Social norms and identity driven choice

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Abstract

Social identity describes the part of an individuals sense of self that is derived from their perceived association with a social group. A key mechanism for social identity driven choice stems from the normative prescriptions associated with the identity. While social identity models have given rise to a rich set of empirical work, up until this point the norms associated with different social identities have largely been assumed. In this work we conduct an experiment on Amazon Mechanical Turk (MTurk) using a 2(identity prime) x 2(frame) x 2(choice or norms) experimental design. This design separately and directly elicits an empirical measure of the identity dependent norms and then combines this with data from the choice experiments. We show that norms differ between the primed identities and that identity-consistent norms predict behavior better than identity-inconsistent norms. We also estimate the willingness to trade off between payoffs and compliance with identity based norms. By doing so we provide direct evidence of the norms mechanism in social identity driven choice.

1 Introduction

In this paper we present new experimental results on the role that norms play in social identity driven choice. Social identity describes the part of an individual's sense of self that stems from their perceived membership with a social group (Akerlof and Kranton, 2000).[1] Each social group has a set of corresponding normative prescriptions (norms) for behaviors that characterize how members of the group ought to behave in a particular situation. The introduction of identity into an economic framework provides a new way that preferences can be affected by norms. Because normative prescriptions for a social identity evolve within a society or organization, it is possible to have the same identity be associated with different normative prescriptions depending on the setting - thus it is possible to have norms for accountants at Enron differ from those at Ernst and Young. Further, because preferences can be affected by the norms associated with a given identity, the social identity model offers a lens through which to understand the considerable energy that organizations invest in cultivating identities and their associated norms.

On the empirical side, social identity dependent choice motivates a host of observed social phenomena such as ingroup bias and ingroup-outgroup discrimination, persistence of stereotypes, and labor disputes (Akerlof and Kranton, 2000; Terry and O'Brien, 2001; Shih et al., 1999, 2006; Steele and Aronson, 1995; Wichardt, 2008). Both field and laboratory experiments show that inducing a social identity, or making an existing identity salient, can shift measures of preferences such as time, risk aversion and altruism (Benjamin et al., 2010; Chen and Li, 2009). In addition, it is evident that there is considerable variation in the social preferences of group members, predispositions towards and attachment to social groups (Chen and Li, 2009; Kranton et al., 2013). And lastly, there is evidence that the situation in which choice occurs impacts behavior (Chen and Li, 2009; Chen and Chen, 2011).

Despite their central and prominent role in identity based choice models, there is little work that directly tests the role of identity dependent norms. It is noteworthy that, while social identity models have given rise to a rich set of foundational empirical work, this work often relies on an assumption about the norm that is based on a combination of introspection, observation of behaviors and/or interviews (cf. Benjamin et al., 2010; Roy, 1952, respectively). One reason that there are no direct tests of norms on behavior may be that there are significant challenges to testing the effect of identity dependent norms on choice: Social identities are fluid, multiple, socially constructed and often situation dependent.

In this paper we provide direct evidence of the social norms mechanism in social identity driven choice. We use two laboratory experiments to generate the data for our test. In the *choice experiment* subjects are either primed to make their political identity salient (either as a Republican or a Democrat) or treated with a neutral prime. Then they are asked to make decisions in each of eleven redistribution tasks. In the redistribution task, we use a standard dictator game and vary how much of the endowment the dictator initially holds (cf. Krupka and Weber, 2013; Bardsley, 2008; List, 2007). Finally, subjects are asked to self-identify as Republicans or Democrats. We use the self-identified identity response at the end to type subjects so that we know what identity is primed (Republican or Democratic) in the identity prime conditions. Thus, our *choice experiment* varies the prime between subjects (neutral or identity prime) and varies the initial endowment distribution within subject. We observe how the neutral/identity primed dictator varies his transfer decision across the different endowments.

[1] Social groups are defined in (Tajfel and Turner, 1979) as "a collection of individuals who perceive themselves to be members of the same social category."

The *norms elicitation experiment* uses a different set of subjects than those who participated in the *choice experiment* to directly elicit the identity and situation dependent norms for the redistribution situations. To do so, we use a method first proposed by Krupka and Weber (2013) but modified here to elicit non- as well as identity dependent norms. Because subjects also complete a questionnaire in which they self-identify as Republicans or Democrats, we can create independent and empirical measures of identity dependent norms for the redistribution situations faced by dictators in the *choice experiment*. We create the empirical measures of different norms by taking the average norm ratings elicited from our neutrally or identity primed subjects; when we break these averages out by self-identified party affiliation we obtain measures of the identity dependent or the non-identity dependent norms for each party.

The *choice experiment* data show that transfer behavior is strongly affected by variations in how the initial endowment is distributed between the dictator and recipient. Just looking within identity, we find that identity primed dictator behavior is more strongly affected by the variation in endowments than neutrally primed dictator behavior. And finally, when comparing behavior between identities, we find that identity primed Republicans make different token redistribution decisions than identity primed Democrats but that these behavioral differences are not present between neutrally primed Republicans and Democrats. Using just our *norms elicitation experiment* data, we find that both non- and identity dependent norms are affected by variations in how the initial endowment is distributed between the dictator and the recipient. Looking within either the Republican or Democratic identity, we find that identity dependent norms are different from non-identity dependent norms. Finally, when we compare the norms between identities, we see that primed Republican norms differ from the primed Democratic norms but that these differences are not present between the norms elicited from neutrally primed subjects.

Finally, we are able to combine our empirical estimate of the identity dependent norms for Republicans and Democrats with the behavior of identity primed subjects. We demonstrate that identity dependent norms are a significant predictor of behavior and that including them in our model improves the model's fit. We further demonstrate that predicting identity dependent choice with the "wrong" norm (by either crossing identity dependent norms or using non-identity dependent norms to predict identity primed subject behavior) generally results in a poorer fit and does not capture key moments of the data. Finally, our design allows us to estimate a key structural parameter of the identity model - an individual's norm sensitivity. In doing so, we make two key contributions. The first is to provide a direct test of how identity dependent norms affect identity driven choice. The second is to propose an experimental design and empirical strategy by which to estimate identity dependent norm adherence.

2 Theoretical Framework

To motivate our experimental approach, we begin with a preference-based model of social norms based on the model introduced by Akerlof and Kranton (2000, 2005). An individual i's utility U_i is based on the actions undertaken by herself and others ($\mathbf{a} = (a_i, \mathbf{a}_{-i})$), the salient social identities

of herself and others ($\mathbf{I} = (I_i, \mathbf{I}_{-i})$),[2] and the situation (s):

$$U_i = U_i(\mathbf{a}, \mathbf{I}, s)$$

A situation, as defined by Ellingsen and Mohlin (2014), is a "shared view of the set of participants and the relevant set of actions."[3] We assume that this utility can be separated into a value placed on the monetary payoffs of all participants (only affected by actions) and on adhering to social norms (affected by actions, the situation and the individual's salient social identity):

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

where V captures a subject's utility over the monetary payoffs of all participants but utility over monetary payoffs is not dependent on social identity or situation.[4]

N is the social norms function that maps utility over appropriateness to the relevant set of actions for situation s undertaken by individual i (Krupka and Weber, 2013). In other words, when a person's social identity or situation changes so does the shared view of the appropriateness of the actions – i.e. the norm changes. Identity dependent social norms vary at the group level rather than the individual level and, from each member's perspective, they are exogenous and given.[5] In our experiment, we obtain an empirical measure of this appropriateness by eliciting the collective judgment by members of i's salient social identity I_i for situation s in the *norms elicitation experiment*.

By contrast, the γ_{I_i} term reflects the degree to which person i with identity I cares to comply with the social norm for that identity. In this model, the degree to which a person cares to adhere to social norms does *not* vary with the situation. Intuitively, if an actor is someone who cares deeply about complying with a norm, then she will do so regardless of the situation she faces. While this is admittedly a strong assumption, it is also testable in the current experimental framework we employ here.

When we write the utility function this way, we can readily see the identification problem that must be addressed if social identity driven choice is to be empirically tested. It makes sense to write V as a function that is affected by the actor's actions as well as those of others.[6] It also makes sense to write the utility from taking a socially appropriate action as a function of the actions

[2]Akerlof and Kranton (2005) note that individuals can and do have multiple social identities and that sometimes these identities are more or less consciously present. They state: "Researchers use the term social identity to describe types of people and argue that social categories matter to behavior because people often think of themselves (perhaps to great or lesser degree or more or less consciously) in terms of social categories." Several papers have leveraged this to test identity-based models. Shih et al. (1999); Shih and Pittinsky (2005), Benjamin et al. (2010) and Benjamin et al. (2013) make one identity salient in one condition and another identity salient in a second condition.

[3]Akerlof and Kranton (2005) use more general terms to define a situation. They state that it is described by "when, where, how and between whom a transaction takes place." Ellingsen and Mohlin (2014)'s definition emphasizes a collective perception and is more readily operationalized.

[4]This formalization 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." We also note that Chen and Li (2009) introduce a group-contingent social preferences model to explain and quantify ingroup bias. Our model incorporates their model, treating all group-contingent parts of their model as stemming from differences in social norms.

[5]Endogenous selection of social identity is sometimes possible, as with choosing your profession, and sometimes not possible, as with race or gender (c.f. 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]Note also that such a function can accommodate models of outcome-based social preferences (e.g. Fehr and Schmidt, 1999; Charness and Rabin, 2002; Chen and Li, 2009)

themselves (Krupka and Weber (2013) and Reuben and Riedl (2013) offer compelling evidence for this). Further imperative for conditioning N on actions comes from the theory itself: writing norms this way conforms with Akerlof and Kranton's utility formulation as well as the spirit of the model. They write "...views as to how people should behave [depend] on the particular *situation* – that is, when, where, how and between whom a transaction takes place" (Akerlof and Kranton, 2005, p.12). However, writing utility this way also very directly highlights the identification problem that any empirical test of such a model will encounter. It is not possible to identify the effect of norms on behavior using choice data alone. However, if we empirically measure the identity dependent norm for a situation, then we can estimate the relative impact of N on choice. This observation defines an important cornerstone in our empirical strategy.

By separately and independently identifying identity dependent norms, we can overcome several challenges. First, it is possible to construct tests of this model for identities or situations where we do not have ex-ante strong intuitions regarding the prescriptions for behavior for those identities. While we can look for evidence of identity driven choice in places like religious groups, where we may have strong intuitions regarding the identity dependent norms, we may not be able to do research in work situations like those imagined by Akerlof and Kranton (2005) where we are not sure of the norms. Second, we can move away from articulations of identity dependent norms that are coarsely identified. That is, hypotheses can move beyond mere "directional" formulations such as "identity x will perform worse than identity y." When we move away from coarsely identified norms it is also possible to run important comparative tests of alternative mechanisms (e.g. social preferences vs. social norms). In prior work this would be difficult and would penalize the more coarsely specified mechanism - the identity dependent norms. Third, a failure to treat identity dependent norms more deeply also means that there is no clear, or only a weak, conceptual framework to guide the empirical strategy. Related to, or as a consequence of, the latter point: testing hypotheses regarding the effect of social identity on choice that rely only on observed behavior and/or variation in the experimental manipulation (e.g. identity was or was not made salient) is necessarily a joint test of both the effect of social identity on choice and whether the researcher has identified the *correct* identity dependent norm.

3 Experimental Design

To collect both behavior and social norms information, we conduct two different experiments - a *choice experiment* and a *norm elicitation experiment* - using workers from Amazon Mechanical Turk (MTurk).[7] Workers on MTurk perform small tasks set by requesters, who then pay the workers for completing the tasks. Requesters also pay Amazon a 10% commission for completed tasks.

This leads to a between-subjects design with four treatments. First, we vary the type of information we collect from the subjects (behavior or social norms). Second, we vary whether subjects' are treated with a neutral prime or a political identity prime (identity prime from here on). By separately collecting behavior and norms data, we are able to treat the social norms as exogenous and do not need to infer them from behavior. We selected two political social identities (Democrat and Republican) because political identity is a "natural" identity (i.e. one that subjects bring with them to the laboratory) that U.S. subjects tend to have some affiliation with by the time they reach

[7] `www.mturk.com`

adulthood.[8,9]

The *choice experiment* proceeds as follows. Subjects first complete five unpaid tasks that serve as our neutral or identity prime. In the first task, we show subjects five pairs of pictures of people and ask them to tell us which person in each pair they find more attractive. In the neutral prime, the pairs of pictures are of ordinary people. In the identity prime, the pictures are of well-known politicians. In the political identity prime, each pair of politician pictures includes one Democrat and one Republican. In both cases the order of the picture pairs was always the same, but within each pair the left and right position of the pictures was randomized. In the second task, subjects are shown two pictures of people in lines and asked to judge which line is longer. In the neutral prime, the pictures are of people lining up to buy a product while in the political prime, the pictures are of people waiting to vote. In the third task, subjects are shown four states and asked to answer a factual question about each state. In the neutral prime, subjects are asked to guess the average temperature of the state in 2013. In the political prime, subjects are asked whether Barack Obama or Mitt Romney won that state's electoral votes in the 2012 US presidential election. Consistent with the MTurk format, we pay subjects $\$0.50$ for completing all the tasks (but subjects know that payment does not depend on how they answer).

Then subjects proceed to a series of eleven dictator games for which they are paid based on the decisions they make in the games. We create eleven different situations by varying the initial distribution of wealth. Specifically, for each situation there are a total of 10 tokens to split between the dictator and a randomly selected receiver. However, we vary what fraction of the initial endowment is held by the dictator. The eleven situations reflect the eleven possible whole-token splits of the initial endowment from a situation where the dictator holds 10 tokens and the receiver holds none (the standard dictator game) to a case where the dictator holds no tokens and the receiver holds all 10.[10] In the baseline, subjects see a neutral description of the dictator game while in the identity prime condition, subjects see the dictator game described with a tax-redistribution frame. The instructions used in each case are included in the appendix. Once all subjects' decisions are elicited, subjects are randomly paired with another subject, a random initial token distribution is selected (separately for each pair), and a random subject in each pair is selected to be the dictator. That subject's decision in that situation is then implemented, with each token worth $\$0.10$.

After subjects complete the decision making rounds, we administer a 5-item demographic questionnaire in which we elicit the degree to which each subject self-identifies as a Republican or a Democrat by answering the question "In politics, as of today, do you consider yourself:" with a response scale that went from "A Republican/Democrat" to "Leaning more towards the Republican/Democratic Party". In our analysis this variable plays a crucial role in identifying which identity is primed in our priming task. Thus, when we refer to a subject whose "Republican identity" is primed, we are referring to a subject in our priming treatment who also self-identifies as a Republican in the questionnaire.

[8] Kranton et al. (2013) review the different approaches to studying natural vs created identities.

[9] We restricted our subjects to US citizens, and subjects could only participate in one of the conditions

[10] 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) the initial endowment varies from 10, 9, 8, ..., 0 tokens; in block (3) it varies from 5, 0, ..., 4, 6, ..., 10 tokens; and in block (4) if varies from 5, 10, ..., 6, 4, ..., 0.

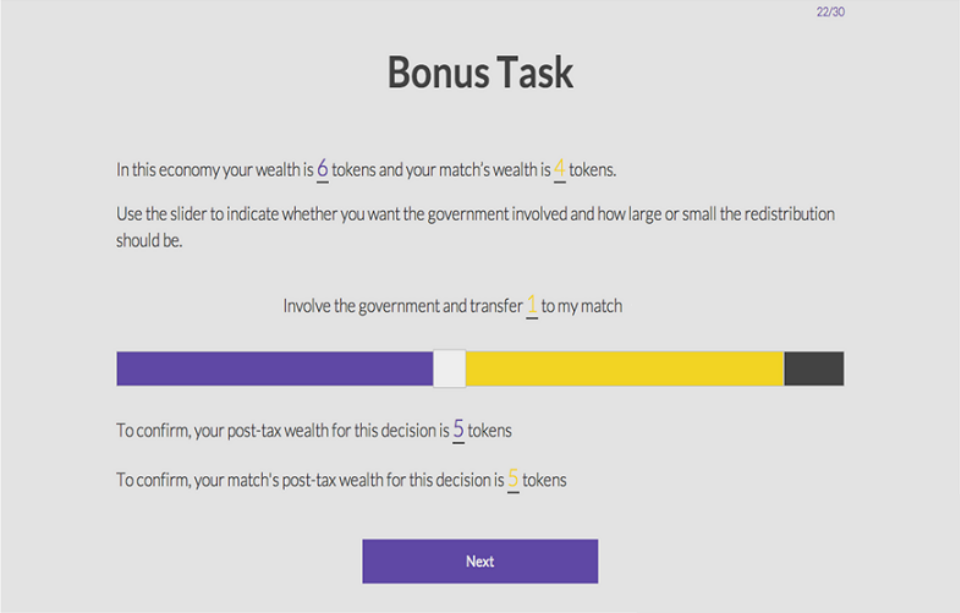

Figure 1: *Choice experiment* decision screen for an identity primed subject. Note: The white slider element starts in the 'neutral' position either to the left or to the right of the slider and must be moved off of the neutral position for the subject to indicate their choice (the slider depicted here 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.

Figure 1 is a screen shot of the decision that a primed subject in our *choice experiment* encounters. This decision is one where the initial endowment for the dictator is 6 tokens and 4 for the recipient. The dictator has to indicate her decision by moving the white box along the slider. The subject cannot move on to the next screen unless she actively moves the slider as depicted in the figure. The neutral position of the slider is left/right randomized at each decision (an example of this can be found in the Appendix). Once she moves the white box along the slider, then the other elements of the screen dynamically update to reflect the choice being made and the final allocation.

The *norm elicitation experiment* proceeds in a parallel fashion with two notable exceptions. The first difference is that we pull the 5-item demographic questionnaire up to the front. In order to elicit identity dependent norms, we need to know whether their political identity is aligned with the Republicans or the Democrats. The questionnaire is identical to that of the *choice experiments* but it is the first task they are asked to complete in the *norms elicitation experiment*. Then subjects are either treated with the neutral or identity prime (which is executed identically to that of the *choice experiment*). As in the *choice experiment* we pay them a $\$0.5$ flat rate to complete all questions. They then move on to the incentivized norm elicitation task.

For the norm elicitation task we follow Krupka and Weber (2013). Subjects in these sessions see only three of the initial token distribution situations seen by those in the *choice experiment*. That is, we describe to the subjects the standard dictator game (where the dictator is endowed with 10 tokens), the situation where the dictator is endowed with 5 and the recipient with 5 tokens, or the situation where the dictator is endowed with 0 and the recipient with 10 tokens. Subjects will read about each of these 3 situations, but the order in which they read about them is randomized.

Following the Krupka and Weber (2013) protocol, we ask that for each of these situations,

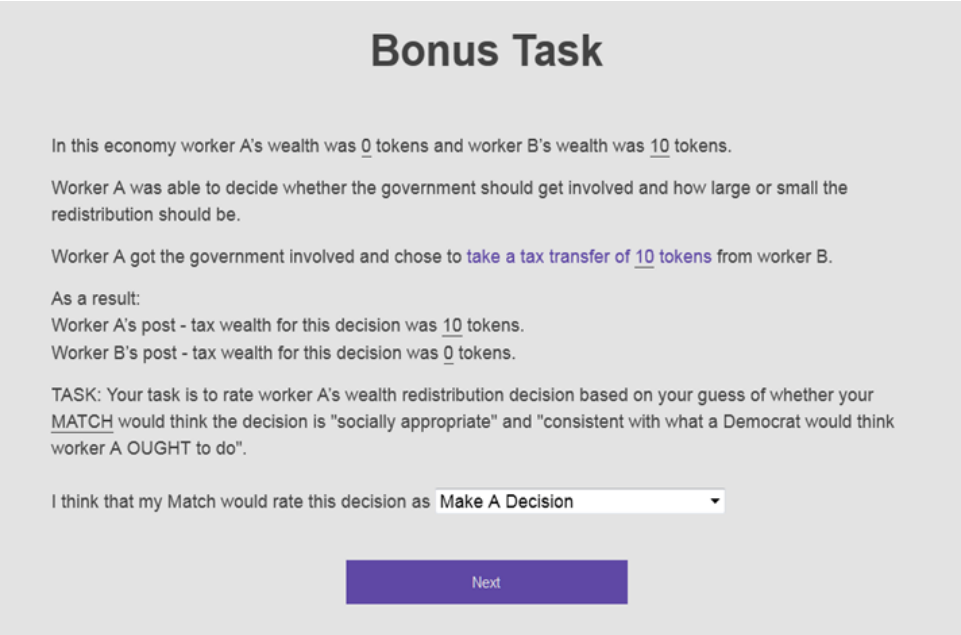

Figure 2: Screen shot of the ratings task

subjects play a coordination game in which they are paid to match their appropriateness rating to that of another randomly drawn participant. In particular, for each situation the subject is asked to rate the appropriateness of all possible dictator actions (from the dictator keeping 0 to the dictator keeping 10 tokens) on a six-point scale. The choices on the scale are "Very Socially Appropriate," "Socially Appropriate," "Somewhat Socially Appropriate," "Somewhat Socially Inappropriate," "Socially Inappropriate," and "Very Socially Appropriate." As an example, Figure 2 shows a screen shot of the situation where the dictator's initial endowment is 0 tokens. A subject in our *norms elicitation experiment* who reads about this situation is then asked to guess how appropriate another MTurk participant would rate the action of "transferring 10 tokens." Using the drop down menu, the subject indicates their guess.

In the non-identity primed norm elicitation treatment we ask subjects to indicate their guess of whether the transfer was "socially appropriate and consistent with what a worker A ought to do." That is, they are paid to guess the modal rating of another randomly selected MTurker. However, to elicit identity dependent norms, subjects in the identity prime treatments are paid to give us their best guess of the appropriateness ratings that another person who shares their identity would give. Thus, we ask subjects to indicate their guess of whether the transfer was "socially appropriate and consistent with what a Democrat / Republican would think worker A ought to do."

For each of the 33 possible actions that the subjects are shown, they receive 1 token, or $\$0.10$, for each rating that is identical to that of their target match. In the non-identity primed elicitation, subjects are told that they will be matched with another MTurker in their session. In the identity primed elicitation, subjects are informed that they are matched with someone who shares their political affiliation.[11] In the non-identity primed elicitation, we interpret this measure as the respondent's best guess about the non-identity dependent norm for the situation. However, for the identity primed treatments, this task gives us a measure of each political party's identity dependent norm profile and an empirical measure of the N for each identity and dictator situation.

[11] Those that respond that they "lean" towards a party are treated as members of that party.

Thus, we can map our experimental treatments back to the utility function and show how our empirical strategy can be used to test our research questions. Allow k_i to denote the amount of wealth kept by dictator i, and e the initial endowment of wealth held by i. Then the utility function from Equation 1 simplifies to:

$$U_i(k_i, I_i, e) = V(k_i) + \gamma_{I_i} N(k_i|I_i, e). \tag{2}$$

Here, a dictator i decides how much to keep for herself, k_i, given her social identity I_i and situation, denoted by the initial endowment e. In what follows, changes in initial endowment are how we operationalize changes in the situation. By separately eliciting social norms from behavior, and for the different social identities, we are able to measure N for the various situations and social identities in our experiment. Also, our family of dictator games is designed to keep V constant (thus, eliminating variation in choice across changes in endowment that may stem from variation in social preferences). These facts combined allow us to estimate γ for the different identities.

In the *choice experiment* a total of 98 subjects participate in the neutral prime treatment and 198 in the identity prime treatment. Payment was \$1 for any dictator and recipient pair. In the *norm elicitation experiment* 197 participated in the non-identity primed norm elicitation and 196 in the identity primed norm elicitation. Average payment for the *choice experiment* was \$0.50 for the identity primed treatment and \$0.25 for the neutral primed treatment. Average payment for the *norm elicitation experiment* was ≈\$0.95 for the identity primed treatment and ≈\$1.10 for the neutral primed treatment.

4 Hypotheses

According to the model, individual behavior in our experiment will depend on the social norms for each situation (initial endowment distribution) and identity (Democrat or Republican). To generate our norm related hypotheses, we appeal to theory, previous experimental results, and political party platforms. It then follows that behavior will be different if the social norms are different.

First, we hypothesize that norms and behavior will be situation dependent.

Hypothesis 1 (Norms - situations)**.** *Subjects will have appropriateness ratings that differ by the initial endowment distribution. Though each of these cases yield the same mapping from action to payoff, the appropriateness of a particular action will depend on what fraction of the initial endowment is given to the dictator.*

Hypothesis 2 (Behavior - situations)**.** *Subject behavior will differ by the initial endowment distribution.*

Subjects in the *norms elicitation experiment* read about a subset of the situations that our dictators encountered in the *choice experiment*: they read about a situation where the dictator's initial endowment was 0, 5 or 10 tokens. Regardless of whether they were neutrally or identity primed, we expect that the norms will differ by situation.

Next, we expect that norms elicited from identity primed subjects will be different from norms elicited from neutrally primed subjects.

Hypothesis 3 (Norms - priming)**.** *For a given identity, identity primed subjects will have appropriateness ratings that differ from those of neutrally primed subjects.*

The Krupka and Weber (2013) results suggest what appropriateness ratings we might expect from neutrally primed subjects. They find that any dictator action between keeping nothing for herself and splitting the total endowment equally with the receiver is seen as approximately equally appropriate. Keeping more than half of the total endowment is seen as gradually less appropriate, resulting in keeping the entire amount being viewed as the least appropriate action.

On the other hand, identity primed subjects are asked to provide appropriateness ratings after being treated with the identity prime. These subjects are instructed to match their ratings to another member of the same political affiliation. As such, these subjects are expected to provide appropriateness ratings that adhere to their parties' views. The 2012 Democratic National Platform, in 4 separate instances, advocates for the "wealthiest taxpayers to pay their fair share." The 2012 Republican Platform, on the other hand, states that the stance of the party is to "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 and 40% of conservative Republicans answered "A lot" or "Some." This suggests that identity primed subjects will provide quite different norms from neutrally primed subjects.

Finally, we expect that norms will differ between identity primed subjects with different identities.[12]

Hypothesis 4 (Norms - identities)**.** *Identity primed subjects with different social identities will have different appropriateness ratings.*

Based on their parties' platforms, we expect that identity primed Democrats will rate an equal redistribution of the total endowment as most appropriate, while identity primed Republicans' appropriateness ratings will depend on the initial distribution of the endowment. For Democrats, keeping more or less than half of the total endowment will be viewed as inappropriate dictator actions, with keeping everything or transferring everything will be seen as less appropriate. This should not depend on the initial distribution of the endowment. On the other hand, Republicans will view the status quo (i.e. not changing the initial endowment) as the most appropriate action, with appropriateness decreasing as the dictator transfers more of the endowment (either to the receiver or to herself). This suggests that primed subjects' norms and behaviors will differ when their identities are primed.

5 Results

5.1 Main Results: Norm Elicitation and Choice Experiments

We begin our discussion of the results by analyzing the data generated from our *norms elicitation experiment* and testing whether identity dependent norms differ by variations in the initial endowment. We then present the results from our *choice experiment* and test for the effect of endowment on the number of tokens an identity primed dictator keeps. We then combine the identity dependent norms data with the choice data to predict behavior. We conclude our analysis of results by comparing the explanatory power of two alternative measures of the norm: non-identity dependent norms and the norms of a different identity.

[12] We do not expect to see much difference between the neutrally primed subjects' appropriateness ratings or actions, regardless of identity.

For the main results, we restrict our analysis to comparisons within an identity in order to control for differences in how the identities view the same situations as well as any unobservable differences in underlying "types" who select into Republican or Democratic identities. We start by pooling those subjects who self-report that they are "leaning" with those who say they are Republicans/Democrats. [13] In the *norms elicitation experiment* we find that 31.63% and 22.84% of subjects identify as Republicans in the identity primed and neutral primed treatments, respectively ($p = 0.0503$, two-sided t-test). In the *choice experiment* we find that 28.28% and 26.53% of subjects identify as Republicans in the identity primed and neutral primed treatments, respectively ($p = 0.7512$, two-sided t-test).

In order to test our first hypothesis, that subjects' perceptions of what is socially appropriate depends on the initial endowment distribution (Hypothesis 1), we have to transform the responses from the *norm elicitation experiment* into our empirical measure of the norm. To do so, we transform the responses by converting subjects' norm ratings into numerical scores. A rating of "very socially inappropriate" receives a score of -1, "socially inappropriate" receives a score of -0.66, "somewhat socially inappropriate" receives a score of -0.33, "somewhat socially appropriate" receives a score of 0.33, "socially appropriate" receives a score of 0.66, and "very socially appropriate" receives a score of 1.[14] Then we construct different empirical measures of the norm. To empirically estimate the Republican [Democrat] identity dependent norm when the initial endowment is 10, we use only the responses from the identity primed subjects who self-reported that they were Republican [Democratic] and take the average norm rating for each each action. We proceed identically for when the endowment is 5 or 0. The resulting profile of average ratings is our empirical proxy for the Republican [Democrat] identity dependent norm for that endowment. In a parallel fashion, we construct non-identity dependent norm profiles for Republicans [Democrats] but use the responses from neutrally primed subjects who self-reported that they were Republican [Democrat].

Figure 3 shows the average identity dependent norm ratings for Republicans across three different initial dictator endowments –the dictator is endowed with all 10 tokens (the standard dictator game), 5 tokens, or 0 tokens. Along the x-axis is the action that is being rated (e.g., "keeping 0 tokens for oneself and transferring 10" is depicted at "0" on the x-axis). The y-axis shows different possible 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." We include a light gray line indicating a norm rating of 0. Though this is not a possible choice for the subjects, this is included to make it easier to see when ratings are positive (i.e. the action is viewed as appropriate) and when they are negative (i.e. the action is viewed as inappropriate).

[13] Recall that subjects in both the *norms elicitation experiment* and the *choice experiment* self-report their party affiliations. The prime merely activates the subject's political identity but does not, in itself, indicate which political identity the subject holds. For that we need the self-reported measure.

[14] Our transformation follows Krupka and Weber (2013).

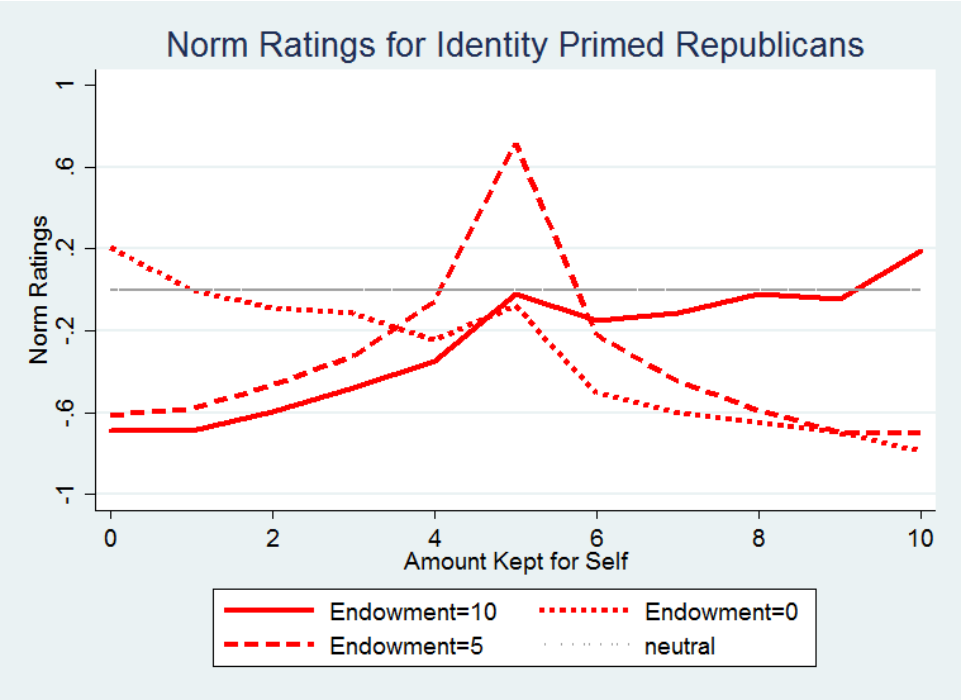

Figure 3: Identity primed Republicans' norms ratings differ by situation.

First, consistent with Hypothesis 1, the norm profiles are very different for initial endowments of 0, 5, and 10 tokens. In other words, the norms profiles for different endowments are not 'simple' transformations of each other such that if you knew the profile for "endowment 10" you could add a constant to get the norm profile for "endowment 5". For example, keeping 0 tokens when the dictator has an endowment of 0 tokens is rated as the most socially appropriate action, while the same action is rated as somewhat socially inappropriate when the dictator's initial endowment is either 5 or 10 tokens. It appears that for identity primed Republicans, staying at the initial allocation is always considered to be the most appropriate action. The equal split (5,5) is only considered the most appropriate action to take when the initial endowment is 5. This is inconsistent with the conventional assumption that an equal split is "the norm" in the dictator game. Rather, it is evident that the most appropriate action is dependent on the endowment and the identity. The second observation is that the appropriateness ratings have a non-linear relationship with the actions. For this reason we run piecewise linear regressions to test for differences in the slopes of the norm profiles on either side of the "5,5" split.

Table 1 presents a piecewise linear regression that tests the differences in the norm ratings of the three initial endowments for Republicans. The variable, "Keep," is the number of tokens the dictator keeps, while "Endow0" and "Endow5" are dummy variables for when the dictator's initial endowment is 0 tokens or 5 tokens, respectively. The first column looks only at cases where the dictator keeps fewer than or exactly 5 tokens, while the second column looks only at the cases where the dictator keeps more than 5 tokens. We find that the coefficient on "Endow0 $\times$ Keep" is significant for both keeping 5 or less tokens and more than 5 tokens, suggesting that the slopes of the norm profiles when the endowment is 0 or 10 tokens are different. Similarly, the significant coefficient on "Endow5 $\times$ Keep" for both keeping 5 or less tokens and more than 5 implies that the slope on the norm profiles when the endowment is 5 or 10 tokens are also different. A Wald test comparing "Endow5 $\times$ Keep" and "Endow0 $\times$ Keep" shows significant differences in the slopes

when the endowment is either 5 or 0 ($p = 0.000$ and $p = 0.002$ for keeping 5 or less tokens and more than 5 tokens, respectively).

Table 1: Identity primed Republicans' norm ratings differ by situation

	(1)	(2)
VARIABLES	Republicans: Keep <=5	Republicans: Keep >5
	DV = Norm Ratings/OLS	
Keep	0.128***	0.074**
	(0.020)	(0.033)
Endow_5	-0.026	1.067***
	(0.075)	(0.273)
Endow_0	0.893***	0.506**
	(0.122)	(0.220)
Endow_5 × Keep	0.110***	-0.196***
	(0.026)	(0.035)
Endow_0 × Keep	-0.191***	-0.141***
	(0.029)	(0.030)
Constant	-0.791***	-0.622**
	(0.080)	(0.258)
Observations	1,116	930
R-squared	0.202	0.218

Robust standard errors in parentheses, clustered on ID
*** p<0.01, ** p<0.05, * p<0.1

Although less visually apparent, Democrats' identity dependent norm profiles are also consistent with Hypothesis 1. Figure 4 shows the average identity dependent norm ratings for Democrats across three different initial endowments. The interpretation of this graph is identical to that of Figure 3. Contrary to the Republicans' identity dependent norm profiles, the Democrats' profiles are very similar in shape across different endowments. This suggests that Democrats' norm ratings are less sensitive to the initial endowment than the norm ratings of Republicans. We also note that an equal distribution (5,5) is always the most appropriate action to take, but that there are differences in how inappropriate it is to deviate from the equal distribution depending on the initial endowment.

Similar to Table 1, Table 2 shows a piecewise linear regression of Democratic norm ratings on the initial endowments and actions. For Democrats, "Endow0 × Keep" is significant for both keeping 5 or less tokens and more than 5 tokens; this suggests that the slopes of the norm profiles are different for when the endowment is 0 or 10 tokens. Similarly, the significant coefficient on "Endow5 × Keep" suggests that the slopes of the norm profiles for when endowment is 5 or 10 differ as well. A Wald test comparing "Endow5 × Keep" and "Endow0 × Keep" also shows significant differences in the slopes when the endowment is 5 or 0, but only when keeping 5 or less tokens ($p = 0.000$ and $p = 0.316$ for keeping 5 or less tokens and more than 5 tokens, respectively).

The model also makes behavioral predictions. In particular, the model predicts that behaviors will differ by the initial endowment distribution (Hypothesis 2). Figures 5 shows the average number of tokens kept by Republicans and Democrats, respectively in the left and right panels, as a

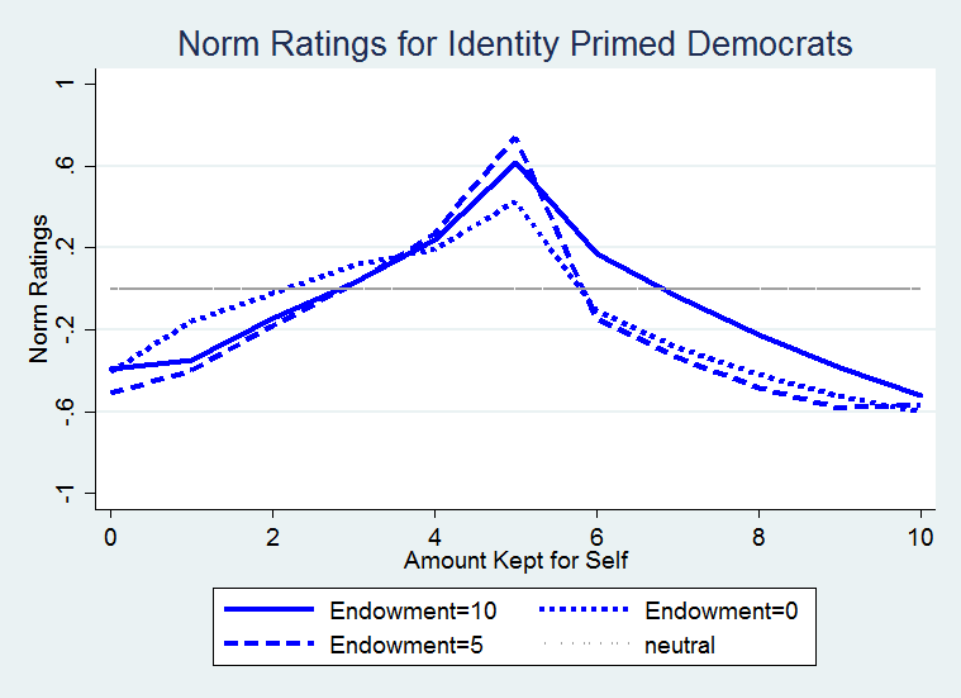

Figure 4: Identity primed Democrats' norms ratings differ by situation.

Table 2: Identity Primed Democrats' norm ratings differ by situation

	(1)	(2)
VARIABLES	Democrats: Keep <=5	Democrats: Keep > 5
	DV = Norm Ratings/OLS	
Keep	0.199***	-0.173***
	(0.015)	(0.015)
Endow_5	-0.115**	-0.734***
	(0.054)	(0.134)
Endow_0	0.141*	-0.590***
	(0.080)	(0.127)
Endow_5 × Keep	0.043***	0.064***
	(0.014)	(0.016)
Endow_0 × Keep	-0.046**	0.050***
	(0.019)	(0.015)
Constant	-0.499***	1.187***
	(0.075)	(0.116)
Observations	2,412	2,010
R-squared	0.224	0.134

Robust standard errors in parentheses, clustered on ID
*** p<0.01, ** p<0.05, * p<0.1

function of the initial dictator endowment. Along the horizontal axis, we have the dictator's initial endowment. Thus, a dictator who starts with 10 tokens (the right-most value) faces a standard dictator game. The vertical axis shows the average number of tokens that dictators keep after being treated with either the identity prime (solid line) or the neutral prime (dashed line). The gray dashed line is for reference and marks the even split on the graph (i.e. 5 tokens for the dictator and 5 tokens for the receiver).

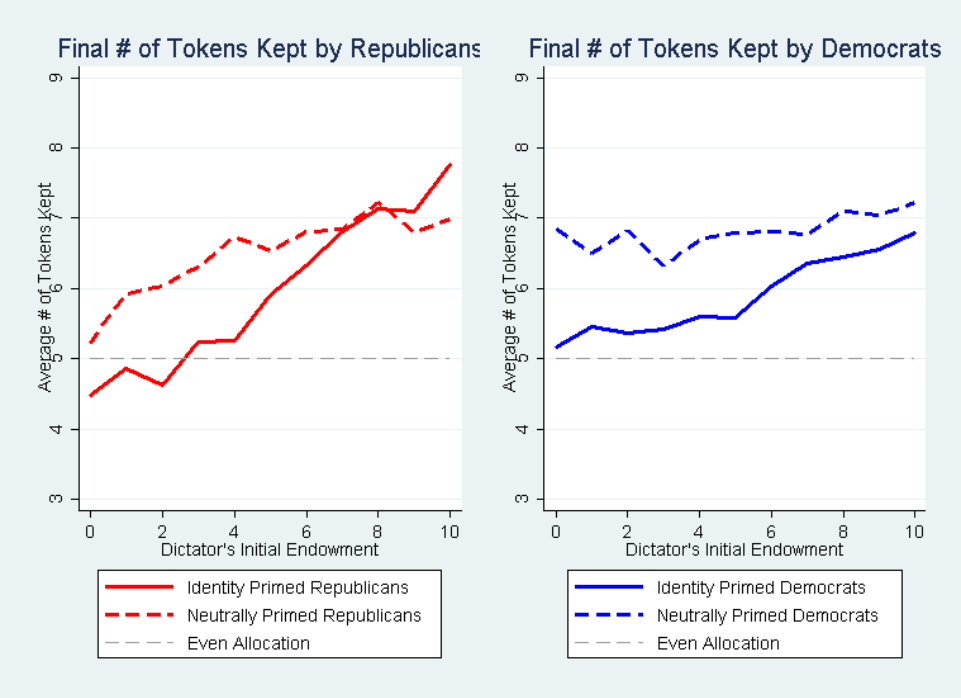

Figure 5: Identity primed Republicans' and Democrats' choices vary by situation.

Consistent with Hypothesis 2, we see a difference in the average amount kept by dictators. If behavior were not dependent on the initial endowment, then the average number of tokens that dictators keep would be similar across endowments and result in flat lines. Visually, we see that this is not the case. On average, identity primed Republican dictators keep approximately 4.7 tokens when the initial endowment is 0 tokens and approximately 7.5 tokens when it is 10 tokens. Similarly, identity primed Democratic dictators keep approximately 5.7 tokens when the initial endowment is 0 tokens and approximately 6.9 tokens when it is 10 tokens. In an OLS regression reported in Appendix A (Table A1), we regress the amount of tokens kept by the dictator on initial endowments for identity primed Republicans and Democrats. Supporting Hypothesis 2, we find that the initial endowment has a significant impact on dictators' choices ($p < 0.001$). In addition, table A2 in Appendix A shows that subjects who are identity primed keep significantly different amounts than those who are neutrally primed ($p < 0.001$).

Thus far, we have used a separate set of subjects to provide us with an independent measure of the identity dependent norms for three different dictator games in which the initial endowment is either 10, 5 or 0. We have shown evidence that for Republicans and Democrats, identity dependent norms differ for the three different endowments. We have also shown that when subjects actually play the game, the identity primed subjects' behavior is significantly affected by the dictator's initial endowment. Because we separately identify the norms data from the behavior data, we

can now examine whether our measured norms can explain behavior in these games and whether subjects' choices are guided by a desire to comply with the identity dependent norm. To do so we fit individual utility functions to the choice data. Recall that if identity dependent norms are an important motivation for behavior, then a model that incorporates concern for norms ought to outperform models that do not.

We assume that individuals have a logistic choice rule, where the likelihood of choosing any action, a, depends on the relative utility of that action compared to the other action:

$$P(a = a_i) = \frac{\exp(U_i)}{\sum_j \exp(U_j)} \tag{3}$$

Our first specification assumes that utility only depends on the dictator's own payoff (one way to think of this is that we set $\gamma = 0$ in equation 2). To estimate the weight placed on monetary payoffs we impose a linear restriction on $V(\cdot)$, such that for any final payoff, k, $V(k_i) = \beta k_i$. Thus, we estimate the weight, β, that individuals place on the money they receive from a particular choice as follows:

$$U_i(k_i) = \beta k_i \qquad \text{(Selfish Model)}$$

To investigate whether concern with norm compliance guides behavior, we can estimate equation 2 using the average appropriateness ratings that identity primed subjects gave us in the *norm elicitation experiment* and the a sub-set of the behavioral data of identity primed subjects in the *choice experiment*. Recall that in the *choice experiment* we observe subject choices in all eleven variations of the endowment. However, for ease of interpretation, we only run the regressions using choices from a situation where the endowment was either 10 or 0 or where the endowment was either 10 or 5. The intuition for these regressions is that the utility from the payoff associated with each action is the same whether the initial endowment is 10 or 0. However, the norm ratings for action "keep 10, transfer 0" are not the same when the initial endowment is 10 or 0. Thus, we can test whether variation in a subject's behavior when the endowment changes stems from changes in the norm.

We use a conditional logit regression (McFadden, 1974)[15], where the dependent variable is which action was selected and the independent variables are the characteristics of the possible action choices (specifically each action's average appropriateness rating and its expected monetary payoff). For each action, we include the average identity dependent social appropriateness rating ($N(\cdot)$) which varies by the dictator's identity and whether the initial endowment was 10, 5 or 0.

$$U_i(k_i, I_i, e) = \beta k_i + \gamma_{I_i} N(k_i | I_i, e) \qquad \text{(Norms Model)}$$

Tables 3 and 4 report the alternative-specific conditional logit regressions (asclogits) for identity primed Republicans (Table 3) and identity primed Democrats (Table 4). In each regression, the reported coefficient reflects the relative weight that each component has in the utility function. The coefficient for payoffs, β is an estimate of the weight subjects place on the payoff characteristic of the action. The coefficient for appropriateness ratings provides an estimate of the weight on social appropriates in equation 2, or γ.

[15]Conditional logit models are similar to multinomial logit models, however conditional logit models emphasize the characteristics of the alternatives, while multinomial logit models depend on the characteristics of the individual making the choice. See Hoffman and Duncan (1988) for a comparison between these models.

Our first specification is reported in columns (1) and (3) of each table. Here we run a *selfish model*, where we assume that utility only depends on payoffs from actions. For both Republicans ($\beta = 0.116$) and Democrats ($\beta = 0.100$), we see that the coefficient on monetary payoffs is positive. That is, subjects are more likely to choose an action that has higher payoffs.

Table 3: Conditional (fixed-effect) logit estimation of choice determinants for identity primed Republicans

	(1)	(2)	(3)	(4)
Model	Selfish	Norm identity dependent	Selfish	Norm identity dependent
Endowment	10 vs. 0	10 vs. 0	10 vs. 5	10 vs. 5
Payoff from Action (β)	0.116**	0.189**	0.198**	0.226**
	(0.030)	(0.046)	(0.031)	(0.069)
Norm (γ)		2.960**		2.584**
		(0.514)		(0.248)
$0.1 \cdot (\gamma/\beta)$		1.566		1.143
Observations	1,232	1,232	1,232	1,232
Log likelihood	-261.4	-230	-248.9	-181.7
subjects	112	112	112	112
BIC	529.9	474.3	504.9	377.7
LRT		62.730		134.410
(p-values in parentheses)		(0.000)		(0.000)

Robust standard errors in parentheses, clustered on ID
** p<0.01, * p<0.05

In columns (2) and (4) we run the *norms model* where we assume that individuals care about both the payoffs and the norm ratings associated with each action. In the *norms model* we see that the coefficient on γ is positive and statistically significant for both identities and variations in endowments. This signifies that actions that are deemed more appropriate are chosen more often. Additionally, augmenting the *selfish model* with the norms ratings increases the model's predictive fit (measured both by the likelihood ratio test ($p < 0.01$) and the Bayesian information criterion which penalizes models for the number of parameters (the smaller BIC is preferred).

Moreover, the influence of the identity dependent norm on behavior is not just statistically significant, but also large in magnitude. We can take advantage of the logit estimation structure, and use the ratio of the γ to β coefficients to identify how much money an individual is willing to sacrifice for an increase of one unit in the appropriateness rating [16]. As an example, when we estimate this trade-off using behavior and norms data in the situation where the endowment changes from 0 to 10, we see that identity primed Republicans are willing to sacrifice \$1.57 for an increase in the appropriateness of the action and Democrats are willing to sacrifice \$0.84. When we use behavior and norms data in the situation where the endowment changes from 10 to 5, these trade-offs are \$1.14 and \$0.66 for Republicans and Democrats respectively. These results suggest that there is

[16] We calculate this by taking $0.1 \cdot (\gamma/\beta)$. That is, we multiply the ratio by 0.1 to get the dollar value of this trade-off. This is because each token in our experiment was worth \$0.1.

Table 4: Conditional (fixed-effects) logit estimation of choice determinants for identity primed Democrats

Model	(1) Selfish	(2) Norm identity dependent	(3) Selfish	(4) Norm identity dependent
Endowment	10 vs. 0	10 vs. 0	10 vs. 5	10 vs. 5
Payoff from Action (β)	0.100**	0.335**	0.123**	0.441**
	(0.018)	(0.054)	(0.019)	(0.077)
Norm (γ)		2.822**		2.925**
		(0.334)		(0.298)
$0.1 \cdot (\gamma/\beta)$		0.842		0.663
Observations	3,124	3,124	3,124	3,124
Log likelihood	-667.3	-571	-660.6	-506.4
subjects	284	284	284	284
BIC	1343	1158	1329	1029
LRT		192.54		308.28
(p-values in parentheses)		(0.000)		(0.000)

Robust standard errors in parentheses, clustered on ID
** p<0.01, * p<0.05

a certain stability to the trade-off within identity across a series of dictator decisions [17] Thus, to summarize, we find that behavior changes across different endowments for both Republicans and Democrats and that these changes can be accounted for by changes in the social appropriateness of seeming identical (in terms of payoffs) actions. However, even though the BIC penalizes us for including an additional explanatory term (the norms ratings) in the regressions, it is possible that the improvements come from including any measure of norms for these games rather than the specific identity dependent norms.

5.2 Secondary Results: Predicting Behavior with the "Wrong" Norms

In addition to demonstrating that the identity dependent norms do a good job of describing the choice data, we wish to consider whether any norms for these games can also describe the choice patterns. In particular, we look at two different norms: the *non-identity* dependent norms and the *other identity's* norms for these games.

Recall that to elicit the non-identity dependent norms, we treated subjects with a neutral prime and then asked them to give us appropriateness ratings. Figures 6 and 7 below show that identity dependent norms and non-identity dependent norms differ. The x-axis plots the amount of tokens the dictator kept for himself. The y-axis plots the average norm ratings for that action. We see that the shape of the identity dependent norms differ from the non-identity dependent norms across variations in the endowment. We report the full set of rank sum tests in the appendix A but characterize the results here. For Republicans we see that in both the case where endowment is either

[17] Of course this is not a universal constant - if the stakes of the game were increased by a factor of 100, then we may estimate a higher weight on norms.

0 or 10, the norm profiles of primed and neutrally primed subjects have very different shapes and the rank sum tests show that these differences are largely significant. However we can also see that there is not much differentiation between the norms when the endowment is 5. For Democrats the norm profiles differ for keeping 0 to 5 tokens but are not significantly different from each other for keeping more than 5 tokens. These graphs (and associated rank sum tests) suggest that neutrally or identity primed norms are qualitatively and, largely also quantitatively, different from each other.

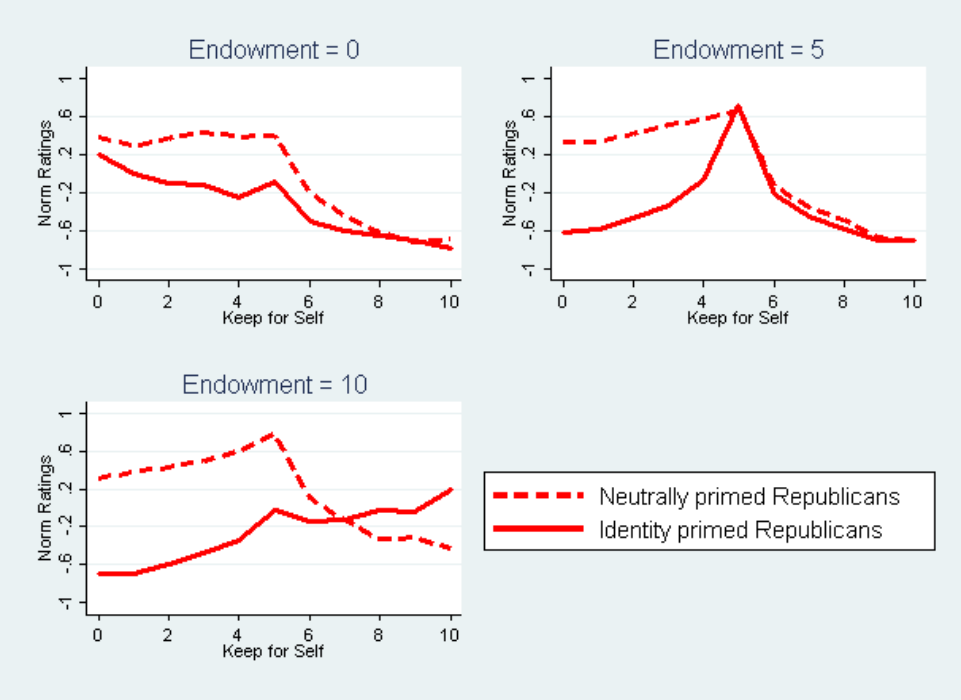

Figure 6: Republicans' norm ratings: identity dependent norm in solid and non-identity dependent norm in dashed.

We can also assign the Democrats' identity dependent norms to the Republican identity dependent choices and vice versa. By cross the identity dependent norms for Republicans and Democrats we can effectively assign the "wrong" identity norm. Figure 8 plots the identity dependent norms of Republicans and Democrats for each endowment.

The figures show that when the endowment is 0 or 10, the shapes of the norm profiles differ. Identity primed Republicans and Democrats also differ with respect to what is the most appropriate action to take. When the endowment is 0, Republicans think that it is most appropriate to keep all the tokens for oneself while Democrats believe that it is most appropriate to keep only 5 for oneself. Similarly, when the endowment is 10, then Republicans believe that the most appropriate action is to keep all 10 for oneself while Democrats believe that keeping 5 is the most appropriate. When the endowment is 5, both Democrats and Republican norm profiles have similar shapes and keeping 5 as the most appropriate action. These figures, and the associated regressions reported in the Appendix A, show that norms differ between these identities and that crossing norms would be akin to assigning the "wrong" norms to the identity.

We run additional asclogits to predict behavior of the identity primed subjects in our *choice experiment*. However, we now use either the non-identity primed norms or the crossed norms as predictors. Table 5 and table 6 report for each identity the results of the *non-identity dependent* (Columns (1) and (3) in each table) and *crossed* norms models (columns (2) and (4) in each table).

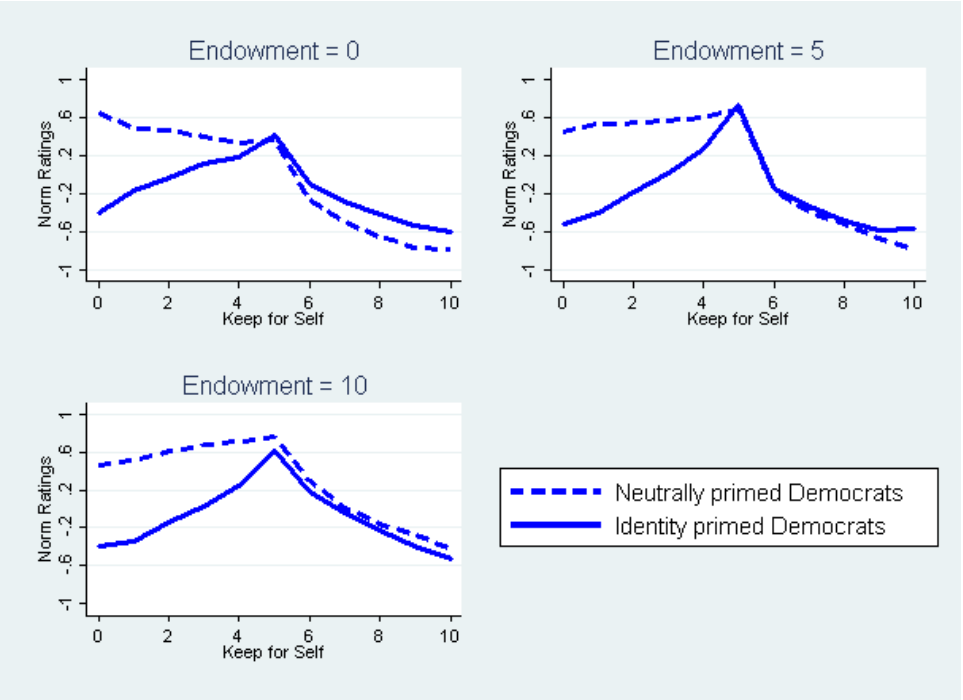

Figure 7: Democrats' norm ratings: identity dependent norm in solid and non-identity dependent norm in dashed.

Figure 8: Identity primed Republicans' norm ratings and identity primed Democrats' norm ratings differ

Table 5: Conditional (fixed-effects) logit estimation of choice determinants for identity primed Republicans using non-identity dependent norms and crossed identity dependent norms

Model	(1) Norm: non-identity dependent	(2) Norm: crossed	(3) Norm: non-identity primed norms	(4) Norm: crossed
Endowment	10 vs. 0	10 vs. 0	10 vs. 5	10 vs. 5
Payoff from Action (β)	0.349**	0.137**	1.022**	0.694**
	(0.086)	(0.041)	(0.188)	(0.190)
Norm (γ)	1.665**	0.380	4.341**	3.395**
	(0.482)	(0.536)	(0.699)	(0.712)
0.1 $\cdot(\gamma/\beta)$	0.477	0.277	0.425	0.489
Observations	1,232	1,232	1,232	1,232
Log likelihood	-252.5	-260.7	-190.1	-193.8
subjects	112	112	112	112
BIC	519.3	535.7	394.5	401.8

Robust standard errors in parentheses, clustered on ID
** p<0.01, * p<0.05

Table 6: Conditional (fixed-effects) logit estimation of choice determinants for identity primed Democrats using non-identity dependent norms and crossed identity dependent norms

Model	(1) Norm: non-identity dependent	(2) Norm: crossed	(3) Norm: non-identity primed norms	(4) Norm: crossed
Endowment	10 vs. 0	10 vs. 0	10 vs. 5	10 vs. 5
Payoff from Action (β)	0.939**	0.148**	0.951**	0.074*
	(0.100)	(0.023)	(0.111)	(0.038)
Norm (γ)	4.895**	2.387**	4.414**	2.317**
	(0.477)	(0.196)	(0.434)	(0.162)
0.1$\cdot(\gamma/\beta)$	0.521	1.613	0.464	3.131
Observations	3,124	3,124	3,124	3,124
Log likelihood	-541.3	-610.3	-505.8	-524.5
subjects	284	284	284	284
BIC	1099	1237	1028	1065

Robust standard errors in parentheses, clustered on ID
** p<0.01, * p<0.05

Just looking at the Republicans in table 5, the coefficient on the non-identity dependent norms (column (1) and (3)) is positive and significant. The coefficient on the crossed norms (column (2) and (4)) is only significant for one of the regressions. When we compare the *norms* model to these new models, we find that overall the *norms* model does well. The BICs for the crossed norms (535.7) is higher than that of the non-identity dependent norms (519.3) and both are higher than the BIC in the *norms* model (474.3). The Vuong test finds that the *norms* model is a significant improvement in fit ($p < 0.05$) when we compare the estimates using the case where the endowment changes from 0 to 10. However, we do not obtain significant improvements in fit for the model predicting behavior when the endowment changes from 10 to 5 for the Republicans.

However, when we use the ratio of the γ to β coefficients to identify how much money an individual is willing to sacrifice for an increase of one unit in the appropriateness rating, we see that that in the new regressions this trade-off is much smaller. As an example, while identity primed Republicans were willing to sacrifice \$1.57 for an increase in the identity dependent appropriateness of the action they are now only willing to sacrifice \$0.47 when non-identity dependent norms are used or \$0.28 when crossed norms are used. This suggests that the willingness to trade-off payoffs for norm compliance is much lower when we use the "wrong" norms.

Just looking at the Democrats in table 6, the coefficient on the non-identity dependent norms (column (1) and (3)) is positive and significant as is the coefficient on the crossed norms (column (2) and (4)). When we use the BICs to compare the *norms* model to these new models, we see that identity dependent norms are a significantly better fit than using crossed norms ($p < 0.05$ with Vuong test) for predicting behavior when the endowment is 10 or 0. However, the identity dependent norms are a worse fit than the non-identity dependent norms (BIC 1099 compared to 1158). Finally, we see that the identity dependent norms offer no improvement in fit over non-identity dependent norms when predicting behavior when the endowment is 10 or 5 (BIC 1028 compared to 1029).

As with the Republicans, we can use the ratio of the γ to β coefficients to identify how much money an individual is willing to sacrifice for an increase of one unit in the appropriateness rating. We see that that in the new regressions this trade-off has substantial variability. As an example, while identity primed Democrats are willing to sacrifice \$0.84 for an increase in the identity dependent appropriateness of the action they are now willing to sacrifice between \$0.46 and \$3.13.

In aggregate, it looks like identity dependent norms do a better job across both identities and across the three variations in endowments that we consider in our analysis. Though the non-identity dependent norms and the crossed norms are either equally or a better fit, this may largely be driven by the fact that the differences in norm profiles for primed and neutral Democrats are much smaller than for Republicans and the differences between Democrats and Republican norms are greatest when the endowment is 10 but are very similar when the endowment is 5.

6 Conclusion

Theory gives norms a leading role in explaining identity dependent behavior. Despite their central and prominent role in identity based choice models, there is little work that directly tests the role of identity dependent norms. In this paper we provide direct evidence of the norms mechanism in social identity driven choice. We use two laboratory experiments to generate the data for our test and analyze their role in predicting behavior for two different identities (Republicans and Democrats). We use an incentivized method to elicit identity dependent norms using coordination

games, and then put these elicited norms to work on a set of choices that are all variants of dictator games. Using conditional logit specifications we show that a linear model with weight both on own payoffs and on the elicited identity dependent norm does a good job overall of fitting the data.

A strength of our approach is that one need not know the particular social norm (is it a norm of fairness, of wealth redistribution or entitlement?) or the particular manner in which the norm expresses itself for an identity ex-ante. Rather one can use this technique to characterize the identity dependent norm and make and test predictions about behavior that were heretofore not possible. Additionally, Our predictions are done between subjects - that is, the subjects making the predictions are not the same playing the games. Thus, we are able to avoid confounds that might otherwise hamper our ability to identify the effect of social norms on choice.

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Appendices

A Supplemental Materials

Table A1: Behavior will differ by situation

	(1)	(2)
VARIABLES	Identity primed Republicans	Identity primed Democrats
	DV = Amount of tokens kept/OLS	
Endowment	0.338***	0.164***
	(0.060)	(0.026)
Constant	4.264***	5.069***
	(0.462)	(0.215)
Observations	616	1,562
R-squared	0.135	0.046

Robust standard errors in parentheses, clustered on ID
*** p <0.01, ** p<0.05, * p<0.1

Table A2 shows OLS regression of Keep on Endowment, Primed, and interaction term Endowment x Primed, clustered on the individual level for the Republicans and for the Democrats. Endowment x Primed shows that those who are identity primed act significantly different from those who are neutrally primed, for both identities ($p < 0.05$ for the Republicans and $p < 0.01$ for the Democrats).

Table A2: Identity primed and neutrally primed behavior will differ

	(1)	(2)
VARIABLES	Republicans	Democrats
	DV = Amount of tokens kept/OLS	
Endowment	0.156**	0.053**
	(0.069)	(0.026)
Primed	-1.455*	-1.477***
	(0.746)	(0.382)
Endow $\times$ Primed	0.183**	0.111***
	(0.091)	(0.037)
Constant	5.719***	6.546***
	(0.587)	(0.316)
Observations	902	2,354
R-squared	0.109	0.057

Robust standard errors in parentheses, clustered on ID
*** p<0.01, ** p<0.05, * p<0.1

The rank sum tests in tables A3 and A4 show that for the most part, identity primed and neutrally primed Republicans and Democrats have different norm ratings across the endowments.

In particular, for Republicans, this difference is significant ($p < 0.05$) at endowment 0 for the actions keeping 1-7 tokens; at endowment 5 for keeping 0-4 tokens; and at endowment 10 for keeping 0-6 and 8-10 tokens. For Democrats, this difference is significant ($p < 0.05$) at endowment 0 for the action keeping 0-4 and 6-10 tokens; at endowment 5 for keeping 0-4 and 10 tokens; and at endowment 10 for keeping 0-6 tokens.

Furthermore, we see the norm ratings of identity primed Republicans differ from those of identity primed Democrats (Figure 8). For endowment 0, the rank sum test is significant ($p < 0.05$) except keeping 1 token and 2 tokens. For endowment 5, the rank sum test is not significant ($p < 0.05$) except keeping 2 and 4 tokens ($p < 0.05$). For endowment 10, the rank sum test is significant ($p < 0.05$) except keeping 7 tokens.

Table A3: Rank sum test comparing norm ratings of identity primed and neutrally primed Republicans across endowments

	Endowment = 0		Endowment = 5		Endowment = 10	
Keep	Z-Score	P-Value	Z-Score	P-Value	Z-Score	P-Value
0	0.656	0.512	5.700	0.000	5.566	0.000
1	2.113	0.035	5.871	0.000	6.410	0.000
2	3.644	0.000	6.191	0.000	6.559	0.000
3	4.583	0.000	6.567	0.000	6.821	0.000
4	5.124	0.000	5.124	0.000	6.627	0.000
5	3.413	0.001	-0.470	0.638	5.648	0.000
6	2.913	0.004	0.973	0.330	2.170	0.030
7	2.442	0.015	1.432	0.152	-0.339	0.735
8	1.679	0.093	1.605	0.109	-2.600	0.009
9	0.226	0.821	0.608	0.543	-2.073	0.038
10	0.613	0.540	-0.18	0.858	-3.615	0.000

Table A4: Rank sum test comparing norm ratings of identity primed and neutrally primed Democrats across endowments

	Endowment = 0		Endowment = 5		Endowment = 10	
Keep	Z-Score	P-Value	Z-Score	P-Value	Z-Score	P-Value
0	10.028	0.000	9.169	0.000	7.989	0.000
1	7.117	0.000	9.451	0.000	8.702	0.000
2	6.362	0.000	8.467	0.000	8.442	0.000
3	4.491	0.000	7.753	0.000	8.641	0.000
4	2.716	0.007	5.762	0.000	7.968	0.000
5	-1.013	0.311	-1.939	0.053	2.139	0.033
6	-2.744	0.006	-0.055	0.957	2.116	0.034
7	-3.907	0.000	-0.161	0.872	0.705	0.481
8	-3.825	0.000	0.340	0.734	1.071	0.284
9	-3.973	0.000	-0.648	0.517	1.550	0.121
10	-2.980	0.003	-3.356	0.001	1.557	0.120

Figure A1 plots the choices of identity primed Republicans and Democrats together on the

same graph. The x-axis is the dictator's initial endowment and the y-axis is the total amount of tokens that the dictator kept after his/her decision. We also see that the choices of identity primed Republicans and Democrats differ significantly in the regression below (Table A5). In particular, Repub x Endow is significant ($p < 0.01$). Identity primed Republicans and Democrats do not keep different token amounts when they have 0 endowment. Democrats keep more as their initial endowment increases. However, relative to the Democrats, Republicans are keeping more for every endowment increase. In other words, Democrats are redistributing more.

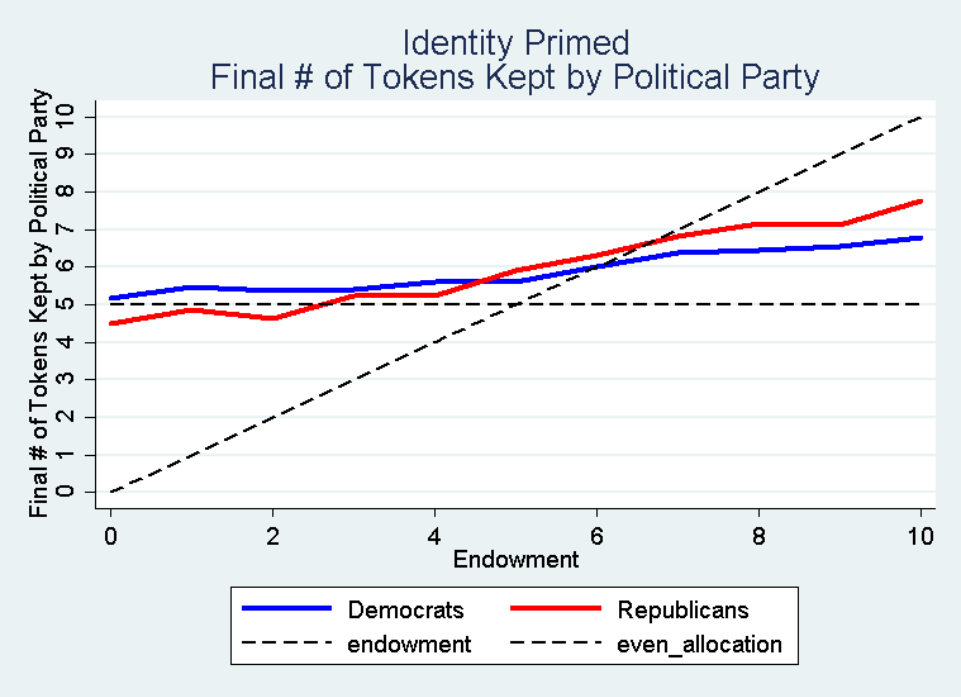

Figure A1: Effect of endowment on keeping tokens when identities are primed

This difference disappears when we look at neutrally primed Republicans and Democrats (figure A2). This is also echoed in the OLS regression below (table A6). Republicans and Democrats do not keep different token amounts (over all endowments). That is, neutrally primed Republicans and Democrats act alike.

Table A5: OLS regression of effect of endowment on keeping tokens when identity primed

VARIABLES	(1) DV = Tokens Kept
Republican dummy (Repub)	-0.805
	(0.507)
Endowment	0.164***
	(0.026)
Repub × Endow	0.174***
	(0.065)
Constant	5.069***
	(0.215)
Observations	2,178
R-squared	0.078

Robust standard errors in parentheses, clustered on ID
*** p<0.01, ** p<0.05, * p<0.1

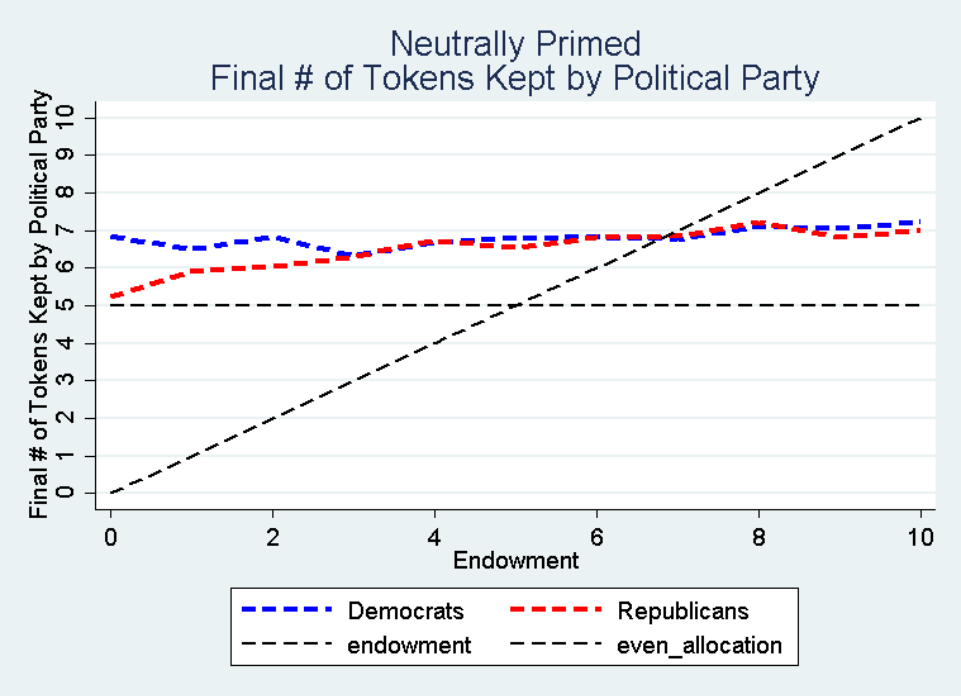

Figure A2: Effect of endowment on keeping tokens when subjects are neutrally primed

Table A6: OLS regression of effect of endowment on keeping tokens when neutrally primed

VARIABLES	(1) DV = Tokens Kept
Republican dummy (Repub)	-0.828
	(0.667)
Endowment	0.053**
	(0.026)
Repub × Endow	0.102
	(0.073)
Constant	6.546***
	(0.317)
Observations	1,078
R-squared	0.013

Robust standard errors in parentheses, clustered on ID
*** p<0.01, ** p<0.05, * p<0.1

We see in table A7 that the coefficients on "Repub × Keep" is significant except in the case where dictators begin with 5 tokens. This suggest that the norm profiles of identity primed Republicans and Democrats differ for a given action the same situation.

Table A7: Piecewise linear regression of norms ratings on the action of keeping a certain amount of tokens, the dummy for being a Republican and their interaction.

VARIABLES	(1) Endowed 0 Keep ≤ 5	(2) Endowed 0 Keep>5	(3) Endowed 5 Keep$\leq$5	(4) Endowed 5 Keep>5	(5) Endowed 10 Keep$\leq$5	(6) Endowed 10 Keep>5
Keep	0.153***	-0.123***	0.242***	-0.110***	0.199***	-0.173***
	(0.019)	(0.012)	(0.015)	(0.011)	(0.015)	(0.015)
Repub	0.460***	-0.713***	-0.204*	-0.008	-0.292***	-1.809***
	(0.125)	(0.153)	(0.113)	(0.192)	(0.109)	(0.282)
Repub×Keep	-0.215***	0.057***	-0.003	-0.012	-0.071***	0.248***
	(0.037)	(0.018)	(0.025)	(0.021)	(0.025)	(0.036)
Constant	-0.358***	0.597***	-0.614***	0.453***	-0.499***	1.187***
	(0.071)	(0.094)	(0.070)	(0.087)	(0.075)	(0.116)
Observations	1,176	980	1,176	980	1,176	980
R-squared	0.107	0.120	0.318	0.083	0.254	0.129

Robust standard errors in parentheses, clustered on ID
*** p<0.01, ** p<0.05, * p<0.1

The theoretical framework we use, which relates closely to Akerlof and Kranton (2000), treats all identity- and situation-related changes as changes in the norms, as described previously:

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

These differences can also be treated in social preferences models such as the one employed by Charness and Rabin (2002). In those models, an individual's utility is determined not only by her own payoff, but also the payoff(s) of her match(es):

$$U_i(\pi_i, \pi_j) = w_i \pi_j + (1 - w_i)\pi_i,$$

where π_i and π_j are the payoffs of individual i and her match j, respectively, and w is a degree to which individual i cares about the payoff of her match.[18]

Consider the case where the situation changes. In our theoretical framework, such a change affects N, whereas in a social preferences model, this will change an individual's utility function by changing w. Now consider the case where the individuals' identities change. This can occur due to priming of specific identities, or by changing the identity of a match. Once again, in our theoretical framework, these changes work through N, while they work through w in the social preferences model. For instance, Chen and Li (2009) and Chen and Chen (2011) show that when subjects are matched with ingroup or outgroup members, their w_i change and can be estimated.

Mathematically, these changes are identical, as you can write the social preferences model as follows:

$$U_i(\pi_i(\mathbf{a}), \pi_j(\mathbf{a})) = \pi_i(\mathbf{a}) + w_i(\mathbf{I}, s)(\pi_j(\mathbf{a}) - \pi_i(\mathbf{a})).$$

[18]Charness and Rabin (2002) also introduce terms for charity and envy, but they can also be encapsulated into the w term, as in Chen and Li (2009).

The utility separates into a part that depends only on the actions of the individuals (similar to V) and a part that depends in actions, identities and situations (similar to N).

What our theoretical framework makes clear is that if we want to estimate γ, the degree to which individuals care about complying with social norms compared to their utility from monetary payoffs, we need to directly measure the social norms, N. When we measure these norms, it is unclear what part of the second term in the social preferences model these norms capture.