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Abstract

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

by Daphne Chang, Roy Chen and Erin Krupka*

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

JEL classification: C93, D83

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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. (2011) 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.

[1] As 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., 2011). 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. (2011); 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 does 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

[2]Each 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 dispute (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), and behavior in markets (Li et al., 2011; Gneezy et al., 2012). 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

[3]One 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.

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, the situation, and the individual's social identity:

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

where V captures a subject's utility over her monetary payoff, and is not dependent on either social identity or the situation.[4]

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.[5]

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."[6] 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

[4]This 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."

[5]The 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.

[6]See also Ellingsen and Mohlin (2014) who define a situation as a "shared view of the set of participants and the relevant set of actions."

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. This treatment is designed to evoke a U.S. political identity (Democratic or Republican) within our subjects.[7]

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

[7]We target these two political social identities because political identity is a "homegrown" 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. (2013) 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. In our study, we restrict our subjects to U.S. citizens and allow subjects to participate in only one of the treatments.

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:

> *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.*[8]

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

[8]For 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."

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 finds that dictator behavior is not affected by who starts with the endowment (Suvoy, 2003; Dreber et al., 2013; Grossman and Eckel, 2015; Halvorsen, 2015; Hauge et al., 2016; Goerg et al., 2017). However, there is also contradictory evidence (Visser and Roelofs, 2011; Krupka and Weber, 2013), as well as 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., 2017) can interact with the initial endowment to change dictator behavior.[9]

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."[10] 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 the completion of the questionnaire, each subject is randomly paired

[9] 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. (2006); 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 Schwieren (2009).

[10] This question is adapted from Gallup's standard party identification question, in use since 1944 (Gallup, 1991).

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.

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." 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.[11] If there is a social norm that

[11]Others 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. (2013), Veselỳ (2015), Erkut et al. (2014), D'Adda et al. (2015), Gangadharan et al. (2015), 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'

some actions are more or less socially appropriate, respondents are expected 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.[12]

2.3. Experimental Procedure

Our subjects are workers from Amazon Mechanical Turk (MTurk).[13] 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. They then proceed to the dictator games. Figure 1

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options as a fair option. However, this approach would limit what we would be able to say about a "set" of appropriate actions.

[12]Subjects 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.

[13]MTurk 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.

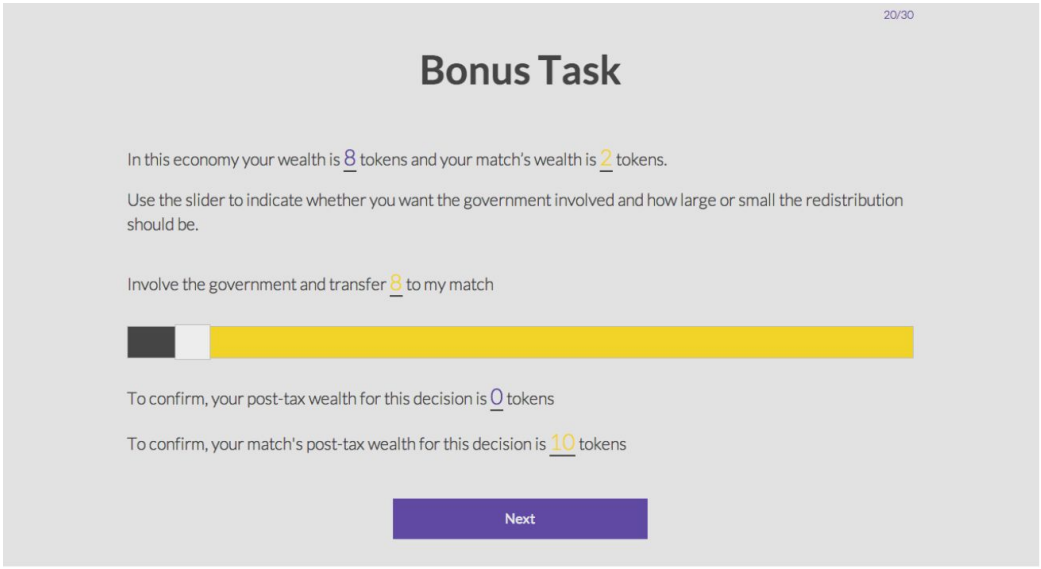

Figure 1: Screenshot of the *choice experiment* redistribution task for tax-framed subjects. The white slider element starts in the "neutral" position which is located either to the left or to the right of the slider (this is randomized). The slider must be moved off of the neutral position for the subject 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.

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.[14] 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.[15]

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

[14]The 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.

[15]The full experimental instructions are available in the Appendix.

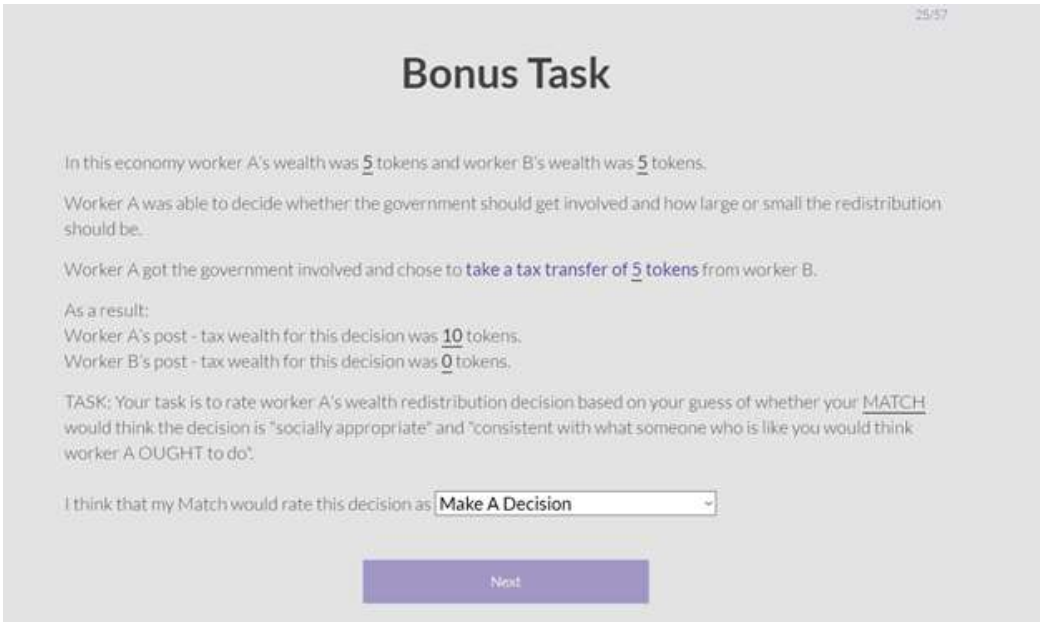

Figure 2: Screenshot of the *norms elicitation experiment* ratings task for tax-framed subjects.

3. Results

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

3.1. Testing the effect of frames on norms and behavior

3.1.1. Norms depend on frames

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.[16]

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).

[16]Note that this transformation is also used in Kimbrough and Vostroknutov (2016), Gächter et al. (2013), Veselỳ (2015), Erkut et al. (2014), D'Adda et al. (2015), Gangadharan et al. (2015), Banerjee (2016), and Gächter et al. (2015). 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.

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. This leads to our first hypothesis.

Hypothesis 1 (**Norms: frames affect norm ratings**). *For a particular identity, the tax-framed norm ratings will differ from the neutrally-framed norm ratings.*

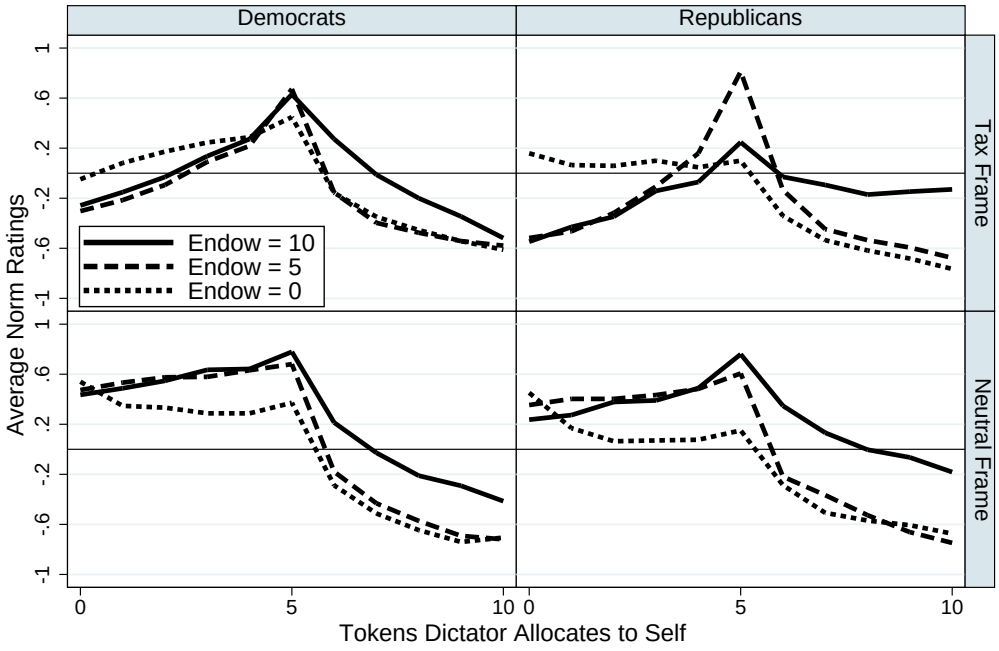

Figure 3: Average norm ratings by frame, initial endowment, identity, and dictator action.

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."

The norm ratings depicted in Figure 3 support Hypothesis 1 by showing that tax-framed norms differ from neutrally-framed norms for each identity. Examining these results further, we see that an equal split is always socially appropriate for Democrats, but that tax- and neutrally-framed norms differ on two features. First, we find that the average norm ratings have different signs for certain actions. That is, while tax-framed Democrats view allocating the entire endowment to the other person (i.e. keeping 0 tokens for herself) as socially *inappropriate* for all endowments, neutrally-framed Democrats do not. Instead, they view any allocation that leads to greater generosity as socially appropriate.

Second, we find that the slopes to the left of the equal split for each endowment differ across tax- and neutrally-framed Democrats. Specifically, a deviation from the equal split is viewed as more inappropriate by tax-framed Democrats when the dictator retains fewer than half the tokens. The impact of the tax frame is consistent with the Democratic party platform.

Examining the norm ratings for the tax- and neutrally-framed Republicans, we first find that neutrally-framed Republicans view any deviation from the equal split that involves allocating more than half of the tokens to the other person as socially appropriate when the initial endowment is 5 or 10 tokens. By contrast, tax-framed Republicans view all allocations leaving the dictator with fewer than 5 tokens as inappropriate when the initial endowment is 10 tokens. They also view all allocations leaving the dictator with fewer than 4 tokens as inappropriate when the initial endowment is 5 tokens.

Second, we find that the status quo (i.e. not redistributing the initial endowment) is viewed as more appropriate by tax-framed Republicans than by neutrally-framed Republicans when the endowment is 5 or 10 tokens. The average norm ratings for the action of keeping the initial endowment of 5 (10) tokens are 0.81 (-0.13) for the tax-framed Republicans and 0.61 (-0.18) for the neutrally-framed Republicans. The impact of the tax frame in these cases is consistent with the Republican party platform. By contrast, this is not true for the action of keeping the initial endowment of 0 tokens, where the average norm ratings are 0.16 for tax-framed Republicans and 0.45 for neutrally-framed Republicans.

Tables 2 and 3 present the results from our nonparametric tests of whether the tax- and neutrally-framed norms are different from each other for the Democrats and Republicans, respectively. Panels A, B, and C present the results for when the endowments are 0, 5, and 10, respectively. For each

action within each endowment, we report the average norm rating, the percentage of participants who give the norm rating for that action, and the result of a Wilcoxon rank-sum test comparing the two distributions of responses.

Table 4 presents piecewise OLS regressions that test for differences between the tax- and neutrally-framed norm ratings for Democrats (Panel A) and Republicans (Panel B). We regress subjects' norm ratings on "Keep" (the number of tokens kept by the dictator), a dummy for the tax frame, and an interaction between the tax frame and the dictator's action.[17] For each identity and endowment, the first column is restricted to cases where the dictator keeps 5 or fewer tokens, while the second column is restricted to cases where the dictator keeps 5 or more tokens.

Tables 2-5 show that framing has an effect on norm ratings, leading to the following result:

Result 1 (**Norms: frames affect norm ratings**). *For all identity and endowment combinations, norm ratings differ between the tax and neutral frames, except for Republicans with an initial endowment of 0.*

Support. For the tax- and neutrally-framed Democrats (Table 2), we find that the signs of the average (bolded) and modal (shaded in gray) norm ratings agree.[18] Further, we find that at least 5 out of 11 norm ratings differ across frames for all three endowments. Similarly for the tax- and neutrally-framed Republicans, the signs of the average and modal norm ratings agree. Further, at least 6 of the 11 norm ratings for endowments 5 and 10 differ across frames. However, when the endowment is 0, there are no significant differences at the 5% level between the tax- and neutrally-framed norm ratings.

For the piecewise OLS regressions, the interaction terms, "Tax-framed $\times$ Keep," give the difference in the slopes of the norm profiles for the neutral and tax frames. For Democrats, the interaction terms for the endowments are significantly different from 0 when the dictator keeps fewer than 5 tokens, and not significantly different from 0 when the dictator keeps more than 5 tokens. For Republicans, the interaction terms are significantly different from

[17] In all specifications we cluster the standard errors at the individual level.

[18] The allocation "0, 10" in endowment 0 has a bimodal distribution with peaks at "very socially inappropriate" and "very socially appropriate." Note that this is not well reflected by the sign of the average norm rating.

Table 2: Elicited norms for tax-framed and neutrally-framed Democrats

Final allocation ("Keep")	Tax framed Democratic norm ratings: Action	Mean	- - -	- -	-	+	+ +	+ + +	Neutrally framed Democratic norm ratings: Action	Mean	- - -	- -	-	+	+ +	+ + +	2-tailed Mann-Whitney U test z-score
Panel A: Endowment - 0 Tokens																	
0, 10	"Do not involve government"	**-0.05**	29.55%	12.88%	11.36%	7.58%	13.64%	25.00%	"Do nothing"	**0.54**	7.89%	7.02%	4.39%	8.77%	16.67%	55.26%	5.775***
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%	36.84%	2.811***
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%	33.33%	2.052**
3, 7	"Take tax transfer 3"	**0.25**	1.52%	9.85%	20.45%	25.76%	28.79%	13.64%	"Take 3"	**0.29**	6.14%	11.40%	14.91%	14.91%	27.19%	25.44%	1.090
4, 6	"Take tax transfer 4"	**0.29**	0.76%	5.30%	19.70%	33.33%	27.27%	13.64%	"Take 4"	**0.29**	5.26%	11.40%	10.53%	19.30%	35.96%	17.54%	0.773
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%	29.82%	-0.743
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%	1.75%	-1.806*
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%	2.63%	1.75%	-1.908*
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%	1.75%	-2.194**
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%	1.75%	2.63%	-2.459**
10, 0	"Take tax transfer 10"	**-0.61**	61.36%	16.67%	4.55%	3.79%	8.33%	5.30%	"Take 10"	**-0.71**	64.91%	21.05%	5.26%	0.00%	1.75%	7.02%	-0.867
Panel B: Endowment - 5 Tokens																	
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%	50.00%	7.506***
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%	50.00%	7.742***
2, 8	"Make tax transfer 3"	**-0.09**	15.91%	23.48%	18.94%	13.64%	15.91%	12.12%	"Give 3"	**0.58**	0.88%	6.14%	7.89%	14.91%	23.68%	46.49%	7.709***
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%	36.84%	6.681***
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%	34.21%	6.471***
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%	44.74%	42.98%	-1.191
6, 4	"Take tax transfer 1"	**-0.15**	15.15%	17.42%	32.58%	17.42%	10.61%	6.82%	"Take 1"	**-0.18**	8.77%	18.42%	48.25%	11.40%	9.65%	3.51%	-0.302
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%	1.75%	-0.189
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%	2.63%	-0.617
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%	1.75%	2.63%	-0.873
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%	5.26%	-1.755*
Panel C: Endowment - 10 Tokens																	
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%	53.51%	6.500***
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%	11.40%	53.51%	6.352***
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%	17.54%	50.88%	6.343***
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%	19.30%	54.39%	6.44***
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%	43.86%	5.679***
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%	57.89%	2.488**
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%	7.89%	-1.084
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%	5.26%	-0.154
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%	4.39%	-0.034
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%	13.16%	4.39%	1.078
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%	8.77%	7.89%	1.442

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 3: Elicited norms for tax-framed and neutrally-framed Republicans

Panel A: Endowment - 0 Tokens

Final allocation ("Keep")	Tax framed Republican norm ratings								Neutrally framed Republican norm ratings								2-tailed Mann-Whitney
	Action	**Mean**	- - -	- -	-	+	+ +	+ + +	**Action**	**Mean**	- - -	- -	-	+	+ +	+ + +	U test z-score
0, 10	"Do not involve government"	**0.16**	27.94%	7.35%	5.88%	5.88%	11.76%	41.18%	"Do nothing"	**0.45**	16.92%	3.08%	3.08%	7.69%	15.38%	53.85%	1.870*
1, 9	"Take tax transfer 1"	**0.06**	19.12%	16.18%	10.29%	16.18%	10.29%	27.94%	"Take 1"	**0.17**	10.77%	12.31%	18.46%	13.85%	21.54%	23.08%	0.716
2, 8	"Take tax transfer 2"	**0.06**	11.76%	25.00%	11.76%	5.88%	29.41%	16.18%	"Take 2"	**0.06**	13.85%	16.92%	15.38%	20.00%	10.77%	23.08%	0.087
3, 7	"Take tax transfer 3"	**0.1**	11.76%	13.24%	16.18%	20.59%	23.53%	14.71%	"Take 3"	**0.07**	12.31%	15.38%	12.31%	27.69%	16.92%	15.38%	-0.288
4, 6	"Take tax transfer 4"	**0.05**	13.24%	19.12%	13.24%	16.18%	23.53%	14.71%	"Take 4"	**0.08**	12.31%	12.31%	23.08%	9.23%	32.31%	10.77%	0.264
5, 5	"Take tax transfer 5"	**0.1**	16.18%	14.71%	14.71%	13.24%	14.71%	26.47%	"Take 5"	**0.15**	10.77%	16.92%	15.38%	12.31%	20.00%	24.62%	0.355
6, 4	"Take tax transfer 6"	**-0.34**	23.53%	25.00%	27.94%	11.76%	10.29%	1.47%	"Take 6"	**-0.29**	18.46%	29.23%	26.15%	10.77%	12.31%	3.08%	0.504
7, 3	"Take tax transfer 7"	**-0.54**	33.82%	38.24%	11.76%	11.76%	2.94%	1.47%	"Take 7"	**-0.51**	26.15%	47.69%	7.69%	13.85%	4.62%	0.00%	0.541
8, 2	"Take tax transfer 8"	**-0.62**	50.00%	27.94%	8.82%	4.41%	7.35%	1.47%	"Take 8"	**-0.57**	35.38%	44.62%	4.62%	9.23%	4.62%	1.54%	1.129
9, 1	"Take tax transfer 9"	**-0.68**	61.76%	20.59%	2.94%	8.82%	2.94%	2.94%	"Take 9"	**-0.61**	55.38%	21.54%	4.62%	9.23%	6.15%	3.08%	0.826
10, 0	"Take tax transfer 10"	**-0.76**	75.00%	11.76%	4.41%	0.00%	5.88%	2.94%	"Take 10"	**-0.67**	64.62%	18.46%	4.62%	1.54%	4.62%	6.15%	1.249

Panel B: Endowment - 5 Tokens

Final allocation ("Keep")	Tax framed Republican norm ratings								Neutrally framed Republican norm ratings								2-tailed Mann-Whitney
	Action	**Mean**	- - -	- -	-	+	+ +	+ + +	**Action**	**Mean**	- - -	- -	-	+	+ +	+ + +	U test z-score
0, 10	"Make tax transfer 5"	**-0.52**	64.71%	7.35%	4.41%	4.41%	4.41%	14.71%	"Give 5"	**0.35**	15.38%	3.08%	12.31%	9.23%	16.92%	43.08%	5.733***
1, 9	"Make tax transfer 4"	**-0.46**	47.06%	22.06%	7.35%	7.35%	5.88%	10.29%	"Give 4"	**0.40**	7.69%	10.77%	9.23%	7.69%	24.62%	40.00%	6.160***
2, 8	"Make tax transfer 3"	**-0.32**	29.41%	27.94%	14.71%	8.82%	8.82%	10.29%	"Give 3"	**0.40**	1.54%	12.31%	12.31%	15.38%	24.62%	33.85%	5.740***
3, 7	"Make tax transfer 2"	**-0.11**	11.76%	27.94%	17.65%	17.65%	17.65%	7.35%	"Give 2"	**0.43**	1.54%	10.77%	13.85%	9.23%	30.77%	33.85%	4.881***
4, 6	"Make tax transfer 1"	**0.16**	5.88%	10.29%	25.00%	19.12%	26.47%	13.24%	"Give 1"	**0.48**	3.08%	3.08%	6.15%	21.54%	40.00%	26.15%	3.473***
5, 5	"Do not involve government"	**0.81**	2.94%	0.00%	2.94%	7.35%	8.82%	77.94%	"Do nothing"	**0.61**	4.62%	1.54%	3.08%	9.23%	41.54%	40.00%	-3.872***
6, 4	"Take tax transfer 1"	**-0.14**	11.76%	25.00%	30.88%	10.29%	11.76%	10.29%	"Take 1"	**-0.22**	12.31%	24.62%	33.85%	16.92%	9.23%	3.08%	-0.544
7, 3	"Take tax transfer 2"	**-0.45**	27.94%	36.76%	17.65%	5.88%	10.29%	1.47%	"Take 2"	**-0.37**	18.46%	38.46%	26.15%	3.08%	10.77%	3.08%	1.111
8, 2	"Take tax transfer 3"	**-0.54**	42.65%	32.35%	10.29%	1.47%	7.35%	5.88%	"Take 3"	**-0.53**	33.85%	38.46%	13.85%	4.62%	7.69%	1.54%	0.706
9, 1	"Take tax transfer 4"	**-0.59**	54.41%	25.00%	4.41%	4.41%	4.41%	7.35%	"Take 4"	**-0.66**	46.15%	38.46%	6.15%	3.08%	6.15%	0.00%	0.331
10, 0	"Take tax transfer 5"	**-0.68**	72.06%	7.35%	5.88%	5.88%	0.00%	8.82%	"Take 5"	**-0.75**	61.54%	27.69%	3.08%	3.08%	3.08%	1.54%	0.637

Panel C: Endowment - 10 Tokens

Final allocation ("Keep")	Tax framed Republican norm ratings								Neutrally framed Republican norm ratings								2-tailed Mann-Whitney
	Action	**Mean**	- - -	- -	-	+	+ +	+ + +	**Action**	**Mean**	- - -	- -	-	+	+ +	+ + +	U test z-score
0, 10	"Make tax transfer 10"	**-0.55**	66.18%	8.82%	4.41%	2.94%	1.47%	16.18%	"Give 10"	**0.24**	13.85%	7.69%	18.46%	12.31%	10.77%	36.92%	5.646***
1, 9	"Make tax transfer 9"	**-0.43**	51.47%	17.65%	5.88%	2.94%	5.88%	16.18%	"Give 9"	**0.27**	10.77%	12.31%	9.23%	18.46%	13.85%	35.38%	5.049***
2, 8	"Make tax transfer 8"	**-0.35**	36.76%	26.47%	8.82%	7.35%	5.88%	14.71%	"Give 8"	**0.38**	3.08%	12.31%	15.38%	10.77%	23.08%	35.38%	5.487***
3, 7	"Make tax transfer 7"	**-0.14**	25.00%	20.59%	10.29%	19.12%	8.82%	16.18%	"Give 7"	**0.39**	3.08%	7.69%	16.92%	18.46%	18.46%	35.38%	4.241***
4, 6	"Make tax transfer 6"	**-0.07**	19.12%	22.06%	13.24%	11.76%	20.59%	13.24%	"Give 6"	**0.49**	3.08%	1.54%	12.31%	18.46%	32.31%	32.31%	4.595***
5, 5	"Make tax transfer 5"	**0.25**	16.18%	10.29%	13.24%	7.35%	11.76%	41.18%	"Give 5"	**0.76**	0.00%	1.54%	3.08%	9.23%	26.15%	60.00%	3.606***
6, 4	"Make tax transfer 4"	**-0.03**	7.35%	20.59%	25.00%	22.06%	19.12%	5.88%	"Give 4"	**0.35**	0.00%	7.69%	16.92%	23.08%	35.38%	16.92%	3.931***
7, 3	"Make tax transfer 3"	**-0.09**	8.82%	17.65%	29.41%	30.88%	8.82%	4.41%	"Give 3"	**0.13**	0.00%	16.92%	29.23%	16.92%	27.69%	9.23%	2.321**
8, 2	"Make tax transfer 2"	**-0.17**	13.24%	26.47%	22.06%	19.12%	16.18%	2.94%	"Give 2"	**0.00**	7.69%	26.15%	20.00%	12.31%	23.08%	10.77%	1.523
9, 1	"Make tax transfer 1"	**-0.15**	25.00%	23.53%	10.29%	11.76%	13.24%	16.18%	"Give 1"	**-0.06**	12.31%	29.23%	12.31%	13.85%	23.08%	9.23%	0.841
10, 0	"Do not involve government"	**-0.13**	36.76%	14.71%	5.88%	5.88%	10.29%	26.47%	"Do nothing"	**-0.18**	27.69%	20.00%	9.23%	13.85%	21.54%	7.69%	-0.268

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 4: Piecewise OLS regressions testing effect of frames on norm ratings (by identity and endowment)

Panel A: OLS regression of Democratic norm ratings on framing and actions						
	Dependent variable: Democratic norm ratings					
	Endowment = 0		Endowment = 5		Endowment = 10	
	(1)	(2)	(3)	(4)	(5)	(6)
	Keep ≤ 5	Keep > 5	Keep ≤ 5	Keep > 5	Keep ≤ 5	Keep > 5
Tax framed	-0.466***	0.187	-0.877***	-0.188	-0.745***	0.302**
	(0.095)	(0.140)	(0.098)	(0.144)	(0.106)	(0.138)
Keep	-0.030*	-0.106***	0.038***	-0.134***	0.065***	-0.152***
	(0.016)	(0.012)	(0.014)	(0.013)	(0.015)	(0.013)
Tax framed × Keep	0.121***	-0.004	0.144***	0.035*	0.103***	-0.040**
	(0.025)	(0.017)	(0.022)	(0.018)	(0.021)	(0.018)
Constant	0.438***	0.272***	0.484***	0.554***	0.426***	1.069***
	(0.060)	(0.100)	(0.064)	(0.109)	(0.073)	(0.096)
Observations	1,476	1,230	1,476	1,230	1,476	1,230
R^2	0.051	0.096	0.265	0.093	0.224	0.164
Panel B: OLS regression Republican norm ratings on framing and actions						
	Dependent variable: Republican norm ratings					
	Endowment = 0		Endowment = 5		Endowment = 10	
	(1)	(2)	(3)	(4)	(5)	(6)
	Keep ≤ 5	Keep > 5	Keep ≤ 5	Keep > 5	Keep ≤ 5	Keep > 5
Tax framed	-0.181	0.037	-1.034***	-0.073	-0.778***	-0.962***
	(0.134)	(0.186)	(0.142)	(0.216)	(0.140)	(0.291)
Keep	-0.051**	-0.087***	0.044**	-0.135***	0.094***	-0.126***
	(0.023)	(0.016)	(0.020)	(0.016)	(0.017)	(0.019)
Tax framed × Keep	0.042	-0.012	0.206***	0.012	0.057**	0.100**
	(0.040)	(0.022)	(0.029)	(0.025)	(0.028)	(0.038)
Constant	0.291***	0.170	0.338***	0.579***	0.188*	1.050***
	(0.087)	(0.135)	(0.097)	(0.145)	(0.099)	(0.140)
Observations	798	665	798	665	798	665
R^2	0.010	0.064	0.297	0.103	0.245	0.055

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. "Tax-framed" is 1 for tax-framed ratings and 0 for neutrally-framed ratings. "Keep" is the rated allocation. "Tax-framed × Keep" is the interaction term that captures the slopes of these norm proles.
4. The number of observations in Panel A comes from 246 Democratic subjects' norm ratings in each of 6 (odd columns) or 5 (even columns) situations. The number of observations in Panel B comes from 133 Republican subjects' norm ratings in those same situations.

Table 5: Piecewise OLS regressions testing effect of identity on norm ratings (by frame and endowment)

Panel A: OLS regression of neutral frame norm ratings on identity and actions						
	Dependent variable: Neutral frame norm ratings					
	Endowment = 0		Endowment = 5		Endowment = 10	
	(1)	(2)	(3)	(4)	(5)	(6)
	Keep ≤ 5	Keep > 5	Keep ≤ 5	Keep > 5	Keep ≤ 5	Keep > 5
Republican	-0.15	-0.10	-0.15	0.03	-0.24*	-0.02
	(0.105)	(0.168)	(0.117)	(0.181)	(0.123)	(0.169)
Keep	-0.03*	-0.11***	0.04***	-0.13***	0.06***	-0.15***
	(0.016)	(0.012)	(0.014)	(0.013)	(0.015)	(0.013)
Republican × Keep	-0.02	0.02	0.01	-0.00	0.03	0.03
	(0.028)	(0.020)	(0.024)	(0.021)	(0.022)	(0.023)
Constant	0.44***	0.27***	0.48***	0.55***	0.43***	1.07***
	(0.060)	(0.100)	(0.065)	(0.109)	(0.073)	(0.096)
Observations	1,074	895	1,074	895	1,074	895
R^2	0.031	0.080	0.029	0.139	0.068	0.133
Panel B: OLS regression of tax frame norm ratings on identity and actions						
	Dependent variable: Tax frame norm ratings					
	Endowment = 0		Endowment = 5		Endowment = 10	
	(1)	(2)	(3)	(4)	(5)	(6)
	Keep ≤ 5	Keep > 5	Keep ≤ 5	Keep > 5	Keep ≤ 5	Keep > 5
Republican	0.14	-0.25	-0.30**	0.14	-0.27**	-1.28***
	(0.126)	(0.161)	(0.126)	(0.186)	(0.125)	(0.273)
Keep	0.09***	-0.11***	0.18***	-0.10***	0.17***	-0.19***
	(0.018)	(0.012)	(0.016)	(0.012)	(0.015)	(0.013)
Republican × Keep	-0.10***	0.01	0.07**	-0.02	-0.02	0.17***
	(0.037)	(0.019)	(0.027)	(0.023)	(0.027)	(0.036)
Constant	-0.03	0.46***	-0.39***	0.37***	-0.32***	1.37***
	(0.073)	(0.098)	(0.074)	(0.095)	(0.077)	(0.099)
Observations	1,200	1,000	1,200	1,000	1,200	1,000
R^2	0.041	0.086	0.241	0.065	0.172	0.124

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. "Republican" is 1 for Republicans and 0 for Democrats. "Keep" is the rated allocation. "Republican × Keep" is the interaction term that captures the slopes of these norm proles.
4. The number of observations in Panel A comes from 179 neutrally-framed subjects' norm ratings in each of 6 (odd columns) or 5 (even columns) situations. The number of observations in Panel B comes from 200 tax-framed subjects' norm ratings in those same situations.

0 when the dictator keeps fewer than 5 tokens for initial endowments of 5 and 10 tokens, and when the dictator keeps more than 5 tokens for an initial endowment of 10 tokens. We find that neither of the interaction terms is significant when the initial endowment is 0.

In addition, Table 5 shows that Democratic and Republican norms differ only under the tax frame. The interaction terms, "Republican × tax-framed," give the difference in the slopes of the norm profiles for Democrats and Republicans. With the neutral frame, this coefficient is always close to 0, and never significant ($p > 0.10$). With the tax frame, this coefficient is at least significant at the 5% level with all endowments for either the dictator keeping fewer or more than 5 tokens.

3.1.2. Choices depend on frames

We next examine the results from our *choice experiment*. We begin with the following hypothesis:

Hypothesis 2 (**Choice: frames affect choice**)**.** *For a particular identity, the allocation choices of tax-framed dictators will differ from those of the neutrally-framed dictators.*

In our analysis, we include only the responses of individuals from the *choice experiment*. 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. From this figure, 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.

We next examine the results from our regressions. Specifically, Table 6 presents 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 × Endowment"). For both Democrats and Republicans, we find that the coefficient on "Tax-framed × Endowment" is significant ($p < 0.01$).

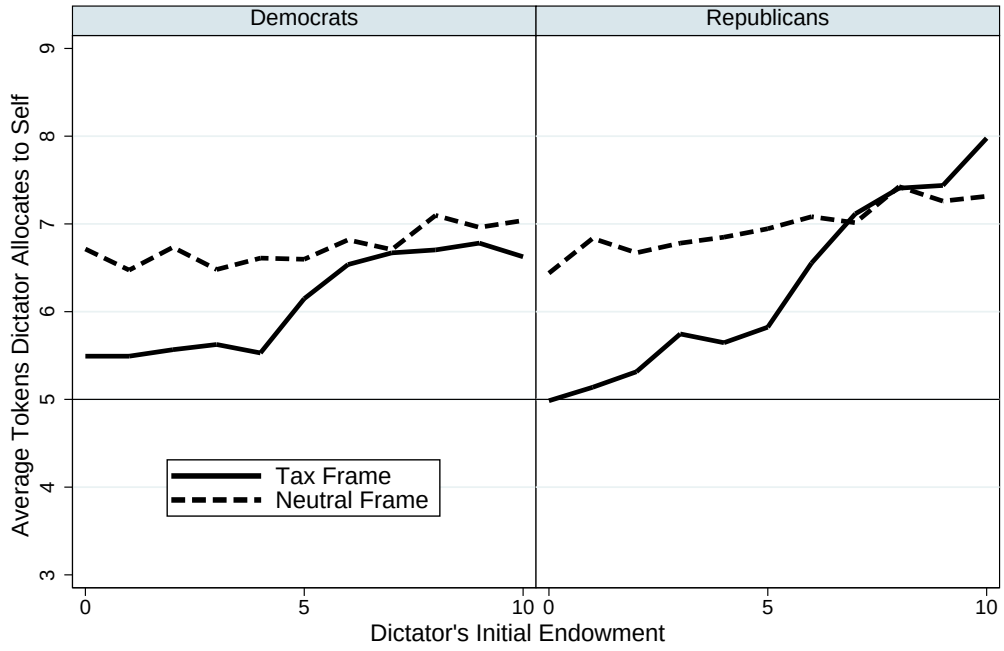

Figure 4: Average dictator choices by frame, initial endowment, and identity.

Table 6: OLS regressions testing effect of frame and endowment on dictator choice (by identity)

Dependent variable: Tokens kept by dictator		
	(1) Democrats	(2) Republicans
Tax framed	-1.187***	-1.817***
	(0.275)	(0.457)
Endowment	0.048***	0.082***
	(0.018)	(0.030)
Tax framed × Endowment	0.109***	0.228***
	(0.027)	(0.049)
Constant	6.506***	6.554***
	(0.218)	(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.

Table 7: OLS regressions testing effect of identity and endowment on dictator choice (by frame)

Dependent variable: Tokens kept by dictator		
	(1) Neutral frame	(2) Tax frame
Republican	0.05	-0.58
	(0.390)	(0.363)
Endowment	0.05***	0.16***
	(0.018)	(0.020)
Republican × Endowment	0.03	0.15***
	(0.035)	(0.044)
Constant	6.51***	5.32***
	(0.218)	(0.167)
Observations	2,497	4,400
R^2	0.006	0.063

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 227 neutrally-framed subjects in each of 11 dictator games. The number of observations in column 2 comes from the decisions of 400 tax-framed subjects in each of 11 dictator games.

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

Result 2 (**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 6 show that the coefficients for "Tax-framed" and "Tax-framed × Endowment" are significant ($p < 0.01$) for both Democrats (column 1) and Republicans (column 2).

In addition, Table 7 shows that the coefficients for "Republican × Endowment" is significant only in the tax-framed treatment. This indicates that the tax frame causes Democrats and Republicans to behave differently.

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. Econometric model and identification strategy

In the model, we assume that individuals employ a logistic choice rule, where the likelihood of choosing any action, a, depends on the relative utility of that action compared to other actions:

$$P(a = a_i) = \exp(U_i) / \sum_j \exp(U_j) \tag{2}$$

Our first specification assumes that utility depends on only the dictator's own payoff. This is equivalent to setting $\gamma_i = 0$ in Equation 2 (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:

$$U_i(k_i) = \beta_i k_i \qquad \text{(Outcome Model)}$$

If changes in a subject's behavior are driven by changes in norms across initial endowment levels, e, then the weight that individuals place on complying with the norm, γ_i, should be significantly different from 0. Thus, in our second 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:

$$U_i(k_i, I_i, e) = \beta_i k_i + \gamma_i N(k_i|I_i, e) \qquad \text{(Identity Model)}$$

Note that in a conditional logistic regression (McFadden, 1974)[19] where the dependent variable is the selected action, the variation reflects variation across the characteristics of the possible actions. In our experiment, these characteristics are the payoffs and norms. When we change the initial endowment amount, we hold the monetary payoff constant. Thus, the source of variation is the variation in norms.

To test whether including norm ratings improves our ability to predict identity-dependent choice, we fit individual utility functions to our choice data. We anticipate that any improvement will be reflected by lower Akaike and Bayesian information criteria (AIC and BIC). This leads to the following prediction:

Hypothesis 3 (**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) than would a model excluding those norms as an explanatory variable.*

3.2.2. The identity model improves our ability to account for behavior

Table 8 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 and 2 and neutrally-framed subjects in columns 3 and 4.[20] The reported coefficients reflect the

[19] Conditional 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.

[20] For these conditional logistic regressions, we do not distinguish whether the decision is made when the initial endowment is 0, 5, or 10 tokens, as this is captured by the different average norm ratings attached to each action for each endowment.

Table 8: Conditional logistic estimation for Democrats and Republicans using average norm ratings

Panel A: Conditional logit for Democrats

	Tax Frame		Neutral Frame	
	(1)	(2)	(3)	(4)
	Outcomes Model	Identity Model	Outcomes Model	Identity Model
Payoff for action (β)	0.112***	0.419***	0.191***	1.043***
	(0.013)	[0.039]	(0.024)	[0.089]
Norms (γ)		2.833***		4.602***
		[0.180]		[0.361]
$0.1 \cdot \frac{\gamma}{\beta}$		0.676***		0.441***
		[0.033]		[0.010]
Observations	8,910	8,910	5,082	5,082
Log likelihood	-1894	-1590	-1032	-795.5
AIC	3789	3183	2066	1595
BIC	3796	3197	2072	1608

Panel B: Conditional logit for Republicans

	Tax Frame		Neutral Frame	
	(1)	(2)	(3)	(4)
	Outcomes Model	Identity Model	Outcomes Model	Identity Model
Payoff for action (β)	0.130***	0.346***	0.206***	0.714***
	(0.022)	[0.044]	(0.034)	[0.087]
Norms (γ)		2.688***		3.631***
		[0.236]		[0.451]
$0.1 \cdot \frac{\gamma}{\beta}$		0.777***		0.508***
		[0.067]		[0.027]
Observations	4,290	4,290	2,409	2,409
Log likelihood	-903.6	-745.9	-484.1	-420.5
AIC	1809	1496	970.1	844.9
BIC	1816	1509	975.9	856.5

Notes:
1. Standard errors (in parentheses) and bootstrapped errors [in brackets] 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 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 132 tax-framed and 114 neutrally-framed Republicans, each making choices in those same situations.

relative weight of each component in the utility function. Specifically, the coefficient for payoffs, β, is an estimate of the average weight subjects place on their monetary payoff. The coefficient for norm ratings, γ, provides an estimate of the average weight subjects place on social appropriateness.[21]

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

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

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.[22]

We report the results of the *outcome model* for our tax-framed treatments in column 1 of Table 8. 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 *identity model* in column 2. 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

[21] Because the average norm ratings are a measured quantity which may include sampling error, we use bootstrapped standard errors for the model containing norm ratings. 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.

[22] Similar 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.

We next present the results of the *outcome model* for our neutrally-framed treatment in column 3 of Table 8. Our results show that 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). The results are similar under the *identity model* (column 4) ($\beta = 1.043$ 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). Finally, 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.

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.

Recall that Hypothesis 3 predicts that the *identity model* should outperform the *outcome model* in explaining subject behavior across endowments. To formally test this hypothesis, we use the AIC and BIC to compare the likelihood that each model fits the observed data. Specifically, smaller AIC and BIC values indicate a better fit of the model to the data.[23] Furthermore, since both the AIC and BIC penalize models for the number of parameters, we expect to find larger AIC and BIC values for our *identity model* if norms have no influence on behavior.

Consistent with Hypothesis 3, we find that augmenting the *outcome model* with the tax-framed norm ratings improves the model's predictive fit for both

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

Democrats and Republicans. For Democrats, we find that both the AIC and BIC are smaller for the *identity model* (3,183 and 3,197, respectively) than for the *outcome model* (3,789 and 3,796, respectively). For Republicans, we find a similar pattern (AIC $= 1,496$ vs. $1,809$ and BIC $= 1,509$ vs. $1,816$). Thus, we conclude that the *identity model* better fits the data for the tax-framed treatment.

Looking at the neutrally-framed results (columns 3 and 4), we find smaller AIC and BIC values under the *identity model* (1,595 and 1,608 for Democrats, 844.9 and 856.5 for the Republicans, respectively) relative to those obtained for the *outcome model* (2,066 and 2,072 for Democrats, and 970.1 and 975.9 for Republicans, respectively).

We also compare the *outcome* and *identity models* to a *social preferences model* using maximum likelihood estimation. In Charness and Rabin's social preferences model (2002), an individual's utility includes both her own and her opponent's payoffs. An individual i's utility is:

$$U_i(k_i) = (\rho \cdot r + \sigma \cdot s)(10 - k_i) + (1 - \rho \cdot r - \sigma \cdot s)k_i \quad \text{(Soc. Pref. Model)}$$

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

Table 9 shows the results of the maximum likelihood estimation.[24] We run this estimation for each of the three models, and for each of the identity and treatment combinations, separately. The "Estimates" columns show the parameter estimates with standard errors in parentheses, and the "LL" columns show the log-likelihoods. The "AIC" and "BIC" columns show the information criteria discussed earlier. Comparing the AIC and BIC, it is clear that in all treatments, the *identity model* explains the data substantially better than the models that only depend on final outcomes.

Taken together, we obtain the following result:

Result 3 (**Choice and Norms: the social identity model accounts for subject behavior**). *For each combination of frame and identity, including the corresponding norm ratings in the model significantly improves our ability to account for variation in behavior.*

[24] We use maximum likelihood estimation because it allows us to estimate the parameters in the social preferences model, therefore not disadvantaging it against the other two models. A different approach is taken in Krupka et al. (2016) where they fix the parameters in the social preferences model.

Table 9: Maximum Likelihood Estimation

	Democrats, Neutral Frame				Democrats, Tax Frame			
Model	Estimates	LL	AIC	BIC	Estimates	LL	AIC	BIC
Outcome		-1031.8	2066	2069		-1893.7	3789	3793
λ	0.191				0.112			
	(0.016)				(0.012)			
Social Preferences		-995.0	1996	2005		-1794.2	3594	3605
ρ	0.502				0.593			
	(0.136)				(4.835)			
σ	0.119				0.173			
	(25.820)				(17.042)			
λ	0.804				0.814			
	(54.525)				(42.470)			
Identity		-795.5	1595	1601		-1589.5	3183	3190
γ	4.414				6.765			
	(0.085)				(0.257)			
λ	1.043				0.419			
	(0.053)				(0.024)			
	Republicans, Neutral Frame				Republicans, Tax Frame			
Model	Estimates	LL	AIC	BIC	Estimates	LL	AIC	BIC
Outcome		-484.1	970	972		-903.6	1809	1812
λ	0.206				0.130			
	(0.024)				(0.017)			
Social Preferences		-474.7	955	962		-900.5	1807	1816
ρ	0.455				0.448			
	(4.048)				(1.781)			
σ	0.136				0.310			
	(32.647)				(6.557)			
λ	0.698				0.607			
	(62.577)				(20.892)			
Identity		-420.5	845	849		-745.9	1496	1502
γ	5.082				7.767			
	(0.224)				(0.500)			
λ	0.714				0.346			
	(0.060)				(0.028)			

Note: Maximum likelihood estimation results, run separately for the different identities and treatments. The "Estimates" columns show the parameter estimates with standard errors in parentheses. The "LL" columns show the log-likelihoods. The AIC and BIC columns show the Akaike and Bayesian information criteria for each model. In all cases, the *identity model* yields the lowest AIC and BIC, indicating that it better accounts for behavior than the other two models.

Support. The results in Tables 8 and 9 show that the AICs and BICs of the specifications including norms ratings are smaller than those that do not include norm ratings.

3.2.3. 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 perform out-of-sample forecasting by estimating the models' parameters using the choices of only 70% of our subjects (the calibration sample) in the *choice experiment* in order to use those parameters to predict the choices of the other 30% of our subjects (the validation sample).

In Figures 5, 6 and 7, we plot the actual vs. predicted behavior of dictators under the *outcome*, *social preferences*, and *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 and maximum likelihood estimation, Figures 5-7 visually depict the better fit of the *identity model* to actual behavior. Using the *outcome 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 *identity model* correctly predicts that both keeping all ten tokens and an equal split of the tokens are likely.

In Table 10, 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 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 $(0, 1, 2, \ldots, 10)$ with probability

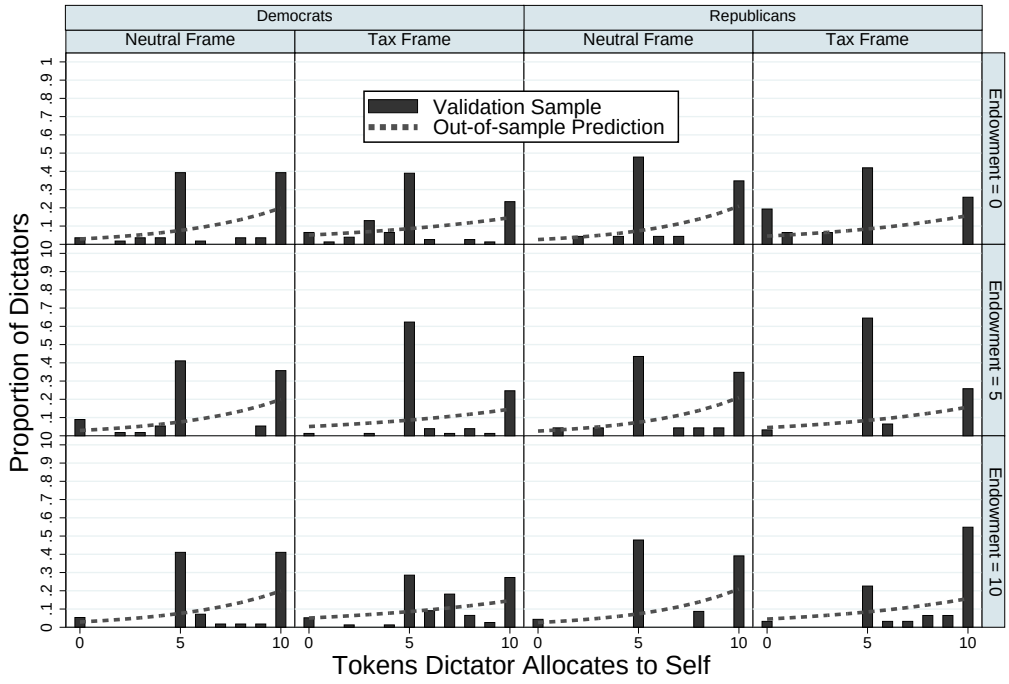

Figure 5: Actual behavior (validation sample, from 30% of all data) and out-of-sample predictions using the *outcome model*.

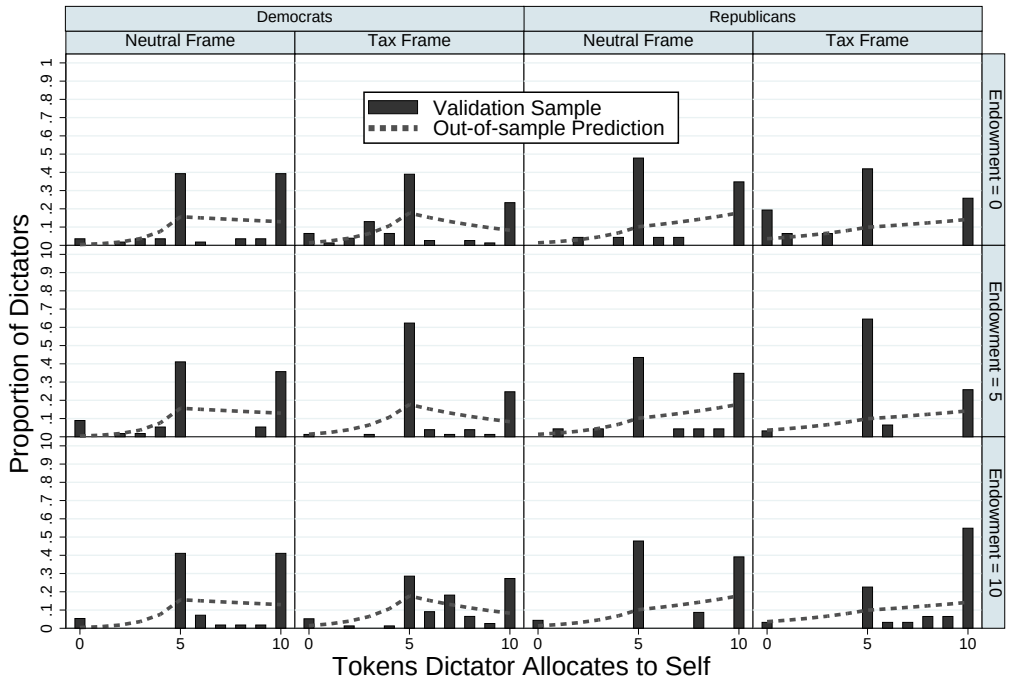

Figure 6: Actual behavior (validation sample, from 30% of all data) and out-of-sample predictions using the *social preferences model*.

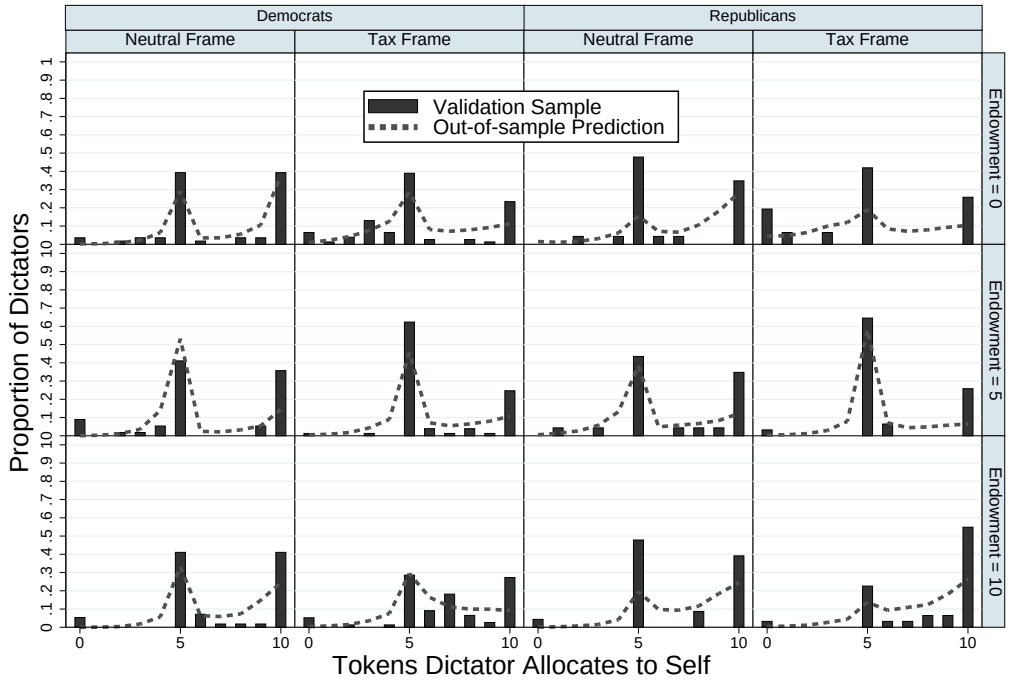

Figure 7: Actual behavior (validation sample, from 30% of all data) and out-of-sample predictions using the *identity model*.

$\boldsymbol{p} = (p_0, p_1, p_2, \ldots, p_{10})$ is:

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

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

Signed-ranks tests confirm the the *identity model* yields higher quadratic scores than the *outcome* and *social preferences models* in all cases ($p < 0.01$ for all comparisons).[25] This confirms that the *identity model* predicts actual behavior more accurately than either the *outcome model* or the *social preferences model*.

Table 10: Estimates for full and out-of-sample estimation and mean squared deviations

		Validation Sample Quadratic Score		
Identity	Frame	Outcome Model	Social Preferences Model	Identity 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

Note: In all cases, signed-ranks tests between the *identity model* and the other two models yield $p < 0.01$. For Republicans in the neutral frame, a signed-ranks test between the *outcome model* and the *social preferences model* yields $p = 0.13$. In all other cases, the same test yields $p < 0.01$.

4. Discussion

We also find that the initial endowment affects dictator choice even in the neutral frame. For the neutral frame, there is a small but significant effect (0.059, $p < 0.001$, extra tokens kept by the dictator for each extra dictator-endowed token). This is in contrast to the majority of prior work examining the effect of the initial endowment on dictator behavior. Of that prior work, our paper is most similar to Dreber et al. (2013) in terms of subject pool and design.

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

There are two differences between our design and Dreber et al. (2013)'s design that could explain this difference. First, we include behavior for all integer initial endowments between 0 and 10, whereas Dreber et al. (2013) only include the extreme cases where the dictator starts with either all or none of the endowment. Second, we have a within-subjects design where all subjects make dictator decisions for all initial endowments. In order to compare these studies, we restrict our analysis to each subject's first choice in the experiment. This restriction makes this a between-subjects analysis. We also only include subjects whose first decisions were made with initial endowment 0 or 10. With these restrictions, we find no significant effect (0.485, $p = 0.36$, extra tokens kept by the dictator when her initial endowment is 10).

The significant result obtained from the within-subjects data, combined with the insignificant result from the between-subjects data, suggests 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—and 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)).

Further, we can lend evidence to a suggestion by Dreber et al. (2013): when there is more ambiguity about the social norm, then framing affects behavior more. 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.[26]

[26]We thank an anonymous referee for pointing us in this direction.

5. Conclusion

Prior research shows that rhetorical framing impacts a decision maker's conception of the acts, outcomes and associated contingencies for a particular 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).[27] 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

[27]These 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).

compliance.[28]

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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