator begins to move the white box along the slider, the other elements of the screen dynamically update to reflect the choice being made as well as the final allocation.

Figure 2 presents a screenshot from the *norms elicitation experiment* of a situation where the dictator’s initial endowment is 5 tokens and the dictator’s chosen action is “take 5 tokens.” For example, a subject in the tax-framed treatment reads about this situation and guesses how appropriate another MTurker would rate the action “take a tax transfer of 5 tokens from worker B.” Using the drop-down menu, the subject indicates her guess of how “socially appropriate” and “consistent with what someone who is like you would think worker A OUGHT to do.”

Table 1 presents the number of Democratic and Republican subjects in each treatment. On average, subjects in the *choice experiment* and *norms elicitation experiment* receive \$1.00 and \$1.34, respectively, for their participation. We conduct the experiment between 2014 and 2016.¹⁷

3. Results

We begin our discussion of the results by examining norms and behavior using the data from our *norms elicitation* and *choice experiments*. We then present evidence that the social identity model elucidates the mechanism, social norms, through which frames affect choice.

is longer. Finally, subjects are asked to guess the average temperature in five states in a previous year. These questions were part of a larger study which is unrelated to the research questions of this paper.

¹⁶The order in which subjects encounter the eleven situations is randomized according to four blocks. The four blocks have the following order: in block (1) the dictator’s initial endowment varies from 0, 1, 2, . . . , 10 tokens; in block (2) it varies from 5, 0, . . . , 4, 6, . . . , 10 tokens; in block (3) it varies from 10, 9, 8, . . . , 0 tokens; and in block (4) it varies from 5, 10, . . . , 6, 4, . . . , 0 tokens.

¹⁷The full experimental instructions are available in the Appendix.

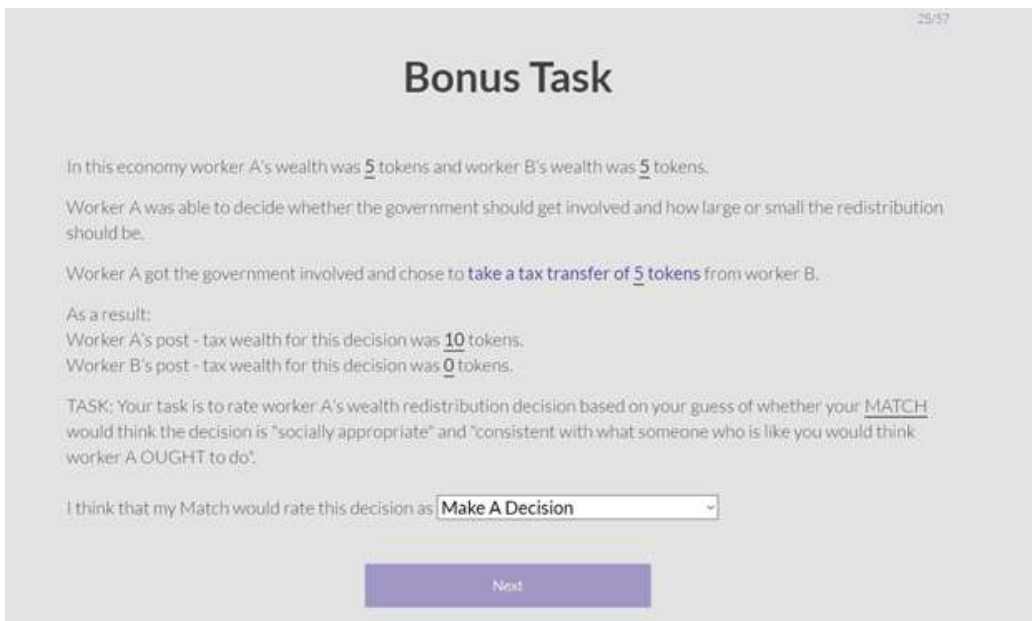


Figure 2: Screenshot of the *norms elicitation experiment* ratings task for tax-framed subjects.

Table 1: Number of Democratic and Republican subjects in each treatment

	Neutrally-framed	Tax-framed
Norms elicitation experiment	Republicans: 65 Democrats: 114	Republicans: 68 Democrats: 132
Choice experiment	Republicans: 73 Democrats: 154	Republicans: 130 Democrats: 270

3.1. Norms and behavior

3.1.1. Analysis of norms

To study the effect of frames on norms, we follow Krupka and Weber (2013) and transform the appropriateness ratings from the *norms elicitation experiment* into an empirical measure of the norm by converting subjects' ratings into numerical scores (or norm ratings). Specifically, a rating of "very socially inappropriate" receives a score of -1, "socially inappropriate" receives a score of -0.6, "somewhat socially inappropriate" receives a score of -0.2, "somewhat socially appropriate" receives a score of 0.2, "socially appropriate" receives a score of 0.6, and "very socially appropriate" receives a score of 1.¹⁸

To empirically estimate Democratic (Republican) tax-framed norms when the dictator's initial endowment is 10 tokens, we restrict our analysis to responses from subjects in the tax-framed treatment who (1) self-report that they are Democrats (Republicans) and (2) rate the situation where a dictator has an initial endowment of 10 tokens. As in Krupka and Weber (2013), we take the average norm rating for each action. We repeat this process for initial endowments of 5 and 0 tokens to obtain empirical proxies for the Democratic (Republican) tax-framed norms for the respective endowments. Similarly, we construct neutrally-framed norm profiles for Democrats (Republicans) using the responses from subjects in the neutrally-framed treatment who self-report that they are Democrats (Republicans).

First, we restrict our attention to the neutral frame. Some previous literature suggests that changing the initial endowment distribution (such that the dictator no longer holds all of the initial endowment but retains the rights to determine the final allocation) causes the dictator to change her behavior. Krupka and Weber (2013) show that this stems from changes in the norms. Thus, we predict that there will be differences in normative ratings across endowment distributions.

¹⁸Note that this transformation is also used in Kimbrough and Vostroknutov (2016), Gächter et al. (2013), Veselý (2015), Erkut et al. (2015), D'Adda et al. (2015), Gangadharan et al. (2016), Banerjee (2016), and Gächter et al. (2017). By giving the ratings a numerical value, we are imposing ratio scale characteristics on measurements that are, by design, ordinal. In some of what follows this is merely for convenience, such as when we use a rank-order test for the equality of distributions. However, in other situations, it implicitly adds extra assumptions upon which our analysis is then conditional, such as when we compare means.

Hypothesis 1 (Norms: endowments affect norms in the neutral frame). *Norm ratings will differ across initial endowment distributions in the neutral frame.*

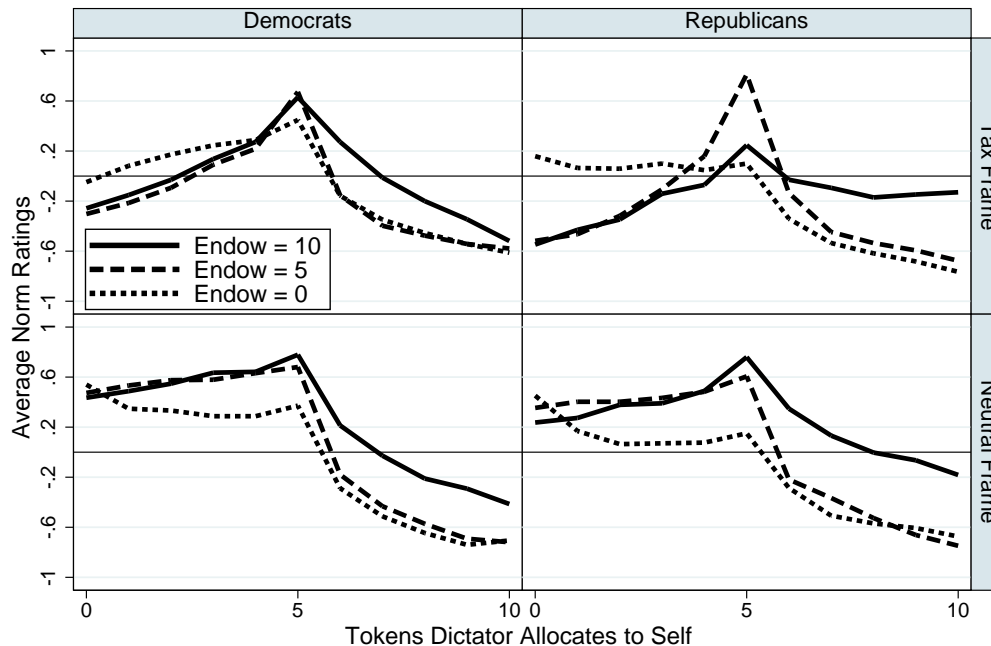


Figure 3: Average norm ratings by frame, initial endowment, identity, and dictator action.

Figure 3 displays the average norm ratings for the three initial endowments (0, 5, or 10 tokens) for each identity and frame combination. The x -axis reflects the number of tokens the dictator allocates to herself (e.g., the dictator choice to allocate 0 to herself and 10 to her match is depicted as “0” on the x -axis). Note that the choice that a dictator must make to achieve the same final allocation (e.g., “0 to self”) differs by the initial endowment. The y -axis reflects the values that the average norm ratings may take, with -1 representing the rating for “very socially inappropriate” and 1 representing the rating for “very socially appropriate.”¹⁹

¹⁹We note that our results share several important features with Krupka and Weber (2013) as well as with Kimbrough and Vostroknutov (2016). Both papers used student

The norm ratings depicted in Figure 3 support Hypothesis 1 by showing that neutrally-framed norms differ across initial endowments for both Democrats and Republicans. In order to formally test Hypothesis 1, we run 33 Wilcoxon signed-rank tests (with Bonferroni correction). Each subject in the *norm elicitation experiment* gives a norm rating for each of the initial dictator endowments of 0, 5 and 10 tokens, as well as each of 11 possible dictator actions, for a total of 33 norm ratings. For each Wilcoxon signed-rank test, we treat each subject-action pair as one observation with two linked norm ratings and run a separate test for each pair of endowments and each action. These tests lead to the following result:

Result 1 (Norms: endowments affect norms in the neutral frame).
Norm ratings differ significantly across initial endowment distributions in the neutral frame.

Support. The p -values of the 33 Wilcoxon signed-rank tests are displayed in Table A.3. When applying a Bonferroni correction for multiple hypothesis testing, the p -value threshold for significance at the 5% level is 0.0015. Comparing the norm ratings for initial dictator endowments of 0 and 5 tokens, 6 out of 11 comparisons are significant at the 5% level. Comparing the norm ratings for initial dictator endowments of 0 and 10 tokens, 9 out of 11 comparisons are significant at the 1% level. Comparing the norm ratings for initial dictator endowments of 5 and 10 tokens, 6 out of 11 comparisons are significant at the 5% level.

We find that our subjects' norms are significantly affected by the initial endowment distribution. Notably, Figure 3 shows that people consider keeping all of the tokens to be more appropriate when the dictator starts with all of the tokens than when the receiver starts with some tokens. Also, taking any of those tokens is seen as less appropriate when the receiver starts with all of the tokens than when the dictator starts with all of the tokens. The status quo has a normative advantage over other outcomes.

data while we use MTurk data. We all find a peak in norm ratings at the (5,5) or equal split action; we all have a steep drop off as the dictator keeps more for herself; we all have the most negative rating for the most selfish action (dictator keeps all for herself); we all have a less steep drop off for actions where the dictator gives more to the recipient than she keeps for herself. However, we also note that our data show a much less steep decline on either side of the peak than the previous papers. This may be due to differences in subject pool, stake size of the scale on which norms ratings are elicited.

Continuing to restrict our attention to the neutral frame, we next compare the norm ratings of Democrats and Republicans. When the redistribution task is neutrally framed, we expect no variation in norm ratings because the identities (and associated norms) are not made salient by the frame. This leads to the following hypothesis:

Hypothesis 2 (Norms: Democratic and Republican norms in the neutral frame). *Norm ratings will not differ between Democrats and Republicans in the neutral frame.*

Figure 3 also supports Hypothesis 2 by showing that Democratic and Republican norm ratings are very similar in the neutral frame. To test Hypothesis 2, we run several Mann-Whitney U tests between the Democratic and Republican norm ratings, one for each endowment-action pair. This gives us 33 Mann-Whitney U tests, and leads to the following result:

Result 2 (Norms: Democratic and Republican norms in the neutral frame). *Norm ratings do not differ significantly between Democrats and Republicans in the neutral frame.*

Support. The p -values of the 33 Mann-Whitney U tests are displayed in Table A.4. When applying a Bonferroni correction for multiple hypothesis testing, the p -value threshold for significance at the 10% level is 0.0030. Since the lowest p -value in Table A.4 is 0.0039, none of the norm ratings are significantly different at the 10% level.

When the redistribution tasks are neutrally framed, Democrats and Republicans agree on what constitutes appropriate dictator behavior. This remains true across different initial endowment distributions. Without rhetoric, we agree on what is and is not appropriate, because our political identities are not made salient.

Finally, we compare norm ratings across frames. Frames change the situation by evoking a person's social identity and the associated identity-dependent norms. For this reason we anticipate that the social norms for the tax-framed treatment will differ from those for the neutrally-framed treatment, for both identities. This leads to the following hypothesis:

Hypothesis 3 (Norms: frames affect norm ratings). *For each identity, the tax-framed norm ratings will differ from the neutrally-framed norm ratings.*

The norm ratings depicted in Figure 3 also support Hypothesis 3 by showing that tax-framed norms differ from neutrally-framed norms for each identity. For Democrats, the tax frame seems to make an equal split more appropriate compared to other actions, particularly with respect to giving more than half of the tokens to the receiver. For Republicans, the tax frame seems to make the status quo more appropriate, seen most clearly when the dictator starts with all of the tokens. In that scenario, the dictator keeping all of the tokens becomes more appropriate than the dictator giving away all of the tokens. For both Republicans and Democrats, the impact of the tax frame is in line with the respective party platforms.

To test Hypothesis 3, we again run several Mann-Whitney U tests between the tax- and neutrally-framed norm ratings, one for each endowment-action pair, separated by identity. This gives us 66 Mann-Whitney U tests, 33 for each identity, and leads to the following result:

Result 3 (Norms: frames affect norm ratings). *Except when the dictator’s initial endowment is 0 tokens, norm ratings differ between the tax and neutral frames.*

Support. The p -values of the 66 Mann-Whitney U tests are displayed in Table A.5. When applying a Bonferroni correction for multiple hypothesis testing, the p -value thresholds are 0.00152, 0.00076, and 0.00015 for significance at the 10%, 5%, and 1% levels, respectively. When the dictator’s initial endowment is 0 tokens, only 1 out of 11 comparisons for the Democratic norms (when they keep 0 tokens) shows significant differences at the 10% level between frames. For Republican norms, 0 out of 11 comparisons are significant at the 10% level between frames. For the other two initial endowments, at least 5 of 11 actions show significant differences at the 1% level for each identity, mainly for the dictator keeping fewer tokens. The tax frame significantly reduces the appropriateness for these actions.

3.1.2. Analysis of dictator choice

We next examine the results from our *choice experiment*. First, we present three hypotheses and results that mirror those for norms. These are ex ante hypotheses, predicting behavior before we have the norms results.

Our first choice hypothesis is motivated by the previous literature. Some studies that use a between-subjects design with regards to initial endowment distribution (e.g. Grossman and Eckel, 2012; Krupka and Weber, 2013) have

found that dictator behavior differs significantly depending on whether the dictator or recipient holds the initial endowment.²⁰ Thus, focusing on the neutral frame, we have the following hypothesis:

Hypothesis 4 (Choice: endowments affect choice in the neutral frame). *Dictator choice will differ across initial endowment distributions in the neutral frame.*

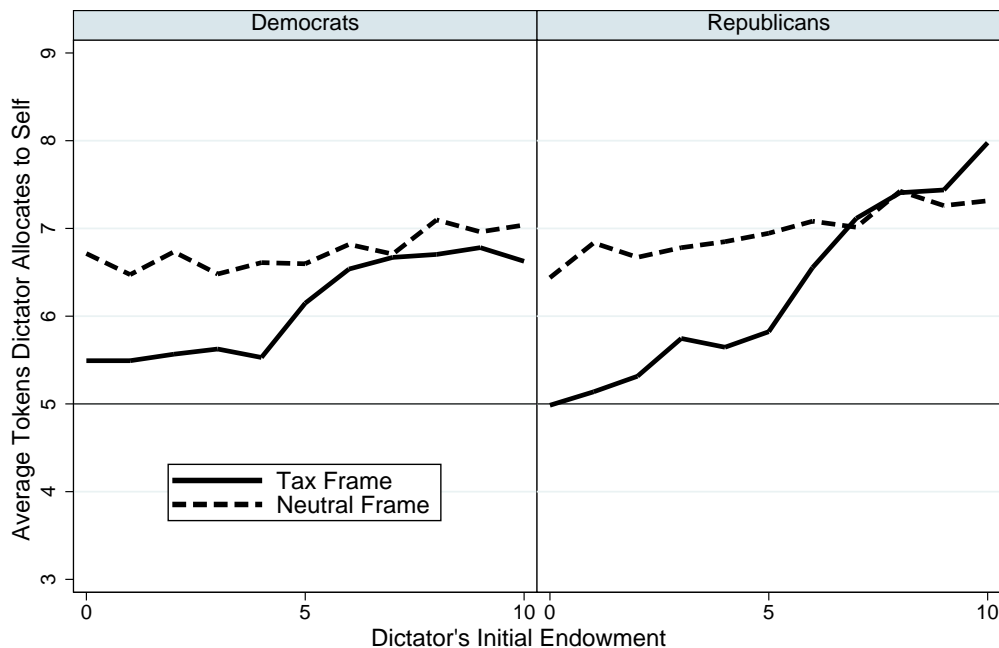


Figure 4: Average dictator choices by frame, initial endowment, and identity.

Figure 4 displays the average dictator decision in the *choice experiment* for each endowment, separated by frame treatments and political identity. In Figure 4, the average choices of tax-framed dictators are indicated by the solid lines while the average choices of neutrally-framed dictators are indicated by the dashed lines. For both Democrats and Republicans, the dashed lines are upward sloping, supporting Hypothesis 4.

²⁰We acknowledge that much of the previous literature on this topic finds no effect of the dictator’s initial endowment on the amount they keep. We address this further in the Discussion section.

To test Hypothesis 4, we run an OLS regression of the number of tokens the dictator keeps in the neutral frame on the endowment, clustered at the individual level. This leads to the following result:

Result 4 (Choice: endowments affect choice in the neutral frame). *Dictators keep significantly more tokens when they are initially endowed with more tokens.*

Support. Column 1 of Table 2 shows the results of the OLS regression of number of tokens kept by the dictator on the dictator’s initial endowment. The coefficient on the initial endowment is 0.059, significant at the 1% level, indicating that dictators keep about 0.6 more tokens when they start with 10 tokens, compared to when they start with no tokens.

Table 2: OLS regressions of tokens kept by dictators in the neutral frame

Dependent variable: tokens kept by dictator		
	(1)	(2)
Republican		0.05 (0.390)
Endowment	0.06*** (0.016)	0.05*** (0.018)
Republican \times Endowment		0.03 (0.035)
Constant	6.52*** (0.181)	6.51*** (0.218)
Observations	2,497	2,497
R^2	0.004	0.006

Notes: 1. Standard errors (in parentheses) are adjusted for clustering at the individual level.
 2. Significant at the *** 1 percent, ** 5 percent, and * 10 percent levels.

Next, we examine how Democratic and Republican dictators behave differently from each other in the neutral frame. In the neutral frame, political identities are not salient, so we expect no variation in behavior that stems

from those identities. Thus, we predict that there will be no differences between Democratic and Republican behavior in the neutral frame, giving us the following hypothesis:

Hypothesis 5 (Choice: Democratic and Republican dictator behavior in the neutral frame). *Democratic and Republican dictators in the neutral frame will keep the same number of tokens for the same initial endowment.*

We can see in Figure 4 that in the neutral frame (dashed lines), the Democrats and Republicans seem to keep a similar number of tokens for the same initial endowment. To test Hypothesis 5, we run an OLS regression of the number of tokens kept by the dictator on the initial endowment, whether the subject is a Republican, and an interaction term, clustered at the individual level. This gives us the following result:

Result 5 (Choice: Democratic and Republican dictator behavior in the neutral frame). *Democratic and Republican dictators in the neutral frame show no significant differences in the number of tokens that they keep for a given endowment.*

Support. Column 2 of Table 2 shows the results of the OLS regression of number of tokens kept on the initial endowment and the dictator’s political identity. The coefficients on both “Republican” and the interaction term of “Republican” with “Endowment” are both insignificant at the 10% level.

As with our norm results, political identity does not affect dictator behavior when those political identities are not made salient through framing. Without rhetoric, people make similar choices regardless of political identity.

Next, we examine how the frame affects dictator choice. Since we expected that framing would affect the norms, we also expect that framing will affect dictator choice. This leads to the following hypothesis:

Hypothesis 6 (Choice: frames affect choice). *For a particular identity, the allocation choices of tax-framed dictators will differ from those of the neutrally-framed dictators.*

From Figure 4, we can see that both Democratic and Republican dictators in the tax-framed treatment are more responsive (have steeper slopes) to their initial endowment, relative to dictators in the neutrally-framed treatment.

In Table 3, we present the results from OLS regressions to determine whether differences across frames are significant for either Democrats (column 1) or Republicans (column 2). In particular, we regress the number of tokens kept by the dictator on a dummy for the frame (“Tax-framed” is 1 for subjects in the tax-framed treatment and 0 for subjects in the neutrally-framed treatment), the dictator’s initial endowment (“Endowment”), and their interaction term (“Tax-framed \times Endowment”).

Table 3: OLS regressions testing effect of frame and endowment on dictator choice (by identity)

Dependent variable: tokens kept by dictator		
	(1)	(2)
	Democrats	Republicans
Tax framed	-1.19*** (0.275)	-1.82*** (0.457)
Endowment	0.05** (0.018)	0.08** (0.030)
Tax framed \times Endowment	0.11*** (0.027)	0.23*** (0.049)
Constant	6.51*** (0.218)	6.55*** (0.324)
Observations	4,664	2,233
R^2	0.035	0.084

- Notes:*
1. Standard errors (in parentheses) are adjusted for clustering at the individual level.
 2. Significant at the *** 1 percent, ** 5 percent, and * 10 percent levels.
 3. The number of observations in column 1 comes from the decisions of 424 Democrats in each of 11 dictator games. The number of observations in column 2 comes from the decisions of 203 Republicans in each of 11 dictator games.

Taking the visual and regression evidence together, we obtain the following result:

Result 6 (Choice: frames affect choice). *Subjects playing the tax-framed*

dictator game allocate their initial endowments differently than do subjects playing the neutrally-framed dictator game.

Support. The results in Table 3 show that the coefficients for “Tax-framed” and “Tax-framed \times Endowment” are significant ($p < 0.01$) for both Democrats (column 1) and Republicans (column 2).

When the tax frame is introduced, dictators act significantly differently from when there is a neutral frame. This is again related to the finding that norms are affected by the framing.

3.2. Testing the social identity model

To test whether the *social identity model* can explain our results, we first show that the data from our *norms elicitation experiment* improves our ability to account for behavior in our *choice experiment*. Note that this exercise also calibrates the model. We then compare out-of-sample predictions with actual subject behavior in our experiment.

3.2.1. Predicting choice using norms

When we take the norms data and the *social identity model* as given, we can predict how individuals will behave based on those norms. We then examine whether our subjects follow those predictions.

The norms displayed in Figure 3 show the trade-off between payoffs and norms for different situations. We can think of these norm ratings graphs as budget constraints with dictator preferences represented as the linear indifference curves in equation 1. Individual level differences would be represented by different slopes for the indifference curves, with steep indifference curves for dictators who do not care about following social norms, and shallow indifference curves for dictators who do care about social norms. With this formulation, and the specific social norms displayed in Figure 3, we can make several predictions about dictator behavior.

- a) In the neutral frame, for initial endowments of 5 and 10 tokens, dictators will only keep either 5 or 10 tokens.
- b) In the neutral frame, for initial endowment of 0 tokens, dictators will only keep 0, 5, or 10 tokens.
- c) In the tax frame, for initial endowment of 5 tokens, dictators will only keep 5 or 10 tokens.

- d) In the tax frame, for initial endowment of 10 tokens, Democratic dictators may keep any number of tokens between 5 and 10, while Republican dictators will only keep either 5 or 10 tokens.
- e) In the tax frame, for initial endowment of 0 tokens, Democratic dictators will only keep either 5 or 10 tokens, while Republican dictators may keep any number of tokens between 0 and 5, or 10 tokens.

These restrictions on dictator behavior stem from the shapes of the norm ratings in different situations and for different identities. In the neutral frame with initial endowment of 5 or 10 tokens, the most appropriate action is to keep 5 tokens. This fact immediately eliminates keeping any fewer than 5 tokens as utility maximizing, because a dictator who keeps fewer than 5 tokens can gain both monetary- and norm-compliance-utility by keeping 5 tokens instead. The norm graphs are convex (i.e. concave up) between 5 and 10, and this eliminates keeping between 6 and 9 tokens because they are not utility maximizing. This leaves us with two possible utility maximizing choices: dictators keeping 5 or 10 tokens.²¹

In the neutral frame with initial endowment of 0 tokens, the most appropriate action is to keep 0 tokens. Due to the shape of the norm graphs, keeping 5 tokens is also a possible utility-maximizing choice. The norm graphs are convex between keeping 0 and 5 tokens, and between keeping 5 and 10 tokens. Therefore, depending on the steepness of their indifference curves, utility maximization is achieved when the dictator keeps 0, 5 or 10 tokens.

In the tax frame with initial endowment of 5 tokens, the most appropriate action is to keep 5 tokens for both Democrats and Republicans, so the prediction here is the same as in the neutral frame, that both Democratic and Republican dictators will only keep either 5 or 10 tokens.

In the tax frame with initial endowment of 10 tokens, the Democratic norm graph between keeping 5 and 10 tokens is linear, so it is possible that some dictators will keep between 6 and 9 tokens. For the Republican norm graph, keeping 5 tokens is the most appropriate action and it is convex between keeping 5 and 10 tokens, so the dictators will only keep either 5 or 10

²¹Which of these actions is chosen depends on the steepness of their indifference curves. Because we do not have individual level estimates of this steepness, we cannot predict how many dictators will keep 5 tokens or how many will keep 10 tokens.

tokens.

Finally, in the tax frame with initial endowment of 0 tokens, the Democratic norm graph is similar to the case when the endowment is 5 tokens, so the dictators will choose to keep either 5 or 10 tokens. For Republicans, the norm graph between keeping 0 and 5 tokens is linear, so it is possible that some dictators will keep between 1 and 4 tokens.

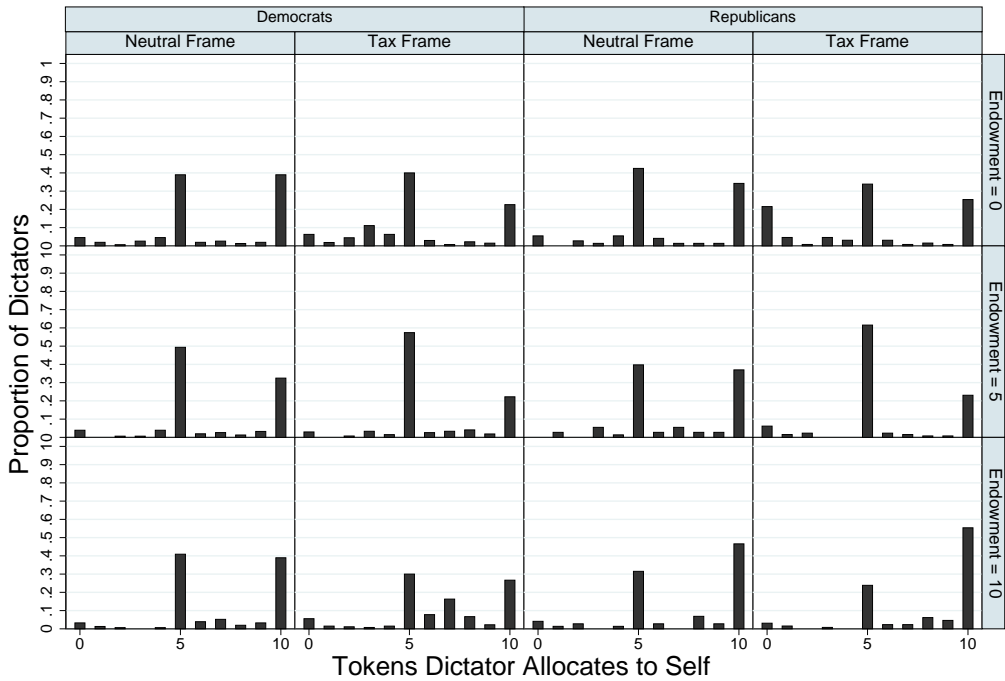


Figure 5: Dictator choices by frame, initial endowment, and identity.

Figure 5 displays the histograms of dictator actions in each situation and for each identity. Because there is no obvious null hypothesis, we use these distributions of dictator choice to characterize whether behavior generally follows the above identified patterns.

- a) In the neutral frame, for initial endowments of 5 or 10 tokens, 80% of dictators keep 5 or 10 tokens.
- b) In the neutral frame, for initial endowment of 0 tokens, 82% of dictators keep 5 or 10 tokens, and 5% keep 0 tokens.

- c) In the tax frame, for initial endowment of 5 tokens, 81% of dictators keep 5 or 10 tokens.
- d) In the tax frame, for initial endowment of 10 tokens, 57% of Democratic dictators keep 5 or 10 tokens, and 33% keep between 6 and 9 tokens. 79% of Republican dictators keep 5 or 10 tokens.
- e) In the tax frame, for initial endowment of 0 tokens, 63% of Democratic dictators keep 5 or 10 tokens. 59% of Republican dictators keep 5 or 10 tokens, 22% keep 0 tokens, and 13% keep between 1 and 4 tokens.

For most of the cases where the norm ratings predict that dictators will only keep 5 or 10 tokens, at least 79% of dictators follow that prediction. Also, in cases where the norm ratings predict behavior other than keeping 5 or 10 tokens, we see that there are a substantial number of dictators who follow those predictions. Perhaps most striking are the tax-framed Republicans who have an initial endowment of 0 tokens; 22% of these dictators keep 0 tokens. This behavior is difficult to justify without appealing to norms.

There are some cases where the norm ratings predict behavior we do not observe. While we predict that some dictators in the neutral frame with an initial endowment of 0 tokens would keep 0 tokens, only 5% of them do so. Also, for tax-framed Democrats with an initial endowment of 0 tokens, 30% of dictators keep between 0 and 4 tokens, behavior not predicted by the shape of the norm ratings.

The *social identity model* seems to be consistent with the norms and dictator behavior that we observe. In the following section, we compare the *social identity model* to the *standard model* (which only takes into account an individual's own payoff) as a benchmarking exercise. However, other models might also be able to account for the observed dictator behavior. For example, an inequality aversion model such as the one proposed by Fehr and Schmidt (1999) or a social preferences model such as the one proposed by Charness and Rabin (2002) could predict that dictators mostly give either half or none of the total endowment to the receiver. For Charness and Rabin's *social preferences model*, this would depend on each individual's other-regarding preferences. We can estimate the key parameters of the *social preferences model* using our data, and it encompasses Fehr and Schmidt's inequality aversion model. As such, in the next section we compare the relative ability of the *social identity model* to account for behavior by comparing it to both the *standard* and *social preferences models*.

3.2.2. Comparing choice models

In all models we consider, we assume that an individual i employs a logistic choice rule, where her probability P_i of choosing any action a^j depends on the relative expected utility $u_i(a^j)$ of that action compared to other actions:

$$P_i(a_i = a^j) = \frac{\exp(u_i(a^j))}{\sum_k \exp(u_i(a^k))} \quad (2)$$

Our first specification assumes that utility depends only on the dictator's own payoff. This is equivalent to setting $\gamma_i = 0$ in Equation 1 (i.e. the person does not care about complying with the social norms for her identity). To estimate the weight placed on monetary payoffs, we then impose a linear restriction on $V_i(\cdot)$, such that, for any final payoff, k , $V_i(k_i) = \beta_i k_i$. Thus, we estimate the weight, β_i , that an individual places on the money she receives from a particular choice as follows:

$$u_i(k_i) = \beta_i k_i \quad (\text{Standard Model})$$

Our second specification uses the Charness and Rabin (2002) social preferences model (hereafter referred to as the *social preferences model*), an important alternative model that could account for the transfers that we observe. This model has become widely adopted, and is now one of the most important alternative models of dictator behavior, providing an important alternative benchmark in addition to the *standard model*. In the *social preferences model*, an individual's utility includes both her own and her match's payoffs. An individual i 's utility is:

$$u_i(k_i) = (\rho \cdot r + \sigma \cdot s)(10 - k_i) + (1 - \rho \cdot r - \sigma \cdot s)k_i \quad (\text{Social Preferences Model})$$

where $r = 1$ if $k_i > 5$ and $r = 0$ otherwise, and $s = 1$ if $k_i < 5$ and $s = 0$ otherwise.

These first two specifications are outcome-based models. As such, they do not predict different behavior between our tax and neutral frame treatments. If changes in a subject's behavior are driven by changes in norms across initial endowment levels e , and across frames, then the weight that individuals place on complying with the norm, γ_i , should be significantly different from 0. Thus, in our third specification, we assume that an individual is motivated by both the monetary gain from the action as well as the social appropriateness of that action:

$$u_i(k_i, I_i, e) = \beta_i k_i + \gamma_i N(k_i | I_i, e)$$

(Social Identity Model)

The main conceptual difference between the *social identity* and *social preferences models* is that, in addition to receiving utility from their own payoffs, dictators in the former case receive utility from conforming to the identity’s norms while in the latter they receive utility from their matches’ payoffs.²² Our tax and neutral treatments offer an important wedge between these models. In our experiment, the *social preferences model* does not make different predictions for behavior between these treatments while the *social identity model* does.

To test which of these models best accounts for identity-dependent choice, we fit individual utility functions to our choice data using conditional logistic regressions. Note that in a conditional logistic regression (McFadden, 1974) where the dependent variable is the selected action, the variation reflects variation across the characteristics of the possible actions.²³ In our experiment, these characteristics are the payoffs and norms. When we change the initial endowment amount or change the framing, we hold the monetary payoff constant. Thus, the source of variation is the variation in norms.

We separately fit these models for each treatment and identity. While these models do not predict differences between the treatments, estimating the parameters of the models for each treatment separately allows them more flexibility and makes it easier to compare them to the *social identity model*. Also, any observed differences in the estimated parameters of these models would provide evidence against them. We do, however, allow for the possibility that subjects who are Democrats or Republicans have different underlying preferences (Kranton and Sanders, 2017). In this way, our approach goes some way toward making both the *standard* and *social preferences models* identity-based models. For the *social preferences model*, this

²²Charness and Rabin (2002) on p. 823 say about their model that “the parameters ρ and σ allow for a range of different ‘distributional preferences,’ that rely solely on the outcomes....”

²³Conditional logistic models are similar to multinomial logistic models. However, conditional logistic models emphasize the characteristics of the alternatives, while multinomial logistic models depend on the characteristics of the individual making the choice. See Hoffman and Duncan (1988) for a comparison of these models.

makes it similar, but not equivalent, to the Chen and Li (2009) model.²⁴

To compare the likelihood that each model fits the observed data, we use the Akaike and Bayesian information criteria (AIC and BIC). Specifically, smaller AIC and BIC values indicate a better fit of the model to the data.²⁵ Furthermore, since both the AIC and BIC penalize models for the number of parameters, if norms have no influence on behavior, we expect the *social identity model* to have larger AIC and BIC values than the *standard model*. This leads to the following prediction:

Hypothesis 7 (Choice and Norms: social identity model accounts for behavior). *A model including identity-dependent norms as an explanatory variable for the corresponding behavior should improve our ability to account for behavior (as measured through decreases in AIC and BIC) as compared to models excluding those norms as an explanatory variable.*

Table 4 reports the results from several conditional logistic regressions for Democrats (panel A) and Republicans (panel B) using the norms and behavior obtained from our tax-framed subjects in columns 1 to 3 and neutrally-framed subjects in columns 4 to 6.²⁶ This gives us the following result:

Result 7 (Choice and Norms: the *social identity model* accounts for subject behavior). *For each combination of frame and identity, the social identity model better accounts for the observed variations in behavior than either the standard model or the social preferences model.*

Support. The results in Table 4 show that the AICs and BICs of the *social identity model* are smaller than those of the other two models.

We first examine the results the tax frame (columns 1 to 3). For Democrats, both the AIC and BIC are smaller for the *social identity model* (3183 and

²⁴Chen and Li (2009) allow for different social preference parameters depending on the in- and out-group status of the interacting parties. We do not estimate the “guilt” (ρ) and “envy” (σ) parameters as a function of the in- and out-group status of the dictator and the recipient, but rather estimate different parameters for each identity group—the Democrats and Republicans.

²⁵A more in-depth discussion of these two estimators can be found in Aho et al. (2014).

²⁶For these conditional logistic regressions, we do not distinguish whether the decision is made when the initial endowment is 0, 5, or 10 tokens. This is captured by the different average norm ratings attached to each action for each endowment in the *social identity model*, and no differences are predicted for the other two models.

Table 4: Conditional logistic estimation using average norm ratings

Panel A: Democrats						
	Tax Frame			Neutral Frame		
	(1) Standard Model	(2) Social Preferences Model	(3) Social Identity Model	(4) Standard Model	(5) Social Preferences Model	(6) Social Identity Model
Own payoff (β)	0.112*** (0.013)		0.419*** [0.039]	0.191*** (0.024)		1.043*** [0.089]
Other's payoff when ahead (ρ)		0.575*** (0.022)			0.502*** (0.031)	
Other's payoff when behind (σ)		0.234*** (0.029)			0.194*** (0.054)	
Norms (γ)			2.833*** [0.180]			4.602*** [0.361]
$0.1 \cdot \frac{\gamma}{\beta}$			0.676*** [0.033]			0.441*** [0.010]
Observations	8910	8910	8910	5082	5082	5082
Log likelihood	-1894	-1794	-1590	-1032	-995.0	-795.5
AIC	3789	3592	3183	2066	1994	1595
BIC	3796	3607	3197	2072	2007	1608
Panel B: Republicans						
	Tax Frame			Neutral Frame		
	(1) Standard Model	(2) Social Preferences Model	(3) Social Identity Model	(4) Standard Model	(5) Social Preferences Model	(6) Social Identity Model
Own payoff (β)	0.130*** (0.022)		0.346*** [0.044]	0.206*** (0.034)		0.714*** [0.087]
Other's payoff when ahead (ρ)		0.469*** (0.030)			0.468*** (0.042)	
Other's payoff when behind (σ)		0.384*** (0.037)			0.246*** (0.067)	
Norms (γ)			2.688*** [0.236]			3.631*** [0.451]
$0.1 \cdot \frac{\gamma}{\beta}$			0.777*** [0.067]			0.508*** [0.027]
Observations	4290	4290	4290	2409	2409	2409
Log likelihood	-903.6	-900.5	-745.9	-484.1	-474.7	-420.5
AIC	1809	1805	1496	970.1	953.4	844.9
BIC	1816	1818	1509	975.9	965.0	856.5

- Notes:*
- Standard errors (in parentheses) and bootstrapped error [in brackets] are adjusted for clustering at the individual level.
 - Significant at the *** 1 percent, ** 5 percent, and * 10 percent levels.
 - The number of observations in Panel A comes from 270 tax-framed and 154 neutrally-framed Democrats, each making 11 dictator choices for each of 3 endowments. The number of observations in Panel B comes from 130 tax-framed and 73 neutrally-framed Republicans, each making choices in the same situations.

3197, respectively) than for the *standard* (3789 and 3796, respectively) or the *social preferences models* (3592 and 3607, respectively). Republicans show a similar pattern (AIC = 1496 vs. 1809 and 1805 and BIC = 1509 vs. 1816 and 1818). A Vuong test for each identity comparing the goodness-of-fit between these models shows that the *social identity model* fits better than either the *standard* or the *social preferences models* for the tax-framed treatment ($p < 0.01$ for both Democrats and Republicans).

We next examine the results of the neutral frame (columns 4 to 6). Both the AIC and BIC values for the *social identity model* (1595 and 1608 for Democrats, 844.9 and 856.5 for the Republicans, respectively) are smaller than those for the *standard* (2066 and 2072 for Democrats, and 970.1 and 975.9 for Republicans, respectively) or the *social preferences models* (1994 and 2007 for Democrats, and 953.4 and 965.0 for Republicans, respectively). A Vuong test of goodness-of-fit for each identity also shows that the *social identity model* fits better than the *standard* or the *social preferences models* for the neutrally-framed treatment ($p < 0.01$ for both Democrats and Republicans).

3.2.3. Parameter estimation

The conditional logistic regressions reported in Table 4 also give us parameter estimates of the tested models. The reported coefficients reflect the relative weight of each component in the utility function. Specifically, the coefficient for the dictator’s own payoff, β , is an estimate of the average weight dictators place on their own monetary payoff. The coefficients for the other’s payoff, ρ and σ , give estimates for how much the dictators care about the receivers’ payoffs on average when they have higher (ρ) or lower (σ) monetary payoff than the receivers. The coefficient for norm ratings, γ , provides an estimate of the average weight subjects place on social appropriateness.²⁷

For the *social identity model*, we can take advantage of the estimation structure and use the ratio of γ and β to estimate how much money an

²⁷Because the average norm ratings are a measured quantity which may include sampling error, we use bootstrapped standard errors for the *social identity model*. To construct the bootstrapped standard errors, we conduct 1000 replications. In each replication, we resample (with replacement) from the appropriateness ratings data (generated from the *norm elicitation experiment*) and construct an average norm function $N(\cdot)$. We then re-estimate the choice model based on the sampled norm function. The distribution of the coefficients across replications generates the standard errors.

individual is willing to give up for a one unit increase in the norm rating. This can be seen as the equivalent of choosing an action that is deemed very socially appropriate over an action that is neutral. Allowing only changes in the monetary payoffs and norm ratings for the actions, we obtain:

$$dk_i/(dN(k_i|I_i, e)) = (\partial P_i/\partial N)/(\partial P_i/\partial k_i) = \gamma_i/\beta_i \quad (3)$$

We then multiply this ratio by 0.1 to get the dollar value of the trade-off, since each token in our experiment is worth \$0.10.²⁸

We report the results of the *standard model* for our tax-framed treatments in column 1 of Table 4. For both Democrats ($\beta = 0.112$, $p < 0.01$) and Republicans ($\beta = 0.130$, $p < 0.01$), we find that the coefficient on the monetary payoff is positive and significant. That is, subjects are more likely to choose an action that has higher payoffs.

Next, we report the results of the *social preferences model* for the tax-framed treatments in column 2. We find that the dictators in our experiment care positively about the receivers' payoffs both when they make more or less money than the receivers. When the dictators make more than the receivers, we find for both Democrats ($\rho = 0.575$, $p < 0.01$) and Republicans ($\rho = 0.469$, $p < 0.01$) that the estimated ρ parameter is positive and statistically different from 0. Similarly, when the dictators make less than the receivers, we find for both Democrats ($\sigma = 0.234$, $p < 0.01$) and Republicans ($\sigma = 0.384$, $p < 0.01$) that the estimated σ parameter is positive and statistically different from 0. These estimates indicate that, under the *social preferences model*, our subjects exhibit social welfare preferences, a finding that reflects the overall finding in Charness and Rabin (2002).

We next report the results of the *social identity model* in column 3. Here, we find the coefficient on the payoff is positive and statistically significant for both identities ($\beta = 0.419$, $p < 0.01$ for Democrats and $\beta = 0.346$, $p < 0.01$ for Republicans). Further, we find that the coefficient on the tax-framed norm ratings is also positive and significant ($\gamma = 2.833$, $p < 0.01$ for Democrats and $\gamma = 2.688$, $p < 0.01$ for Republicans). The latter result suggests that subjects are more likely to choose actions associated with higher norm ratings.

For both Democrats and Republicans, we find that the magnitude of the

²⁸Similar analyses using these ratios are also reported in Davies et al. (2001) and Boskin (1974).

coefficient on tax-framed norm ratings (γ) is larger than that on a subject's monetary payoff (β). That is, a subject's concern for the social appropriateness of an action outweighs her concern about the payoff of that action. Calculating $0.1 \cdot \gamma / \beta$, we see that tax-framed Democrats are willing to sacrifice \$0.68 for a one unit increase in appropriateness, while tax-framed Republicans are willing to sacrifice \$0.78 for the same increase in the appropriateness level.²⁹

We next present the results of the *standard* and *social preferences models* for our neutrally-framed treatments in columns 4 and 5 of Table 4. Our results show that under the *standard model* (column 4), both Democrats and Republicans are more likely to choose actions that result in a higher payoff ($\beta = 0.191$, $p < 0.01$ for Democrats; $\beta = 0.206$, $p < 0.01$ for Republicans). For the *social preferences model* (column 5), dictators care about the receivers' payoffs both when they make more money ($\rho = 0.502$, $p < 0.01$ for Democrats; $\rho = 0.468$, $p < 0.01$ for Republicans) and when they make less money ($\sigma = 0.194$, $p < 0.01$ for Democrats; $\sigma = 0.246$, $p < 0.01$ for Republicans). In addition, comparing the coefficients for each model between treatments shows significant differences in some cases. For the *standard model*, Wald tests show that β differs significantly for Democrats ($\chi^2 = 8.32$, $p < 0.01$) and marginally significantly for Republicans ($\chi^2 = 3.47$, $p = 0.063$). For the *social preferences model*, there are marginally significant differences in ρ for Democrats ($\chi^2 = 3.73$, $p = 0.053$) and in σ for Republicans ($\chi^2 = 3.35$, $p = 0.067$).

Under the *social identity model* in the neutral frame (column 6), dictators are more likely to choose actions that lead to higher payoffs ($\beta = 1.043$ and 0.714 , $p < 0.01$ for Democrats and Republicans, respectively). In addition, we find that individuals place more weight on the appropriateness of an action ($\gamma = 4.602$ and 3.631 , $p < 0.01$ for Democrats and Republicans, respectively). Calculating $0.1 \cdot \gamma / \beta$ as above, we find that Democrats and Republicans are willing to pay approximately \$0.44 and \$0.51, respectively, for a marginal improvement in the appropriateness of their actions.

²⁹For the regressions regarding the *social identity model*, we check for multicollinearity by calculating the variance inflation factor (VIF). For Democrats, VIF = 3.35 for the neutral frame and VIF = 1.28 for the tax frame. For Republicans, VIF = 2.18 for the neutral frame and VIF = 1.10 for the tax frame. Though this seems to indicate low levels of multicollinearity (VIF values above 10 are typically considered a problem), we note that the interpretations of γ / β might still be affected.

While the ratio of γ and β estimates how much money an individual is willing to give up to be norm compliant, the change in this ratio in the framed and neutral treatments expresses the impact of the persuasive influence of the frame on choice. We find that for both Democrats and Republicans, there is approximately a 53% increase in this ratio from the neutral to the tax frame, indicating a similarly large effect of frames on choices regardless of political affiliation.

3.2.4. Identity-dependent norms improve out-of-sample prediction

As a second test of the *social identity model's* ability to capture how frames alter norms and choice, we examine its performance in out-of-sample prediction. To do so, we first calibrate the model using only a fraction of our data. We then validate the model using the derived estimates to predict behavior in the remaining data. Specifically, we first randomly choose 30% of the subjects in the *choice experiment* to be in the validation sample. We perform out-of-sample forecasting by estimating the models' parameters using the choices of the remaining 70% of our subjects in the *choice experiment*. We refer to this as the calibration sample. We then use those parameters to predict the choices of the subjects in the validation sample.

In Figures 6, 7 and 8, we plot the actual vs. predicted behavior of dictators under the *standard*, *social preferences*, and *social identity models*, respectively. The top row shows the results for an initial endowment of 0, the middle row shows the results for an initial endowment of 5, and the bottom row shows the results for an initial endowment of 10. The first two columns show the results for Democrats and the last two columns show the results for Republicans. The histograms represent the validation sample and the dashed lines represent the predicted sample.

As with the conditional logistic regressions, Figures 6-8 visually depict the better fit of the *social identity model* to actual behavior. Using the *standard model*, we see that dictators are predicted to be more likely to choose actions with higher payoffs and are most likely to keep all 10 tokens. Under the *social preferences model*, Democratic dictators are predicted to choose an equal split most often while Republican dictators are predicted to keep all 10 tokens most often. However, the *social identity model* correctly predicts that both keeping all ten tokens and an equal split of the tokens are likely.

In Table 5, we present the quadratic scores of the different models when applied to our validation sample. Since the models' predictions are in the form of probability weights on the possible actions, we use the quadratic

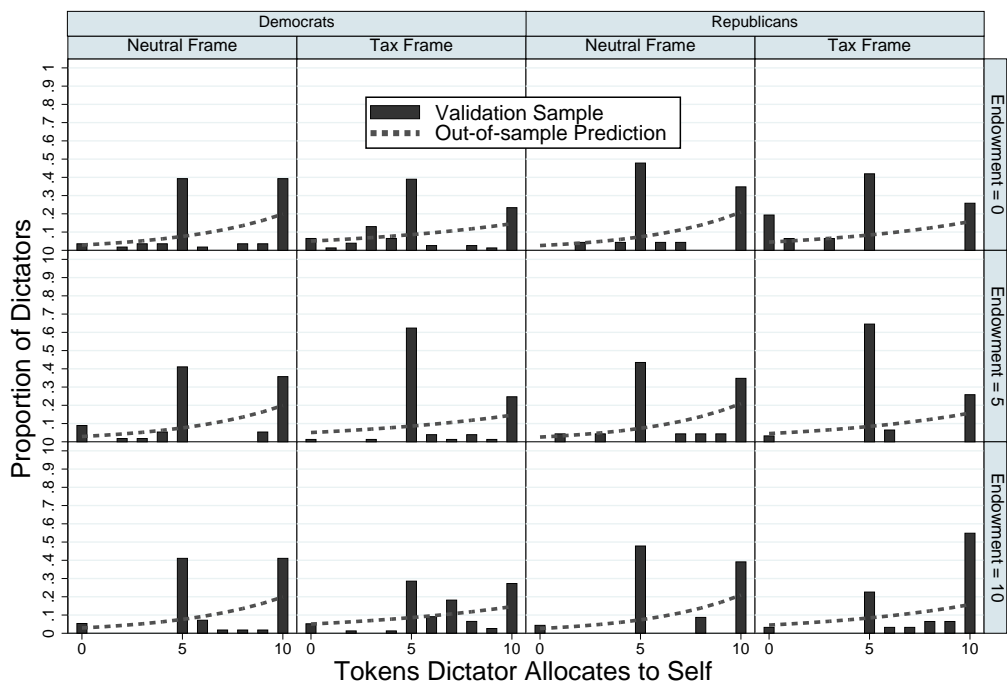


Figure 6: Actual behavior (validation sample, from 30% of all data) and out-of-sample predictions using the *standard model*.

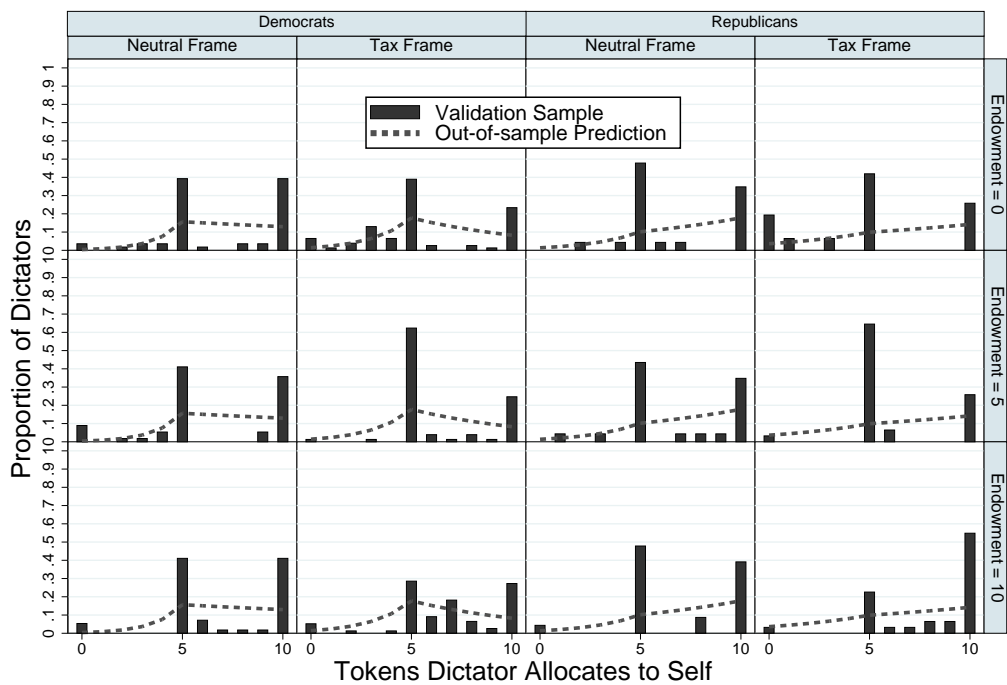


Figure 7: Actual behavior (validation sample, from 30% of all data) and out-of-sample predictions using the *social preferences model*.

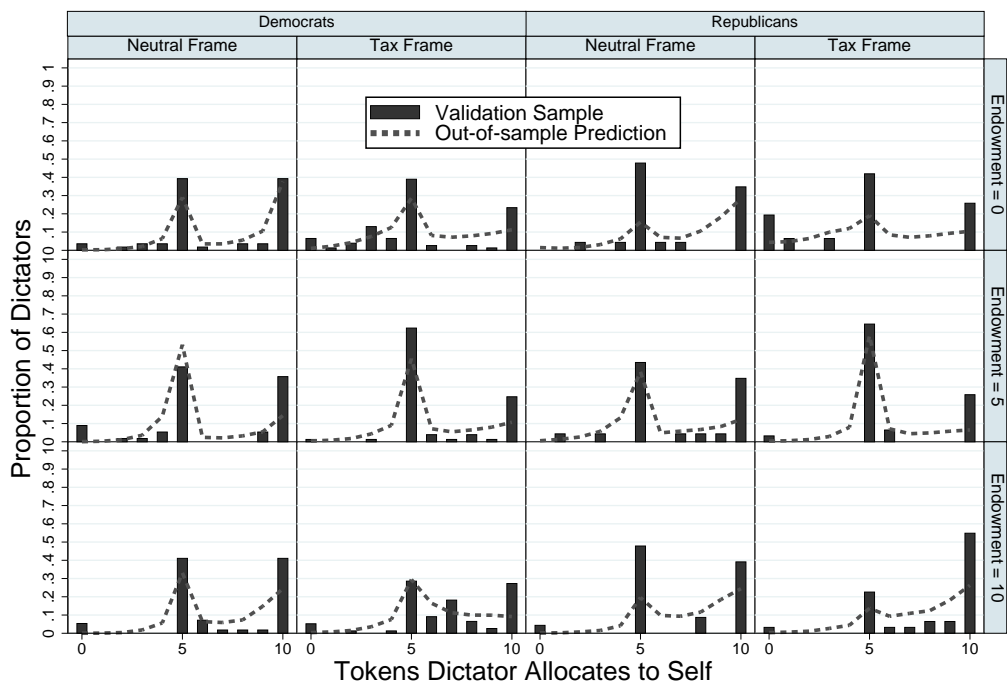


Figure 8: Actual behavior (validation sample, from 30% of all data) and out-of-sample predictions using the *social identity model*.

scoring rule to compare the performance of the models. When a subject in the sample takes action k , the quadratic score for a model that predicts the subject will have taken actions $(0, 1, 2, \dots, 10)$ with probability $\mathbf{p} = (p_0, p_1, p_2, \dots, p_{10})$ is:

$$Q(\mathbf{p}, k) = 1 - \sum_{i=0}^{10} (\delta_{ik} - p_i)^2$$

where $\delta_{ik} = 1$ if $i = k$ and $\delta_{ik} = 0$ otherwise.

Signed-ranks tests confirm the the *social identity model* yields higher quadratic scores than the *standard* and *social preferences models* in all cases ($p < 0.01$ for all comparisons).³⁰ This confirms that the *social identity model* predicts actual behavior more accurately than either the *standard model* or the *social preferences model*.

Table 5: Quadratic scores for the validation sample

		Standard	Social Preferences	Social Identity
Identity	Frame	Model	Model	Model
Democrats	Neutral	0.127	0.129	0.271
	Tax	0.103	0.137	0.240
Republicans	Neutral	0.125	0.131	0.225
	Tax	0.112	0.113	0.272

4. Discussion

The argument we make is that frames invite different interpretations of acts and outcomes because they evoke different norms. Our tax and neutral frame treatments follow Kahneman (2000) in that the experimental manipulation changes the description of the situation. We also vary the initial endowment within subject and show that variation in initial endowments affects behavior. As noted in the literature review, this latter result contrasts

³⁰These tests also show that the *social preferences model* yields higher quadratic scores than the *standard model* ($p < 0.01$) in all but one case. For Republicans in the neutral frame, this test shows that the quadratic scores between the *standard* and *social preferences models* are not significantly different ($p = 0.13$).

with the majority of prior work examining the effect of the initial endowment on dictator behavior.

Our analysis, presented in Appendix B, suggests that the significant behavioral change observed when we vary the initial endowment, is due to our within-subjects design. The interpretation we offer is that changes encountered by a subject in initial endowments act as a (procedural) frame (Larrick and Blount, 1997; Kahneman, 2000). This is consistent with the insights upon which Prospect Theory was built: changes from an initial point are salient.

This interpretation offers a way to harmonize the sometimes conflicting results of prior work on initial endowments in dictator games (e.g. Krupka and Weber (2013) vs. Dreber et al. (2013)). Our data do not dispel the possibility that a single initial endowment, such as (\$5, \$5), brings with it norms (such as “do not take”) that affect behavior (as in Grossman and Eckel (2015) or Krupka and Weber (2013)). However, our results suggest that (procedural) framing effects emerge more strongly in within-subjects designs and with endowment distributions that are not “extreme” (all wealth to recipient or all wealth to dictator).

In addition, we find evidence that the impact of our tax and neutral frames emerge more strongly when there is more ambiguity about the social norms (Dreber et al., 2013). In our games, we find evidence that Republicans report norms with greater variance (relative to Democrats) in the neutral frame ($p < 0.05$), which we interpret as greater ambiguity about the norm. We also find that when we impose the tax frame, then it is the Republicans whose behavior is more affected by the frame ($p < 0.05$ for the interaction effect in identity, frame, and endowment). This suggests that greater norm ambiguity in the neutral frame makes the impact of the tax frame more significant for Republicans. The tax frame connects with a prescription or normative imperative for that identity. Though our results are consistent with the suggestion by Dreber et al. (2013), more would need to be done to explore the role of norm ambiguity and frame effectiveness.³¹

5. Conclusion

Prior research shows that rhetorical framing impacts a decision maker’s conception of the acts, outcomes and associated contingencies for a particular

³¹We thank an anonymous referee for pointing us in this direction.

decision. In this study, we provide insight into how framing works through two experiments. Using the context of Democratic and Republican identities in the U.S., we first find that framing affects norms, which in turn impact behavior. We also find that a model of social identity provides a tractable explanation for this effect. Specifically, we find that the identity model yields lower AICs and BICs in the conditional logistic regressions when compared to an outcome-based model, as well as better out-of-sample prediction accuracy.

Our study makes several important contributions to the literature. The first contribution is an improved understanding of framing. Though framing has a well-documented effect on behavior, we do not really understand why it works. This paper presents one mechanism for how framing impacts choice: frames evoke norms, which in turn influence choice. This offers one mechanism by which unstable preferences will be impacted by a frame.

Our study presents a novel method that allows sharper predictions for the likely impact of frames on behavior. That is, we directly measure the effect of frames on norms. Previous research on how framing affects behavior often relies on more general intuitions, such as “we dislike losses.” By contrast, we show that there are interactions between idiosyncratic characteristics (such as a person’s social identity) and a frame that can be anticipated. This insight allows us to formulate a richer model of how frames affect decision making.

Our second contribution is to advance how we study social identity (Akerlof and Kranton, 2000; Chen and Li, 2009). Despite the central role of norms in identity-based choice models, previous work often relies on assumptions about these norms (see Roy, 1952; Benjamin et al., 2010).³² As a consequence, choice data alone cannot separately identify identity-dependent norms and behavior as the observed choice is a consequence of both an individual’s utility over outcomes as well as her utility derived from norm compliance.³³

³²These assumptions may have been necessitated by the fact that such identities are fluid, multiple, and socially-constructed (Turkle, 1997; Shih et al., 1999). Also, research has shown that norms can vary from situation to situation (Krupka and Weber, 2013; Bicchieri, 2005).

³³Charness et al. (2014) identify the trade-off between identity and potential monetary considerations by varying whether people participate in a group activity as well as the size of the endowment received. However, their focus is on which sense of identity becomes salient in which circumstance rather than on how identity shapes norms.

By contrast, in our study, we separately and independently identify identity-dependent norms, thus overcoming several challenges associated with work on social identity. Our approach makes it possible to construct tests of the social identity model for those identities or situations where we do not have *ex-ante* strong intuitions regarding the norms. It also allows us to make specific predictions about the behavior we expect.

The broader implications of this study for policy makers regarding the use of framing language are both intuitive and striking: we may not be as politically divided as we appear to be. Two examples provide stark evidence that frames make us seem more divided than we are. At the time that the Affordable Care Act was receiving wide news coverage, Democratic strategists noted that re-naming the ACA to Obamacare would have a polarizing effect: “When the GOP turned the ACA into Obamacare they turned a bill that many GOP voters would like because it provided them affordable health care into a referendum on a president whom their voters hated” (Pathe, 2017). A similar impact of framing is well documented with respect to climate change. As Leiserowitz et al. (2014) note in their report from the Yale project on climate change communication, “...global warming and climate change are often not synonymous—they mean different things to different people—and activate different sets of beliefs, feelings, and behaviors, as well as different degrees of urgency about the need to respond.” Our work offers both a path forward to study and predict the impact of framing on choice, but also an identity-based approach to ameliorate its negative effects.

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Appendix A. Additional Tables

Table A.1: Elicited norms for tax-framed and neutrally-framed Democrats

		Panel A: Endowment - 0 Tokens													
Final allocation ("Keep")	Action	Tax framed Democratic norm ratings					Neutrally framed Democratic norm ratings								
		Mean	---	---	---	---	Mean	---	---	---	---				
0, 10	"Do not involve government"	-0.05	29.55%	12.88%	11.36%	7.58%	13.64%	25.00%	0.54	7.89%	7.02%	4.39%	8.77%	16.67%	55.26%
1, 9	"Take tax transfer 1"	0.08	18.94%	14.39%	11.36%	12.88%	17.42%	25.00%	"Take 1"	0.35	6.14%	9.65%	15.79%	14.91%	16.67%
2, 8	"Take tax transfer 2"	0.17	6.82%	15.91%	16.67%	20.45%	18.18%	21.97%	"Take 2"	0.33	5.26%	9.65%	18.42%	13.16%	20.18%
3, 7	"Take tax transfer 3"	0.25	1.82%	9.85%	20.45%	25.76%	28.79%	13.64%	"Take 3"	0.29	6.14%	11.40%	14.91%	14.91%	28.44%
4, 6	"Take tax transfer 4"	0.29	0.76%	5.30%	19.70%	33.33%	27.27%	13.64%	"Take 4"	0.37	5.26%	11.40%	10.53%	19.30%	35.96%
5, 5	"Take tax transfer 5"	0.45	1.52%	4.55%	16.67%	18.18%	25.76%	33.33%	"Take 5"	0.37	6.14%	7.02%	12.28%	16.67%	28.07%
6, 4	"Take tax transfer 6"	-0.16	9.09%	23.48%	36.36%	13.64%	13.64%	3.79%	"Take 6"	-0.29	13.16%	24.56%	41.23%	14.91%	4.39%
7, 3	"Take tax transfer 7"	-0.35	20.45%	37.88%	19.70%	8.33%	7.58%	6.06%	"Take 7"	-0.51	21.93%	47.37%	23.68%	2.63%	1.75%
8, 2	"Take tax transfer 8"	-0.45	34.85%	33.33%	10.61%	7.58%	9.09%	4.55%	"Take 8"	-0.65	40.35%	43.86%	9.65%	0.88%	3.51%
9, 1	"Take tax transfer 9"	-0.54	48.48%	24.24%	9.09%	3.79%	11.36%	3.03%	"Take 9"	-0.74	59.65%	28.95%	5.26%	1.75%	2.63%
10, 0	"Take tax transfer 10"	-0.61	61.36%	16.67%	4.55%	3.79%	8.33%	5.80%	"Take 10"	-0.71	64.91%	21.05%	5.26%	0.00%	1.75%

		Panel B: Endowment - 5 Tokens													
Final allocation ("Keep")	Action	Tax framed Democratic norm ratings					Neutrally framed Democratic norm ratings								
		Mean	---	---	---	---	Mean	---	---	---	---				
0, 10	"Make tax transfer 5"	-0.3	40.91%	15.91%	9.85%	7.58%	12.88%	12.88%	"Give 5"	0.47	8.77%	7.89%	3.51%	15.79%	14.04%
1, 9	"Make tax transfer 4"	-0.22	31.06%	20.45%	9.09%	13.64%	12.12%	13.64%	"Give 4"	0.53	1.75%	10.53%	7.89%	12.28%	17.54%
2, 8	"Make tax transfer 3"	-0.09	15.91%	23.48%	18.94%	15.91%	12.12%	12.12%	"Give 3"	0.58	0.88%	6.14%	7.89%	14.91%	23.68%
3, 7	"Make tax transfer 2"	0.09	6.82%	16.67%	19.70%	22.73%	21.97%	12.12%	"Give 2"	0.58	0.88%	2.63%	6.14%	18.42%	35.09%
4, 6	"Make tax transfer 1"	0.22	4.55%	9.09%	16.67%	31.06%	24.24%	14.39%	"Give 1"	0.63	0.00%	0.88%	3.51%	16.67%	44.74%
5, 5	"Do not involve government"	0.67	2.27%	3.03%	6.82%	6.82%	24.24%	56.82%	"Do nothing"	0.68	1.75%	0.88%	3.51%	6.14%	42.98%
6, 4	"Take tax transfer 1"	-0.15	15.15%	17.42%	32.58%	17.42%	10.61%	6.82%	"Take 1"	-0.18	16.67%	43.86%	48.25%	11.40%	9.65%
7, 3	"Take tax transfer 2"	-0.4	21.21%	37.12%	23.48%	8.33%	7.58%	2.27%	"Take 2"	-0.43	16.67%	43.86%	27.19%	7.02%	3.51%
8, 2	"Take tax transfer 3"	-0.48	34.09%	35.61%	12.88%	5.30%	6.82%	5.30%	"Take 3"	-0.57	30.70%	46.49%	15.79%	1.75%	2.63%
9, 1	"Take tax transfer 4"	-0.54	52.27%	18.94%	9.85%	6.06%	6.82%	6.06%	"Take 4"	-0.69	49.12%	38.60%	5.26%	2.63%	2.63%
10, 0	"Take tax transfer 5"	-0.58	61.36%	12.88%	4.55%	4.55%	13.64%	3.03%	"Take 5"	-0.72	71.05%	15.79%	0.88%	1.75%	5.26%

		Panel C: Endowment - 10 Tokens													
Final allocation ("Keep")	Action	Tax framed Democratic norm ratings					Neutrally framed Democratic norm ratings								
		Mean	---	---	---	---	Mean	---	---	---	---				
0, 10	"Make tax transfer 10"	-0.26	43.94%	11.36%	8.33%	7.58%	9.09%	19.70%	"Give 10"	0.44	11.40%	7.89%	6.14%	13.16%	7.89%
1, 9	"Make tax transfer 9"	-0.15	31.06%	18.18%	9.85%	9.85%	10.61%	20.45%	"Give 9"	0.49	6.14%	10.53%	7.02%	11.40%	53.51%
2, 8	"Make tax transfer 8"	-0.03	15.15%	27.27%	10.61%	13.64%	13.64%	19.70%	"Give 8"	0.55	2.63%	7.02%	10.53%	11.40%	50.88%
3, 7	"Make tax transfer 7"	0.14	6.82%	13.64%	27.27%	12.88%	19.70%	19.70%	"Give 7"	0.64	0.88%	5.26%	6.14%	14.04%	54.39%
4, 6	"Make tax transfer 6"	0.27	2.27%	7.58%	24.24%	20.45%	26.52%	18.94%	"Give 6"	0.64	0.00%	3.51%	5.26%	12.28%	35.09%
5, 5	"Make tax transfer 5"	0.63	0.76%	3.03%	6.82%	13.64%	28.79%	46.97%	"Give 5"	0.78	0.88%	0.00%	1.75%	6.14%	33.33%
6, 4	"Make tax transfer 4"	0.27	0.76%	5.30%	21.97%	30.30%	30.30%	11.36%	"Give 4"	0.21	0.00%	7.02%	28.07%	27.19%	29.82%
7, 3	"Make tax transfer 3"	-0.01	2.27%	26.52%	24.24%	21.97%	18.94%	6.06%	"Give 3"	-0.03	5.26%	21.05%	30.70%	16.67%	21.05%
8, 2	"Make tax transfer 2"	-0.2	13.64%	34.09%	15.15%	18.18%	13.64%	5.30%	"Give 2"	-0.21	8.77%	40.35%	17.54%	15.79%	13.16%
9, 1	"Make tax transfer 1"	-0.35	31.82%	25.76%	13.64%	12.12%	9.09%	7.58%	"Give 1"	-0.29	20.18%	35.09%	14.04%	13.16%	4.39%
10, 0	"Do not involve government"	-0.52	48.48%	18.94%	12.12%	8.33%	8.33%	3.79%	"Do nothing"	-0.41	37.72%	27.19%	10.53%	7.89%	7.89%

Notes: 1. Significant at the *** 1 percent, ** 5 percent, and * 10 percent levels.
 2. Responses are: "very socially inappropriate" (- - -), "socially inappropriate" (-), "somewhat socially inappropriate" (+), "socially appropriate" (+ +), and "very socially appropriate" (+ + +). Modal responses are shaded in gray. To construct the mean ratings, we converted responses into numerical scores ("very socially inappropriate" = -1, "socially inappropriate" = -0.6, "somewhat socially inappropriate" = -0.2, "socially appropriate" = 0.2, "very socially appropriate" = 0.6, and "very socially appropriate" = 1).

Table A.2: Elicited norms for tax-framed and neutrally-framed Republicans

		Panel A: Endowment - 0 Tokens											
Final allocation ("Keep")	Action	Tax framed Republican norm ratings					Neutrally framed Republican norm ratings						
		Mean	---	--	-	+	+	++	+++	++++	+	--	---
0, 10	"Do not involve government"	0.16	27.94%	7.35%	5.88%	11.76%	41.18%	16.92%	3.08%	3.08%	7.69%	15.38%	53.85%
1, 9	"Take tax transfer 1"	0.06	19.12%	16.18%	10.29%	16.18%	27.94%	10.77%	12.31%	18.46%	13.85%	21.54%	23.08%
2, 8	"Take tax transfer 2"	0.06	11.76%	25.00%	11.76%	5.88%	29.41%	16.18%	15.38%	20.00%	10.77%	23.08%	
3, 7	"Take tax transfer 3"	0.1	11.76%	13.24%	16.18%	20.59%	23.53%	14.71%	12.31%	15.38%	27.69%	16.92%	
4, 6	"Take tax transfer 4"	0.05	13.24%	19.12%	13.24%	16.18%	14.71%	26.47%	12.31%	23.08%	9.23%	10.77%	
5, 5	"Take tax transfer 5"	0.1	16.18%	14.71%	13.24%	14.71%	26.47%	10.77%	15.38%	12.31%	20.00%	24.62%	
6, 4	"Take tax transfer 6"	-0.34	23.53%	25.00%	27.94%	11.76%	14.71%	14.71%	26.47%	29.23%	26.15%	12.31%	
7, 3	"Take tax transfer 7"	-0.54	33.82%	38.24%	11.76%	11.76%	2.94%	1.47%	7.69%	13.85%	4.62%	0.00%	
8, 2	"Take tax transfer 8"	-0.62	50.00%	27.94%	8.82%	4.41%	7.35%	1.47%	4.62%	9.23%	6.15%	1.54%	
9, 1	"Take tax transfer 9"	-0.68	61.76%	20.59%	2.94%	8.82%	2.94%	2.94%	21.54%	4.62%	9.23%	3.08%	
10, 0	"Take tax transfer 10"	-0.76	75.00%	11.76%	4.41%	0.00%	5.88%	2.94%	18.46%	4.62%	1.54%	4.62%	

		Panel B: Endowment - 5 Tokens											
Final allocation ("Keep")	Action	Tax framed Republican norm ratings					Neutrally framed Republican norm ratings						
		Mean	---	--	-	+	+	++	+++	++++	+	--	---
0, 10	"Make tax transfer 5"	-0.52	64.71%	7.35%	4.41%	4.41%	4.41%	14.71%	15.38%	3.08%	12.31%	9.23%	16.92%
1, 9	"Make tax transfer 4"	-0.46	47.06%	22.06%	7.35%	7.35%	5.88%	10.29%	10.77%	9.23%	7.69%	24.62%	
2, 8	"Make tax transfer 3"	-0.32	29.41%	27.94%	14.71%	8.82%	8.82%	10.29%	12.31%	15.38%	21.54%	33.85%	
3, 7	"Make tax transfer 2"	-0.11	11.76%	27.94%	17.65%	17.65%	7.35%	16.92%	13.85%	9.23%	30.77%	33.85%	
4, 6	"Make tax transfer 1"	0.16	5.88%	10.29%	25.00%	19.12%	26.47%	13.24%	3.08%	3.08%	21.54%	26.15%	
5, 5	"Do not involve government"	0.81	2.94%	0.00%	2.94%	7.35%	8.82%	77.94%	4.62%	1.54%	3.08%	41.54%	
6, 4	"Take tax transfer 1"	-0.14	11.76%	25.00%	30.88%	10.29%	11.76%	10.29%	12.31%	24.62%	16.92%	9.23%	
7, 3	"Take tax transfer 2"	-0.45	27.94%	36.76%	17.65%	5.88%	10.29%	1.47%	18.46%	38.46%	26.15%	3.08%	
8, 2	"Take tax transfer 3"	-0.54	42.65%	32.35%	10.29%	1.47%	7.35%	5.88%	33.85%	38.46%	13.85%	4.62%	
9, 1	"Take tax transfer 4"	-0.59	54.41%	25.00%	4.41%	4.41%	4.41%	7.35%	46.15%	38.46%	6.15%	3.08%	
10, 0	"Take tax transfer 5"	-0.68	72.06%	7.35%	5.88%	5.88%	0.00%	8.82%	61.54%	27.69%	3.08%	3.08%	

		Panel C: Endowment - 10 Tokens											
Final allocation ("Keep")	Action	Tax framed Republican norm ratings					Neutrally framed Republican norm ratings						
		Mean	---	--	-	+	+	++	+++	++++	+	--	---
0, 10	"Make tax transfer 10"	-0.55	66.18%	8.82%	4.41%	2.94%	1.47%	16.18%	13.85%	7.69%	18.46%	12.31%	36.92%
1, 9	"Make tax transfer 9"	-0.43	51.47%	17.65%	5.88%	2.94%	5.88%	16.18%	10.77%	12.31%	9.23%	13.85%	
2, 8	"Make tax transfer 8"	-0.35	36.76%	26.47%	8.82%	7.35%	5.88%	14.71%	3.08%	12.31%	15.38%	23.08%	
3, 7	"Make tax transfer 7"	-0.14	25.00%	20.59%	10.29%	19.12%	8.82%	16.18%	7.69%	16.92%	18.46%	35.38%	
4, 6	"Make tax transfer 6"	-0.07	19.12%	22.06%	13.24%	11.76%	20.59%	13.24%	3.08%	1.54%	12.31%	18.46%	
5, 5	"Make tax transfer 5"	0.25	16.18%	10.29%	13.24%	7.35%	11.76%	41.18%	0.00%	1.54%	3.08%	9.23%	
6, 4	"Make tax transfer 4"	-0.03	7.35%	20.59%	25.00%	22.06%	19.12%	5.88%	0.00%	7.69%	16.92%	35.38%	
7, 3	"Make tax transfer 3"	-0.09	8.82%	17.65%	29.41%	30.88%	8.82%	4.41%	0.00%	16.92%	29.23%	27.69%	
8, 2	"Make tax transfer 2"	-0.17	13.24%	26.47%	22.06%	19.12%	16.18%	2.94%	7.69%	26.15%	20.00%	12.31%	
9, 1	"Make tax transfer 1"	-0.15	25.00%	23.53%	10.29%	11.76%	13.24%	16.18%	12.31%	29.23%	12.31%	13.85%	
10, 0	"Do not involve government"	-0.13	36.76%	14.71%	5.88%	10.29%	26.47%	27.69%	20.00%	9.23%	13.85%	21.54%	

Notes: 1. Significant at the *** 1 percent, ** 5 percent, and * 10 percent levels.
 2. Responses are: "very socially inappropriate" (---), "socially inappropriate" (--), "somewhat socially inappropriate" (-), "somewhat socially appropriate" (+), "socially appropriate" (++) and "very socially appropriate" (+++). Modal responses are shaded in gray. To construct the mean ratings, we converted responses into numerical scores ("very socially inappropriate" = -1, "socially inappropriate" = -0.6, "somewhat socially inappropriate" = -0.2, "somewhat socially appropriate" = 0.2, "socially appropriate" = 0.6, and "very socially appropriate" = 1).

Table A.3: Wilcoxon signed-rank tests testing equality of norm ratings across endowments

Keep	Endowments 0 vs. 5	Endowments 0 vs. 10	Endowments 5 vs. 10
0	1.398	2.922	1.754
1	-3.690***	-2.201	2.233
2	-4.721***	-4.314***	1.105
3	-5.010***	-6.087***	-0.648
4	-6.500***	-6.958***	-0.913
5	-6.297***	-8.130***	-3.422**
6	-2.246	-8.926***	-7.663***
7	-3.319**	-9.234***	-7.591***
8	-2.223	-8.450***	-7.459***
9	-1.278	-8.181***	-8.436***
10	1.637	-5.999***	-7.591***

Significant at the *** 1 percent, ** 5 percent, and * 10 percent levels with Bonferroni correction; all two-tailed.

Table A.4: Mann-Whitney U tests testing neutrally framed Democratic and Republican norm ratings

Keep	Endowment 0	Endowment 5	Endowment 10
0	0.504	1.062	1.967
1	1.801	1.298	2.218
2	2.478	1.979	1.979
3	2.247	1.270	2.887
4	2.105	1.900	2.061
5	1.988	0.761	0.031
6	0.442	0.572	-1.985
7	0.382	-0.472	-1.877
8	-0.893	-0.228	-2.232
9	-1.107	-0.500	-2.284
10	-0.152	-0.933	-2.117

Significant at the *** 1 percent, ** 5 percent, and * 10 percent levels with Bonferroni correction; all two-tailed.

Table A.5: Mann-Whitney U tests testing the effect of frame on norm ratings by identity

Panel A: Tax framed and neutrally framed Democrats			
Keep	Endowment 0	Endowment 5	Endowment 10
0	5.775***	7.506***	6.500***
1	2.811	7.742***	6.352***
2	2.052	7.709***	6.343***
3	1.090	6.681***	6.440***
4	0.773	6.471***	5.679***
5	-0.743	-1.191	2.488
6	-1.806	-0.302	-1.084
7	-1.908	-0.189	-0.154
8	-2.194	-0.617	-0.034
9	-2.459	-0.873	1.078
10	-0.867	-1.755	1.442
Panel B: Tax framed and neutrally framed Republicans			
Keep	Endowment 0	Endowment 5	Endowment 10
0	1.870	5.733***	5.646***
1	0.716	6.16***	5.049***
2	0.087	5.74***	5.487***
3	-0.288	4.881***	4.241***
4	0.264	3.473**	4.595***
5	0.355	-3.872***	3.606**
6	0.504	-0.544	3.931***
7	0.541	1.111	2.321
8	1.129	0.706	1.523
9	0.826	0.331	0.841
10	1.249	0.637	-0.268

Significant at the *** 1 percent, ** 5 percent, and * 10 percent levels with Bonferroni correction; all two-tailed.

Appendix B. Additional tests of the initial endowments

We also find that the initial endowment affects dictator choice even in the neutral frame. According to an OLS regression, for each extra token initially endowed to the dictator, the dictator keeps an additional 0.059 tokens ($p < 0.01$). As noted in the literature review, this result contrasts with the majority of prior work examining the effect of the initial endowment on dictator behavior.

Several differences between our design and previous work could account for these conflicting results. First, we include behavior for all integer initial endowments between 0 and 10, whereas most of the previous work only includes the extreme cases where the dictator starts with either all or none of the endowment (Dreber et al., 2013; Grossman and Eckel, 2012, 2015; Halvorsen, 2015; Hauge et al., 2016; Goerg et al., 2017). Second, we have a within-subjects design where all subjects make a sequence of dictator decisions for all possible initial endowment distributions. Thus, our subjects experience changes in the initial endowment.

Due to our experimental design, we are able to restrict our data to examine which of these two differences, changes in initial endowments or extreme initial endowments, are more responsible for the effects we see in this paper. First, we perform a within-subjects analysis of the extreme distributions. To do so, we take all the data from the neutral frame and restrict our attention to the dictator allocations when the initial endowments are (10,0) or (0,10). Note that this means that we will have two behavioral observations for each dictator. When we run a Wilcoxon signed-rank test, we find that there are significant differences in how much the dictator keeps when they start with 0 or 10 tokens ($p < 0.01$). This test provides an opportunity to more directly compare our results to those obtained in Visser and Roelofs (2011) and Korenok et al. (2014). Both of those papers use a within-subjects design and vary the distribution of the initial endowment between the dictator and recipient. Both also find that when the recipient starts with all of the initial endowment, the final payoff for the recipient is higher i.e. the dictator tends not to take as much for herself. Thus, all three papers (ours and these) find a significant effect of initial endowments on dictator behavior when dictators are exposed to a sequence of changing initial endowments.

Next, we perform a between-subjects analysis on the non-extreme distribution of (5,5). Specifically, we restrict our data in the neutral frame to the first choice that each dictator makes. In our experiment, this first choice

was under the initial endowment distribution of (10,0), (5,5), or (0,10). This restriction removes any impact of prior exposure to other initial endowments, giving us a between-subjects design. We run the Kruskal-Wallis test on this data. We find that there is no difference in the distributions of final allocations ($p = 0.413$).

Restricting our data to only the dictator's first choice also provides us an opportunity to more directly compare our results to those obtained in a working paper by Grossman and Eckel (2012) as well the results of Krupka and Weber (2013). In Grossman and Eckel (2012), the authors run three between-subjects treatments: those with initial endowments of (\$20, \$0), (\$10, \$10), and (\$0, \$20). They find no difference between the final amounts donated to a charity when the initial endowments are (\$20,\$0) and (\$0,\$20), but do find a significant difference when the initial endowments are (\$10,\$10). However, when we run the same analysis (a Fligner-Policello Robust Rank Order Test) on our data, we find no significant differences between any of these three treatments (Endowment 0 vs. 10, $p = 0.276$; Endowment 5 vs. 10, $p = 0.968$; Endowment 0 vs. 5, $p = 0.220$).

We also present the non-parametric equivalent to the regression in the paper to make the result comparable to the previous results. For this test, we restrict our attention to the neutral frame and to those subjects whose first choice was under either the (10,0) or (0,10) initial endowment. With these restrictions, we run a Mann-Whitney U test and find no significant effect ($p = 0.233$). The conclusion that our data support is that a sequence of changes in the initial endowment significantly impacts dictators' final allocation decisions. The support for this is most readily seen in the first Wilcoxon signed-rank test testing the differences of the extreme distribution (between-subjects, endowment 10 vs. endowment 0). The interpretation we offer is that the changes in initial endowments act as a procedural frame (Larick and Blount, 1997; Kahneman, 2000). This is consistent with reference dependence-changes from an initial point are salient.

Our combination of results can offer a way to think about the conflicting results in the literature. The prior work focuses on what happens to dictator allocations when they are exposed to one initial endowment. The treatments then vary the initial endowment using a between-subjects design allocating the entire endowment to either the dictator or the recipient. This prior work tends to find that initial endowment distributions do not affect final allocations. Our work cannot speak to other nuances in the literature that may be contributing to differences. Specifically, there is an interesting observation to

be made when examining Krupka and Weber (2013) and Grossman and Eckel (2012). In those papers, the designs are between-subjects and the baseline is a standard dictator game (where the initial endowment rests with the dictator). The treatment is a dictator game where 50% of the initial endowment rests with the dictator and 50% rests with the recipient. Comparing their baseline to their treatment, they both find significant differences. Though we too are able to restrict our analysis to a between-subjects comparison of the initial endowments of (10,0) or (5,5), we find no effect on final allocations. However, we struggle to perfectly identify why we obtain no effect as we cannot rule out subject pool differences (e.g. we use MTurkers) as well as differences in payoff size (our payoffs range between \$0 and \$1). There is evidence, for example, that stake size matters substantially for these framing effects (Leibbrandt et al., 2015).

Appendix C. Experimental Instructions

Appendix C.1. Choice experiments

In the *choice experiments*, participants in both tax- and neutrally-framed treatments read the same introduction. These participants also complete the same 10-item questionnaires and demographic questionnaire shown below. The only difference between the treatments is in the framing.

Appendix C.1.1. Tax-framed

Introduction

[Overview of Tasks]

This is a study in decision making that has three parts. You will earn a 50 cent base pay for completing the study.

In the first part, we will ask you to tell us what you think about various images.

In the second part, you will have a chance to earn a bonus. Your earnings for the second part will be in tokens, which will be converted to money. Every 10 tokens you earn is worth \$1 to you. Your earnings will depend on the decisions you make and on the decision that the other worker you paired with will make.

In the final third part, we will ask you to tell us about yourself.

You will be paid the base plus the bonus within 3 days after you complete this task.

Note: If you are using Internet Explorer you will not be able to complete the survey. Please try using Safari, Firefox, or Chrome

10-item questionnaire

[Tell Us What You Think]

You will now be shown several pairs of pictures of people. Please indicate which person in each pair you find more attractive.

[Tell Us What You Think]

Please indicate which person in each pair you find more attractive.

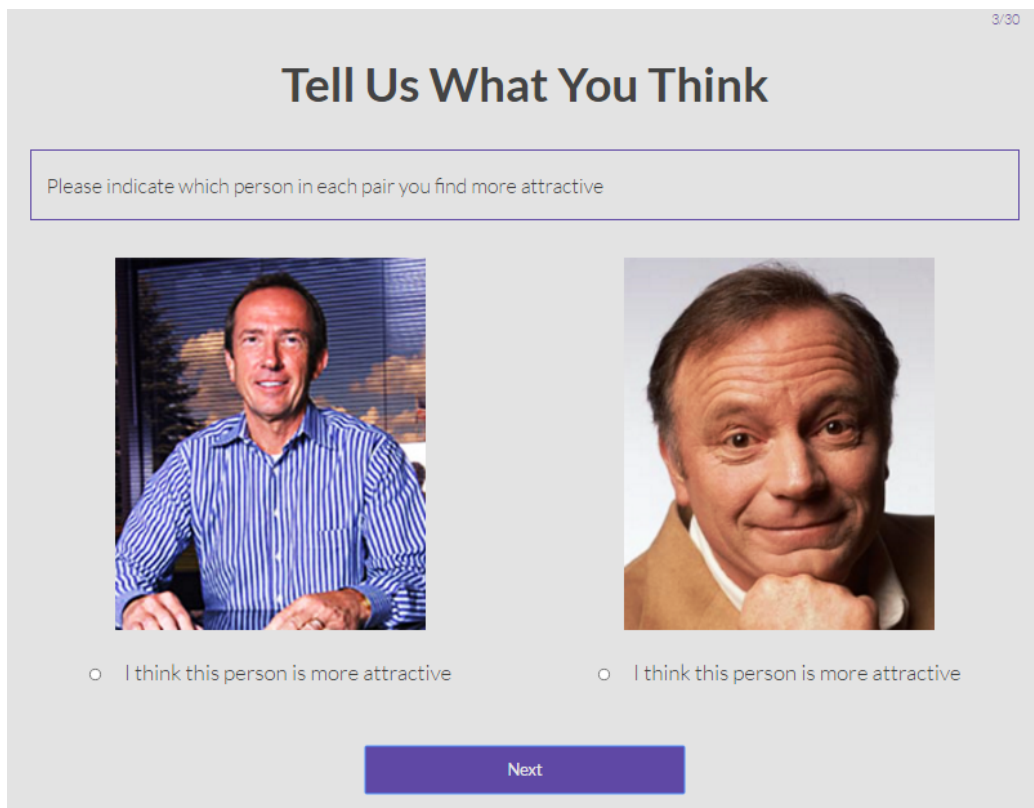


Figure C.1: Screen shot of one of the person selection task in the 10-item questionnaire. Participants in all treatments make a selection for 5 similar sets of images of individuals.

Fig. C.1 is an example of what these pairs of pictures of people look like. They make selection between 5 different pairs of images.

[Tell Us What You Think]

On the next screen you will see two images of people waiting in lines. Please indicate which line you think is the longest.

[Tell Us What You Think]

Please indicate which line you think is the longest.

Fig. C.2 is an example of what this pair of images of lines looks like. They make this selection once.

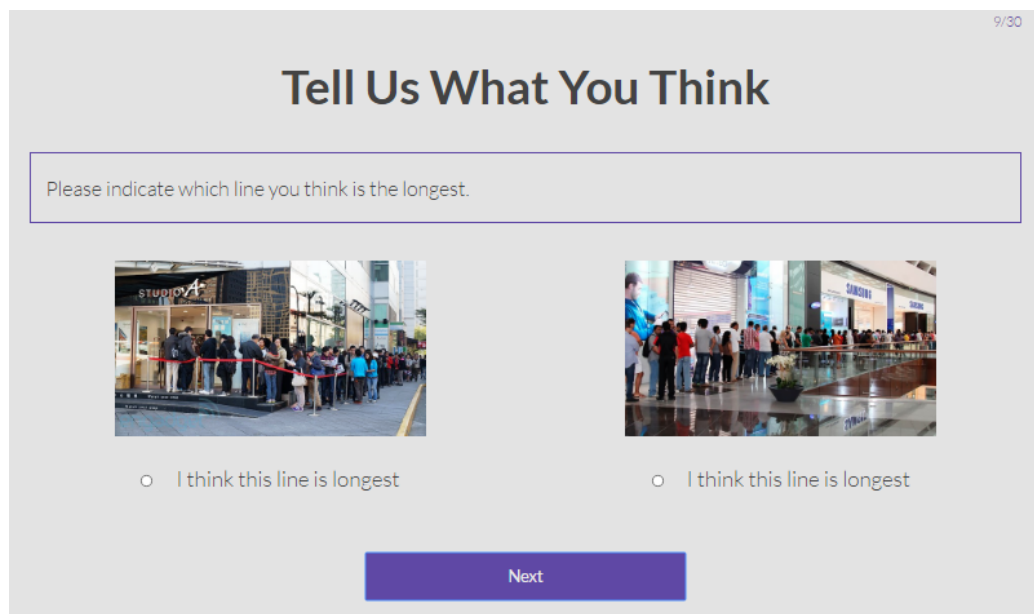


Figure C.2: Screen shot of the line length selection task in the 10-item questionnaire. Participants in all treatments see the same pair of images and make a selection for this pair.

[Tell Us What You Think]

You will now be shown several states. For each state, please answer the following question: What was the state's average temperature in 2013?

[Tell Us What You Think]

What was the state's average temperature in 2013?

Fig. C.3 is an example of what these temperature selection questions look like. They make this selection for 4 different states.

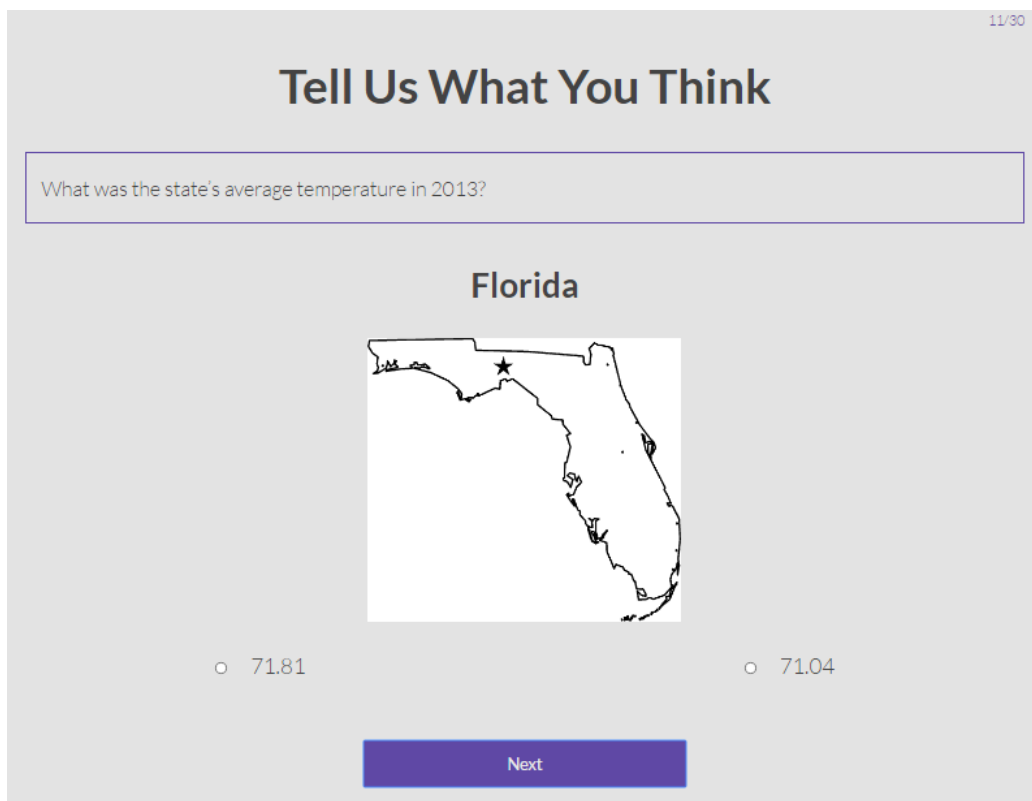


Figure C.3: Screen shot of one the states in the state temperature selection task in the 10-item questionnaire. Participants in all treatments make a selection for 4 different states.

Tax-framed dictator games

[Bonus Task]

For the following task, you will be randomly paired with another person, whom we will call your match. The match will be randomly selected from the other workers.

[Bonus Task]

In our economy one way the government uses taxes is to generate revenue from its citizens' earnings to redistribute wealth. The government's role in redistributing this wealth can be large or small. Sometimes people have a lot of wealth in our economy and sometimes people have little wealth in our economy.

You have the opportunity to tell the government if it should get involved in wealth redistribution between you and your match and, if so, how large or small the redistribution should be. If your decision is selected for payment, it will determine how many tokens each person gets paid in this task.

[Bonus Task]

When you and your match have entered all of your decisions, we will then randomly pick one of the decisions from the set that you and your match made. The selected decision will determine the final token split between you and your match and will be paid out to you as a bonus for this task.

[Bonus Task]

In this economy your wealth is X tokens and your match's wealth is Y tokens.

Use the slider to indicate whether you want the government involved and how large or small the redistribution should be.

Make a decision by moving the slider.

To confirm, your post-tax wealth for this decision is W tokens.

To confirm, your match's post-tax wealth for this decision is V tokens.

Fig. C.4 is a screen shot of the decision page that participants saw. They may move the slider to indicate their choice. They do this for 11 different endowment scenarios, ranging from when they are endowed with all 10 tokens and their match is endowed with 0 tokens down to when they are endowed with 0 tokens and their match is endowed with all 10 tokens.

Demographic questionnaire

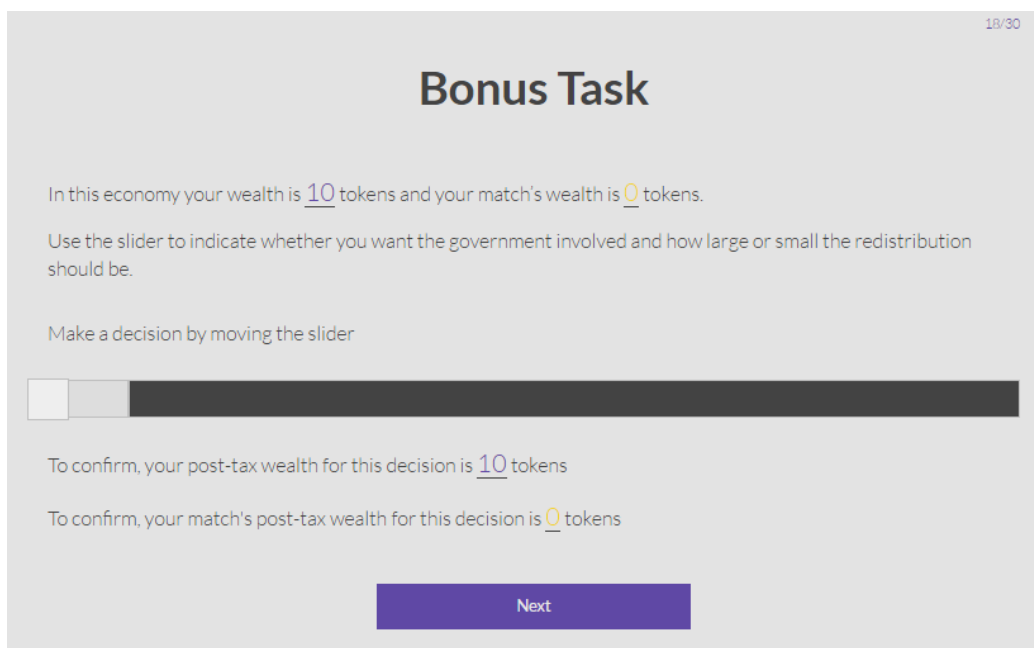


Figure C.4: Screen shot of one of the decision screens for individuals in the tax-framed *choice experiment*. Participants make a choice by moving the slider. The fields update dynamically as they move the slider to reflect the final amount of allocation for themselves and for the other worker. Participants make this selection for endowments 0 to 10.

[Tell Us About Yourself]

Please complete the following demographic survey. Your responses will not be connected to your worker ID.

[Tell Us About Yourself]

In politics, as of today, do you consider yourself: [A Republican, A Democrat, Leaning more towards the Democratic party, Leaning more towards the Republican party]

What is your age?

What is your gender? [Male, Female]

Which one of the following best describes your racial or ethnic background? [Asian/Pacific Islander, Black, Hispanic/Latino, White, Other]

Have you ever voted in a government election? [Yes/No]

Appendix C.1.2. Neutrally-framed

Participants in the neutrally-framed treatment complete the same 10-item questionnaire and demographic questions as participants in the tax-framed treatment. However, instead of playing the tax-framed dictator games, participants in this treatment play 11 neutrally-framed dictator games.

Neutrally-framed dictator games

[Bonus Task]

For the following task, you will be randomly paired with another person, whom we will call your match. The match will be randomly selected from the other workers.

[Bonus Task]

You will be shown 11 situations. In each situation, at least one of you will be holding some number of tokens. You will decide whether you would like to give some tokens to your match, take some tokens from your match or do nothing.

[Bonus Task]

When you and your match have entered all of your decisions, we will then randomly pick one of the decisions from the set that you and your match made. The selected decision will determine the final token split between you and your match and will be paid out to you as a bonus for this task.

[Bonus Task]

For this decision you own X tokens and the other person owns Y tokens.

You have the opportunity to take any of the X tokens from the other person. If this decision is selected for payment this will determine how many tokens each person gets.

Use the slider to indicate how many tokens you wish to take or give.

Make a decision by moving the slider.

To confirm, your earnings for this decision will be W tokens.

To confirm, the other person's earnings for this decision will be V tokens.

Fig. C.5 is a screen shot of the decision page that participants saw. They may move the slider to indicate their choice. As in the tax-framed treatment, they do this for 11 different endowment scenarios, ranging from when they are endowed with all 10 tokens and their match is endowed with 0 tokens down to when they are endowed with 0 tokens and their match is endowed with all 10 tokens.

Appendix C.2. Norms elicitation experiments

Participants in the tax- and neutrally-framed treatments read the same introduction. They also complete the same demographics questionnaire and 10-item questionnaire as those participants in the *choice experiment*.

Appendix C.2.1. Tax-framed

Introduction

[Overview of Tasks]

This is a study in decision making that has three parts. You will earn a 50 cent base pay for completing the study.

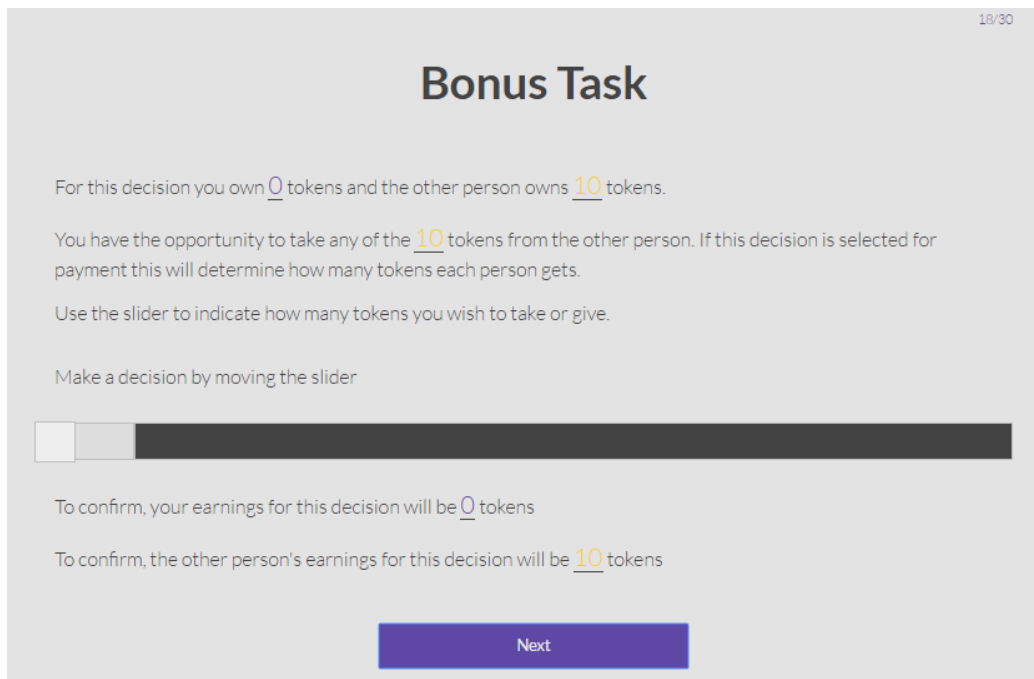


Figure C.5: Screen shot of one of the decision screens for individuals in the neutrally-framed *choice experiment*. Participants make a choice by moving the slider. The fields update dynamically as they move the slider to reflect the final amount of allocation for themselves and for the other worker. Participants make this selection for endowments 0 to 10.

In the first part, we will ask you to tell us about yourself.

In the second part, we will ask you to tell us what you think about various images.

In the third part, you will have a chance to earn a bonus. Your earnings for this part will depend on the decisions you make and on the decisions that the other worker you are paired with makes. You can earn up to \$3.30 in bonus pay.

You will be paid the base plus the bonus within 3 days after you complete this task.

Note: If you are using Internet Explorer you will not be able to complete the survey. Please try using Safari, Firefox, or Chrome

[Ready to Start Part One!]

We are ready to start the first part. This is where you tell us about yourself.

Participants then complete the same demographic questionnaire as in the *choice experiment*. Then participants read instructions for the coordination games. The language of these coordination game differ by the frame in which the game is described in.

Explanation of coordination games with tax-framed language

[Explaining How You Will Earn Money In The Bonus Task]

On the next screens you will read about decisions that another Mturker made in a previous Hit. We will call this Mturker “worker A”. Worker A is NOT participating today, but made choices in a previous Hit. You will read about the decisions worker A faced and what actions worker A had to choose between.

[Explaining How You Will Earn Money In The Bonus Task]

In our economy one way the government uses taxes is to generate revenue from its citizens’ earnings to redistribute wealth. The government’s role in redistributing this wealth can be large or small. Sometimes people have a lot of wealth in our economy and sometimes people have little wealth in our economy.

Worker A was randomly paired with another Mturker, called worker B. Worker A faced several different situations in which he or she had the opportunity to tell the government if it should get involved in wealth redistribution between them and worker B and, if so, how large or small the redistribution should be. Their wealth was represented by tokens, where every 10 tokens was worth \$1.

[Explaining How You Will Earn Money In The Bonus Task]

Your job is to rate worker A's wealth redistribution decision based on whether you think the decision was

“socially appropriate”

and

“consistent with what most people who are like you think that worker A OUGHT to do”.

That sounds simple, but it is only half the story!

Specifically, you will only earn the bonus if your “social appropriateness” rating MATCHES the rating of another Mturker working on this HIT today who is like you. We will call this Mturker “your match.”

We will match you with another Mturker who is like you. To increase the chances that you earn the bonus, you should try to imagine what your match, who is like you, would say.

Then participants complete the same 10-item questionnaire as those in the *choice experiments*.

Coordination games with tax-framed language

Participants then make rating decisions for a single endowment for each of the possible actions that the dictator could take (e.g. redistributing 0 to 10 tokens). They make the same rating decisions for when the dictator has an endowment of 0, 5, and 10 tokens. Below is an example of what a participant in the tax-framed treatment sees when rating the 11 dictator choices in the scenario where the dictator is endowed with 5 tokens.

[Ready To Start Part Three - The Bonus Task]

We are ready to start part three: This is where you can earn a bonus!

[Bonus Task]

On the next screens you will read about decisions that worker A, an Mturker from another HIT, made. The description will include possible actions available to worker A.

Your task is to rate worker A's wealth redistribution decision based on your guess of whether your MATCH, who is like you, would think the decision was "socially appropriate" and "consistent with what someone who is like you would think worker A OUGHT to do."

Remember that you will only earn the bonus if your "social appropriateness" rating is that same as your MATCH's rating. For each rating that is the same, you will earn 10 cents.

[Bonus Task]

In this economy worker A's wealth was 5 tokens and worker B's wealth was 5 tokens.

Worker A was able to decide whether the government should get involved and how large or small the redistribution should be.

Worker A got the government involved and chose to take a tax transfer of 5 tokens from worker B.

As a result:

Worker A's post-tax wealth for this decision was 10 tokens.

Worker B's post-tax wealth for this decision was 0 tokens.

TASK: Your task is to rate worker A's wealth redistribution decision based on your guess of whether your MATCH would think that the decision is "socially appropriate" and "consistent with what someone who is like you would think worker A OUGHT to do."

I think my MATCH would rate this decision as ["Very socially appropriate," "Socially appropriate," "Somewhat socially appropriate," "Somewhat socially inappropriate," "Socially inappropriate," "Very socially inappropriate."]

Fig. C.6 is a screen shot of the decision page that participants saw. They may select a rating by moving their mouse over the drag down box. Participants rate each of the 11 actions (that would result in Worker A having post-tax wealth of 10 to 0, before moving on to the next endowment and rating the next set of 11 actions for for that endowment. Participants do this for endowments 0, 5 (as in our example), and 10.

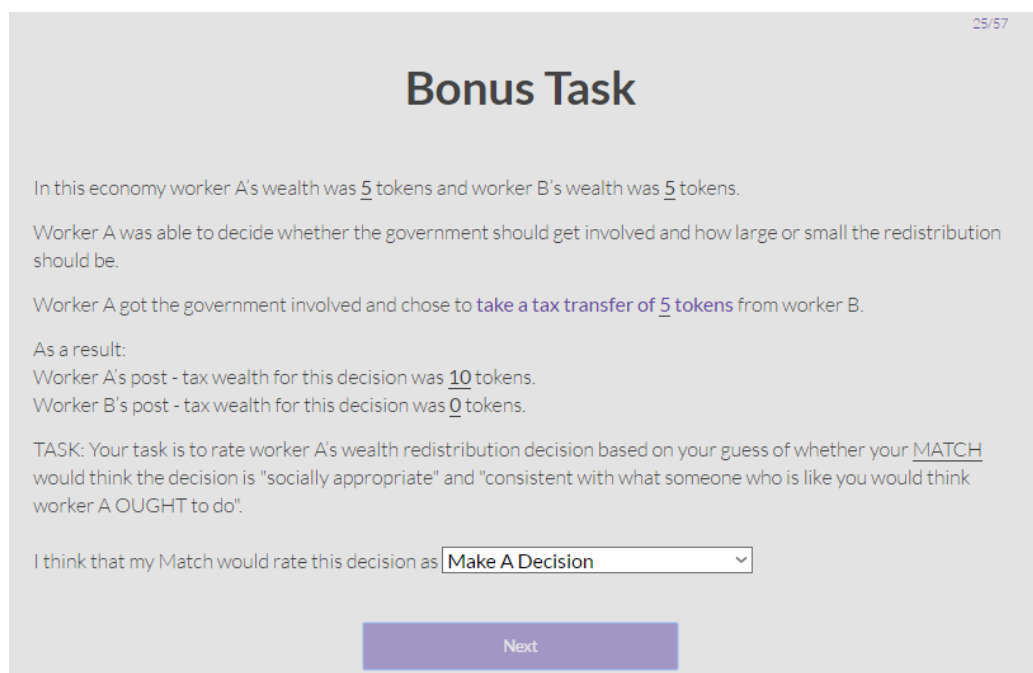


Figure C.6: Screen shot of one of the decision screens for individuals in the tax-framed *norms elicitation experiment*. Participants make a choice by selecting from the drop down box. Participants make this selection for all 11 action (resulting in the participants holding 0 to 10 tokens at the end of the reallocation). They do this for endowments 0, 5, and 10.

Appendix C.2.2. Neutrally-framed

Participants in the neutrally-framed treatment complete the same 10-item questionnaire and demographic questionnaire as participants in the tax-framed treatment. The only differences in instructions for these participants and their tax-framed counterparts are the explanation of the coordination games and the actual coordination games.

Explanation of coordination games with neutrally-framed language

Instead of the instructions that the tax-framed participants receive earlier,

participants in this treatment read the following:

[Explaining How You Will Earn Money In The Bonus Task]

On the next screens you will read about decisions that another Mturker made in a previous Hit. We will call this Mturker “worker A.” Worker A is NOT participating today, but made choices in a previous Hit. You will read about the decisions worker A faced and what actions worker A had to choose between.

[Explaining How You Will Earn Money In The Bonus Task]

Worker A was randomly paired with another Mturker, called worker B. Worker A faced several different situations in which he or she was holding some number of tokens, where every 10 tokens was worth \$1. Worker A then had to decide whether he or she would like to give some tokens to worker A, take some tokens from worker B, or do nothing.

[Explaining How You Will Earn Money In The Bonus Task]

Your job is to rate worker A’s decision based on whether you think the decision was

“socially appropriate”
and

“consistent with what most people who are like you
think that worker A OUGHT to do”.

That sounds simple, but it is only half the story!

Specifically, you will only earn the bonus if your “social appropriateness” rating MATCHES the rating of another Mturker working on this HIT today who is like you. We will call this Mturker “your match.”

We will match you with another Mturker who is like you. To increase the chances that you earn the bonus, you should try to imagine what your match, who is like you, would say.

Then these participants complete the same 10-item questionnaire as those in the *choice experiments*. Instead of the instructions for the tax-framed coordination game, participants in this treatment read about and play neutrally-framed coordination for 3 different endowments, as in the tax-framed treatment. Similar to their counterparts in the tax-framed treatment, these participants make rating decisions for each of the 11 possible actions for when the dictator has an endowment of 0, 5, and 10 tokens.

Below is an example of what a participant in the neutrally-framed treatment sees when rating the 11 dictator choices in the scenario where the dictator is endowed with 0 tokens and the match is endowed with all 10 tokens.

Coordination games with neutrally-framed language

[Ready To Start Part Three - The Bonus Task!]

We are ready to start part three: This is where you can earn a bonus!

[Bonus Task]

On the next screens you will read about decisions that worker A, an Mturker from another HIT, made. The description will include possible actions available to worker A.

Your task is to rate worker A's decision based on your guess of whether your MATCH, who is like you, would think the decision was "socially appropriate" and "consistent with what someone who is like you would think worker A OUGHT to do".

Remember that you will only earn the bonus if your "social appropriateness" rating is the same as your MATCH's rating. For each rating that is the same, you will earn 10 cents.

[Bonus Task]

For this decision worker A owns 0 tokens and worker B owns 10 tokens.

Worker A had the opportunity to take any amount of worker B's 10 tokens from worker B.

Worker A choose to take 10 tokens from worker B.

As a result:

Worker A's post-earnings for this decision were 10 tokens.

Worker B's post-earnings for this decision were 0 tokens.

TASK: Your task is to rate worker A's wealth redistribution decision based on your guess of whether your MATCH would think that the decision is "socially appropriate" and "consistent with what someone who is like you would think worker A OUGHT to do."

I think my MATCH would rate this decision as ["Very socially appropriate," "Socially appropriate," "Somewhat socially appropriate," "Somewhat socially inappropriate," "Socially inappropriate," "Very socially inappropriate."]

Fig. C.7 is a screen shot of the decision page that participants saw. Similar to the tax-framed condition, participants rate each of the 11 actions (that would result in Worker A having post-earnings of 10 to 0, before moving on to the next endowment and rating the next set of 11 actions for for that endowment. Participants do this for endowments 0, 5 (as in our example), and 10.

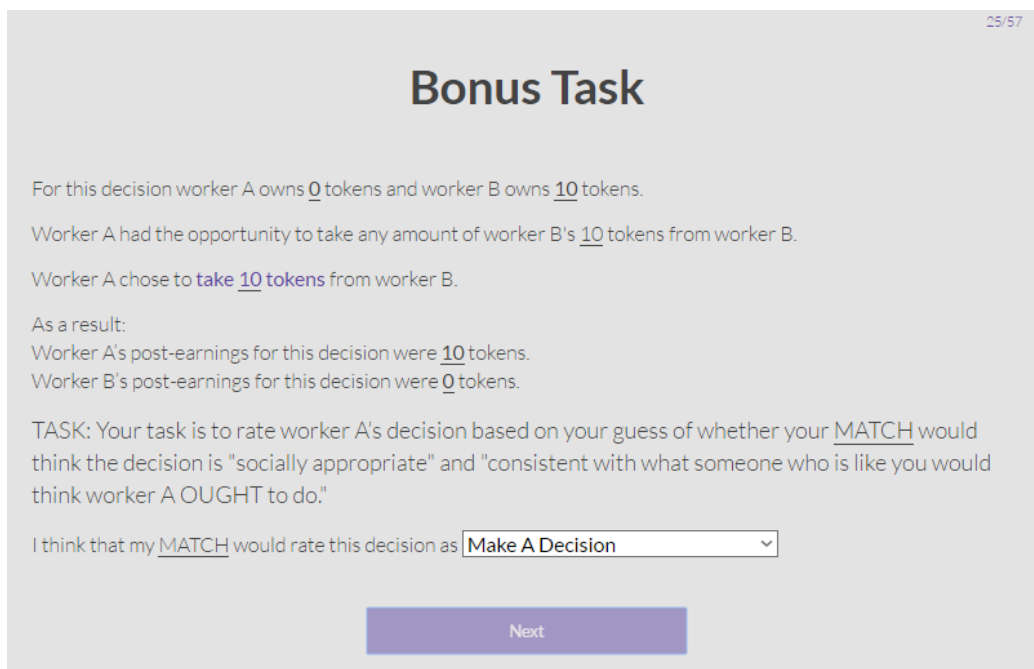


Figure C.7: Screen shot of one of the decision screens for individuals in the neutrally-framed *norms elicitation experiment*. Participants make a choice by selecting from the drop down box. Participants make this selection for all 11 action (resulting in the participants holding 0 to 10 tokens at the end of the reallocation). They do this for endowments 0, 5, and 10.