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Prosociality, Political Identity, and Redistribution of Earned Income: Theory and Evidence.

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Abstract

We explore the relation between social political identity and prosociality. We first construct a theoretical model to generate predictions for the behavior of players in an ultimatum game who are influenced by social political identity. Then we use a novel subject pool-registered members of British political parties - to play the ultimatum game, and test our predictions. Incomes can either be unearned and untaxed (Treatment 1) or earned, taxed, and redistributed (Treatment 2). We find that the choices of the proposers and the responders are consistent with social identity theory (higher offers and lower minimum acceptable offers to ingroup members) although proposers show quantitatively stronger social identity effects. Moving from Treatment 1 to Treatment 2, offers by proposers decline and the minimum acceptable offers by responders (both as a proportion of income) also decline by almost the same amount, suggesting shared understanding that is characteristic of social norms.

JEL-Codes: D010, D030.

Keywords: social identity, prosocial behavior, ultimatum game, fiscal redistribution, entitlements.

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1. Introduction

Research on social identity theory is an active area of research within the social sciences. Evidence strongly suggests that people identify with social categories; *social identity* refers to ones social category (e.g., Protestant or Catholic, Democrat or Republican, African-American or Asian-American, black or white). Members of the same social category typically have shared norms of behavior that they expect others in their social category to conform to (Fehr and Schurtenberger, 2018). Such norms may be enforced by punishments or sanctions, or by the self-esteem individuals derive from conforming to them, or perhaps because they are hard-wired by evolution to do so (Tajfel, 1970; Tajfel and Turner, 1979, 1986; Turner and Reynold, 2010; Gintis, 2009). Different social contexts may trigger different identities– a family identity, a regional identity, or a national identity (Turner et al., 1987).

The three main components of social identity theory may be summarized as follows (Dhami, 2016, Ch. 7). (i) *Categorization*: People classify into the relevant social categories. (ii) *Identification*: People identify with the norms and characteristics of their category. Members of the same category are termed as *ingroup members* and members of other categories as *outgroup members*. Identification typically involves favouring the ingroup members over the outgroup members. (iii) *Social comparisons*: People compare their own group to other groups on some criteria.

In this paper we use artefactual lab experiments on ultimatum games to study the effects of political identity on social preferences.[1] We also allow for the formation of entitlements by differentiating treatments in which income is earned and taxed, or not. There are relatively few papers that explore the consequences of political identity, perhaps due to the difficulty in getting access to registered political party members.[2] We construct a novel data set in which subjects who are registered members of British political parties play an ultimatum game. We are interested in the prosociality of offers that proposers make to responders when the latter can be classified as ingroup or outgroup members based on their political affiliation. We allow for several identities, an anonymous identity and 5 possible political identities: Labour, Liberal-Democrats, Conservatives, Green, and UKIP (short for UK Independence Party).

Our experimental design ensures that each of the components of social identity the-

[1] For a recent survey of the link between social identity and redistribution, see Costa-Font and Cowell (2015). However, they are able to cite very few actual studies of the relationship between these two factors and they cite no artefactual experiments that explore this relationship.

[2] Such access, at least in Britain, is tightly controlled by party offices who are under no obligation to publish the details of individual party members, and are typically reluctant to expose their party members to lab experiments. A further compounding factor is that economics experiments require incentives and most political parties view the transfer of money from the experimenter to their party members via them with great suspicion.

ory are present. Subjects classify themselves into their political identities by choosing to become members of political parties that involves paying a membership fee (*categorization*). Through their decisions made in the Ultimatum Game, as proposers and responders, they engage in *identification* and *social comparison* with subjects from different political identities.

We now consider the nature of our paper relative to the literature in more detail.

1.1. Minimal group identity or social group identity?

In many classic experiments on social identity, individuals are primed for a *minimal group identity* (MG) that bears little resemblance to outside-the-lab identities. Nevertheless, even when primed for trivial identities, say, blue and red groups, group members favour ingroup members over outgroup members; this is the main prediction of social identity theory (Billig and Tajfel, 1973; Tajfel and Turner, 1979, 1986; McDermott, 2009). These results suggest that humans may be hard-wired by evolution to exhibit such preferences. Discriminatory behavior arising from social identities can give rise to cooperation among ingroup members but also socially harmful outcomes towards outgroup members such as intolerance, discrimination, and prejudice. Typically students tend to form the basis of the subject pool for experiments using the MG design (Chen and Li, 2009; Guala et al., 2013; Fowler and Kam, 2007; Eckel and Grossman, 2005).

Natural group identities created by association with *actual social groups* (SG) have received lesser attention. However, this area is rapidly growing. Applications with the SG design include: field experiments with Swiss army trainees (Goette et al., 2006); ethnic groups (Habyarimana et al. 2007); effects of wartime violence on social cohesion (Gilligan et al. 2013); effects of internal sanctioning on cooperative behavior (Grossman et al., 2012); ethnic factors in judicial decisions (Grossman et al., 2016); exposure to religious messages and effects on egalitarianism and activism (McClendon and Riedl, 2015).

Our interest in this paper is on natural social group identities (SG) that are formed by the self-selection of individuals into registered members of British political parties. Members pay a membership fee and receive party political literature. As such, political identity for these individuals is very salient. Furthermore, we prime this identity even further in our experiments by asking subjects to state the strength of their political identity and asking them to play an ultimatum game with fiscal redistribution, a policy area on which most political parties take an active stance. Hence, our work would appear to have strong ecological validity.

1.2. Political identity and lab experiments

An understanding of the effects of political identity on prosociality may be critical to gain better insights into many important issues. These include the determinants of regional and national redistribution, progressivity of tax rates, decisions made in federations when the centre and a state may be occupied by different political parties, and partisan political decisions in legislatures.

Despite the explosion of field and lab experiments on social identity, surprisingly little attention has been given to political identity.[3] Fowler and Kam (2007) run dictator game experiments with students. They find that dictators offer more to receivers with similar political affiliations. These results suggest the importance of political identity as a form of social identity that influences the degree of prosociality.

Although the dictator game is widely used, its results lack robustness to the introduction of strategic elements. Thus, it may not be a particularly good game to test alternative theories that require even a modicum of strategic interaction (Fehr and Schmidt, 2006; Dhami, 2016).[4] Hence, to gain a better understanding of the effects of political identity on social preferences, we use an ultimatum game in our artefactual lab experiments. The ultimatum game is possibly the most widely replicated experimental game; it has been played in all continents, with different levels of stakes, and among different social groups (Camerer, 2003; Dhami, 2016).[5]

Using the ultimatum game when players are primed for their social identity, one can check to see not only if proposers make more favorable offers to ingroup responders but also if responders are less likely to reject the offers of ingroup proposers (Mendoza et al., 2014).

[3]We are not referring here to the survey-based studies on partisan attitudes, particularly based on US data (Green, 2004; Iyengar et al., 2012; Iyengar and Westwood, 2015; Mason, 2014). Survey data is self-reported and may be subject to well-known cognitive biases, while experiments, if they are run in an incentive compatible manner, are not subject to this problem.

[4]When dictators perceive that they are being watched (pictures of eyes in the room), then they tend to make more generous offers (Haley and Fessler, 2005; Bateson et al., 2006). These results do not survive in games with even minimal strategic elements such as in the trust game (Fehr and Schneider, 2010). In another set of experiments, players in their role as dictators sometimes preferred to exercise moral wiggle room and exit the experiment with a lower payoff than they could receive if they played the experiment (Dana et al., 2006; Dana et al., 2007). However, it has proved hard to replicate results on moral wiggle room in games where some strategic interaction is involved (van der Weele et al., 2014).

[5]The main results are as follows (Dhami, 2016, Section 5.2). The mean offer is 30-40 percent of the endowment and the median offer is 40-50 percent of the endowment. There are rarely any unfair offers (say, less than 10 percent of the endowment) or over-fair offers (say, over 50 percent of the endowment). Low offers are rejected and the main reason for the rejections is that the responders feel that the offers were unfair. These results continue to hold with reasonable increases in the stake size, although at very high stakes, responders are willing to receive lower offers.

1.3. Earned versus unearned endowments

In the typical lab experiments on social preferences, the endowments are provided by the experimenter. Dictator game experiments have shown that the introduction of earned income to dictators may reduce the extent of their pro-social offers (Cherry et al., 2002; Cappelen et al., 2007; Levitt and List, 2007). In Oxoby and Spraggon (2008) receivers in a dictator game earn the endowments–this increased the amounts transferred by the dictator. Thus, property rights may impact on experimentally observed social preferences. However, much less is known about the importance of property rights on prosociality arising through earned income in ultimatum games. Lee and Shahriar (2017) find that as the earned income component of the proposer's income increases, the responder's rejection rate falls.

Existing experiments do not, however, examine social preferences in ultimatum games in the presence of earned income and redistributive income taxation; this is the setting closest to the real world. Furthermore, political identity plays a central role in issues of redistribution. For instance, in the US, the Democrat party is typically identified as the party of higher taxes and higher redistribution while the Republican party is identified as the party of small governments, i.e., lower taxes and lower redistribution (Dhami, 2003).

In our experimental design, we have two treatments. In the *standard ultimatum game*, Treatment 1, the endowments are provided by the experimenter. In the *modified ultimatum game*, Treatment 2, we allow proposers to earn their endowment, which is subject to an income tax. A proportion of the income tax revenues are redistributed to the responder to mimic societal redistribution. Treatment 2 enables us to address the commonly expressed concern that the degree of prosociality observed in the standard ultimatum game may be misleading because it ignores earned income and income taxation for redistributive purposes.

1.4. Main research questions and findings

The discussion above leads us to the following motivating questions for our paper.

1. How important is political identity for the actions of players when we consider an experimental game with an explicit strategic element, such as the ultimatum game?

2. What are the implications of political identity for prosociality when we replace student subjects with a real world subject pool whose political identity is demonstrably salient (i.e., registered fee-paying members of political parties)?

3. An important question in experiments on social preferences is the source of the endowments (earned or not? taxed or not?) These issues ultimately have to do with how much realism we wish our experimental findings to reflect.

4. Are our experimental findings on social identity and prosociality consistent with the predictions of a rigorous theoretical model of human behavior in which issues of prosociality and social identity play a central role?

Our main findings are as follows.

1. Proposers make relatively higher offers to responders of the same political identity (ingroup favoritism). When we differentiate between right and left political identities of the responder, those with a left identity receive higher offers.

2. When responders state their *minimum acceptable offers* (henceforth, MAO), they state a lower MAO when the proposer is an ingroup member (shares the same political affiliation), demonstrating ingroup favoritism. When we compare differences in MAO to proposers of different political parties using a Wilcoxon signed rank test, responders state higher MAO when they are faced with right wing proposers. The quantitative effect of social identity on the behavior of proposers is stronger relative to that effect on the responders.

3. In Treatment 2, where proposers earn their taxable endowments, they make significantly lower offers relative to Treatment 1, where endowments are unearned and untaxed. The MAO's of the responders also decrease significantly in Treatment 2, relative to Treatment 1. There appears to be a shared understanding between proposers and responders, as is required in social norms, in the following sense. The reduction in the actual amounts offered by the proposers in Treatment 2 (relative to Treatment 1) is almost identical to the corresponding reduction in the MAO of the responders.

4. All the empirical findings are consistent with the predictions of our theoretical model that combines insights from (i) the Fehr and Schmidt (1999) model of social preferences, and (ii) social identity theory (Akerlof and Kranton, 2000). An important insight of our model is that while the effects of social identity on the optimal offers of proposers are unambiguous (and supported by our evidence), there are no clear effects of social identity on the MAO's of responders.[6] This is because social identity theory does not predict if the disadvantageous inequity parameter in Fehr-Schmidt preferences is higher for insiders or outsiders in the social group. However, our empirical results clearly show that this parameter is higher for outsiders, relative to insiders. This is an important finding that is only made possible by pitting the predictions of a rigorous theoretical model against the data.

[6] This illustrates the importance of testing the predictions of rigorous theoretical models. In the absence of such predictions, one might automatically assume that social identity theory predicts that responders should state lower MAO's for ingroup proposers as opposed to outgroup proposers.

1.5. Plan of the paper

Section 2 describes the theoretical model and its predictions which are tested in the rest of the paper. Section 3 explains our experimental design based on the ultimatum game and the subject pool comprising of registered British political party members. Section 4 gives the experimental results, sequentially, for proposers and responders. Section 5 concludes. The Appendix in Section 6 describes the experimental instructions.

2. The theoretical model

The *ultimatum game* is a sequential game played between two players, a *proposer* and a *responder* (Güth et al., 1982). The endowment of the proposer, is $x > 0$. The proposer first makes an offer $s \in [0, x]$ to the responder, which is observed by the responder. If the responder accepts the offer, then the proposer gets to keep $y_P = x - s$ and the responder gets $y_R = s$. If the responder rejects the offer, the proposer gets $y_P = 0$ and the responder gets $y_R = 0$. It is obvious that if both players have self-regarding preferences, then in the subgame perfect equilibrium the outcomes are $y_P^* = x$, $y_R^* = 0$.

We now introduce income taxation and social redistribution from the rich to the poor. The proposer's income is taxed at the rate $t \in [0, 1]$; so total tax revenues equal tx. A part $\delta \in [0, 1]$ of the tax revenues is redistributed to the responder; we mimic here the main feature of societal redistribution as a transfer from the rich (proposer has all the income) to the poor (responder has zero income). The remaining part $1 - \delta$ does not directly add to current material payoffs so we ignore it.[7] Thus, the post-tax incomes of the proposer and the responder are given by

$$y_P(s) = x(1-t) - s,\ y_R(s) = s + \delta t x. \tag{2.1}$$

It follows that

$$y_P(s) \gtreqless y_R(s) \Leftrightarrow (1 - t - \delta t)\frac{x}{2} \gtreqless s. \tag{2.2}$$

We assume that

$$1 - t - \delta t > 0. \tag{2.3}$$

Let

$$\overline{s}(t) = \frac{1}{2}(1 - t - \delta t)\, x. \tag{2.4}$$

From (2.3) and (2.4) we get

$$\overline{s}(t) > 0. \tag{2.5}$$

[7] This may be taken to be the analogue of real world expenditure items such as deadweight loss of taxation, expenses of operating the tax system, defence, and infrastructure expenditure

From (2.2) and (2.4) we get

$$y_R(s) \leq y_P(s) \Leftrightarrow s \leq \overline{s}(t). \tag{2.6}$$

We assume that the proposer and the responder have Fehr-Schmidt preferences as in Fehr and Schmidt (1999). Let social identity be given by $S = I, O$, where I denotes *insider identity* and O denotes *outsider identity*. For players i, j and $i \neq j$, where $i, j \in \{P, R\}$, the *Fehr-Schmidt preferences* of player i are given by

$$U_i(s) = \begin{cases} y_i(s) - \beta_S [y_i(s) - y_j(s)] & if \quad y_i(s) \geq y_j(s) \\ y_i(s) - \alpha_S [y_j(s) - y_i(s)] & if \quad y_i(s) < y_j(s) \end{cases}, \tag{2.7}$$

where $\alpha_S \geq 0$ and $0 \leq \beta_S < 1$ are, respectively, the parameters of disadvantageous and advantageous inequity, which are common across the players (heterogeneity in parameters can be easily incorporated in our model). Most experimental evidence shows that $\beta_S \in [0, 1)$, $\beta_S < \alpha_S$ (Dhami, 2016, Section 5.2). An individual is said to have *social preferences* or *other-regarding preferences*, if at least one of β_S and α_S is non-zero. Self-regarding preferences is a special case in which $\alpha_S = \beta_S = 0$.

We capture the essence of social identity theory by the following assumption.

$$\beta_I > \beta_O. \tag{2.8}$$

Thus, individuals are more altruistic towards ingroup members as compared to outgroup members. As explained in the introduction, this is the distinguishing feature of social identity theory, and also present in the seminal work of Akerlof and Kranton (2000).

Remark 1 *: The effect of social identity on the size of the parameter α_S is not obvious. Would one be more envious of ingroup members who have higher incomes ($\alpha_I > \alpha_O$) or outgroup members who have higher income ($\alpha_I < \alpha_O$)? This is an open question. For this reason, we make no assumptions about the relative sizes of α_I and α_O, although our data is consitent with $\alpha_I < \alpha_O$, as we show below.*

Overfair offers in which $y_P < y_R$ are rarely observed in the data on ultimatum game experiments. Our experimental results are no exception to this rule. Therefore, and in the light of (2.6), we shall concentrate on offers, s, in the range

$$s \in [0, \overline{s}(t)]. \tag{2.9}$$

2.1. Some useful mathematical results

Here we give some intermediate results that will be useful later. The reader may skip this subsection as a first read, and return to it later when needed.

From (2.1), (2.5), (2.6), (2.7) and (2.9) we get

$$U_R(s) = s + \delta t x - \alpha_S [x(1-t) - 2s - \delta t x] \tag{2.10}$$

$$U_P(s) = x(1-t) - s - \beta_S [x(1-t) - 2s - \delta t x] \tag{2.11}$$

Substituting from (2.4) into (2.10), and simplifying, we get

$$U_R(\overline{s}(t)) = \frac{1}{2}(1 - t + \delta t)\, x. \tag{2.12}$$

From (2.4) and (2.12) we get

$$U_R(\overline{s}(t)) > 0. \tag{2.13}$$

From (2.10) and (2.11), we get

$$\frac{\partial U_R(s)}{\partial s} = 1 + 2\alpha_S > 0, \tag{2.14}$$

$$\frac{\partial U_P(s)}{\partial s} = 2\beta_S - 1. \tag{2.15}$$

The following results will be useful.

From (2.4) we get

$$\frac{\partial \overline{s}(t)}{\partial t} = -\frac{1}{2}(1+\delta)\, x < 0, \tag{2.16}$$

$$\frac{\partial \overline{s}(t)}{\partial \alpha_S} = 0, \tag{2.17}$$

$$\frac{\partial \overline{s}(t)}{\partial \beta_S} = 0. \tag{2.18}$$

Letting

$$\overline{t} = \frac{\alpha_S}{\alpha_S + \alpha_S \delta + \delta}, \tag{2.19}$$

we get

$$\frac{\partial \overline{t}}{\partial \alpha_S} = \frac{\delta}{(\alpha_S + \alpha_S\delta + \delta)^2} > 0, \tag{2.20}$$

$$\frac{\partial \overline{t}}{\partial \beta_S} = 0. \tag{2.21}$$

Solving $U_R(s_c) = 0$ we get, from (2.10) and (2.19),

$$s_c = \frac{\alpha_S - \alpha_S t - \alpha_S \delta t - \delta t}{1 + 2\alpha_S} x = \frac{\alpha_S + \alpha_S \delta + \delta}{1 + 2\alpha_S} \left(\overline{t} - t\right) x, \tag{2.22}$$

and, hence,

$$U_R(s_c) = 0 \text{ and } s_c \geq 0 \Rightarrow t \leq \overline{t}. \tag{2.23}$$

Let

$$\lambda(t) = \begin{cases} \frac{\alpha_S - \alpha_S t - \alpha_S \delta t - \delta t}{1+2\alpha_S} & if \quad t \leq \overline{t} \\ 0 & if \quad t > \overline{t} \end{cases} . \tag{2.24}$$

It is easy to check that $\lambda\left(\overline{t}\right) = 0$. Hence, $\lambda(t)$ is continuous. It will turn out that $\lambda(t)$ is the ratio between the minimum acceptable offer of the responder and the initial endowment, $x > 0$, of the proposer (see Proposition 1, below). As an illustration, take $t = 0.3$, $\delta = 0.5$ and $\alpha_S = 1$. Then

$$\lambda(0.3) = 0.133\,33 > 0. \tag{2.25}$$

2.2. Responder's minimum acceptable offer (MAO)

We first define the responder's *minimum acceptable offer* (MAO), then we derive its properties.

Definition 1 *: Let the tax rate, t, satisfy (2.3) and let $\overline{s}(t)$ be given by (2.4). Let the utility of the responder be given by (2.10). Let s_M be the minimum $s \in [0, \overline{s}(t)]$ satisfying $U_R(s) \geq 0$. Then s_M is the minimum acceptable offer (MAO) for the responder.*

The condition $s \in [0, \overline{s}(t)]$ in Definition 1 guarantees that $y_R(s) \leq y_P(s)$; recall (2.6). The condition $U_R(s) \geq 0$ in Definition 1 is there because the responder can always guarantee himself a payoff of 0 by rejecting the offer.

Proposition 1 *: Let the tax rate, t, satisfy (2.3). Let $\overline{s}(t)$ be given by (2.4). Let $\lambda(t)$ be given by (2.24). Then a minimum acceptable offer, $s_M(t) \in [0, \overline{s}(t)]$, exists and is given by $s_M(t) = \lambda(t)\, x$.*

Proof of Proposition 1: Let $\Sigma = \{s \in [0, \overline{s}(t)] : U_R(s) \geq 0\}$. From (2.13) we have $U_R(\overline{s}(t)) > 0$. Hence, $\overline{s}(t) \in \Sigma$. We have three cases: (i) $U_R(0) < 0$, (ii) $U_R(0) = 0$ and (iii) $U_R(0) > 0$. We consider each case in turn.

(i) Suppose $U_R(0) < 0$. Since $U_R(\overline{s}(t)) > 0$ and since $U_R(s)$ is continuous, there must be an $s_c \in (0, \overline{s}(t))$ such that $U_R(s_c) = 0$. From (2.14) $\frac{\partial U_R(s)}{\partial s} > 0$, thus, we must have $s_M(t) = s_c$. From (2.22) and (2.23), we get $s_M(t) = \frac{\alpha_S - \alpha_S t - \alpha_S \delta t - \delta t}{1+2\alpha_S} x$ and $t \leq \overline{t}$.

(ii) Suppose $U_R(0) = 0$. Then $s_M(t) = 0$. From (2.22) we get $t = \overline{t}$.

(iii) Suppose $U_R(0) > 0$. Then $s_M(t) = 0$. Let $U_R(s_c) = 0$. Since $\frac{\partial U_R(s)}{\partial s} > 0$ (recall (2.14)), we must have $s_c < 0$. Hence, from (2.22), $t > \overline{t}$.

Using (2.24), the above three cases, (i)-(iii), are equivalent to Proposition 1. ■

From Proposition 1, we can now see the interpretation of $\lambda(t)$. $\lambda(t) = \frac{s_M(t)}{x}$ is the ratio between the minimum acceptable offer, $s_M(t)$, of the responder and the initial endowment, $x > 0$, of the proposer.

We now consider the comparative static effects of changes in the tax rate t (which allows us to compare the results of Treatment 1, $t = 0$, and Treatment 2, $t > 0$) and the effects of changes in α_S. Notice that $s_M(t)$ in Proposition 1 is independent of β_S. The results depend on the sign of $\lambda(t)$, however, as indicated in Remark 2 below, our experiments employ the case $\lambda(t) > 0$ for empirically reasonable values.

Proposition 2 *: Let the tax rate, t, satisfy (2.3). Let $\lambda(t)$ be given by (2.24). Then*

$$\begin{aligned}
(a)\ \frac{\partial s_M(t)}{\partial t} &= \frac{-\alpha_S - \alpha_S\delta - \delta}{1 + 2\alpha_S}x < 0, \text{ if } \lambda(t) > 0, \\
(b)\ \frac{\partial s_M(t)}{\partial t} &= 0, \text{ if } \lambda(t) < 0. \\
(c)\ \frac{\partial s_M(t)}{\partial \alpha_S} &= \frac{1 - t + \delta t}{(1 + 2\alpha_S)^2}x > 0, \text{ if } \lambda(t) > 0, \\
(d)\ \frac{\partial s_M(t)}{\partial \alpha_S} &= 0, \text{ if } \lambda(t) < 0. \\
(e)\ \frac{\partial s_M(t)}{\partial \beta_S} &= 0.
\end{aligned}$$

Proof of Proposition 2: Proposition 2 follows by differentiating $s_M(t)$ given by Proposition 1. ■

Suppose $\lambda(t) > 0$. An increase in the tax rate reduces income inequity between a relatively poorer responder and a relatively richer proposer. Hence, the responder reduces the MAO (Proposition 2a). If however, the disadvantageous inequity parameter α_S of the responder increases, then for any given split of income, the responder asks for a higher MAO in order to mitigate income inequality with the proposer (Proposition 2c).

Remark 2 *: There are two major implications of Proposition 2. First, from part (a), as we move from Treatment 1 (experimenter-provided endowments and $t = 0$) to Treatment 2 (earned income and $t > 0$), we should expect the MAO of the responders to strictly decline if $\lambda(t) > 0$. Second, as noted in Remark 1, social identity may lead either to $\alpha_I > \alpha_O$ or $\alpha_I < \alpha_O$. Which of these two cases holds is an empirical matter. In our empirical results (see below), we have $\lambda(t) > 0$ and responders ask for lower MAO from ingroup proposers. This is consistent with the case $\alpha_I < \alpha_O$, i.e., disadvantageous inequity is felt more strongly from outgroup members. As far as we are aware, this is a new empirical finding.*

Remark 3 *: Results of ultimatum games often express the MAO of the responder as a proportion of the proposer's income (in our case, the after-tax income). For this reason,*

we shall find it convenient to use the new variable $\widetilde{s}_M(t) = \frac{s_M(t)}{(1-t)x} = \frac{\lambda(t)x}{(1-t)x} = \frac{\lambda(t)}{1-t}$. *The comparative statics for the new variable,* $\widetilde{s}_M(t)$, *are given by:*

$$\begin{aligned}
(a)\ \frac{\partial \widetilde{s}_M(t)}{\partial t} &= \frac{-(1+\alpha_S)\delta}{(1+2\alpha_S)(1-t)^2} < 0,\ \textit{if}\ \lambda(t) > 0,\\
(b)\ \frac{\partial \widetilde{s}_M(t)}{\partial t} &= 0,\ \textit{if}\ \lambda(t) < 0.\\
(c)\ \frac{\partial \widetilde{s}_M(t)}{\partial \alpha_S} &= \frac{1-t+\delta t}{(1+2\alpha_S)^2(1-t)} > 0,\ \textit{if}\ \lambda(t) > 0,\\
(d)\ \frac{\partial \widetilde{s}_M(t)}{\partial \alpha_S} &= 0,\ \textit{if}\ \lambda(t) < 0.\\
(e)\ \frac{\partial \widetilde{s}_M(t)}{\partial \beta_S} &= 0.
\end{aligned}$$

Comparing (a)-(e) above with (a)-(e) of Proposition 2, we see that they are qualitatively identical and differ quantitatively only in parts (a) and (c).
In our Treatment 2, we give proposers an opportunity to double their endowments by successfully answering quiz questions. Hence, we have two kinds of proposers, those with endowment $2x$ *and those with endowment* x*, depending on whether they were successful or not in answering the quiz. This does not alter the comparative static results (a)-(e) for* $\widetilde{s}_M(t)$ *because* $\widetilde{s}_M(t) = \frac{\lambda(t)}{1-t}$ *is independent of* x.

2.3. The proposer's optimal offer

Let us now consider the behavior of proposers. The proposer maximizes the objective function in (2.11) subject to the responder's optimal strategy that is described in Proposition 1.

Proposition 3 *: Let the tax rate,* t*, satisfy (2.3) and let* $\overline{s}(t)$ *be given by (2.4). Let the utility of the proposer be given by (2.11). Let* $s_M(t)$ *be the minimum acceptable offer (MAO) for the responder, as given by Proposition 1. Let* $s^*(t)$ *maximize* $U_P(s)$ *subject to* $s_M(t) \leq s^*(t) \leq \overline{s}(t)$*, where* $s_M(t)$ *is given by Proposition 1.*
(a) Assume $\beta_S > \frac{1}{2}$. *Then*

$$\begin{aligned}
(i)\ s^*(t) &= \overline{s}(t) = \frac{1}{2}(1-t-\delta t)x,\\
(ii)\ \frac{\partial s^*(t)}{\partial t} &= \frac{\partial \overline{s}(t)}{\partial t} = -\frac{1}{2}(1+\delta)x < 0,\\
(iii)\ \frac{\partial s^*(t)}{\partial \alpha_S} &= 0,\\
(iv)\ \frac{\partial s^*(t)}{\partial \beta_S} &= 0.
\end{aligned}$$

(b) Assume $\beta_S = \frac{1}{2}$. *Then*

$$s^* \in [s_M(t), \overline{s}(t)].$$

(c) Assume $\beta_S < \frac{1}{2}$. *Then*

$$\begin{aligned} \textit{(i)}\ s^*(t) &= s_M(t), \\ \textit{(ii)}\ \frac{\partial s^*(t)}{\partial t} &= \frac{\partial s_M(t)}{\partial t}, \\ \textit{(iii)}\ \frac{\partial s^*(t)}{\partial \alpha_S} &= \frac{\partial s_M(t)}{\partial \alpha_S}, \\ \textit{(iv)}\ \frac{\partial s^*(t)}{\partial \beta_S} &= 0. \end{aligned}$$

(d) Indicate the dependence of s^**on* β *by writing* $s^*(t, \beta)$. *Let* $\beta_1 < \frac{1}{2}$ *and* $\beta_2 > \frac{1}{2}$ *be two different values of* β_S. *Then*

$$s^*(t, \beta_1) < s^*(t, \beta_2).$$

Proof of Proposition 3: Let the tax rate, t, satisfy (2.3) and let $\overline{s}(t)$ be given by (2.4). From (2.6), it follows that $y_R(s) \leq y_P(s)$. Hence, the utility of the proposer is given by (2.11). The reason for the lower bound, $s_M(t)$, is that any offer, s, strictly below this will automatically give the proposer a payoff of zero, which could be bettered by an offer at least as high as $s_M(t)$.

(a) $\beta_S > \frac{1}{2}$. From (2.15) we get $\frac{\partial U_P(s)}{\partial s} > 0$. Hence, $s^*(t) = \overline{s}(t)$. This establishes part (i). Parts (ii), (iii) and (iv) then follow from (2.16), (2.17) and (2.18).

(b) $\beta_S = \frac{1}{2}$. From (2.15) we get $\frac{\partial U_P(s)}{\partial s} = 0$. Hence, $s^*(t) \in [s_M(t), \overline{s}(t)]$.

(c) $\beta_S < \frac{1}{2}$. From (2.15) we get $\frac{\partial U_P(s)}{\partial s} < 0$. Hence, $s^*(t) = s_M(t)$. This establishes part (i). Parts (ii) and (iii) then follow immediately. Part (iv) follows from Proposition 2e.

(d) From part (ai) we get $s^*(t, \beta_2) = \overline{s}(t)$. From part (ci) we get $s^*(t, \beta_1) = s_M(t)$. Hence, $s^*(t, \beta_1) < s^*(t, \beta_2) \Leftrightarrow s_M(t) < \overline{s}(t)$. From (2.4) and Proposition 1 we get $s_M(t) < \overline{s}(t) \Leftrightarrow \frac{\alpha_S - \alpha_S t - \alpha_S \delta t - \delta t}{1 + 2\alpha_S} x < \frac{1}{2}(1 - t - \delta t) x$. Simplifying gives $s_M(t) < \overline{s}(t) \Leftrightarrow 1 - t + \delta t > 0$. However, using (2.3), we have $1 - t + \delta t \geq 1 - t - \delta t > 0$. Hence, $s^*(t, \beta_1) < s^*(t, \beta_2)$. ■

Remark 4 *: (a) Proposition 3aii shows that, for* $\beta_S > \frac{1}{2}$, *as we move from Treatment 1 (experimenter-provided endowments and* $t = 0$*) to Treatment 2 (earned income and* $t > 0$*), the optimal share offered by the proposer to the responder,* $s^*(t)$, *strictly declines. Propositions 2a and 3cii show that the same result holds for* $\beta_S < \frac{1}{2}$ *and* $\lambda > 0$.
(b) Proposition 3d shows that an increase in β_S *from below* $\frac{1}{2}$ *to above* $\frac{1}{2}$, *leads to a discontinuous increase in the optimal offer,* $s^*(t, \beta_S)$. *An important application of this is when* $\beta_O < \frac{1}{2}$ *but* $\beta_I > \frac{1}{2}$. *This can explain why a proposer offers less to an outgroup member relative to an ingroup member.*

Remark 5 *: Empirical analyses of ultimatum games often express the offer of the proposer as a proportion of the proposer's income (in our case, the after-tax income) Analogous to Remark 3, we can introduce the new variable* $\widetilde{s}^{*}(t) = \frac{s^{*}(t)}{(1-t)x}$*. We consider the two cases* $\beta_S > \frac{1}{2}$ *and* $\beta_S < \frac{1}{2}$*.*
Case $\beta_S > \frac{1}{2}$*: Here,* $s^{*}(t) = \overline{s}(t)$ *and, hence,* $\widetilde{s}^{*}(t) = \frac{\overline{s}(t)}{(1-t)x} = \frac{1-t-\delta t}{2(1-t)}$*. It follows that*

$$\frac{\partial \widetilde{s}^{*}(t)}{\partial t} = \frac{-\delta}{2(1-t)^{2}} < 0,$$

which is qualitatively the same as Proposition 3aii, though numerically different. The comparative statics with respect to α_S *and* β_S *are exactly the same as for Proposition 3a.*
Case $\beta_S < \frac{1}{2}$*: Here,* $s^{*}(t) = s_M(t)$ *and, hence,* $\widetilde{s}^{*}(t) = \frac{s_M(t)}{(1-t)x} = \widetilde{s}_M(t)$*. It follows that the comparative statics here are exactly the same as in Remark 3.*

3. Subject pool and experiment design

3.1. Subject pool

We use a novel subject pool, registered members of British political parties, who play the Ultimatum Game in the role of proposer or responder (but not both).[8] Registered members of British political parties have made the conscious decision to join a political party and are likely to be some of the most politically engaged/aware members of society. Their political commitment is reflected in their annual paid political membership and their attendance at political meetings. They also receive regular literature on their party positions on various issues and the topical political debates from time to time. These individuals are likely to possess a strong *political identity* and engage in politically motivated activities, such as voting in elections and the degree of redistribution to be carried out in society. To the best of our knowledge, this is the first time that this subject pool has been studied in experiments of this kind.

We contacted five of the most widely supported national political parties in England for access to their registered members.[9] The five parties were the Green Party, Labour Party, Liberal Democrats, the Conservative Party, and the UK Independence Party (UKIP). This constitutes a richer spectrum of political parties relative to the few studies using US data (see the introduction); a limiting feature of these studies is that they are based on dictator

[8] Such experiments carried out in the field are known as *lab in the field studies* in the political science literature but simply as *artefactual field studies* in behavioural economics (Dhami, 2016).

[9] Only the local offices of parties in England were contacted. This was due to the salience of national identities in Wales, Scotland and Northern Ireland that results in large support bases for the Nationalist parties in each country. Initially we had intended to collect our data only from the Leicestershire area but we were unable to garner sufficient number of subjects. For this reason, we chose to expand our sampling area across England, focussing primarily on large cities.

games and unearned endowments. We were unable to garner sufficient observations from the UKIP supporters, possibly due to their relatively smaller number, hence, in this paper we focus mainly on the other four parties.[10]

British political party membership is generally set up so that only the local party office has access to the contact information for members in their area. Emails were sent from a University of Leicester email account to the local party office. The initial email included a detailed outline of the research and what the experiment would entail; an email reminder was sent in most cases. The emails also briefly explained some of the salient features of experiments within economics such as the roles of incentives and anonymity.[11] Given the UK Data Protection Laws, we requested the parties to contact their members themselves, through an email containing the link to our experiment. Since the survey distribution takes place through emails sent out by the political party offices themselves, this may have a priming effect on political identity, increasing the salience of already existing political identities. Further priming takes place when we ask subjects to state the strength of their political affiliation with their chosen political party. This possibly improves the ecological validity our results for the predictions of social identity theory.

Respondents from political parties completed an online questionnaire using the survey platform Qualtrics, which ensured complete anonymity.[12] Participation in the experiments was voluntary.[13] Due to the nature of online experiments, it was not possible to completely control either the environment in which the experiment was conducted or the demographics of those who self-selected themselves into the experiment.[14] However, this is unavoidable given UK data protection laws and the fact that the participation decision is voluntary. An advantage of using registered political party members is that it allows for a more demographically diverse, and politically primed, subject pool relative to a standard lab experiment with student subjects.

[10] At the time of contacting the UKIP for running experiments with their registered members, UKIP had already suffered serious electoral setbacks in the 2015 UK general elections, which might have resulted in the lack of interest to participate in our study.

[11] It is impossible to publish any experiments in economics journals without an incentive compatible design in which subjects play at least one randomly chosen experimental round with real money. Interestingly, in contrast to this requirement, many of those contacted were put off by the payments that would be made from the outcome of the Ultimatum Game, often citing a willingness to help without monetary incentives instead.

[12] Neither the experimenter nor other participants were able to identify our subjects, and this was known to the subjects. Given the often sensitive nature of political affiliation and the possible discriminatory nature of social identity decisions, this was of vital concern for the accuracy of our data.

[13] All respondents were required to give their consent for participation, without which they could not proceed any further. Those who were unwilling to give consent were thanked for their time and offered inclusion into a lottery to win £10 (this occurred only once in the experiment and the subject that declined consent did not select into the lottery).

[14] For instance, online experiments can only be taken by those with internet accesses and, thus, may not be applicable to all sections of society although there is near-universal access to the internet in England.

Whilst our experimental design does not randomly sample from the entire population of political party members in England, the demographics of our subject pool broadly reflect that of the party membership on aggregate. Data on political party make-up is hard to obtain because different parties classify membership differently and are under no legal obligations to report their membership numbers, let alone the demographic make-up of the members. However, using a House of Commons Briefing Paper–Membership of Political Parties (2017), and YouGov information[15], we are able to make broad comparisons. Other than education (our subjects are slightly more educated) our sample is representative of the general membership of political parties.

Data collection was a slow and arduous process as we did not have direct access to the subjects. The only method of recruiting subjects was to continue to write to party offices who in turn make the decision to forward our request (or not) to their party members. The response from the different political parties was uneven; there were only 3 subject responses from the UKIP, which we had to eliminate from our sample, and the number of subjects from the Conservative party are the lowest among the remaining parties. A major problem in getting access to data arose from our use of incentivized experiments. Political party offices, not familiar with experiments, were extremely reluctant to offer access to their members on account of the monetary payment for decisions to be made to their party members. Future studies of this valuable subject pool are likely to encounter the same problems.

Our use of the strategy method to elicit the responses of both proposers and responders in an ultimatum game significantly expands the data we gather. As part of the strategy method, subjects, say, in their role as responders (respectively, proposers) are asked to state their minimum acceptable offer (respectively, offer) when the other player is of any of the 5 different political identities and of the anonymous identity. Due to the smaller number of right wing parties (UKIP and Conservatives), our data is subject to the caveat that it over-represents left-wing parties (Labour, Liberal Democrats, and Green).

Additional and unavoidable problems arose during the lengthy data collection process: in a fast moving series of events, the Brexit referendum occurred, David Cameron resigned as Prime Minister, Nick Clegg resigned as leader of the Liberal Democrats, Ed Miliband resigned as leader of the Labour Party in conjunction with other political occurrences. As most of these events are related to the Brexit Referendum, we use a Mann-Whitney U test to determine whether our responses change significantly after this event. No temporal change in responses was found so we chose to pool the data. We also included time dummies in our regression to control for the length of the study; this variable turned out not to be significant. In conjunction, these results show that social identity and prosociality were

[15] https://yougov.co.uk/news/2017/04/25/demographics-dividing-britain/

not affected by the other political events that occurred during the data collection process.

Table 3.1 outlines the total number of proposers and responders we have in our data for each political party.

3.2. The experimental design

The details of the experimental design can be found in the Appendix. Here we briefly outline the main features. All participants are assured that the data collected in the experiment will be completely anonymized. Subjects begin by answering some demographic questions (age, gender, education). They then state their political identity (one of Labour, Conservative, Liberal-Democrat, Green, and UKIP), and the strength of their political affiliation on a 5 point Likert Scale from very strong (1) to very weak (5).

The Ultimatum Game is explained to the subjects and they must correctly answer two questions designed to test their understanding, in order to proceed further in the experiment. Subjects who correctly answer the test questions are assigned either the role of the proposer or the responder for the rest of the experiment (but not both roles).

Subjects sequentially play the following two treatments.

Treatment 1: Subjects play a *standard ultimatum game* augmented to include the role of political identity. The proposer is given an endowment of £10. The proposer first played an ultimatum game against a responder whose political identity was anonymous (first sub-treament). In the second sub-treatment, the strategy method is then used to elicit the offers that proposers make to a responder with the following 5 possible political identities: Labour, Conservative, Liberal-Democrat, Green, and UKIP.

In the first sub-treatment for responders, we elicit the *minimum acceptable offer* (MAO) that subjects in their roles as responders demand from proposers with an anonymous political identity. In the second sub-treatment, we then use the strategy method to elicit the responder's MAO against the following possible political identities of the proposer: Labour, Conservative, Liberal-Democrat, Green, and UKIP.

The strategy method allows us to elicit the complete strategy of each player and leads to a substantial increase in the data points (Bardsley et al., 2010). All decisions by proposers and responders were made using a slider task (see screenshots in the Appendix). In order to eliminate potential order effects, we undertook two precautions. (1) The order of the two sub-treatments for the proposer and for the responder was randomized. (2) When the strategy method was used to elicit the choices of the proposer and the responder, the order of the party-affiliations (Labour, Conservative, Liberal-Democrat, Green, and UKIP) of the other player was also randomized.

Treatment 2: Subjects play an *augmented ultimatum game*, in which the only difference from Treatment 1 is that (1) proposers earn their endowments, which are subject

Party \Role	Proposers	Responders
Green	32 Participants 192 Data Points	28 Participants 168 Data Points
Labour	52 Participants 312 Data Points	51 Participants 306 Data Points
Liberal	34 Participants 204 Data Points	37 Participants 222 Data Points
Conservative	19 Participants 114 Data Points	15 Participants 90 Data Points
Total	137 Participants 822 Data Points	131 Participants 786 Data Points

Table 3.1: Breakup of the data points by political identity.

to an income tax, and (2) a part of the tax revenues is redistributed to the responder. As noted earlier, this is designed to improve the ecological validity of our experiments to reflect a realistic real world earnings scenario in which prosociality and the effects of social identity could be examined.

Proposers were initially given an endowment of £10 and then given the chance to earn an extra £10 by correctly answering at least 4 out of 5 simple arithmetic questions (95% of our proposers got at least 4 correct answers). The purpose of this exercise was to create an *entitlement effect* on earned income. The difficulty of the questions has been shown to be inconsequential. Hoffman and Spitzer (1993) show that merely announcing entitlements is sufficient to induce property rights over the endowment.

Furthermore, we implement a fiscal redistribution system within the game. Proposers, the only players with income in the model, are subject to an income tax at a rate of 30% on their endowment. Half the tax revenues are redistributed to the responder, the player with no income, to mimic social redistribution. In terms of the model in Section 2, $t = 0.3$ and $\delta = 0.5$. The remaining 50% of the tax revenues are taken out of the experiment; this portion can be thought of as non-redistributive government expenditures. The fiscal redistribution is mutual knowledge to the proposer and the responder, enabling them to take it into account in making their decisions.

In both treatments, subjects are informed at the start of the experiment that they will be matched randomly with a second player (a responder or a proposer, depending on their role) and one of the actual decisions will be selected at random and used to determine their payoffs to ensure incentive compatibility of decisions.

Each subject (with a fixed role as proposer or responder) played both treatments using the strategy method. Hence, the number of data points for each player is $2 \times 6 = 12$ (2 is the number of treatments and 6 is the number of identities of the other player including 5 political parties and one anonymous identity). The survey was completed within 20 minutes for all respondents and the average payments were £4.59; this is 175.89% of the minimum wage in the UK. The number of data points corresponding to each political identity are described in Table 3.1; we have a total of 822 offers made by 137 proposers

and 786 minimum acceptable offers by 131 responders for a total of 1608 data points.[16]

We did not randomize between the two treatments (although we randomize between sub-treatments and political identities as explained earlier) because of two reasons. (i) In Treatment 1 no tax is deducted while in Treatment 2, a 30% income tax is deducted. If we had played Treatment 2 first, then moving from Treatment 2 to 1, subjects might have been subject to a *house money effect*. (ii) Treatment 2 is significantly more complicated than Treatment 1 because it involves taxation and redistribution of income. As such, we are likely to get more accurate responses if subjects first learn to play the simpler Treatment 1.

4. Experiment Results

In this section, we present our results and demonstrate significant effects of political identity in determining proposer offers and the MAO's of responders.

4.1. Proposers

Table 4.1 gives the summary data for the offers made by proposers to each type of responder. The mean and the median offers by proposers fall within the usual range observed in other ultimatum game experiments. Proposers offering over 90% of the endowment are clear outliers (less than 1.1% of total offers). All offers over 90% were to one's ingroup members.

Table 4.2 uses a Wilcoxon signed rank test to test for pairwise differences in the average proposer offers, as a percentage of their post-tax endowments, made to a responder with two different identities: the column identity minus the row identity. The normalization by post-tax endowment does not change the predictions of our theoretical model; see Remark 5. The post-tax endowment of a proposer who has an endowment of 20 is $20(1-0.3) = 14$. Positive (respectively, negative) values, therefore, indicate a relatively higher offer to the responder with the column (respectively, row) identity. Thus, the very first number in Table 4.2 in the north-west corner (-0.04) shows the difference in the average offer of the proposer to a responder of the Green Party relative to a responder with the anonymous identity (Anon), expressed as a percentage of the post-tax endowment of the proposer.

[16] We did not have any subjects in our experiment with an anonymous political identity; all our subjects are registered members of some British political party. We did not give this information to subjects either way–i.e., whether subjects with anonymous political identity were present or absent from our sample. Some experimental economists may believe this to be borderline subject deception. The typical objection based on grounds of subject deception in our context would refer to the possible contamination of a student subject pool that might participate in a future economics experiment. However, our registered political party subjects, drawn from the general population, had neither participated in an economics experiment before, nor are likely to do so in the future, although we cannot rule it out. We should also point out that our procedure is perfectly acceptable in experiments in psychology.

PROPOSER OFFERS	**Anon**	**Green**	**Labour**	**Lib Dem**	**Con**	**UKIP**
TREATMENT 1						
Mean	0.47	0.43	0.43	0.42	0.37	0.30
Median	0.50	0.50	0.50	0.50	0.49	0.30
Maximum	0.92	1	1	1	0.91	0.94
TREATMENT 2						
Mean	0.39	0.37	0.37	0.38	0.31	0.26
Median	0.39	0.39	0.39	0.39	0.35	0.29
Maximum	0.86	0.93	85.7	1	0.79	0.79

Table 4.1: Summary statistics of proposer offers to responders of different identities

PROPOSER OFFERS	**Green**	**Labour**	**Lib Dem**	**Con**	**UKIP**
TREATMENT 1					
Anon	-0.04***	-0.03**	-0.05***	-0.09***	-0.17***
Green	-	0	-0.01	-0.05***	-0.13***
Labour	-	-	-0.02	-0.06***	-0.13***
Lib Dem	-	-	-	-0.04***	-0.12***
Con	-	-	-	-	-0.08***
TREATMENT 2					
Anon	-0.02	-0.03	-0.02	-0.08***	-0.14***
Green	-	0.07	0	-0.06***	-0.11***
Labour	-	-	0	-0.06***	-0.11***
Lib Dem	-	-	-	-0.07***	-0.12***
Con	-	-	-	-	-0.05***

Table 4.2: Wilcoxon Signed Rank Tests to test pairwise differences of average proposer offers to responders of two different political identities– the column responder identity minus the row responder identity. Null Hypothesis: No difference in the offers made by proposers to a responder with a column identity and a responder with a row identity. All tests are two sided. Stars denote significance levels; a single star ($p<0.01$); two stars ($p<0.05$); three stars ($p<0.01$).

Consider the difference in offers from proposers to an anonymous responder, relative to a responder with any of the 5 political identities. We are able to reject the null hypothesis that these differences are equal for (1) all possible cases in Treatment 1 (see the top row of numbers in Table 4.2), and (2) in Treatment 2 when the column identity of the responder is a Conservative or UKIP member (see the last two numbers in the first row following Treatment 2 in Table 4.2). These differences are negative (and significant in 7 out of 10 cases) which shows that proposers offer less to a responder of any political identity relative to a responder with no political identity (Anon).

Result 1: On average, and not controlling for the political identity of proposers, relatively higher amounts are offered to a responder with an anonymous political identity relative to a responder with a political identity.

One possible explanation for Result 1 is that for our subjects whose political identity is highly salient, other political parties may be viewed as competitors, as in the case of competition for votes in elections. Hence, a lower amount is offered to members of other political parties.

In Result 1, we only consider average offers across all proposers and do not control for the political identity of the proposer. Do proposers also make a smaller offer to a responder of their own political affiliation relative to an Anon responder? When we consider the data on proposers disaggregated by political parties, Liberal-Democrat proposers offer more to their ingroup responders, relative to Anon responders, and the difference is statistically significant at the 5% level. The difference between the offers made to ingroup responders and Anon responders is also positive for proposers belonging to the Green party, although the difference is significant only in Treatment 2. This difference in offers is not statistically significant for proposers belonging to any other political party.

For both treatments, let us omit the row for the Anon identity in Table 4.2 for the moment. Of the remaining data shown in Table 4.2, the numbers in the last two columns are statistically significant and negative, while none of the other numbers are significant. Thus, responders with either Conservative or UKIP identities are made a lower offer relative to responders of other political identities. Conservative responders are made offers by proposers that are on average 6.5% less than responders from all other parties. Offers to Conservative responders are only higher relative to UKIP responders (8% higher in Treatment 1 and 5% higher in Treatment 2). If one classifies the Conservative and UKIP identities as right wing, and the others as left wing, then we have the following result.

Result 2: On average, and not controlling for the political identity of proposers, lower amounts are offered to right wing responders relative to left wing responders.

One possible explanation for Result 2 is as follows. If proposers make relatively higher offers to ingroup responders (see Result 3 below), then the smaller number of Conservative and UKIP proposers in our sample would have biased our results to reduce mean offers to responders from these two parties. Without additional data, we cannot be sure if Result 2 would be robust to a larger sample. For this reason, we treat Result 2 as provisional. This would be an interesting question for future research to take up.

To allow for a closer examination of the effects of political identity in the Ultimatum Game, we run 6 OLS regressions that are reported in Table 4.3. We omit the anonymous identity here because we are interested in the ingroup-outgroup effects of political identity (Proposition 3d), and the effects of fiscal redistribution (Proposition 2a, Proposition 3aii, Propositioncii) on optimal offers by proposers. As noted earlier, we also omit the UKIP identity because we have only 3 subjects with this identity. We estimate a regression of the following form

$$y = a_0 + a_1 d_1 + \sum\nolimits_{i=2}^{i=4} a_i d_i + a_5 d_5 + a_6 d_6 + \mathbf{bX} + \varepsilon, \tag{4.1}$$

where ε is a mean zero, normally distributed, random variable, and y is the proposer's offer expressed as a percentage of the after-tax endowment. Each proposer makes 10 allocation decisions; omitting offers to Anon responders, each proposer makes one offer to each of 5 political identities of the responder in each of 2 different treatments, Treatment 1 and Treatment 2. We have 137 proposers in the sample, giving 1370 observations on offers in total. The explanation of the regressors in (4.1) is as follows.

1. The dummy variable d_1, 'Own', takes the value of 1 if the responder is of the same political identity as the proposer, and 0 otherwise. This allows us to explore the classic ingroup-outgroup effects in social identity theory. Recall that Results 1 and 2 are for the average offers made to responders when we do not take account of the political identity of proposers. However, the regression analysis allows us to pinpoint the political identity of the proposer and identify if higher offers are made to ingroup or outgroup responders. This is the sense in which the subsequent results for proposers differ from Results 1 and 2.

2. We have four categories of political identity (Labour, Liberal-Democrats, Conservatives, and Green) after omitting UKIP. Using the category Conservatives as our benchmark, we now use 3 dummy variables to control for political identity of the proposer: d_2 equals 1 if Green Party and zero otherwise; d_3 equals 1 if Labour and zero otherwise; d_4 equals 1 if Liberal-Democrats and zero otherwise. These variables allow us to examine the size of the offers made by proposers of alternative political parties, relative to the benchmark of a Conservative proposer.

	(1)	(2)	(3)	(4)	(5)	(6)
Own	0.117***	0.117***	0.117***	0.117***	0.117***	0.114***
	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)
Green		0.129***	0.138***	0.138***	0.140***	0.141**
		(0.042)	(0.042)	(0.042)	(0.044)	(0.062)
Labour		0.094**	0.100***	0.100***	0.107***	0.121**
		(0.036)	(0.036)	(0.036)	(0.038)	(0.057)
Lib Dem		0.089**	0.094**	0.094**	0.095**	0.087
		(0.038)	(0.037)	(0.037)	(0.039)	(0.062)
Strength			-0.017	-0.017	-0.017	-0.017
			(0.014)	(0.014)	(0.013)	(0.016)
Entitlement				-0.053***	-0.053***	-0.054***
				(0.009)	(0.009)	(0.010)
Constant	0.339***	0.251***	0.277***	0.304***	0.323***	0.416***
	(0.013)	(0.034)	(0.042)	(0.043)	(0.060)	(0.088)
Demographics	No	No	No	No	Yes	Yes
Date	No	No	No	No	No	Yes
R^2	0.06	0.09	0.09	0.11	0.13	0.29
AIC	-682.3344	-725.7054	-725.2248	-752.2192	-767.0987	-1002.261
BIC	-671.8893	-694.37	-688.6668	-710.4387	-709.6505	-819.7279
N	1,370	1,370	1,370	1,370	1,370	1,370
Subjects	137	137	137	137	137	137

Table 4.3: OLS regressions. Dependent variable in each of the six reported regressions is the offer made by the proposer as a percentage of the after-tax income. Standard errors in parenthesis clustered at the subject level. Demographic controls include age, gender and level of education. Significance levels: Three stars ($p<0.01$); two stars ($p<0.05$); one star ($p<0.1$).

3. The dummy variable d_5, 'Strength', gives the self-reported feelings of belonging to a political party, where 1 is the highest possible strength and 5 the lowest. This variable allows us to examine whether the proposer's offers are influenced by how strongly they identify with their political identity.

4. The dummy variable d_6, 'Entitlement', captures treatment effects. It takes a value 1 for Treatment 2 and value 0 for Treatment 1. This variable is designed to pick out the effects of entitlements to income on one's degree of prosociality.

5. The vector $\mathbf{X}$ includes information on demographic variables such as age, gender, and education; and $\mathbf{b}$ is the associated vector of regression coefficients.

6. We also included time dummies to check for any differences in results that arise from the date of collection of the data. In effect, we add time fixed effects to our regression analysis. However, since none of these was ever significant in any regression, we have omitted them from (4.1).

From the first row in Table 4.3 (see variable labelled 'Own'), proposers make significantly higher offers to responders who are of the same political identity (ingroup members)

as compared to responders with a different political identity (outgroup members). These effects are robust to additional controls and are significant in all six regressions. On average, proposers transfer 11.65% more of their endowment to an ingroup responder relative to an outgroup responder. The inclusion of variables that control for the political identity of the proposer show that, compared to a Conservative proposer all other political affiliations offer a higher proportion of their endowment to the responder. The addition of the 'Strength' variable does not affect the ingroup favoritism that proposers exhibit. This suggests that the degree of ingroup favoritism is not affected by the strength of the proposers identification with their party. We also considered the interaction of Own and Strength variables; it was insignificant.

Result 3: Proposers offer a higher proportion of their endowment to responders who share a common political identity, relative to a different political identity. This confirms the classic finding in social identity theory that ingroup members are treated more favorably than outgroup members.

One key element of our experimental design is that we are able to examine the effects of earned income and taxation on prosociality, through our dummy variable d_6 (labelled "Entitlement" in Table 4.3). This variable is negative and significant in all regressions where it is used. Thus, proposers significantly reduce their offers to responders (expressed as a percentage of their incomes) when they earn their taxable endowments. Independent confirmation for this is found when we use a Wilcoxon signed rank test to test the difference in offers between Treatments 1 and 2 for a proposer of each political party when making an offer to a responder of the same party; average offers are significantly lower in Treatment 2 ($p < 0.000$ for each pairwise comparison). However, Treatment 2 (taxable earned endowment) does not reduce the effect of social identity in proposer's offers in terms of ingroup favoritism. This confirms the predictions in Proposition 3d.

Result 4: The introduction of taxable earned income significantly reduces the average offers (expressed as a percentage of the proposer's incomes) made by proposers.

4.2. Responders

In this section, we analyze the minimal acceptable offers (MAO's) of the responders and it's correlates. Table 4.4 gives the summary data for the MAO's by responders as a percentage of the after-tax income of the proposers. This normalization does not change the predictions of our theoretical model (see Remark 3) and makes these figures comparable with those in Table 4.1.

RESPONDER MAO's	**Anon**	**Green**	**Labour**	**Lib Dem**	**Con**	**UKIP**
TREATMENT 1						
Mean	0.41	0.41	0.39	0.41	0.46	0.49
Median	0.49	0.49	0.49	0.49	0.5	0.50
Maximum	0.81	1	0.99	1	1	1
TREATMENT 2						
Mean	0.36	0.36	0.34	0.37	0.39	0.43
Median	0.36	0.36	0.36	0.36	0.38	0.39
Maximum	0.79	1	1	1	1	1

Table 4.4: Summary statistics of responder MAO's as a percentage of the proposer's income for proposers of different identities

	Green	**Labour**	**Lib Dem**	**Con**	**UKIP**
Responders					
Anon	0	-0.01	0	0.06***	0.09***
Green	-	-0.02	0	0.05*	0.08***
Labour	-	-	-0.02	0.07***	0.10***
Lib Dem	-	-	-	0.05**	0.08***
Con	-	-	-	-	0.03***
Responders - Taxation					
Anon	0	-0.01	0.01	0.04**	0.07***
Green	-	-0.02	0.01	0.04*	0.07**
Labour	-	-	0.03	0.05**	0.09***
Lib Dem	-	-	-	0.02	0.06***
Con	-	-	-	-	0.04*

Table 4.5: Wilcoxon Signed Rank Tests to test pairwise differences of average responder MAO's from proposers of two different political identities– the column proposer identity minus the row proposer identity, as a percentage of the proposer's income. Null Hypothesis: No difference in the MAO's made by responders to a proposer with a column identity and a proposer with a row identity. All tests are two sided. Stars denote significance levels; a single star ($p<0.01$); two stars ($p<0.05$); three stars ($p<0.01$).

In Treatment 1, the median MAO as a percentage of the proposer's endowment across all possible political identities of the proposer is almost 50%; thus responders demand an equal share of the proposer's income. However, in Treatment 2, following the introduction of earned income and taxation, the median MAO as a fraction of the proposer's after-tax income is significantly reduced. In contrast to the results for proposers, we have that for responders there is very little variation in MAO when faced with proposers of different political identities; this result holds for both treatments. This quantitatively weaker effect of social identity for responders is borne out by regression analysis that we report later.

Our data is unable to distinguish whether the reduction in mean and median MAO from Treatment 1 to Treatment 2 is due to (i) earned income alone, or (ii) fiscal redistribution alone, or (iii) a combination of (i) and (ii).

Table 4.5 uses a Wilcoxon signed rank test to test for pairwise differences in the average responder MAO's, as a percentage of the endowments of the proposer, made to a proposer with the column identity minus the MAO made to a proposer with the row identity. Positive (respectively, negative) values indicate a relatively higher MAO demanded from a proposer with the column (respectively, row) identity. Thus, the very last number in the first row of Table 4.5 in the north-east corner (0.09) shows the difference in the average MAO of the responders to a proposer of the UKIP identity relative to a proposer with the anonymous identity (Anon), expressed as a percentage of the endowment of the proposer (for Treatment 2, this is the post-tax endowment).

We only find any significant pairwise differences in MAO of the responder when the proposer has either a Conservative or UKIP identity–higher MAO's are required from such proposers. Thus, without controlling for the identity of the responder (Table 4.5 reports averages across responders of all possible political identities), we observe a bias against the right wing political identities. As in the case of Result 2, this result may be driven by the smaller number of data points that we have for right wing responders, and so its robustness needs to be tested by future research. For this reason, the following result is provisional.

Result 5: The average MAO's of responders, when we do not take account of the political identity of the responders, are significantly increased when the Proposer has a Right wing political identity

We now run OLS regressions for the MAO of responders, as a percentage of the proposers after-tax endowment, which parallels our regression analysis for the proposers. We estimate a regression equation of the same form as (4.1) except that (i) the dependent variable y is now the MAO of responders, expressed as a percentage of the proposers post-tax endowment, and (ii) the variables are suitably altered to reflect the party affiliations of responders rather than proposers. All other explanatory variables are identical to those in (4.1) and have already been explained above.

As was the case for proposer offers, we find that 'Own' (corresponding to d_1) is statistically significant and negative in all regressions. Responders consistently state a lower MAO when they share a political affiliation with the proposer. As noted in Remark 2, this implies that the unobserved disadvantageous inequity parameter of the responder satisfies $\alpha_I < \alpha_O$, i.e., disadvantageous inequity is felt more strongly from outgroup members.

Recall that the dummy d_4 equals 1 if the responder is a Liberal-Democrat and zero otherwise; where the omitted category is the Conservative responder identity. Thus, Liberal-Democrat responders, relative to Conservative responders, state a lower MAO, which is significant in 4 out of the 5 regressions reported in Table 4.5, although in the best regression in terms of AIC, this difference is not significant. The dummy variables d_2 and d_3 are

	(1)	(2)	(3)	(4)	(5)	(6)
Own	-0.067***	-0.067***	-0.067***	-0.067***	-0.067***	-0.067***
	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
Green		-0.058	-0.067	-0.067	-0.061	0.010
		(0.041)	(0.044)	(0.044)	(0.042)	(0.069)
Labour		-0.014	-0.023	-0.023	-0.014	0.081
		(0.035)	(0.037)	(0.037)	(0.037)	(0.074)
Lib Dem		-0.082**	-0.091**	-0.091**	-0.081*	0.019
		(0.038)	(0.041)	(0.041)	(0.041)	(0.061)
Strength			-0.018	-0.018	-0.015	-0.016
			(0.016)	(0.016)	(0.016)	(0.019)
Entitlement				-0.054***	-0.054***	-0.054***
				(0.011)	(0.011)	(0.011)
Constant	0.418***	0.460***	0.499***	0.526***	0.445***	0.325**
	(0.015)	(0.028)	(0.050)	(0.051)	(0.069)	(0.130)
Demographics	No	No	No	No	Yes	Yes
Date	No	No	No	No	No	Yes
R^2	0.02	0.03	0.03	0.05	0.06	0.28
AIC	-302.836	-314.1691	-314.2188	-333.1526	-352.4674	-651.5186
BIC	-292.4805	-283.1024	-277.9743	-291.7304	-295.5118	-475.474
N	1,310	1,310	1,310	1,310	1,310	1,310
Subjects	131	131	131	131	131	131

Table 4.6: OLS regressions. Dependent variable is Responders MAO. Standard errors in parenthesis clustered at the subject level. Demographics controls include age, gender and level of education. Three stars ($p < 0.01$); Two stars ($p < 0.05$); One star ($p < 0.1$).

never significant, i.e., Green and Labour responders do not ask for significantly different MAO's relative to a Conservative responder.

The treatment dummy d_6, labelled 'Entitlement' is negative and significant at 1%, which suggests that responders state lower MAOs (as a percentage of the proposers post-tax endowment) from proposers when the incomes of proposers are earned and taxed. This confirms the predictions in Proposition 2a.

The findings on social identity for responders are summarized in the next result.

Result 6: The responders MAOs as a percentage of the proposers post-tax endowment are significantly lower when the proposer is an ingroup member compared to when the proposer belongs to the outgroup. We can also conclude that $\alpha_I < \alpha_O$, i.e., disadvantageous inequity is more onerous when it is with respect to an outgroup proposer.

Result 6 shows that issues of social identity are significant for responders. However, comparing the quantitative sizes of the OWN variable in Tables 4.3 and 4.6, political identity has a more significant effect (quantitatively almost double) on the offers of proposers, relative to the MAO's of the responders. The constant term in the regression is highly significant at 1% in all regressions and accounts for the largest part of the quantitative effect on the MAO; all other explanatory variables account for a very small part of the quantitative effect. This suggests that the MAO is likely to be affected by social norms of fairness to a larger extent as compared to social identity effects. However, the social identity effects improve our understanding of the responder decisions. A similar observation holds for the results from offers made by proposers (see the size and significance of the intercept term in Table 4.3).

Strikingly, as one moves from Treatment 1 to Treatment 2, the amount that the responders reduce their MAO by (5.4%) is almost equal to the amount by which the proposers reduce their offers (5.3%), both expressed as a percentage of the proposer's post-tax endowment. In conjunction, these results suggests that there might be a shared understanding of how much the responder is entitled to in the presence of the proposer's entitlements to income. Fehr and Schurtenberger (2018) highlight the 'shared understanding' aspect of a social norm. In this interpretation, our empirical results are consistent with there being a norm of behavior for prosocial sharing in the presence of taxes and redistribution.

5. Conclusion

In this paper, we use an artefactual experiment using the ultimatum game with registered members of British political parties, to study the influence of social identity on prosociality. Furthermore, we distinguish between unearned-untaxed income and earned-taxed income in two different treatments in a novel experimental design. We derive our predictions from a simple, yet rigorous, theoretical model of social preferences and social identity, which

offers a rich set of predictions that are then put to the test with our data.

We confirm the classic social identity predictions for proposers and responders. Proposer offers are significantly reduced when responders belong to a different political identity (outgroup members) relative to their own political identity (ingroup members). In parallel, responders when stating their minimum acceptable offers (MAOs) from the proposer consistently state a lower MAO when matched with a proposer of a common identity. However, for proposers we find that their offers are conditional on their political affiliation. Compared to Conservative proposers, Green, Labour and Liberal Democrat proposers make significantly higher offers. For the responders we see only a difference for the Liberal Democrats, whose MAOs are significantly lower than those made by a Conservative responder. Quantitatively we find that political identity plays a more significant role in the decisions of proposers, as compared to the decisions of the responders. We are also able to infer that, for responders, the unobserved disadvantageous inequity in Fehr-Schmidt preferences is more onerous when facing an outgroup proposer relative to an ingroup proposer.

The decisions of both proposers and responders are highly sensitive to treatment effects. In Treatment 1 the endowments are unearned and untaxed, while in Treatment 2 the endowments are earned and taxed. A part of the tax revenues in Treatment 2 is used to redistribute income to the responders, since they have no income. Proposer offers, as a percentage of their incomes, are reduced significantly as one moves from Treatment 1 to Treatment 2. Very interestingly, the MAO's of the responders, expressed as a percentage of the proposer's income, also fall by a nearly identical amount. This new finding suggests that there is a shared understanding of the appropriate MAO to ask for in the presence of earned and taxed income. One potential explanation is that our subjects, fee paying British party members, are likely to be earning income and paying taxes, and aware of social redistribution norms due to their heightened political identity. Hence, our experiments appear to have significant ecological validity to explain real world behavior.

On average, when we do not control for the political identity of the proposer, lower offers are made to responders of right wing parties as compared to left wing parties. However, this result might partly or completely be driven by our smaller sample size of right wing parties and must be treated in a tentative manner; it needs to be checked for robustness in a larger sample size by future research. We find very little effect of demographic variables such as age, gender, and education on either the offers made by proposers or the MAO's stated by the responder.

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6. Appendix: Experimental Instructions

Comments for the reader of our paper (and not our experimental subjects) are enclosed by **, for instance, **New Page**.

Subjects initially filled-in a consent form that highlighted several points such as voluntary participation, anonymity of data, and the use of the data for research purposes only.[17]

All Participants who gave consent are presented with the following demographic questions

[17] We are happy to provide the details of the consent form on request.

Age

☐ 18-24

☐ 35-49

☐ 50-64

☐ 65+"

Gender

☐ Male

☐ Female

Political Affiliation

☐ Labour

☐ Liberal Democrat

☐ Green

☐ Conservative

☐ Ukip

How Strong is your support for the political party you affiliate with?

☐ Very Strong ☐ Strong ☐ Somewhat ☐ Weak ☐ Very Weak

New Page

The "Ultimatum Game" is played between two people; the PROPOSER and the RESPONDER. The PROPOSER is given £10 to divide between themselves and the RESPONDER. The PROPOSER'S offer is put to the RESPONDER. If the RESPONDER accepts the offer from the PROPOSER then they both receive this split. If the RESPONDER rejects the PROPOSER'S offer then they both receive £0. The final amounts that the PROPOSER and the RESPONDER receive is called the "outcome".

Example 1: Sally and James are playing the "Ultimatum Game". Sally is the PROPOSER, James is the RESPONDER. The PROPOSER is given £10. She proposes a split of £7 for herself and £3 for James, the RESPONDER. If the RESPONDER rejects this offer, how much will they both receive?

☐ Sally $7, James $3

☐ Sally $3, James $7

☐ Both receive $0

Example 2: This time Sally, the PROPOSER, offers James, the RESPONDER, £5. The RESPONDER accepts this offer. How much do they both receive?

☐ Both receive $5

☐ Both receive $0

☐ Sally $0, James $5

New Page

You will now have the opportunity to play the "Ultimatum Game" in four different scenarios. One of these games will be selected at random and you shall receive the monetary

Figure 6.1: Slider task to determine the proposer's offers for a responder of different political identities.

outcomes from it based on the choices you make. The game that is randomly selected will be paired with another randomly selected participant in the study who is playing the opposite role to you. If you are a PROPOSER your match will be a RESPONDER. If you are a RESPONDER your match will be a PROPOSER. Payment details will be given at the end of the survey.

Subjects are randomly assigned as Proposer or Responder and remain in that role for the duration of the Experiment

We first give the instructions for Treatment 1, followed by the instructions for Treatment 2

Instructions follow for subjects in the role of Proposers

You are a PROPOSER

You face an anonymous individual, the RESPONDER and are asked to split £10 between yourself and the RESPONDER. You do not know anything about the person you are playing with. Please indicate how much you are willing to offer to the RESPONDER .

Slider Task here. For a screenshot when the responder has several possible political identities, please see Figure 6.1.

Here, you will play the "Ultimatum Game" five times.

You face five individuals, the RESPONDERS, one at a time. You are asked to split £10 between yourself and each of the RESPONDERS, making your decision one at a time. You do not know anything about the person you are playing with apart from their **political affiliation**. The political affiliation of each RESPONDER is indicated on the left. Please indicate how much you are willing to offer to each of the RESPONDERS.

Slider Task. See Figure 6.1 for a screenshot.

Instructions follow for subjects in the role of Responders

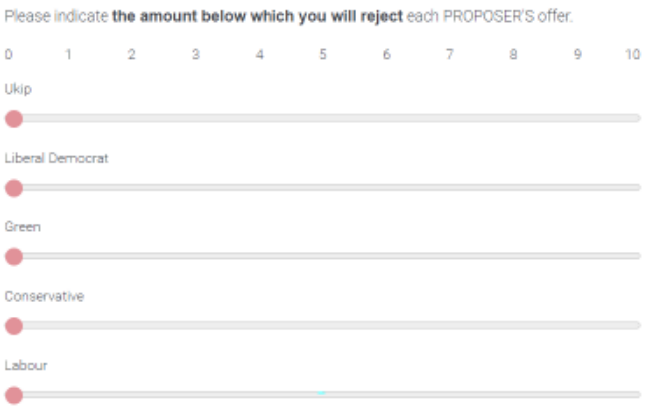

Figure 6.2: Slider task for responders to decided on their MAO's for a proposer with different political identities.

You are a RESPONDER.

You face an anonymous individual, the PROPOSER. The PROPOSER is asked to split £10 between themselves and you, the RESPONDER. You do not know anything about the person you are playing with. Please indicate **the amount below which you will reject** the PROPOSER'S offer.

Slider Task. For a screenshot when the proposer has several possible political identities, please see Figure 6.2.

Here, you will play the "Ultimatum Game" five times.

You face five individuals, the PROPOSERS, one at a time. Each PROPOSER is asked to split £10 between themselves and you, the RESPONDER. You do not know anything about the person you are playing with apart from their **political affiliation**. The political affiliation is indicated for each PROPOSER on the left.

Please indicate **the amount below which you will reject** each PROPOSER'S offer.

Slider Task. See Figure 6.2 for a screenshot.

This concludes the experimental instructions for Treatment 1. Below are the experimental instructions for Treatment 2 in which proposers could earn their endowments and these endowments are taxed and partly redistributed.

Proposers are shown the following screens

You the PROPOSER have the opportunity to earn some extra money, over and above your £10, to play the upcoming Ultimatum Game.

You must answer 5 questions. If you answer 4 or more correctly you play the Ultimatum Game with £20. If you answer less than 4 correctly you will play the Ultimatum Game with £10.

The five questions follow.

$45 + 21 + 9 =$

$43 + 18 + 21 =$

$57 + 9 + 20 =$

$24 + 53 + (2 \times 4) =$

$(17 + 18)/2 =$

**Depending on the number of Questions answered correctly subjects are shown one of the two statements: "You have earned £20 to play the Ultimatum Game." "You have earned £10 to play the Ultimatum Game."

New Page

First we give the instructions for proposers who play the ultimatum game with £20

You face an anonymous individual, the RESPONDER and are asked to spit £20 of your earned income between yourself and the RESPONDER.

HOWEVER, your income is subject to a tax rate of 30%. You are left with an after-tax income of £14.

50% of your tax payment is redistributed and is given to the RESPONDER. The RESPONDER will receive £3.

You are now asked to split your after-tax income with the RESPONDER. You do not know anything about the person you are playing with. Please indicate how much you will offer to the RESPONDER.

The remaining instructions for the proposer are as in Treatment 1, so we omit them.

Now we give the instructions for proposers who play the ultimatum game with £10

The only difference from the case where the proposer has £20 is given in the following instructions

You face an anonymous individual, the RESPONDER and are asked to spit £10 of your earned income between yourself and the RESPONDER.

HOWEVER, you are subject to a tax rate of 30%. You are left with an after-tax income of £7

50% of your tax payment is redistributed and goes to the RESPONDER. The RESPONDER will receive £1.50.

The remaining instructions are as for a Proposer with an income of £20, hence, are omitted here

**This is followed by instructions for Responders. These instructions are identical to those described in Treatment 1, so these are omitted. Responders were fully aware of the taxation and redistribution of the Proposer's income in Treatment 2. **

Thank you for taking the time to answer the decision part of the survey. Please could you now take a few minutes to complete some follow up questions.

What is your Marital Status?

☐ Single

☐ Married or Domestic Partnership

☐ Divorced

What is your Occupation?_____

What is the highest level of schooling you have completed?

☐ Higher Degree (e.g. MSc or PhD)

☐ Degree (including foundation degrees and PGCE)

☐ A-level, Vocational level 3 and equivalent

☐ GCSE/O-level, Vocational level 2 and equivalent

☐ Other Qualifications

☐ No Qualifications

To try to ensure we have surveyed a representative population of the area please leave your postcode (optional)._____

Thank you for your time. Payments will be made via PayPal, all that is required is your email address. Please provide this below.

Alternatively, if you wish to receive your payments via an alternative method, e.g. postal cheque please leave these details.

All payments made will be the outcome of the randomly selected round of the "Ultimatum Game".

If payments for your outcome are delayed, they will be subject to an interest rate paid for the delay in line with the Bank of England base rate. This will be added to your payment.