Nation, Class and Redistribution:

Applying Social Identity Research to Political Economy[*]

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Abstract

People often conceive themselves, and behave, as members of social groups. Drawing on a vast empirical literature, this paper offers a definition of social identification and an equilibrium concept where social identities are endogenously determined. We apply this framework to the political economy of redistribution in democracies, focusing on class and national identities. We present new empirical evidence that supports the main implications of the model, namely: (a) that identifying with one's nation is more likely among the poor than among the rich; (b) that controlling for income, national identification reduces support for redistribution; and (c) that across democracies there is a strong negative relationship between the prevalence of national identification and the level of redistribution. The model points to common national threats and to diversity within the lower class as factors that may reduce redistribution, and suggests the possibility that rising inequality may lead to less demand for redistribution.

1 Introduction

Why do blue collar American workers support less redistribution than their German counterparts? Why are they more proud of being American? More generally, how can we explain the fact (to be presented below) that in most advanced democracies national pride is associated with reduced support for redistribution, and that democracies with less national pride actually redistribute more? This paper suggests that well documented processes of social identification can, when applied to a standard political economy model of redistribution, help explain these and related phenomena.

For the past three decades, social identity has been the focus of intense research throughout the social sciences.[1] Social psychology in particular has produced a rich set of robust empirical results, based on experimental and field studies. This paper takes these results seriously. It first attempts to distill them into a concise formal statement of what it means to identify with a group, and what factors are important for determining which groups people are likely to identify with. It then offers a concept of equilibrium where the profiles of actions and social identities are jointly determined. This general framework is applied to the political economy of redistribution. As we shall see, this application can help explain why lower income individuals tend to identify more strongly with their nation, why they may or may not vote for high redistribution, why national threats, immigration and ethnic diversity may be relevant to this outcome and why rising inequality does not in general lead to more demand for redistribution. Finally, the paper points to strong but previously unexplored empirical relationships between national identification and redistributive politics.

The basic theoretical framework we propose is straightforward. A society may have many social groups – "American", "black", "academic", "middle class" and so on – but in any given situation individuals "identify" with only one (in a sense to be made more precise below). Given their social identities, they choose a course of action, which determines the aggregate outcome. That outcome forms the social environment that

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[1] As Jenkins (1996) puts it, "'Identity' has become one of the unifying frameworks of intellectual debate in the 1990s. Everybody, it seems, has something to say about it: sociologists, anthropologists, political scientists, psychologists, geographers, historians, philosophers" (p.7). For surveys of the social psychology literature see Brown (2000), Ellemers Spears and Doosje (1999b, 2002) and Hogg and Abrams (2001). For a sociological perspective see Jenkins (1996). The political science literature on gender, class, national, ethnic and other social identities is immense. Classic references include Anderson (1991), Gellner (1983) and Horowitz (1985). Akerlof and Kranton (2000) proposed a way to integrate some of this research into economics. As we shall see, our approach generalizes the model they proposed.

in turn affects the pattern of social identities. A social Identity Equilibrium (SIE) is then a steady state where: *(i)* each individual's behavior is consistent with his social identity; *(ii)* social identities are consistent with the social environment; and *(iii)* the social environment is determined by the behavior of all individuals.

Social identification is defined in terms of preferences. These involve two novel components. The first is the status of the various groups that exist in the economy. Group status is the relative position of a group on valued dimensions of comparisons such as wealth, occupational status and educational achievement (Tajfel and Turner 1986). Thus, if we assume that individuals value consumption, then a group characterized by high levels of consumption will have a higher status than a group characterized by low levels, other things equal. The second component is the perceived similarity between an individual and the other members of the group. Given these two variables, *an individual is said to identify with group j if (1) he cares about the relative status of group j and (2) he wants to resemble the members of group j.*

Next, we provide a description of the process of identification with a specific group. Two factors are at work here. First, a cognitive factor: *people are more likely to categorize themselves as members of a group the more "similar" they are to the other members of that group.* Second, an affective factor: *people tend to identify more with high status groups than with low status groups.* Note that the factors underlying the process of identification – status and distance – are in fact the same two factors that affect individual behavior under identification. This observation helps turn the analysis of social identity into a tractable one. Finally, to close the model we need a function that maps the profile of actions taken by individuals into a set of consequences – which in turn determine cognitive distances and group status.

We apply this general framework to a standard model of general-interest redistribution, i.e. the stable redistributive programs that are carried out using income taxes and the general social welfare system. We concentrate on two types of social identity: class and nation. The main point of the model is that to the extent that redistribution affects the status of the poorer class, then *(a)* the level of redistribution may determine whether the poor identify with their class or with their nation; and *(b)* class identification makes income distribution a more important issue to voters. Thus, two types of equilibria may emerge. In the first, the members of the lower class identify with their class, meaning that they think of themselves and of their interests partly in terms of membership in that class. Since redistribution affects the status of their class, they vote for a relatively high level of redistribution. A high level of redistribution in turn works

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to strengthen that class identity by endowing it with a higher status. In the second type of equilibrium, low levels of redistribution make the social status of the lower class less attractive. In such a situation, members of the lower class tend to think of themselves more as members of the nation as a whole than as members of a low-status part of it. The poor are hence less concerned with income distribution and more concerned with issues having to do with the status of their nation. They thus vote for a lower level of redistribution than they would under class identity.

Which of these equilibria is likely to hold? This depends first on the perceived similarity between agents and their class and between agents and their nation. The experimental results underlying our general framework point to several important factors. For example, an increased sense of commonality with fellow nationals (due to a perceived common threat, say) or a reduced sense of similarity to the lower class (due to an influx of poor foreign immigrants, say) are both likely to reduce class identification among the poor. They hence promote a lower level of redistribution. Further, since pre-tax income distribution affects the status of the poor class, the model points to the possibility that an increase in pre-tax inequality will cause the poor to shift from a class identity to a national identity, and hence vote for *less* redistribution. Finally, the model also allows for the possibility of multiple equilibria given the same economic and institutional fundamentals, suggesting a potentially important effect of historical contingencies. In this respect it relates to papers that study the possibility of multiple redistributive equilibria (e.g. Piketty 1995, Benabou 2000, Benabou and Tirole 2002), and more generally to the literature on the different welfare systems in the United States and Western Europe (see Alesina and Glaeser 2004 for a comprehensive discussion). The contribution of this model however is that instead of relying on multiple beliefs or market imperfections, it highlights the effects of redistribution on the status of the lower class and hence on the likelihood that members of that class will identify with it and behave (vote) in terms of their class membership. Our model also connects to models in which voters care about issues other than their economic payoffs (Roemer 1998, Lee and Roemer 2004), but offers an explanation of the origin of these other concerns and of how their prevalence may interact with the political outcome.

The model thus generates a set of new empirical predictions, both at the micro level and at the national level. Using data from the World Values Survey, The ISSP 1995 – National Identity surveys and the Luxembourg Income Study, we find strong support for these predictions. First, we find that in practically all democracies, the poorer individuals are indeed more likely to be nationalistic, as the model predicts

(since their more immediate social group has a lower status than the status of the high class). Second, in most advanced democracies national identification reduces support for redistribution. This effect appears to be very large when compared to the effect of material self interest. Third, the model implies that regardless of whether differences in redistributive systems arise from exogenous factors or from multiple equilibria, we should observe a negative relationship between the prevalence of national identification and the extent of income redistribution. In a cross-country analysis we indeed find a very strong negative relationship between these two variables. Indeed, when looking at established western democracies, the R^2 is between 61% and 72%.

The paper proceeds as follows. Section 2 proposes a definition of social identity and a general model. Section 3 provides a brief justification of the general framework based on evidence from social psychology and experimental economics (a more complete account is provided in Shayo 2005). Section 4 applies the model to the issue of redistribution and Section 5 tests the empirical predictions of the application. Section 6 concludes.

2 Social Identity Equilibrium: a General Model

This section presents a framework intended to concisely capture the more robust regularities from social identity research and apply to them the economic notion of equilibrium. We concentrate first on defining and explaining the concepts, and take up their justification in the next section.

The primitives of our model are:

- a set of agents N;

- a set of *social groups* or categories $G = \{j | j \subseteq N \text{ is a social group}\}$;

- a set of available *actions* A_i for each agent $i \in N$;

- a set of *consequences* C and a function $h : A \to C$, where $A = \times_{i \in N} A_i$ is the set of possible action profiles;

- a *material payoff* function $\pi_i : C \to \mathbb{R}$ for each agent $i \in N$;

- a cognitive *distance* function $d_{ij} : C \to \mathbb{R}$ for every agent $i \in N$ and group $j \in G$;

- a *relative status* function $R_j : C \to \mathbb{R}$ for every group $j \in G$.

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Explanations:

Social group: We think of social groups as categories that individuals learn to recognize when growing up and living in a society, much as they learn other categories such as "vegetable" or "chair". We do not attempt here to model the cultural or sociological process by which these social categories evolve. Rather, our focus is on the process of categorization and identification with *given* social groups. This follows research in cognitive psychology that studies perceptual categorization by focusing on how stimuli are being allocated to given categories, without explaining how categories are initially formed.[2] We place no formal restrictions on the contents of these groups (for example that they partition N). Nonetheless, G is not an arbitrary collection of subsets – its elements must be socially significant categories.

Consequence: In some applications this may simply be the vector of actions chosen by the agents. In others, however, h may denote a more complex aggregation process, e.g. a political process.

Cognitive distance: The key to categorization decisions in the cognitive psychology literature is the perceived differences between the stimulus that is to be categorized on the one hand, and the features of the available categories on the other. The larger the "distance in psychological space" (Nosofsky 1986, 1992) between stimulus i and category j, the lower is the probability that the stimulus would be categorized as a member of j. Adopting this approach to the process of categorizing *oneself* into a group,[3] we let $d_{ij} : C \to \mathbb{R}$ be the perceived distance between individual $i \in N$ and social group $j \in G$. We allow d_{ij} to depend not only on the exogenous characteristics of agent i and group j, but also on the actions taken by the agents in the economy. For example, if groups are characterized primarily by their consumption patterns, changing my consumption bundle may move me farther away from one group and closer to another.

Relative status: Studies of social identity usually argue that the evaluation of groups cannot be based on some absolute standard. Rather, it is determined through social comparisons to other groups along valued dimensions of comparisons. We let $R_j : C \to \mathbb{R}$ be the relative status of group $j \in G$. For example, in a two-groups setting a natural specification would be $R_j(c) = \overline{\pi}_j(c) - \overline{\pi}_{j'}(c)$ where $j, j' \in G$ and $\overline{\pi}_j(c) \equiv E_{i \in j} \pi_i(c)$. Again, the relative status of a group can thus depend on actions taken by agents in the economy. Note that we assume the same relative status function

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[2]See e.g. Lamberts (1997) and Logan (2004) for recent surveys. For an economic attempt to explain the emergence of social categories as a result of individual optimization see Fryer and Jackson 2003.

[3]This follows Turner et al. (1987).

of a given group for all agents in the economy.[4]

We are now able to offer our definition of social identity and our solution concept of the model. We limit the discussion to the case where individuals only identify with a single group, although the definition can be extended to allow for identification with several groups.

Definition 1 *Agent $i \in N$ is said to identify with social group $j \in G$ if his preferences over consequences can be ordered by a utility function $U_i : C \to \mathbb{R}$ of the form:*

$$U_i(c) = u(\pi_i(c), R_j(c), d_{ij}(c))$$

such that u is increasing in $R_j(c)$ and decreasing in $d_{ij}(c)$.

In words, identification with a group is taken to mean caring about the relative status of that group while paying a cognitive cost that increases with the distance between the individual and the group. Loosely speaking identification thus implies making the "group's interest" part of one's own interest. Further, the cognitive cost of identification implies that as long as agents identify with a given group, they would want to resemble that group: from wearing its typical clothes and symbols, to imitating typical group behavior.

It should be stressed that we use the concept of utility in its conventional meaning, as a representation of preferences. There exists some evidence to suggest that utility here may also be understood in its classical, Benthamite meaning as expressing the individual's well-being. For example, that a person who identifies with a group *experiences* an increase in well-being (specifically, in self-esteem) when his group's status increases.[5] Definition 1 however refers only to preferences over outcomes. Using revealed preference we can then infer social identities from observed choices made by individuals.[6]

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[4]The possibility of different agents perceiving a different relative status of the same group may be modeled by adding uncertainty about R_j. One may also consider agents biasing their beliefs about the status of their group. See e.g. Jackson et al. (1996), Mummenday et al. (2001), Ouwerkerk and Ellemers (2002) and Schmader and Major (1999). However, as a benchmark it seems safe to assume a general agreement in society about the relative standing of the various groups (Weiss and Fershtman 1998).

[5]On the Benthamite approach in economics see Frey and Stutzer (2002) and Kahneman et al. (1997). On the evidence for well-being effects of identification see Shayo (2005).

[6]In section 5 we shall discuss and demonstrate how identification can be measured in large samples, when data on actual choices is unavailable.

Having defined social identification in terms of preferences, we now propose a solution concept that captures the endogenous determination of these preferences.

Definition 2 *A Social Identity Equilibrium (SIE) is a profile of actions $a = (a_i)_{i \in N} \in A$ and a profile of social identities $g = (g_i)_{i \in N} \in G^N$ such that for all $i \in N$ we have*

(i) $U_i(h(a_i, a_{-i})) \geq U_i(h(a_i', a_{-i})) \ \forall a_i' \in A_i$

(ii) $U_i(c) = u(\pi_i(c), R_{g_i}(c), d_{ig_i}(c))$ such that $u(\pi_i(c), R_{g_i}(c), d_{ig_i}(c)) \geq u(\pi_i(c), R_j(c), d_{ij}(c))$ $\forall j \in G$

(iii) $c = h(a)$.

The first condition has to do with choice of actions under a given pattern of social identities. It is the standard Nash condition (albeit with non standard payoffs). The second condition describes the process determining the pattern of social identities and hence of preferences. Formally, it requires that each agent's social identity be "optimal" given the social environment implied by $c \in C$. That is, an agent is more likely to identify with a group the higher is its social status and the smaller is the perceived distance between himself and that group. The third condition requires that the social environment be determined by the actions of the agents in the economy.

Note that the definition of SIE does not impose any coordination requirement – in principle, one may identify with a group regardless of whether other members of that group identify with it. Indeed, by itself the social identity of agent i has no effect on other agents' payoffs – neither on their material payoff nor on the relative status of whatever group they identify with. It is only when social identity affects the choice of *actions* that such effects can come about.

We emphasize that these are equilibrium requirements. We are not asserting that there exists some controlled, deliberative process in which individuals "choose" their social identities optimally. Rather, we are using the tools of optimization to describe a steady state that takes into account the observed process whereby (a) given cognitive distance, individuals tend to identify with that group that possesses the higher status, and (b) given status, identify with the group more similar to themselves. Thus for example, the definition does not preclude equilibria in which agent i could increase $U_i(\cdot)$ by simultaneously changing both action and identity. SIE only requires that actions be optimal given current identities and identities be optimal given current actions – not that agents choose actions taking into account all the alternative identities they

can potentially have (although such a refinement might possibly make sense in some contexts).[7]

The SIE model offers a generalization of several existing models. First, in situations where one's actions cannot affect one's group's relative status nor one's distance from that group, an agent behaves like a standard material payoff maximizer. Second, the SIE generalizes the model of social identity proposed by Akerlof and Kranton (2000). Akerlof and Kranton focus primarily on the effects of social *prescriptions* that indicate the appropriate behavior for people in given social categories. "Identification" in their terminology means the adoption of such rules of behavior. Now, insofar as prototypical modes of behavior affect perceived distances between self and group, our model may also result in people behaving in accordance with their group's prototypical behavior. Similarly, our model can generate utility losses from non-prototypical behavior by other members of the group (since that may decrease perceived similarity to the group). However, social identity produces conformist behavior only under conditions that make identification with the group hold in equilibrium (e.g. its status is sufficiently high compared to other cognitively feasible identities). Third, our approach generalizes models that assume altruistic preferences (see Fehr and Schmidt 2001 for a review). If the payoffs of "ingroup" members are positively related to ingroup status and if actions only affect the ingroup members, then we may observe altruistic behavior. However, such "universal altruism" disappears once actions affect members of an outgroup that competes with the ingroup for status. In that case we may observe "particular altruism", benefitting ingroup members only, and possibly hurting outgroup members.[8] Finally, we may even observe costly actions that decrease the welfare of ingroup members if such actions promote the ingroup's relative status (Congleton and Fudulu 1996).

This concludes the general statement of the model. Throughout this paper we shall assume that the utility function takes the following additively separable form:

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[7]On people's tendency to underestimate changes in their preferences see Loewenstein and Angner (2002) and Loewenstein et al. (2003). As Loewenstein and Angner put it, "it may be difficult to predict changes in preferences because our current preferences are an integral aspect of our personal *identity*... People define who they are in part by their tastes and values. Thus, having different tastes and values may seem like a betrayal of what one currently holds near and dear".

[8]An "Ingroup" of agent i is a social group to which i belongs. Similarly, an "outgroup" is a social group to which i does not belong. See Brewer and Brown 1998, p. 558-559. The terms "universal altruism" and "particular altruism" are borrowed from Hegel (see Avineri 1972). They refer to altruism directed at *all* agents in the economy versus altruism directed only at agents who belong to a particualr group.

$$U_i(c) = \pi_i(c) + \gamma R_j(c) - \beta d_{ij}(c) \qquad (1)$$

where $\beta, \gamma > 0$.

3   Evidence

Before applying the SIE framework to political economy, this section provides a brief empirical justification for its use. Shayo (2005) provides a more detailed account and shows how this model accounts for several behavioral regularities that are not explained by standard economic models, nor by alternative social preferences such as altruism, inequity aversion or warm-glow.

3.1   Minimal Group experiments

Consider the following experiment. A set of agents N is partitioned into two equal groups, say G_1 and G_2. Each agent knows to which group he belongs. Each agent then chooses an allocation of profits (e.g. money) between two other randomly chosen agents, one from each group. The choices are made privately and simultaneously. There is no interaction between agents and they never know the decisions made by other agents nor do they know who is in their group or who is in the other group. After all agents made their choices, payments are made in private and the experiment is over.

Allocations are chosen from linear choice sets. Agent $i \in N$ chooses an action $a_i \in [a_l, a_h] \subset \mathbb{R}$ subject to the following budget constraint:

$$b_i = \alpha_1 a_i + \alpha_2 \qquad (2)$$

where a_i is the amount that agent i allocates to an anonymous member his group and b_i is the amount that he allocates to an anonymous member of the other group. Figure 1 illustrates. A negative α_1 means a trade-off between the ingroup member's profit and that of the outgroup member. Note that when $\alpha_1 < -1$ (panel a) increasing the ingroup's profit reduces total profits. A positive α_1 means both profits move together. When $\alpha_1 > 1$ (panel b), increasing the ingroup (and outgroup) profits reduces the difference between the ingroup and the outgroup. Note that agent i's material payoff – the total amount allocated to him by other agents – is independent of his decision.

Recall that the status of a group is its relative position on a valued dimension of

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comparison. In the present setting the only such dimension is the profits of group members. Define the relative status of group j as the difference between the mean profits of the two groups:

$$R_j = \overline{\pi}_j - \overline{\pi}_{j'} \quad j, j' \in \{G_1, G_2\} \tag{3}$$

where $\overline{\pi}_j$ is the mean profit of the members of group j. Finally, since agents know nothing about the actions or the profits of other agents, the perceived distance d_{ij} between any agent $i \in N$ and any group $j \in \{G_1, G_2\}$ is independent of i's allocation decision a_i.

By definition 1, an agent i that identifies with group j prefers an outcome where R_j is high over one where it is low, other things (π_i, d_{ij}) equal. Since actions in this setting affect relative status but not material payoff nor perceived distance, identifying with group j requires choosing an action a_i in a way that maximizes R_j. In particular, identifying with the group that one belongs to requires choosing the maximal allocation to the ingroup when $\alpha_1 < 1$ (panel a) and the minimal allocation when $\alpha_1 > 1$ (panel b).[9,10] We can then examine whether exogenously manipulating the factors that by condition *(ii)* in the definition of SIE increase the likelihood of identification, generates the expected change in behavior.

3.1.1 Perceived distance

Environments like the one we just described have been studied extensively in experiments known as the "Minimal Group Paradigm" (MGP) initiated in the late 1960s (especially Tajfel 1970, Tajfel et al. 1971) and replicated hundreds of times (see Brewer 1979 and Bourhis and Gagnon 2001 for reviews). The robust result is that agents that were categorized to groups based on some questionnaire or task[11], systematically favor their ingroup member. Thus, in the Tajfel et al. (1971) experiments, the proportion

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[9]Equations (2) and (3) imply:

$$\begin{aligned} R_j &= \overline{\pi}_j - \overline{\pi}_{j'} \\ &= \frac{1}{N/2}[\sum_{i \in j} a_i + \sum_{i \in j'}(\alpha_1 a_i + \alpha_2) - (\sum_{i \in j}(\alpha_1 a_i + \alpha_2) + \sum_{i \in j'} a_i)] \end{aligned}$$

thus for an agent $i \in j$, $\partial R_j / \partial a_i = 2(1 - \alpha_1)/N$.

[10]Note that this is only a necessary condition for identification – the benchmark experiment we just described does not yet allow us to infer identification based also on choices that affect distances.

[11]e.g. "aesthetic preference" or "over-estimators" and "under-estimators" of number of dots on a screen. In fact group membership is randomly assigned.

of respondents who chose allocations that favor members of their group ranged from 68% to 94%. Further, in allocation decisions involving $\alpha_1 > 1$, a majority of subjects choose distributions that maximize the *relative* gain in favor of the ingroup member over distributions that maximize the absolute profit of the ingroup member, as well as the joint profit (Brewer 1979, Tajfel and Turner 1979).

We take such categorizations into groups to be a form of exogenously affecting perceived distance from group. Most commonly, they consist of highlighting a common trait of the ingroup while contrasting it with the corresponding trait of an outgroup. The interpretation "perceived distance" is supported by the participants' reports: people who are categorized indicate that they are more similar to their anonymous ingroup members than to the outgroup members.

3.1.2   Group status

Consider now adding a second valued dimension along which groups are compared, such that the two groups are not initially equal in status. A substantial body of research, both experimental and correlational, exists on the implications. The studies consistently show that people tend to identify more with high status groups than with low status groups.[12] As measures of identification, many experimental studies use allocation decisions similar to equation (2), as well as subjects' reported feelings and attitudes toward the ingroup and the outgroup. Field studies usually have to rely on the second type of measure. A meta analysis of 92 experimental studies with high-status/low-status manipulation confirms that high status group members favor their ingroup over the outgroup significantly more than do low status group members (Bettencourt et al. 2001). Similar results emerge from field studies. For example winning sports teams tend to attract more fans (Boen et al. 2002) and generate more identification (Cialdini et al. 1976). Double-major university students identify more with their higher status departments, and are more likely to identify with a given department the lower is the status of the other department they major in (Roccas 2003).

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[12]See e.g. Ellemers et al. (1988), Ellemers et al. (1992), Ellemers (1993), Ellemers et al. (1999a), Guimond et al. (2002), Hogg and Hains (1996), Mael and Ashforth (1992) and Roccas (2003). The results of Glaeser et al. (2000) that in a trust game high status senders received more money back from recipients than did low status senders can also be interpreted in this light. Thus, if I identify with you, I will send you back more money, not because I am "trustworthy" but because I care about our "group." It is interesting to note that Glaeser et al. also find that the amount sent back increases when recipient and sender are from the same ethnic background: "Eleven out of the twelve times in which the recipient sent back nothing, the sender and the recipient were of different races". This fits well with the other factor affecting identification: similarity.

3.2 Conformity studies

By definition 1, an agent i that identifies with group j prefers an outcome where d_{ij} is low over one where it is high, other things equal. In other words, i seeks to be similar to other members of j.[13] We would thus conclude from SIE condition *(ii)* that categorizing people to a group and highlighting their similarity to it would increase conformity with other members of that group. Results from the literature on social influence confirm this expectation. People are more likely to conform to views and behaviors of members of their group than to those of outgroup members. Further, people conform more to ingroup norms of behavior when group concerns are highlighted, when comparisons between ingroup and outgroup are made possible and when group identity is made more salient than individual identity.[14]

3.3 Decisions that affect both status and distance

Consider now the MGP setting of section 3.1, but allow agents to know the typical behavior of members of their group.[15] This effectively allows d_{ij} to respond to i's actions. We would hence expect categorization to a group to generate ingroup bias – but that this bias would be mitigated when ingroup members are known to typically make non-discriminating allocation decisions. This expectation is in fact confirmed in a study by Jetten et al. (1996).

3.4 Explaining behavior in public goods environments

Consider a voluntary contribution linear public goods environment (see Ledyard 1995). Agents are divided into groups of size n. Each agent i is endowed with an income of ω_i, part of which can be contributed to a public account where benefits accrue to all group members. Contribution decisions are made in private, but all agents know the total amount contributed by their ingroup members. Individual i's material payoff is

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[13]Of course conformist behavior can result from standard material considerations (e.g. Banerjee 1992). The point here is that fixing material aspects, agents will be influenced more by the behavior of people in the group they identify with, than by the behavior of other people.

[14]See Mackie and Wright (2001), Spears et al. (2001) and Cialdini and Goldstein (2004) for recent reviews on social influence as it relates to social identity.

[15]Typical behavior refers to past behavior by people who were categorized as members of that group (e.g. "detailed perceivers") - but not behavior by anybody participating in the current experiment.

given by:

$$\pi_i = (\omega_i - a_i) + \frac{\alpha}{n}\sum_{i\in j} a_i \ , \ \forall i \in j \tag{4}$$

where $a_i \in [0, \omega_i]$ is i's contribution and $1 < \alpha < n$, so that material payoff maximizers have a dominant strategy to contribute nothing to the public account but the efficient outcome is that all contribute. To illustrate the effect of identifying with the group one was assigned to, let relative status be given by equation (3) and let $d_{ij} = \theta_{ij} + \mu(a_i - \overline{a}_{j-i})^2$ be the perceived distance, where θ_{ij} is some exogenous distance parameter, $\mu \geq 0$ and $\overline{a}_{j-i}$ is mean contribution by other members of group j (excluding i). This allows actions to affect distance. Maximizing (1) under these conditions yields the following interior solution:[16]

$$a_i = \frac{1}{2\beta\mu}[(1+\gamma)\frac{\alpha}{n} - \frac{\gamma}{n} - 1] + \overline{a}_{j-i}. \tag{5}$$

This simple result can help explain several observed regularities from PG experiments. First, the level of contribution a_i increases with the marginal per capita return (MPCR) α/n, since i loses less material payoff by contributing while the group gains more out of the contribution. Second, for given MPCR, contributions are higher the larger is the group, since increasing group size while keeping MPCR fixed increases the return to ingroup status. Finally, optimal contributions increase with the contributions of other ingroup members – even in a one shot game. See Fischbacher et al. 2001, Holt and Laury (forthcoming), Ledyard (1995) and Zelmer (2003) for evidence.

The solution in equation (5) is conditional on identification with the group. Otherwise, the agent contributes zero. We would thus expect contributions to increase with the factors that affect identification. Consistent with our framework, a large number of experimental results show that keeping material payoffs fixed, people tend to cooperate more with members of their group when their similarity to the group is made more salient, and when their group's performance is contrasted with the performance of an outgroup.[17] Cooperation has also been found to decrease with ingroup heterogeneity, which we will interpret as tending to increase perceived distance from group.[18] Finally,

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[16]If distance is exogenous ($\mu = 0$) the agent will be at a corner solution. Similarly, if $\omega_i = \omega \ \forall i$, then in equilibria where *all* agents identify with their ingroup, all agents will be at a corner solution, contributing zero if $(1+\gamma)\frac{\alpha}{n} - \frac{\gamma}{n} < 1$ and contributing ω if $(1+\gamma)\frac{\alpha}{n} - \frac{\gamma}{n} > 1$ (for other parameter values any symmetric contribution level is an equilibrium). In either case, the MPCR and n work to increase contributions.

[17]See e.g. Brewer and Kramer (1986), De Cremer and Van Vugt (1998, 1999), Kramer and Brewer (1984, 1986), Orbell et al. (1988), Sausgruber (2003), Solow and Kirkwood (2000) and Van Vugt and Hart (2004).

[18]See Ledyard (1995), Polzer et al. (1999) and Zelmer (2003) for experimental results. For field

if the payoff structure in equation (4) were augmented to include a negative effect of contributions to the ingroup on the the payoffs of outgroup members – i.e. keep $\partial \pi_i/\partial a_i$ and $\partial \overline{\pi}_j/\partial a_i$ unchanged and let $\partial \overline{\pi}_{j'}/\partial a_i < 0$ for $i \in j \neq j'$ – then the optimal contribution would *increase* according to our model, since agents care about their group's *relative* position. This prediction is also confirmed in the data.[19]

Overall, results from social psychology and experimental economics lend strong support to the notion of social identity set forth in definitions 1 and 2. When led to perceive themselves as closer to their group, agents reveal themselves as caring about how well their group is doing in comparison to another group, and appear to be willing to sacrifice personal material gain to promote that goal.

4 Nation, Class and Redistribution

It is often said that people don't just vote their economic interest – they vote their identity.[20] The frameork we develped in the previous sections allows us to make such claims more precise, and to draw testable predictions on the relationship between social identity and redistributive politics.

Consider a simple general-interest redistribution setting involving linear-taxation and pure majority voting. The economy has a continuum of agents with a cumulative income distribution given by $F(y_i)$ where y_i is the pre-tax income of agent i. We denote mean income by y and assume $F(y) > 0.5$ (the mean is greater than the median). Agent i's material payoff π_i is just his after-tax income (or consumption), which is composed of income net of taxes and a government transfer k :

$$\pi_i = (1 - t)y_i + k \tag{6}$$

where $t \in [0, 1]$ is the tax rate. As in the standard model of redistribution financed by distortionary taxation (Romer 1975) income taxation involves deadweight losses, which we assume to be quadratic (following Bolton and Roland 1997).[21] The government's

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studies, see Alesina et al. (1999) on the relationship between ethnic homogeneity and provision of public goods across U.S. localities, and Costa and Kahn (2003) on the relationship between company heterogeneity and cowardice in the Union Army.

[19]Bornstein and Ben Yossef (1994) is a particularly clean example. See Bornstein (2002) for a review of the literature.

[20]In the same vein Blinder and Krueger (2004) report that expressed views on economic policies are much more strongly related to "ideology" than to measures of self-interest.

[21]The assumption of a deadweight-loss function that is symmetric around zero is harmless in this

budget constraint is then:

$$k = (t - t^2/2)y \tag{7}$$

We keep the political process as simple as possible, so that the equilibrium policy directly reflects the policy preferences of the voters. This is a reasonable approach to general-interest redistribution. An agent's action is simply a vote for her preferred tax rate given the government budget constraint. The actual tax rate t^* is determined by a pure majority rule.[22] It can be easily verified that absent social identity considerations the chosen tax rate is $\frac{y - y_m}{y}$ where y_m is the median income. This is the standard median voter result, whereby the equilibrium level of redistribution is higher the greater is the distance between median and mean income (Meltzer and Richard 1981).

4.1 A Two-Class Model

There is little doubt that social-class has been a potentially significant source of identity affecting voting behavior in modern industrialized countries. A second important social category in western democracies at least since the early 20th century has been the nation.[23] We now analyze the conditions under which voters are likely to identify with their class or with their nation, and the implications for redistributive policy.

We present a simple two-class model that conveys the basic intuition.[24] There are three social groups or categories in the economy. The first two – the "poor" and the "wealthy" – are characterized by the income levels of their members. We term these social groups "classes". In addition there exists a "superordinate" social category – the "Nation" – that includes all the agents in the economy. The set of social groups is then given by:

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setting since we only consider nonnegative tax rates. Allowing for negative taxes would require a more realistic specification. This would complicate the model without changing the equilibrium tax rate, and hence we keep the quadratic specification for simplicity. However, if one were primarily interested in the political preferences of the rich, other assumptions may be appropriate.

[22] That is, agents vote directly and sincerely over tax rates and the tax rate adopted is the Condorcet winner if it exists.

[23] See Evans (2000) for a survey of the evidence on class voting. The literature on the prominence of the nation as a social category is immense. See e.g. Anderson (1991), Billig (1995), and Gellner (1983). While we shall discuss how ethnic diversity may affect our results, we do not model ethnic identity directly in this paper.

[24] Similar qualitative results emerge when we allow for a continuum of social classes. The cutoff point between those who identify with their nation and those who identify with their class is endogenous in this case – but it is still the poorer individuals who identify with the nation.

$$G = \{P, W, N\} \tag{8}$$

where the first two social groups, P and W, are defined by their income levels:

$$P = \{i \epsilon N : y_i \leq y\} \tag{9}$$

$$W = \{i \epsilon N : y_i > y\} \tag{10}$$

Note from (6) and (7) that as long as $t < 1$, π_i will be linear and increasing in y_i and hence P and W may also be written in terms of consumption, e.g. $P = \{i : \pi_i \leq \pi\}$ where π is mean consumption. The important implication of these definitions given our assumptions on F, is that the agent with median income is not in the wealthy class (but the results are unchanged if the cutoff point between the wealthy and the rest is higher than the mean).

We keep the status of the nation exogenously fixed at $R_N = \nu$. The qualitative results of the model are unchanged when R_N depends positively on π.[25] Essentially however, this is a one country model that has little to say about how the relative status of the nation is determined.[26]

The relative status of the two classes is just a weighted average of the difference in their mean after-tax income and the difference in their mean pre-tax income:

$$R_P = \alpha(\overline{\pi}_P - \overline{\pi}_W) + (1 - \alpha)(\overline{y}_P - \overline{y}_W) = -R_W \tag{11}$$

where $\overline{\pi}_j \equiv E(\pi_i | i \in j)$, $\overline{y}_j \equiv E(y_i | i \in j)$ for $j = P, W$ and $\alpha \in [0, 1]$ is the weight of the group's after-tax income in the determination of its status. If $\alpha = 1$ class status depends entirely on mean group material payoff. This case corresponds to the concept of status used in section 3. However, in a redistribution context, it is sometimes argued that there exists a negative "stigma" associated with welfare recipiency (Moffitt 1983). This might suggest that social status is related to pre-tax income and not just

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[25] Indeed the main results are strengthened in this case. Nationalists prefer less redistribution not just because of how redistribution affects class status, but also because high taxes harm the overall wealth of the nation (due to deadweight losses). Our results, however, do not rely on a negative effect of taxation on national status.

[26] As argued by Smith and Jarkko (1998), general national pride is not closely tied to objective conditions but rather is related to "idio-national readings of history, assessments of the contemporary geo-political situation, and national aspirations".

to consumption, which can be captured by allowing $\alpha < 1$.

By (6) we have $\overline{\pi}_j = (1 - t)\overline{y}_j + k$, which gives us the status of the groups as a function of the tax rate:

$$R_P = -R_W = \delta(\alpha t - 1), \text{ where } \delta \equiv \overline{y}_W - \overline{y}_P > 0. \tag{12}$$

Thus the relative status of the poor group depends negatively on the pre-tax income inequality as measured by the difference in mean group income, and positively on the level of redistribution as measured by the tax rate. The effect of redistribution on relative status increases with pre-tax inequality and with the weight of consumption in the determination of group status.

To focus on the status implications of redistribution, we assume fixed cognitive distances for all individuals in a given group, and that it is cognitively "very" hard to identify with a group that one does not belong to.[27] Specifically, we assume:

$$d_{ij} = \begin{cases} d_P & \text{for } i \in j = P \\ d_W & \text{for } i \in j = W \\ d_N & \text{for } i \in j = N \\ d_H & \text{if } i \notin j \end{cases} \tag{A1}$$

Where

$$d_H > d_P + 2\gamma\delta/\beta \tag{A2}$$
$$d_H > d_W - 2(1 - \alpha)\gamma\delta/\beta \tag{A3}$$

(A2) ensures that the poor do not identify with the rich class. It requires the perceived distance between a poor person and the upper class to be large enough relative to income inequality, and the cognitive cost of categorization to be sufficiently important relative to group status. (A3) ensures that the rich do not identify with the poor class. It is weaker than A2 and in particular holds whenever the distance from the other class is larger than distance from own class.

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[27] Arguably, redistribution might affect the cognitive distances between individuals - indeed a higher tax rate would reduce consumption differences between any two individuals in the economy. But it is not clear if it should reduce, say, a poor person's distance from the poor group more or less than it reduces his distance from the nation, and results will be sensitive to the functional form of the distance function.

4.2 Social Identity Equilibria

Under the utility function in (1), and (A1)-(A3), SIE condition (ii) implies that in any SIE, the profile of social identities $g = (g_i)_{i \in N}$ satisfies:

$$g_i = \begin{cases} N & \text{if } \gamma(R_N - R_P) \geq \beta(d_N - d_P) \\ P & \text{otherwise} \end{cases} \quad \forall i \in P \tag{13}$$

$$g_i = \begin{cases} N & \text{if } \gamma(R_N - R_W) \geq \beta(d_N - d_W) \\ W & \text{otherwise} \end{cases} \quad \forall i \in W$$

where we assume national identity is chosen in case of a tie. This condition is simply saying that agents will balance the relative distance from the various groups against the relative status of these groups. Note that by (12) the status of the wealthy class is never lower than the status of the poor class (and is strictly higher unless both $t = 1$ and $\alpha = 1$). Thus, for similar cognitive distance from class, condition (13) implies that the poor are more likely to hold a national identity than the rich. The alternative social identity of the poor simply has a lower status.[28]

We now turn to the determination of the equilibrium tax rate t^*. SIE Condition (i) says that actions must be optimal given social identities.[29] We thus look at the policy preferences induced by the various possible social identities. An individual identifying with the nation would ideally prefer the tax rate that solves :

$$\underset{t \in [0,1]}{Max}(1 - t)y_i + (t - t^2/2)y + \gamma \nu - \beta d_N \tag{14}$$

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[28] This result hinges on two important assumptions. That the social status of the rich class is primarily a function of its economic achievements and that d_N is similar for all classes. These assumptions are reasonable for today's industrialized nation states. But consider 18th and 19th century Europe, where productivity resides with the bourgeoisie but status still resides predominantly with the aristocracy. Further, at these early stages of industrialization and urbanization much of the poor population lives in rural areas, often separated from the rest of "their nation" by linguistic and transportation barriers. Distance from the nation (d_N) is thus higher for the rural poor than for the urban middle class. Under these conditions, the urban middle class is expected to be more nationalistic than the rural poor. Similar conditions appear to hold in colonized countries, where the local elites do not enjoy as high a status as they would based solely on their domestic economic position; and in developing countries where much of the poor population is concentrated in rural areas.

[29] In the current context this condition means that when forming policy preferences, agents take their social identities as given. That is, they do not take into account the possibility that as taxes change, they may stop caring about the group they currently identify with and start caring about some other group and consequently may come to have policy preferences different from the ones they currently hold. On voters' tendency to overestimate the stability of their political positions see Lowenthal and Loewenstein (2001).

which yields an ideal point :

$$t_N^*(y_i) = Max\{\frac{y - y_i}{y}, 0\}.$$ (15)

Since we do not assume that national status responds systematically to the tax level, identifying with the nation yields the standard Meltzer and Richard (1981) result. In other words, our results do *not* depend on nationalists willing to sacrifice material payoff because they recognize a negative effect of redistributive taxation on national strength.

An individual identifying with the poor class will solve

$$\underset{t\in[0,1]}{Max}(1 - t)y_i + (t - t^2/2)y + \gamma\delta(\alpha t - 1) - \beta d_P$$

with an ideal point:

$$t_P^*(y_i) = Min\{\frac{y - y_i}{y} + \frac{\gamma\delta\alpha}{y}, 1\}.$$ (16)

And similarly an individual identifying with the wealthy class will have an ideal point:

$$t_W^*(y_i) = Max\{\frac{y - y_i}{y} - \frac{\gamma\delta\alpha}{y}, 0\}.$$ (17)

In words, while class identification induces individuals to care more about the distribution of income, national identification shifts their social identity concerns elsewhere to the status of their nation, e.g. to its power and grandeur in the world or other such variables that are not clearly related to tax policies.

Note that for any given social identity, preferences are single-peaked. Further, by (13) we know that in equilibrium all members of a given class have the same identity. Take $t_N^*(y_i)$ – the ideal tax rate for an agent with income y_i under national identity – as our benchmark. It is decreasing in y_i. Now if the poor identify with their class, the ideal tax rates of the entire group shifts further up, as $t_P^*(y_i) > t_N^*(y_i)$. If the rich identify with their class their ideal tax rate stays at zero (since $y_i > y$ $\forall i \in W$). Thus, for any pattern of social identification that may pertain in equilibrium we have single peaked preferences over t with ideal points strictly decreasing in y_i for $y_i \in [0, y]$ and constant for $y_i \geq y$. We can therefore apply the median voter theorem and get the equilibrium tax rate:

$$t^* = \begin{cases} t_N^*(y_m) & \text{if } g_m = N \\ t_P^*(y_m) & \text{if } g_m = P \end{cases}$$ (18)

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Where agent m is the median income agent defined by $F(y_m) = 0.5$.

Recalling that $y_m < y$ and using (13), (15) and (16) we can now write t^* as a function of the difference in the relative status of the groups $R_N - R_P$:

$$t^* = \begin{cases} \frac{y-y_m}{y} & \text{if } R_N - R_P \geq \frac{\beta}{\gamma}(d_N - d_P) \\ Min\{\frac{y-y_m}{y} + \frac{\gamma\delta\alpha}{y}, 1\} & \text{if } R_N - R_P < \frac{\beta}{\gamma}(d_N - d_P) \end{cases} \tag{19}$$

And from (12) in equilibrium we also have:

$$R_N - R_P = \nu - \delta(\alpha t^* - 1) \tag{20}$$

Equations (19) and (20) thus provide the equilibrium conditions. They are plotted in Figure 2 for intermediate values of $\frac{\beta}{\gamma}(d_N - d_P)$.

It is clear from the figure that depending on the parameters of the model we may get a unique equilibrium or multiple ones. If $(d_N - d_P)$ is sufficiently low, then there exists a unique equilibrium where the median identifies with the nation and the amount of redistribution is relatively low at $t^* = t^*_N(y_m)$. Conversely, if $(d_N - d_P)$ is sufficiently high, there may exist a unique equilibrium where the median identifies with his class and the tax rate is high at $t^* = t^*_P(y_m)$. However, as long as $\delta\alpha > 0$ (the income distribution is not degenerate and consumption matters for the relative status of the class), there exist values of $(d_N - d_P)$ at an intermediate level such that there exist two "stable" equilibria. At the low tax rate equilibrium, the relative status of the poor is sufficiently low to induce the median voter to identify with the nation rather than with the poor even if that entails a higher cognitive cost. He then prefers a low tax rate. However, with a high tax rate the poor are not that far behind the rich in their standards of living and hence in their status. The median may now identify with the poor class and thus vote for a higher tax rate. The conditions for unique and multiple equilibria are summarized in the following proposition:

Proposition 1: *In the two-class model:*

(i) if $\frac{\beta}{\gamma}(d_N - d_P) \leq \nu + \delta - \alpha\delta Min\{\frac{y-y_m+\gamma\delta\alpha}{y}, 1\}$ then $t^*_N(y_m)$ is the unique equilibrium tax rate and $g_m = N$,

(ii) if $\frac{\beta}{\gamma}(d_N - d_P) > \nu + \delta - \alpha\delta(\frac{y-y_m}{y})$ then $t^*_P(y_m)$ is the unique equilibrium tax rate and $g_m = P$,

(iii) if $\nu + \delta - \alpha\delta Min\{\frac{y-y_m+\gamma\delta\alpha}{y}, 1\} < \frac{\beta}{\gamma}(d_N - d_P) \leq \nu + \delta - \alpha\delta(\frac{y-y_m}{y})$ then both $t^*_N(y_m)$ and $t^*_P(y_m)$ are equilibrium tax rates with $g_m = N$ and $g_m = P$, respectively.

The first implication of this result has to do with the effect of the distance that citizens perceive between themselves and their nation. The lower is d_N, the higher is the likelihood of a low-redistribution equilibrium, other things equal. Perceived distance may be due to "fundamentals" such as ethnic or cultural diversity, but is susceptible to various shocks. The experimental results suggest that a common threat, salient international competition or a conflict with another nation, would all tend to reduce d_N and hence, according to our model, increase the likelihood of a low-redistribution equilibrium. In particular, a salient national security danger is likely to enhance a feeling that "we are all in the same boat" – rich and poor alike. But a national identity means less weight on class issues and less support for redistribution. This suggests that there may be an incentive for elites to hype national threats – perhaps even to the point of going to war – in order to diffuse domestic claims for more redistribution, or to soften opposition for a reduction in the level of redistribution (see the related discussion on the supply of hatred in Glaeser, 2005). In the longer run, the nature of the school system – whether it fosters similarity to the nation or class distinctions – should also affect the redistributive regime (see Weber 1979, Kremer and Sarychev 1998, Gradstein and Justman 2002).

Which brings us to the second implication. Factors that decrease the sense of distance between the median and the lower class would tend to increase class identification and hence support for redistribution. One interesting implication relates to the effect of ethnic diversity. As the experimental results suggest, group identification declines with heterogeneity. Suppose for example that ethnic diversity is concentrated at the poorer segments of society, so the nation as a whole is more ethnically homogeneous than the poor group. This would mean a lower $(d_N - d_P)$, reducing the likelihood of class identification on the part of the lower class and hence of a high-redistribution equilibrium. One case in point might be the shift of significant portions of the working class in Western Europe from socialist to nationalist parties (Kitschelt 1996, Ignazi 2003, Lubbers et al. 2002). A recent survey on the resurgence of the radical right in Western Europe states that "certainly the most common explanatory factor put forward for the electoral breakthrough of the radical right are immigration and the presence of immigrants" (Schain et al. 2002, p.11). Such a relationship is readily interpretable in terms of our model: immigration of foreign workers affects primarily the composition of the poorer segments of society. Categorizing oneself as part of the working class is not as self-evident anymore. Consistent with our model, Soroka et al. (forthcoming) find a negative relationship across eighteen OECD countries between changes in social

spending and immigration flows in the 1970-1998 period.[30]

Third, a high relative status of the nation (high ν) would also tend to increase the likelihood of national identification and a low-tax equilibrium. Ronald Reagan once said he hoped history would remember him "on the basis that... I wanted to see if the American people couldn't get back that pride, and that patriotism, that confidence, that they had in our system. And I think they have."[31] If indeed they have, by our model it helps explain the popularity and political success of his tax policies even among blue collar workers.

Finally, an interesting question arises as to the effect of *pre-tax* inequality. Note that we have two different measures of pre-tax inequality in this model: the median to mean ratio and the inter-class difference δ. Locally, around the equilibrium points, the effect of an increase in pre-tax inequality is unambiguously to increase redistribution. Both $t_N^*(y_m)$ and $t_P^*(y_m)$ are increasing in $\frac{y-y_m}{y}$, and thus increase as this measure of inequality increases. $t_P^*(y_m)$ is also increasing in the inter-class difference, thus responding even further to increases in pre-tax inequality. However, it is not clear that an economy with very high pre-tax inequality will in general be at a high tax equilibrium.[32] This is so because δ and $\frac{y-y_m}{y}$ work in opposite directions in both parts (i) and (ii) of proposition 1. As the median becomes poorer relative to the mean, he chooses a higher tax rate, whatever his identity (as in the standard Meltzer and Richard result). This in turn tends to increase the status of the poor and make a high tax equilibrium more likely. However, as δ increases, the status of the poor falls, making class identification and a high tax equilibrium less likely, and a nationalistic low-tax equilibrium more likely. Thus an exogenous increase in income inequality that substantially hurts the status of the poor may actually promote a shift of the poor towards supporting *less* redistribution.[33]

More generally, proposition 1 suggests that we may observe rather different levels of

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[30] The idea that support for redistribution increases as identification with the group that benefits from it increases, and that such identification is related to distance along ethnic dimensions, is also supported by Luttmer (2001). Based on the American GSS, Luttmer reports that support for welfare spending increases as the share of local welfare recipients from the respondent's race increases. The model also appears consistent with the evidence presented by Alesina et al. (2001) and Alesina and Glaeser (2004), on the relation between racial heterogeneity and the extent of redistribution, but it points to the importance of heterogeneity within the poor and middle classes – and not in society as a whole.

[31] Reagan to Barbara Walters, quoted in *The New York Times*, June 6, 2004.

[32] This is consistent with most of the empirical studies reviewed in Benabou (1996) and Alesina and Glaeser (2004). See however Milanovic (2000).

[33] To see this note that in both parts (i) and (ii) of the proposition the right hand side of the inequality is increasing in δ , and strictly so in part (ii). On the other hand the right hand side of the inequalities in (i) and (ii) are decreasing in $\frac{y-y_m}{y}$.

redistribution among economies with similar pre-tax income distributions and similar political institutions, and it points to several factors that can cause such differences. However, the proposition also suggests that we may observe different levels of redistribution even when all these factors are held constant, as different levels of redistribution serve to reinforce the identification patterns that gave rise to these levels of redistribution. That is, even if the lower class Swedes, say, were just as diverse as the lower class Americans and their nation had the same relative status as the USA, in equilibrium they could still identify less with their nation simply due to the relatively high status of their class which results from the (historically given) high degree of redistribution. As a result, they would indeed support the high level of redistribution. Historical contingencies may thus have a lasting effect on the redistributive system.[34] In any case, empirically we should expect to find higher levels of national identification the lower is the level of redistribution, and vice versa.

5 Evidence: National Identity and Redistribution

Our application of the SIE framework makes several new predictions concerning national identity and redistribution in democracies.[35] In particular, the application of SIE conditions (i) and (ii) to this context imply, respectively, the following:

P1. Given social identity, support for redistribution is decreasing in income. Further, for given income, support for redistribution decreases with national identification among the non-wealthy classes (equations (15),(16)).

P2. The poor are more likely to identify with their nation (condition (13)).

While the equilibrium analysis implies:

P3. Across countries, democracies should exhibit a negative correlation between levels of national identification and levels of redistribution (proposition 1).

To assess the plausibility of these predictions we use both micro and macro level data. The micro data come from two sources: the World Values Survey (WVS, Inglehart et al. 2000) and the International Social Survey Program (ISSP): National

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[34]Such contingencies may well be factors included in our model e.g. the heterogeneous-immigrant composition of the American working class in the early 20th century, or the absence of wars from Swedish history after the Napoleonic era.

[35]We will not revisit here the effects of ethnic fragmentation. The reported evidence cited above seems to accord with our model, although as we noted a more careful examination seems to be called for in light of our analysis. The effect of national threats, and the interaction of domestic policy with the incidence of war are also beyond the scope of this paper.

Identity, 1995. Each of these surveys covers more than twenty democracies during the 1990's. The ISSP 1995 provides better measures of national identity. However, it does not contain data on attitudes towards redistribution. The WVS contains a cruder measure of national identification, but includes measures of preferences for redistribution. Finally, to measure the extent of redistribution at the national level (third prediction) we use data on the difference between pre-tax and post tax income distributions, obtained from the household income surveys included in the Luxemburg Income Study (LIS). As a robustness check we also look at social welfare spending as a percentage of GDP from OECD (2004), Social Expenditure database 1980-2001. More details on the data used are given as we present the results and in the Data Appendix.

We limit the analysis to democracies, but use a relatively lax definition of democracy, looking only at what Freedom House (2003) defines as "political rights" which is a measure of the existence of free, open and fair elections that determine who actually rule. We do not use the other component – "civil liberties" – to filter out non-democracies. This allows some comparison of how the model fares in a wider range of countries. As we discussed above, in developing economies the assumption that d_N is independent of income may be unreasonable as the poor also tend to live in more rural areas separated from the rest of their nation by physical and linguistic barriers. Further, the assumption that status is mainly a matter of economic achievements may be untenable in countries where group status may still be predominantly hereditary. Finally, the "grand" schemes of redistribution we are considering here (as opposed to transfers to specific groups) change very slowly. Our model should thus account for these long-run equilibria in established democracies – but not in transition economies.

We stress the national-identification side of the model and not the class-identification side for two reasons. One is practical: in contrast with data on national identification, data on class identification are harder to obtain. While many surveys (e.g. the GSS, Eurobarometer, WVS) ask respondents what social class they belong to, this is at best a self-categorization question,[36] similar to asking "to which nation do you belong?" It tells us little about identification as we defined it (more on this below). Second, the effect of class identification seems somewhat less contentious. It would not be too surprising to find that low income individuals with strong "working class" identification desire more redistribution then their comrades with weak class identification. The predictions regarding national identification appear more in need of empirical verification.

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[36]Indeed the question usually does not even give us a good measure of self-categorization since most surveys do not allow the respondent the option of not belonging to any class.

Before turning to the results we stress that unlike the evidence we presented for the general model, the empirical analysis below is correlational in nature. By itself, it cannot prove causality.

5.1 Preferences for redistribution by income and national identification

Our definition of social identity requires that an agent care about the status of his group. In experimental studies, such preferences can be directly inferred from behavior (e.g. ingroup favoritism in allocation decisions that do not affect own payoffs). In larger empirical studies, we have to rely on survey questions. Ellemers et al. (1999a) show that ingroup favoritism in allocation decisions is captured by questions on "commitment to the group", i.e. the desire to continue acting as a group member. These consist of agreement to such statements as "I would like to continue working with my group" or "I dislike being a member of my group". On the other hand, ingroup favoritism is not captured by mere self-categorization statements such as "I am like other members of my group."

The WVS contains a question asking: "How proud are you to be [e.g. French]?" answered on a scale of 1 to 4 ("very proud", "quite proud", "not very proud" and "not at all proud"). This question seems reasonably well suited to capture our concept of national identity. As mentioned above, no such question exists with respect to class identity.

The WVS also contains a question that captures our concept of support for redistribution. It is worded as follows: "How would you place your views on this scale? 1 means you agree completely with the statement on the left; 10 means you agree completely with the statement on the right; and if your views fall somewhere in between, you can choose any number in between." The statements are: "Incomes should be made more equal" on one extreme and "We need larger income differences as incentives for individual effort" on the other extreme. This captures preferences over the type of policies that we have assumed in the model, namely ones that make incomes more *equal* (as opposed, for example, to policies designed to secure a minimal standard of living for the poor[37]). The question also captures the trade-off in terms of incentives for effort

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[37]In fact, the WVS contains a question on whether "the government should take more responsibility to ensure that everyone is provided for" or "people should take more responsibility to provide for themselves" – without reference to equality or relative position. The relationship between national

that underlies our specification of deadweight losses from taxation.

Descriptive statistics are in Table A3. Median support for redistribution ranges from 3 to 7, with standard deviations of around 2.9. Household income data are comparable to data from LIS household surveys, but with lower means in most countries, suggesting that the rich are not well represented. The fraction of the survey population who are very proud to be members of their nation ranges from 19% in West Germany to 94% in Venezuela.

As a way of directly looking at the data, Figure 3 presents nonparametric estimates of the expected support for redistribution as a function of log household income. For each World Values survey, we break down the population into two groups by level of pride in one's nation. For each survey we then estimate a separate regression function for each of the two groups, using Fan (1992) locally weighted regressions. The first group (shown by the solid lines) includes those professing to be "very proud" to be members of their nation. The other group (dashed lines) includes the rest. The analysis is performed only for those surveys where actual household income categories could be retrieved from the reported income categories. Also, we do not correct for household size since no direct measure of it is available (see Data Appendix on both these issues in the WVS). It is convenient to divide the economies into more and less advanced, which we do using real GDP per capita.[38]

The first thing to note is that within each group, support for redistribution is generally decreasing in income in most surveys, with occasional nonmonotonicities at the tails of the income distribution. More important for our purpose is the fact that in most advanced economies, people who identify more strongly with their nation prefer a lower level of redistribution than people with low levels of identification and similar income. This pattern seems to hold in Austria, Britain, Canada, Finland, Japan, the Netherlands, Sweden, Switzerland, USA and Germany (West and East). The only advanced economies where this relationship is not apparent are Belgium, Italy and Spain.[39] Out-

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identity and support for these policies is indeed less clear than the relationship between national identity and support for equalizing incomes.

[38] Economies are classified as "Less Advanced" in a given year if Real GDP per capita (Heston et al. 2002) is less than 50% of USA Real GDP per capita.

[39] Note that (except for Switzerland) Italy, Spain and Belgium have the strongest ethnic-regional cleavages among the western democracies (I am grateful to John Londregan for this point). This suggests that our model may need to be adjusted when a strong regional identity is available. If the predominant immediate social group is not the class but the region, then it is not clear that a shift to a national identity will in general mean less support for redistribution. Northern Italy or Catalonia for example are relatively rich regions and hence shifting from a national to a regional identity in these areas may actually reduce support for redistribution. But ethnic and regional identities merit further

side the industrial world, however, there is usually no clear difference between the two groups in the support for redistribution, once we control for income (the exceptions being Turkey 1990 and Latvia 1996).

Another way to look at these data is presented in Table 1. The table reports OLS regressions of the support for redistribution on log income and dummies for level of national pride, controlling for sex, age, years of education and log household size.[40] We refrain from pooling the data together, since the variables are not equivalent across surveys. In particular, the attitude to redistribution is stated in reference to the local level of income inequality ("incomes should be made more equal"), which differs between the surveys. Hence, we report a separate regression for each survey. The results show once again a strong negative relationship between income and preferences for redistribution in almost all countries. Further, people who profess to be "very proud" of being members of their nation appear to support redistribution significantly less than people who profess to be "not proud" or "not at all proud", controlling for log of income and years of education. The point estimates are negative in 23 out of 27 available surveys – and appear very large when compared to the effect of income. If taken literally, the point estimates imply that moving from not being proud to being very proud in the nation is equivalent in terms of attitudes towards redistribution, to having one's household income multiplied by a factor of between 1.5 and 3 in most western democracies. The estimated effect is exceptionally large in the two surveys from the United States, but is based on very few American respondents in the base category. Even moving just one notch from "quite proud" to "very proud" is equivalent to multiplying household income by a factor of 6.5 and 1.9 in the 1990 and 1995 American surveys, respectively. Consistent with the non-parametric estimations, the relationship between national pride and preferences for redistribution is statistically significant in most industrialized countries, but weaker in the less advanced countries.

To make sure that the national pride dummies (which, as we shall see in the next section are strongly correlated with income) are not picking up some non-linear effect

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investigation that is beyond the scope of this paper.

[40]The results are very similar without controlling for these additional variables. We report OLS rather than ten-categories ordered probits mainly for ease of interpretation. The qualitative results are unaffected by the choice of estimation method. However, an argument could perhaps be made that a cardinal interpretation of the variable is not entirely misleading since the support for redistribution is elicited by showing respondents a scale with equally spaced numbers running from 1 to 10, where the two extremes are associated with specific and opposite views on the question. There is thus no a priori reason to think that the distance between 2 and 3 should be perceived as different from the distance between 5 and 6.

of income, we repeated the estimations with non-linear terms for income up to a third order polynomial. The estimated coefficients and standard errors for the "very proud" and "quite proud" dummies were hardly affected. Finally, the third column of Table 1 shows that, as expected, the effect of being "quite proud" is generally smaller than that of being "very proud"– although it retains a negative sign in almost all surveys.

5.2   National identification by income

Available data seem to support the prediction that national identification is negatively related to support for redistribution – at least in advanced economies. But who are the nationalists? The model predicts that low income individuals, having less to be proud of in their immediate social group, will in general tend to identify more strongly with the nation. To test this prediction, we use detailed micro data from the ISSP 1995 National Identity module. The ISSP 1995 includes surveys from 22 democracies (using our broad definition of democracy based on political rights). The surveys include the following six items which seem to capture our notion of national identity:

How much do you agree or disagree with the following statements? [1. Agree strongly; 2. Agree; 3. Neither agree nor disagree; 4. Disagree 5. Disagree strongly]

1.   I would rather be a citizen of (R's country) than of any other country in the world.

2.   There are some things about (R's country) today that make me feel ashamed of (R's country).

3.   The world would be a better place if people from other countries were more like the people in (R's country).

4.   Generally (R's country) is a better country than most other countries.

5.   When my country does well in international sports, it makes me proud to be citizen of (R's country).

6.   (R's country) should follow its own interests, even if this leads to conflicts with other nations.

While all items gauge feelings of national pride, items 2 and 5 are conditional on transitory conditions ("things about my country *today*"), and may thus be less suitable to capture "commitment to the group". The ISSP surveys also include data on household income, education and demographics. Descriptive statistics are in Table A4.

For each country and each of the six national pride items, we estimated an ordered probit model with the national identity variable as the dependent variable and with log of income, log of household size, sex and age as independent variables. We then repeated this procedure with controls for years of schooling. The results (not shown) were as follows. For items 3, 4 and 6, the estimated coefficient on log income is negative in all the surveys: the higher the income, the lower is the extent of national identification. This effect is statistically significant in between 17 to 19 of the 22 surveys. This pattern generally holds also when controlling for years of education. Further, since in most democracies the more educated groups also enjoy a higher status, the logic of our theoretical model would lead us to suspect that more highly educated individuals would identify less with their nation (though of course there may also be other reasons for this relationship). This expectation is generally confirmed, although the relationship is less robust than that of income. For item 1 the estimated coefficient on income is generally negative but is statistically significant in only 13 of the 22 surveys. Finally, items 2 (shame) and 5 (sports) indeed show a weaker relationship to income. Item 5 gets the "right" sign in almost all countries, but the effect is statistically significant in only 7 of them. Item 2 has the correct sign in only about half the surveys, and is statistically significant in only 4 surveys (all the significant coefficients have the right sign, though: richer people feel more ashamed of their country).

We do not report all these coefficients (from more than 250 regressions). As a way of summarizing the data, we do the following. First, we construct a national identity scale from these six items. Answers to each item are scored from 0 to 4, with a higher score representing the more nationalist answer, and the items are then summed up with equal weights. The resulting scale (α=0.61) takes values in {0,1, 2,...,24}. Second, we estimate by OLS a linear regression model using this scale as the dependant variable and log income as explanatory variable, controlling for log household size, sex and age. These regressions cannot of course be interpreted in the standard sense, since the constructed scale is hardly a cardinal variable. But as we are only interested in the sign of the relationship, these shortcuts are a useful way to summarize the data. The results are presented in Table 2. The data seem overwhelmingly supportive of the notion that poorer people tend to identify more strongly with their nation. A negative relationship between income and the national identification scale is apparent in all countries surveyed. The relationship generally holds also when controlling for years of education. The results are even stronger when using a four-item scale that does not include items 2 and 5 to measure national identification.

Again, *by itself* this result cannot prove the chain of causality proposed by the model. But it fits in well with the proposed model and with the experimental results from social psychology.

5.3 The cross country patterns

Finally, we come to the overall levels of redistribution and national identification. According to the model in equilibrium we should expect high levels of redistribution to be accompanied with relatively low levels of national identification and vice versa. Since according to the model both these variables are endogenous, we only look at correlations here.

To measure the extent of redistribution as defined by our model we need data on both pre-tax and after-tax income. The only available data that are also reasonably comparable across countries are the data from the Luxemburg Income Study compiled by Milanovic (2000). For each country participating in the LIS, these data include the distribution of household per-capita *factor* income and the distribution of household per-capita *disposable* income. Factor income is defined as pre-transfer and pre-tax income, and includes wages, income from self-employment, income from ownership of physical and financial capital, and gifts. Disposable income is equal to factor income plus all government cash transfers minus direct personal taxes and mandatory employee contributions. As a measure of the extent of redistribution, we use the "share gain" of the bottom quintile, defined as the difference between the share of the bottom quintile in factor and disposable income. For example, if the bottom quintile receives 1% of total factor income, while the same people receive 10% of total disposable income, the share gain is 9 percentage points. We match these data with measures of national identification from the ISSP 1995 and the WVS, using the closest available LIS data point to the date of the WVS or ISSP surveys (see Data Appendix). Note that since we no longer require individual income data, we can now use the entire set of democracies covered by the WVS between 1981 and 1998.

Figure 4 presents the association between redistribution levels and national identification using the ISSP 1995. The horizontal axis measures the median of the six-item national identity scale described in the previous section. On the vertical axis we have the share gain of the bottom quintile. Panel (a) presents all democracies participating in the ISSP on which we also have data on the share gain. Panel (b) excludes the transition economies of Eastern Europe, that one would suspect had not

yet reached equilibrium by the time of these surveys. In both panels, a clear negative relationship appears. The relationship is particularly clean when we focus only on the long established western democracies, with Germany exhibiting very low national pride and very high levels of redistribution, and the USA among the proudest and least redistributive countries. To get a sense of the strength of the association, the R^2 from regressing the share-gain on national identification alone is 0.49 in the entire sample, and 0.72 in the sample without the transition economies.

Figure 5 repeats this exercise with the larger set of surveys available from the WVS. On the horizontal axis we now have the estimated fraction of the population in each country professing the highest level of national pride. The pattern is again extraordinarily clear, especially when we exclude the eastern European countries. The R^2 is 0.61 when we exclude eastern Europe and 0.46 for the entire sample. Note that this pattern holds in spite of the commonly held view that the welfare state makes Europeans proud of their country: the more redistributive countries are actually characterized by *less* national pride.[41]

Most of the negative relationship comes from cross country variation and not variation within countries over time. Movements within countries – in both dimensions – are very small relative to the differences between countries. This suggests rather stable equilibria. To see this more clearly, Figure 6 presents the same data as in Figure 5(b) separately for each country on which we have more than one observation, maintaining the same scale for all countries. It may still be interesting to note that most of the movements are in accordance with our model. In particular consider the movements that seem to have occurred between the early 80's and the mid 90's in the Netherlands, Denmark, Sweden and Norway. In all these countries, we observe an apparent shift to lower levels of redistribution, coupled with higher levels of national identification. The reverse seems to have happened in Canada and Spain (and perhaps also in France and Germany) where levels of redistribution increased and levels of national identification decreased during the 1990's. Why these changes might have happened is a matter for further research. Indeed some of these "changes" may well be measurement noise. What we do want to emphasize then is the cross country pattern.

As a final robustness check, Figure 7 looks at an indirect measure of redistribution, namely social welfare expenditure as percentage of GDP (OECD 2004). While this is

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[41]Recall that the survey questions used are not using the word "nation" which may invoke various connotations, but rather ask "How proud are you to be French?" (WVS) or whether a respondent "would rather be a citizen of Germany than of any other country in the world" (ISSP).

an imperfect measure, a clear negative relationship is still apparent using both our measures of national identification. The data in panel (b) suggest that regional or cultural factors may also be at work, shifting both redistribution and national identification down in Japan and Korea. Interestingly, the large difference in social spending between these two countries corresponds to a difference in levels of national identification – much like the pattern across western democracies. Finally, it is noteworthy that contrary to social welfare expenditure, *military* expenditure as a share of GDP is not negatively related to measures of national identification (in fact the correlation is weakly positive using the WVS data).

It is of course possible that the cross country correlation is driven by some other factors (or fixed effects) that affect both national identification and levels of redistribution, without the direct link between the two postulated by our model. However, the micro level results presented above limit the relevance of this possibility. As we have seen, the relationship between national identification and redistribution also holds at the individual level: within almost every western democracy, people who identify with their nation support less redistribution than people who do not. And in almost every country, poverty seems to encourage nationalism. If the grand, long-run redistributive system reflects voters' preferences, then it would indeed be puzzling had the cross country patterns not reflected the micro results. Overall then, for advanced and well established democracies, the data lend strong support to the model.

6   Conclusion

Processes of social identification and their interactions with economic and political factors often seem hopelessly complex, and beyond the scope of economic theory. This paper has tried to show, however, that robust regularities observed by social psychologists and experimental economists can help render such processes amenable to standard economic analysis. As we have seen, the results obtained from such an analysis may in turn help tie together such previously disjointed phenomena as national identification, economic inequality and political preferences.

Experimental evidence strongly supports the basic assumptions of our general model. People identify more strongly with high status groups than with low status groups. They also identify more strongly with a group the more similar they are to that group. In turn, a person who identifies with a group behaves in a way that balances his own

material payoff with the "good" of that group – measured in comparison to other groups.

Our application to redistribution focused on the endogeneity of group status. For a given level of pre-tax inequality, a high tax rate decreases the difference in standards of living between the poor and the rich, and hence makes identification with a relatively poor social stratum more likely. Conversely, at a low tax rate the low status of the poor social strata may cause a shift in identification from the immediate social class to the more abstract nation. Now, since policies affect group status, political preferences may reflect identity concerns and not just material payoffs: identifying with the poor class increases support for redistribution while identifying with the nation shifts identity concerns to other issues. This creates a negative relationship between levels of redistribution and levels of national identification. The analysis further indicates the likely effects of national threats and ingroup heterogeneity on redistributive policies. It also points to the fact that increased income inequality need not lead to more demand for redistribution, as it can shift the poor from class identification to a national one.

Data from a large set of advanced democracies suggests that, for given income levels, national identification reduces support for income equalization. At the same time, low income is related to national identification, even when controlling for years of schooling. These individual level effects are in turn consistent with a remarkable cross country relationship between income redistribution and national identification – a relationship driven not just by the cross-Atlantic divide, but also by differences within Europe.

References

AKERLOF, G.E. and KRANTON R., 2000, Economics and Identity, Quarterly Journal of Economics, 115(3), 715-753.

ALESINA, A., BAQIR, R. and EASTERLY, W., 1999, Public Goods and Ethnic Divisions, Quarterly Journal of Economics, 114, 1243–1284.

ALESINA, A. and GLAESER, E.L., 2004, Fighting poverty in the US and Europe: a world of difference, Oxford University Press.

ALESINA, A., GLAESER, E.L and SACERDOTE, B., 2001, Why Doesn't The US Have a European-Style Welfare State?, Harvard Institute of Economic Research Discussion Paper No. 1933.

ANDERSON, B., 1991, Imagined Communities: Reflections on the Origin and Spread of Nationalism, Revised Edition, London and New York: Verso.

AVINERI, S., 1972, Hegel's Theory of the Modern State, Cambridge University Press.

BANERJEE, A.V., 1992, A Simple Model of Herd Behavior, The Quarterly Journal of Economics, 107(3), 797-817.

BENABOU, R., 1996, Inequality and growth, In Bernanke, B. and J. Rotemberg (eds.) NBER Macroeconomics Annual 1996. Cambridge: MIT Press.

BENABOU, R., 2000, Unequal Societies: Income Distribution and the Social Contract, The American Economic Review, 90(1), 96-129.

BENABOU, R., AND TIROLE, J., 2002, Belief in a Just World and Redistributive Policies, Mimeo, Princeton University.

BETTENCOURT, B. A., CHARLTON, K., DORR, N., HUME, D. L., 2001, Status differences and in-group bias: A meta-analytic examination of the effects of status stability, status legitimacy, and group permeability. Psychological Bulletin. 127(4) 520-542.

BILLIG, M., 1995, Banal Nationalism. London: Sage Publications.

BLINDER, A.S., and KRUEGER, A.S, 2004, What Does the Public Know about Economic Policy, and How Does It Know It?, NBER Working Paper No. 10787.

BOEN F, VANBESELAERE N, FEYS J, 2002, Behavioral consequences of fluctuating group success: An Internet study of soccer-team fans, Journal of Social Psychology, 142 (6): 769-781.

BOLTON, P. and ROLAND, G., 1997, The Breakup of Nations: A Political Economy Analysis,The Quarterly Journal of Economics, 112(4), 1057-90.

BORNSTEIN, G. 2002. Intergroup conflict: Individual, group, and collective interests, Mimeo, Center for the Study of Rationality, The Hebrew University of Jerusalem.

BORNSTEIN, G. and BEN-YOSSEF, M., 1994, Cooperation in intergroup and single-group social dilemmas. Journal of Experimental Social Psychology, 30, 52-67.

BOURHIS, R. Y. and GAGNON, A., 2001, Social orientations in the minimal group paradigm , In R. Brown and S. Gaertner (Eds.), Intergroup processes: Blackwell handbook in social psychology (Vol. 4), Oxford, UK: Blackwell, pp. 89-111.

BREWER, M. B. 1979, In-group bias in the minimal group situation: A cognitive-motivational analysis , Psychological Bulletin, 86, 307-324.

BREWER, M. B., and BROWN, R. J., 1998, Intergroup relations. In D. T. Gilbert, S. T. Fiske, and G. Lindzey (Eds.). The handbook of social psychology (Vol. 2, 4th edition, pp. 554-594). Boston: McGraw-Hill.

BREWER, M. B., and KRAMER, R. M., 1986, Choice behavior in social dilemmas: Effects of social identity, group size, and decision framing. Journal of Personality and Social Psychology, 3, 543–549.

BROWN, R., 2000, Social Identity Theory: past achievements, current problems and future challengesEuropean Journal of Social Psychology, 29, 634-667.

CIALDINI, R. B., BORDEN, R. J., THORNE, A.,WALKER, M. R., FREEMAN, S., and SLOAN, L. R. ,1976, Basking in reflected glory: Three (football) field studies , Journal of Personality and Social Psychology, 34, 366-375.

CIALDINI, R. B. and GOLDSTEIN, N.J., 2004, Social Influence: Compliance and Conformity, Annual Review of Psychology, 55, 591-621.

CONGLETON, R., and FUDULU, P., 1996, On the Rationality of Mutually Immiserating Coercion, Journal of Economic Behavior and Organization, 133-136.

COSTA, D.L. and KAHN, M.E., 2003, Cowards and Heroes: Group Loyalty in the American Civil War, The Quarterly Journal of Economics, 118(2), 519 – 548

DE-CREMER,D. and VAN-VUGT, M., 1998. Collective identity and cooperation in a public goods dilemma: A matter of trust or self-efficacy?, Current-Research-in-Social-Psychology. Vol 3(1): 1-11

DE CREMER D, VAN VUGT M, 1999. Social identification effects in social dilemmas: a transformation of motives, European Journal of Social Psychology 29 (7): 871-893.

ELLEMERS, N. 1993. The influence of socio-structural variables on identity management strategies. In W. Stoebe, and M. Hewstone (Eds.), European review of social psychology (Vol. 4, pp. 27–57). Chichester: Wiley.

ELLEMERS, N., DOOSJE, B., VAN KNIPPENBERG, A., and WILKE, H. 1992, Status protection in high status minority groups. European Journal of Social Psychology, 22, 123–140.

ELLEMERS, N., VAN KNIPPENBERG, A., DEVRIES, N., and WILKE, H. 1988, Social identification and permeability of group boundaries. European Journal of Social Psychology, 18, 497–513.

ELLEMERS, N. KORTEKAAS, P. OUWERKERK, J. 1999a Self-categorisation, commitment to the group and group self-esteem as related but distinct aspects of social identity, European Journal of Social Psychology, 29, (2-3), 371-389.

ELLEMERS N, SPEARS R, DOOSJE B, eds. 1999b, Social Identity: Context, Commitment, Content. Oxford: Blackwell.

ELLEMERS N, SPEARS R, DOOSJE B, 2002, Self and Social Identity, Annual Review of Psychology, 53:161–86.

EVANS, G., 2000, The Continued Significance of Class Voting, Annual Review of Political Science, 3, 401-417.

FAN, J., 1992, Design-adaptive nonparametric regression , Journal of the American Statistical Association, 87, 998-1004.

FEHR, E. and SCHMIDT, K.M., 2001, Theories of Fairness and Reciprocity: Evidence and Economic Applications, CEPR Discussion Paper no. 2703.

FISCHBACHER, U., GACHTER, S., and FEHR, E., 2001, Are people conditionally cooperative? Evidence from a public goods experiment, Economics Letters, 71(3), 397-404

FREEDOM HOUSE, 2003, Freedom in the World Country Ratings 1972 through 2003, http://www.freedomhouse.org/ratings.

FREY, B.S. and STUTZER A, 2002, What Can Economists Learn from Happiness Research?, Journal of Economic Literature 40(2), 402-435.

FRYER, R.G and JACKSON, M.O., 2003. Categorical Cognition: A Psychological Model of Categories and Identification in Decision Making, NBER Working Papers 9579.

GELLNER, E., 1983, Nations and Nationalism. Ithaca: Cornell University Press.

GLAESER, E.L., 2005, The political economy of hatred, Quarterly Journal of Economics, 120(1), 45 - 86.

GLAESER, E.L., LAIBSON D.I., SCHEINKMAN, J.A, and SOUTTER C.L., Measuring Trust, The Quarterly Journal of Economics,115(3), 811 – 846.

GRADSTEIN, M., and JUSTMAN, M., 2002, Education, Social Cohesion, and Economic Growth, American Economic Review, 92(4), 1192-1204.

GUIMOND S, DIF S, AUPY A, 2002 Social identity, relative group status and intergroup attitudes: when favourable outcomes change intergroup relations ... for the worseEuropean Journal of Social Psychology 32 (6): 739-760.

HESTON, A., SUMMERS, R. and ATEN, B., 2002, Penn World Table Version 6.1, Center for International Comparisons at the University of Pennsylvania (CICUP), October.

HOBSBAWM, E. J., 1990, Nations and nationalism since 1780: Programme, myth, reality, Cambridge: Cambridge University Press.

HOGG M.A, ABRAMS D.A., eds. 2001, Intergroup Relations, Psychology Press.

HOGG, M. A., and HAINS, S. C. 1996, Intergroup relations and group solidarity: Effects of group identification and social beliefs on depersonalized attraction. Journal of Personality and Social Psychology, 70, 295–309.

HOLT, C. and LAURY S.K., forthcoming, Theoretical Explanations of Treatment Effects in Voluntary Contributions Experiments, The Handbook of Experimental Economics Results, C. Plott and V. Smith, eds.

HOROWITZ, D. L. 1985. Ethnic Groups in Conflict. Berkeley: University of California Press.

IGNAZI, P., 2003, Extreme right parties in Western Europe, Oxford University Press.

INGLEHART, R., ET AL. 2000, World Values Surveys and European Values Surveys, 1981-1984, 1990-1993, and 1995-1997. ICPSR version. Ann Arbor, MI: Institute for Social Research, 2000.

INTERNATIONAL SOCIAL SURVEY PROGRAM (ISSP): NATIONAL IDENTITY, 1995. ICPSR release. Koeln, Germany: Zentralarchiv fuer Empirische Sozialforschung [producer], 1998. Koeln, Germany: Zentralarchiv fuer Empirische Sozialforschung/Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributors], 1998.

JACKSON LA, SULLIVAN LA, HARNISH R, HODGE CN, 1996, Achieving positive social identity: Social mobility, social creativity, and permeability of group boundaries , Journal of personality psychology 70 (2): 241-254.

JENKINS R., 1996, Social identity. London: Routledge.

JETTEN, J., SPEARS, R., MANSTEAD, A. S. R. 1996, Intergroup norms and intergroup discrimination: Distinctive self-categorization and social identity effects. Journal of Personality and Social Psychology. 71(6), 1222-1233.

KAHNEMAN, D., WAKKER, P.P., and SARIN, R., 1997, Back to Bentham? Explorations of experienced utility , Quarterly Journal of Economics, 112, 375-405.

KITSCHELT, HERBERT, 1996, The Radical Right in Western Europe, Ann Arbor: The University of Michigan Press.

KRAMER, R. M., and BREWER, M. B., 1984, Effects of group identity on resource use in a simulated commons dilemma. Journal of Personality and Social Psychology, 46, 1044–1057.

KRAMER, R.M., and BREWER, M.B., 1986, Social group identity and the emergence of cooperation in resource conservation dilemmas. In H. Wilke, D. Messick, and C. Rutte (Eds.), Experimental social dilemmas Frankfurt am Main, Germany: Verlag Peter Lang, pp. 177- 203.

KREMER, M. and SARYCHEV, A., 1998, Why Do Governments Operate Schools?, Mimeo, Harvard University.

LAMBERTS, K, 1997, Process models of categorization in Lamberts, K. and Shanks D., eds., Knowledge, Concepts and Categories, MIT Press.

LEDYARD, J.O., 1995, Public goods: a survey of experimental research. In: Roth, A., Kagel, J. (Eds.), The Handbook of Experimental Economics. Princeton University Press, Princeton, pp. 111–194.

LEE, W., and ROEMER, J.E., 2004, Racism and Redistribution in the United States: A Solution to the Problem of American Exceptionalism, Cowles Foundation Discussion Paper No. 1462.

LOGAN, G. D., 2004, Cumulative progress in formal theories of Attention , Annual review of Psychology, 55, 207-234.

LOEWNSTEIN, G. and ANGNER, E., 2002, Predicting and indulging changing preferences. In G. Loewenstein, D. Read, and R. Baumeister (Eds.) Time and Decision: Economic and Psychological Perspectives on Intertemporal Choice. New York: Russell Sage Foundation Press.

LOEWENSTEIN, G., O'DONOGHU, T. and RABIN, M., 2003. Projection Bias In Predicting Future Utility, The Quarterly Journal of Economics, 118(4), 1209-1248.

LOWENTHAL, D. and LOEWENSTEIN, G., 2001, Can voters predict changes in their own attitudes?, Political Psychology, 22, 65-87.

LUBBERS, M.; GIJSBERTS, M.; SCHEEPERS, P., 2002 Extreme Right-Wing Voting in Western Europe, European Journal of Political Research, 2002, 41, 3, 345-378.

LUTTMER, E., 2001, Group loyalty and the taste for redistribution. Journal of Political Economy 109(3): 500-528.

MACKIE, D.M. and WRIGHT, C.L. 2001, Social Influence in an Intergroup Context, in Brown R. and Gaertner S.L. (Eds) Blackwell Handbook of Social Psychology: Intergroup Processes , pp. 281-300.

MAEL, F., and ASHFORTH, B. E. 1992, Alumni and their alma mater: A partial test of the reformulated model of organizational identification. Journal of Organizational Behavior, 13, 103–123.

MELTZER A.H.M and RICHARD, S.F., 1981, A Rational Theory of the Size of Government, The Journal of Political Economy, 89(5), 914-927.

MILANOVIC, B. 2000. The Median-Voter Hypothesis, Income Inequality, and Income Redistribution: An Empirical Test with the Required Data,European Journal of Political Economy, 16, 367-410.

MOFFITT, R., 1983, An Economic Model of Welfare Stigma, The American Economic Review, 73(5), 1023-1035.

MUMMENDEY, A., KLINK, A. and BROWN, R., 2001, Nationalism and patriotism: National identification and out-group rejection , British Journal of Social Psychology, 40(2), 159-172.

NOSOFSKY, R.M., 1986, Attention, similarity and the identification-categorization relationship , Journal of Experimental Psychology: General, 115(1), 39-57.

NOSOFSKY, R.M., 1992, Similarity scaling and cognitive process models , Annual review of Psychology, 43, 25-53.

OECD 2004, Social Expenditure database (SOCX), 1980-2001.

ORBELL, J.M., VAN DE KRAGT, A.J.C., and DAWES, R.M. 1988, Explaining discussion-induced cooperation. Journal of Personality and Social Psychology, 54, 811- 819.

OUWERKERK, J.W. and ELLEMERS, N., 2002, The benefits of being disadvantaged: performance-related circumstances and consequences of intergroup comparisons , European Journal of Social Psychology, 32(1), 73-91.

PIKETTY, T. 1995, Social Mobility and Redistributive Politics, Quarterly Journal of Economics 110, 551-584.

POLZER, J., K. STEWART, and J. SIMMONS. 1999, A Social Categorization Explanation for Framing Effects in Nested Social Dilemmas. Organizational Behavior and Human Decision Processes 79, 154-178.

ROCCAS S, 2003, The effects of status on identification with multiple groups, European Journal of Social Psychology 33 (3): 351-366.

ROEMER, J.E., 1998, Why the Poor Do Not Expropriate the Rich: an Old Argument in New Garb, Journal of Public Economics, 70, 399-424.

ROMER, T., 1975, Indivudual Welfare, Majority Voting, and the Properties of a Linear Income Tax, Journal of Public Economics, 4, 163-85.

SAUSGRUBER , R., 2003, Testing for Team Spirit – An Experimental Study, Mimeo, University of Innsbruck, Department of Public Economics.

SCHAIN, M., ZOLBERG, A. and HOSSAY, P., eds., 2002, Shadows over Europe: The Development and Impact of the Extreme Right in Western Europe, New York: Palgrave.

SCHMADER, T. and MAJOR, B. 1999, The impact of ingroup vs. outgroup performance on personal values, Journal of Experimental Social Psychology, 35, 47–67.

SHAYO, M., 2005, A Theory of Social Identity with an Application to Redistribution, Mimeo, Princeton University.

SOLOW, J. L. and KIRKWOOD, N., 2002, Group identity and gender in public goods experiments, Journal of Economic Behavior & Organization, 48(4), 403-412.

SMITH, T.W., and JARKKO, L., 1998, National Pride: A Cross-national Analysis , GSS Cross-national Report No. 19, National Opinion Research center/University of Chicago.

SOROKA, S., BANTING, K. and JOHNSTON, R., Immigration and Redistribution in a Global Era, Forthcoming in Sam Bowles, Pranab Bardhan and Michael Wallerstein, eds., Globalization and the Politics of Redistribution, Russell Sage Foundation.

SPEARS R, POSTMES T, LEA M,WATT SE, 2001, A SIDE view of social influence. in Forgas JP, Williams KD, (eds.), Social Influence: Direct and Indirect Processes, Philadelphia/Hove, UK: Psychology Press, pp. 331–50.

TAJFEL, H., 1970, Experiments in intergroup discrimination , Scientific American, 223, 96-102. Reprinted in Hogg, MA and Abrams D., eds., Intergroup Relations, Ann Arbor: Psychology Press, 2001.

TAJFEL, H., BILLIG, M. G., and BUNDY, R. P. 1971. Social categorization and intergroup behavior, European Journal of Social Psychology, 1, 149–178.

TAJFEL, H., and TURNER, J. C. 1979. An integrative theory of intergroup conflict, in W. G. Austin and S.Worchel (Eds.), The social psychology of intergroup relations (pp. 33–48). Monterey, CA:Brooks/Cole. Reprinted in Hogg, MA and Abrams D., eds., Intergroup Relations, Ann Arbor: Psychology Press, 2001.

TAJFEL H. and TURNER JC.,1986, The social identity theory of intergroup behavior, In Psychology of Intergroup Relations, Worchel S. and Austin W., eds., Nelson Hall: Chicago, 7-24.

TURNER J.C., HOGG M.A., OAKES P.J., REICHER S.D., WETHERELL M.S., 1987, Rediscovering the Social Group a Self categorization Theory, Blackwell, Oxford.

VAN VUGT M. and HART C.M. 2004, Social Identity as Social Glue: The Origins of Group Loyalty, Journal of Personality and Social Psychology, 86(4), 585–598.

WEBER, E., 1979, Peasants into Frenchmen: The Modernization of Rural France, 1870-1914, Stanford University Press.

WEISS, Y., and FERSHTMAN, C., 1998, Social status and economic performance: A survey, European Economic Review, 42, 801-820.

ZELMER, J., 2003, Linear Public Goods Experiments: A Meta-Analysis, Experimental Economics, 6 (3) 299 – 310.

APPENDIX

A   Proof of Proposition 1:

Part (i): By (15) and (16) we know $t_P^*(y_m) > t_N^*(y_m)$.The condition in part (i) of the proposition then implies

$$\frac{\beta}{\gamma}(d_N - d_P) \leq \nu - \delta(\alpha t_P^*(y_m) - 1) < \nu - \delta(\alpha t_N^*(y_m) - 1). \tag{21}$$

But this implies

$$\frac{\beta}{\gamma}(d_N - d_P) < (R_N - R_P)|_{t^* = t_N^*(y_m)}$$

So $t_N^*(y_m)$ satisfies (19) and (20) and is an equilibrium tax rate. The first inequality in (21) implies

$$\frac{\beta}{\gamma}(d_N - d_P) \leq (R_N - R_P)|_{t^* = t_P^*(y_m)}$$

so by (19) $t_P^*(y_m)$ cannot be an equilibrium tax rate. This makes $t_N^*(y_m)$ the unique equilibrium tax rate. By (13) $g_m = N$.

A similar proof holds for part (ii).

For part (iii) note that the first inequality ensures that $t_P^*(y_m)$ satisfies both (19) and (20) so it is an equilibrium tax rate. The second inequality does the same for $t_N^*(y_m)$.

B   Data

B.1   WVS Household Income Data:

All WVS Data are from the first three waves of the WVS (Inglehart et al. 2000).

The World values survey reports a measure of total, pre-tax household income "counting all wages, slalries, pensions and other incomes that come in... before taxes and other deductions" For most countries, household income is reported in ten categories, usually running from 1 to 10, where the lowest and uppermost categories are open ended.[42]. The data used for individual

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[42]The USA in the second wave has several open categories at the top. This does not alter the form of the likelihood function.

level analysis in this paper are only from those countries where the income categories cutoff points is known. Contrary to the impression one might get from the WVS literature, these income categories are not deciles. A minor problem arises, therefore, of assigning individuals a level of income based on the reported categories, that is, of assigning a specific point within the reported interval. This is done here by assuming a log-normal distribution of household income within each nation and wave, and estimating the parameters of the distribution by maximum likelihood. Once one has the distribution, each individual is assigned the median point conditional on the interval within which her income lies. All calculations were performed using the sampling weights in the different nations and waves.

B.2   WVS Household Size Data

Information related to household size in the world values surveys is indirectly available from the following questions:
- Have you had any children? IF YES, how many?
- How many of them are still living at home? [asked in second wave only]
- Do you live with your parents?
- Are you currently....(1) Married; (2) Living as married; (3) Divorced; (4) Separated; (5) Widowed; (6) Single

Since in the second wave we have data on number of children still living at home, we can reasonably impute household size for most respondents. However, there is no clear way to predict household size for young respondents living with their parents. For the third wave we do the following. First we estimate for each country participating in the second wave household-size equations, using as regressors the above mentioned questions that appear in both waves, as well as sex, income and religion (the fit was good in all regressions: R^2 around 0.7). We then use the obtained coefficients to predict household size for wave 3. For countries that did not participate in the second wave we use coefficients from neighboring countries with similar distribution of number of children. Once again, household size cannot be predicted for young respondents living with parents. Missing values for household size are "dummied out" in the regressions.

B.3   Definition of Democracy

We limit the analysis to countries whose Freedom House (2003) score for Political Rights is either 1 or 2. These are characterized as follows:

Rating of 1—Countries and territories that receive a rating of 1 for political rights come closest to the ideals suggested by the checklist questions, beginning with free and fair elections. Those who are elected rule, there are competitive parties or other political groupings, and the opposition plays an important role and has actual power. Minority groups have reasonable self-government or can participate in the government through informal consensus.

Rating of 2—Countries and territories rated 2 in political rights are less free than those rated 1. Such factors as political corruption, violence, political discrimination against minorities, and foreign or military influence on politics may be present and weaken the quality of freedom.

B.4 Matching LIS Household Income Surveys in the Milanovic (2000) data with WVS and ISSP data

<div align="center">Table A1: WVS and LIS</div>

WVS	LIS survey	WVS	LIS survey
Australia 81	1981	Italy 81	1986
Australia 95	1994	Italy 90	1991
Belgium 81	1985	Netherlands 81	1983
Belgium 90	1988	Netherlands 90	1991
Britain 81	1979	Norway 81	1979
Britain 90	1991	Norway 90	1991
Britain 98	1995	Norway 96	1995
Canada 81	1981	Poland 96	1995
Canada 90	1991	Slovakia 90	1992
Czech 90	1992	Spain 81	1980
Denmark 81	1987	Spain 90	1990
Denmark 90	1992	Sweden 81	1981
East Germany 97[*]	1994	Sweden 90	1992
Finland 90	1991	Sweden 96	1995
Finland 96	1995	USA 81	1979
France 81[**]	1979	USA 90	1991
France 90	1989	USA 95	1994
Hungary 90	1991	West Germany 81	1981
Ireland 90	1987	West Germany 90	1989
		West Germany 97[*]	1994

* The WVS maintained the separation of East and West Germany in the 1997 survey. Both are matched to the same 1994 LIS household survey, taken in the unified Germany.
** We use the 1979 LIS rather than the 1981, since the 1981 data yield a gross outlier compared to other France household surveys. The share gain of the bottom quintile is 12.6, 13.7 and 15 in 1979, 1984 and 1989, respectively; but it is only 4.5 in the 1981 survey (see Milanovic 2000, Appendix B).

<div align="center">Table A2: ISSP 1995 and LIS</div>

ISSP 1995	LIS survey
Australia	1994
Canada	1994
Czech-Rep.	1992
Germany*	1994
Great-Britain	1995
Hungary	1991
Ireland	1987
Italy	1995
Netherlands	1994
Norway	1995
Poland	1995
Russia	1995
Slovak-Rep.	1992
Spain	1990
Sweden	1995
United-States	1994

* The ISSP 1995 included separate surveys for East and West Germany. Both are matched to the same 1994 LIS household survey, taken in the unified Germany.

B.5 Means, Medians and Standard Deviations of Variables Used in Estimations

Table A3: WVS Micro Data

Survey and year	N	Support for Redistribution Median	Mean	SD	Household Income Mean	SD	National Pride Fraction Very Proud	Fraction Quite Proud	Fraction Male	Age Mean	SD
Austria 90	1324	6	5.56	3.03	254820	125122.70	0.53	0.40	0.39	46.83	17.00
Belgium 90	1517	4	5.09	2.94	767466	362234.00	0.31	0.50	0.51	45.27	16.78
Brazil 90	1622	5	5.18	3.29	1359695	1883210.00	0.64	0.23	0.51	36.26	12.57
Britain 90	1046	4	4.45	2.44	12961	8336.52	0.52	0.37	0.50	46.60	18.02
Bulgaria 98	785	5	5.55	2.78	2956961	3033386.00	0.51	0.35	0.49	47.66	17.82
Canada 90	1423	3	4.23	2.86	40922	21782.22	0.60	0.34	0.51	42.73	16.06
Chile 90	1445	5	5.01	3.19	820766	724468.70	0.53	0.34	0.48	38.53	15.69
E Germany 90	1181	3	3.38	2.60	21142	8157.68	0.29	0.45	0.47	44.68	16.72
Estonia 96	762	6	5.66	2.49	29521	15251.64	0.22	0.46	0.43	43.25	15.48
Finland 90	549	4	4.38	2.77	157302	62467.65	0.38	0.45	0.52	41.08	13.85
Hungary 90	918	5	5.21	2.96	228673	137771.60	0.47	0.41	0.49	45.60	16.61
India 90	2279	5	5.03	2.97	29198	17905.73	0.76	0.19	0.56	35.23	13.21
Italy 90	1363	5	5.12	2.89	28200000	22300000.00	0.40	0.48	0.51	42.15	15.83
Japan 90	724	5	5.30	2.26	6151936	2704937.00	0.29	0.38	0.51	42.76	13.94
Japan 95	770	5	5.49	2.17	6830066	3071068.00	0.26	0.38	0.52	45.96	14.68
Latvia 96	879	4	4.62	2.39	1903	1129.55	0.23	0.45	0.43	42.14	16.17
Netherlands 90	752	4	4.81	2.04	48962	23881.90	0.22	0.53	0.48	42.94	15.90
Portugal 90	1089	7	6.66	2.81	1110523	737980.70	0.42	0.49	0.49	41.97	17.47
Spain 90	3180	6	6.02	2.71	1427371	802874.10	0.45	0.42	0.48	42.49	17.16
Spain 96	843	6	5.50	2.81	1724178	1508714.00	0.68	0.25	0.50	45.29	17.78
Sweden 96	867	5	5.13	2.15	277828	125906.40	0.47	0.43	0.51	44.28	16.04
Switzerland 96	889	6	6.25	3.03	52043	25724.76	0.28	0.50	0.50	45.91	17.23
Turkey 90	971	7	6.42	3.23	12600000	17400000.00	0.67	0.25	0.50	36.30	14.07
USA 90	1614	4	4.21	2.53	31883	16547.45	0.75	0.23	0.51	46.25	17.30
USA 95	1320	6	5.52	2.71	38832	23916.44	0.80	0.18	0.50	47.99	17.70
Venezuela 96	1059	6	5.47	3.31	846149	786467.00	0.94	0.05	0.50	36.17	13.94
W Germany 90	1600	4	4.77	2.75	49664	21806.48	0.19	0.49	0.50	45.92	17.63

Unweighted data. The Support for Redistribution variable takes values from {1,2,…,10}. Household income is annual in local currency (see Appendix B.1).

Table A4: ISSP 1995 Micro Data

Nation	N	National Identity Scale			Household Income		Years of Schooling		Fraction Male	Age	
		Median	Mean	SD	Mean	SD	Mean	SD		Mean	SD
Australia	1947	16	16.01	3.21	48195.94	42266.84	12.21	4.11	0.51	47.83	14.98
Austria	698	17	16.52	4.12	23010.74	10151.84	11.55	9.82	0.47	46.19	16.90
Bulgaria	634	16	15.81	3.84	8648.85	6735.85			0.51	48.45	16.58
Canada	1162	16	15.46	3.75	47504.30	24278.79	15.09	4.07	0.49	41.16	14.91
Czech-Republic	596	13	12.81	3.40	12328.43	10941.97	16.32	16.56	0.54	43.91	15.78
E-Germany	433	11	11.31	4.43	3093.30	1350.63	14.44	16.41	0.52	47.04	15.53
Great-Britain	805	14	14.34	3.70	17575.16	12329.24	12.46	9.47	0.43	46.09	17.03
Hungary	734	15	14.79	3.49	37776.65	27796.47	11.03	5.53	0.45	46.49	17.35
Ireland	817	16	15.89	2.99	17413.05	10168.52	12.28	3.18	0.49	46.02	16.14
Italy	1017	12	11.98	3.85	2849.80	1347.80	11.22	4.50	0.50	42.47	15.44
Japan	782	15	14.53	3.61	7255.12	4029.56	14.54	13.40	0.50	46.42	15.02
Latvia	468	13	13.16	3.71	99.37	80.49	12.12	3.91	0.37	45.26	16.82
Netherlands	1174	13	12.68	3.27	68522.57	34511.15	13.55	4.16	0.52	42.73	15.40
New-Zealand	797	16	15.75	2.98	45974.28	23966.59	15.01	7.91	0.49	45.42	16.07
Norway	1083	15	14.47	3.41	318993.50	144173.20	23.39	27.55	0.52	42.17	16.49
Poland	1005	14	14.13	3.29	800.46	573.64	10.97	6.20	0.49	46.25	16.54
Russia	834	14	13.79	3.52	4631.83	59850.01	11.60	5.47	0.47	45.18	15.53
Slovak-Republic	1012	12	11.81	4.08	10742.22	8436.43	15.15	16.14	0.50	41.57	16.42
Slovenia	464	14	13.84	3.69	121855.60	90692.52	15.88	19.37	0.47	42.65	15.12
Spain	714	15	14.52	3.35	141838.20	92814.18	15.39	21.43	0.51	44.72	17.96
Sweden	882	13	13.13	3.55	21162.13	9583.84	11.95	5.72	0.53	44.67	15.50
United-States	1048	16	15.71	3.37	38080.25	24485.75	13.64	3.79	0.46	43.57	15.80
W-Germany	901	11	11.27	4.66	3847.73	1622.77	14.96	18.06	0.57	46.47	15.70

Unweighted data. See text for definition of National Identity scale. It takes values from {0,1,2,…,24} Household income in local currency, definitions vary across surveys. Years of schooling measure number of years of full time schooling except in Great-Britain where it is recoded from age when completed full time education.

Table 1: Support for Redistribution, Income and National Pride

Survey and Year	log Income		Very Proud		Quite Proud		N
Austria 90	-0.903**	(0.172)	-0.638**	(0.318)	-0.301	(0.319)	1323
Belgium 90	-1.152**	(0.182)	-0.152	(0.217)	-0.120	(0.188)	1517
Brazil 90	-0.324**	(0.083)	0.128	(0.249)	-0.062	(0.271)	1622
Britain 90	-0.868**	(0.120)	-0.572**	(0.285)	-0.316	(0.285)	1046
Bulgaria 98	-0.373**	(0.154)	-0.297	(0.285)	-0.239	(0.283)	767
Canada 90	-0.646**	(0.140)	-0.715**	(0.332)	-0.436	(0.339)	1422
Chile 90	-0.503**	(0.118)	-0.373	(0.261)	-0.436	(0.271)	1441
E Germany 90	-0.548**	(0.249)	-0.715**	(0.212)	-0.359**	(0.181)	1181
Estonia 96	-0.895**	(0.197)	0.229	(0.255)	0.225	(0.209)	762
Finland 90	-0.835**	(0.284)	-0.722*	(0.371)	-0.529	(0.362)	549
Hungary 90	-1.204**	(0.181)	0.171	(0.282)	0.457*	(0.276)	918
India 90	-0.395**	(0.113)	0.409	(0.261)	0.217	(0.285)	2279
Italy 90	-0.771**	(0.136)	-0.255	(0.261)	-0.109	(0.245)	1363
Japan 90	-0.951**	(0.186)	-0.872**	(0.217)	-0.588**	(0.191)	723
Japan 95	-1.092**	(0.180)	-0.381*	(0.213)	-0.281*	(0.170)	770
Latvia 96	-0.610**	(0.146)	-0.977**	(0.236)	-0.299	(0.182)	879
Netherlands 90	-0.936**	(0.152)	-0.454**	(0.222)	-0.447**	(0.180)	752
Portugal 90	-0.721**	(0.149)	-0.229	(0.306)	-0.120	(0.300)	1089
Spain 90	-0.766**	(0.105)	-0.694**	(0.151)	-0.701**	(0.146)	3180
Spain 96	-0.244	(0.172)	-0.202	(0.392)	0.136	(0.412)	842
Sweden 96	-0.691**	(0.167)	-0.226	(0.250)	-0.079	(0.249)	867
Switzerland 96	-1.234**	(0.211)	-0.763**	(0.294)	-0.480*	(0.253)	887
Turkey 90	-0.468**	(0.119)	-1.747**	(0.341)	-1.723**	(0.366)	968
USA 90	-0.240*	(0.126)	-2.063**	(0.529)	-1.611**	(0.537)	1560
USA 95	-0.358**	(0.123)	-0.904*	(0.530)	-0.672	(0.541)	1310
Venezuela 96	-0.403**	(0.151)	-0.021	(0.788)	-0.761	(0.917)	1059
W Germany 90	-1.091**	(0.185)	-1.253**	(0.205)	-0.740**	(0.154)	1600

WVS data. OLS, robust standard errors in parentheses. Each row is a separate regression. Dependent variable is support for redistribution, ranging from 1 ("We need larger income differences as incentives for individual effort") to 10 ("Incomes should be made more equal"). Reported are the estimated coefficients on log household income, and two dummies for national pride: "very proud" and "quite proud". Omitted categories are "not proud" and "not at all proud".

All regressions control for log of household size, sex, age, and age squared. All regressions except Turkey 1990 also control for years of education. Missing values for household size and years of education are dummied out.

** Denotes significantly different from zero at the 5 % level.

* Denotes significantly different from zero at the 10 % level.

## Table 2: National Identification, Income and Years of Schooling

Nation	(1) log Income		N	(2) log Income		Years of Schooling		N
Australia	-0.169	(0.110)	1889	-0.037	(0.127)	-0.100**	(0.046)	1889
Austria	-0.520	(0.338)	698	-0.530	(0.338)	-0.018	(0.021)	698
Bulgaria	-0.538**	(0.189)	633	.	.	.	.	0
Canada	-0.228	(0.181)	1106	0.288	(0.200)	-0.195**	(0.031)	1081
Czech Rep.	-1.033**	(0.296)	593	-1.005**	(0.298)	-0.012	(0.011)	591
E-Germany	-0.870**	(0.443)	433	-0.991**	(0.422)	-0.051**	(0.014)	417
Great-Britain	-0.793**	(0.181)	805	-0.823**	(0.179)	-0.034**	(0.014)	805
Hungary	-1.084**	(0.271)	734	-1.020**	(0.277)	-0.044	(0.029)	734
Ireland	-0.530**	(0.178)	817	-0.471**	(0.191)	-0.030	(0.037)	813
Italy	-0.807**	(0.259)	1017	-0.120	(0.270)	-0.216**	(0.032)	1017
Japan	-0.776**	(0.237)	782	-0.777**	(0.238)	-0.009	(0.010)	778
Latvia	-0.346	(0.221)	468	-0.215	(0.235)	-0.094**	(0.046)	467
Netherlands	-0.952**	(0.183)	1174	-0.677**	(0.185)	-0.153**	(0.028)	1174
New Zealand	-0.502**	(0.195)	787	-0.902**	(0.269)	0.025	(0.024)	368
Norway	-0.647**	(0.199)	1083	-0.783**	(0.211)	-0.019**	(0.005)	1010
Poland	-1.150**	(0.172)	1005	-1.081**	(0.176)	-0.038*	(0.022)	1005
Slovak Rep.	-0.733**	(0.246)	1012	-0.735**	(0.246)	0.001	(0.008)	1012
Slovenia	-0.826**	(0.301)	463	-0.780**	(0.303)	-0.011	(0.008)	459
Spain	-0.910**	(0.222)	714	-0.901**	(0.225)	0.009	(0.005)	700
Sweden	-0.999**	(0.245)	882	-0.689**	(0.261)	-0.110**	(0.039)	826
United-States	-0.516**	(0.110)	1045	-0.355**	(0.165)	-0.160*	(0.091)	1045
W-Germany	-1.097**	(0.337)	900	-0.894**	(0.341)	-0.022**	(0.009)	875

ISSP 1995 data. OLS, robust standard errors in parentheses. Dependent variable is national identification scale. Each row reports the coefficient on the log of household income from two separate regressions. The regressions in column (1) do not control for years of schooling, while those in column (2) do, with the estimated coefficient reported. Samples do not include non-citizens. All regressions control for sex, age and log of household size. Missing values for household-size are dummied out.
** Denotes significantly different from zero at the 5 % level.
* Denotes significantly different from zero at the 10 % level.

# Figure 1: Typical Choice Sets in Minimal Group Experiments
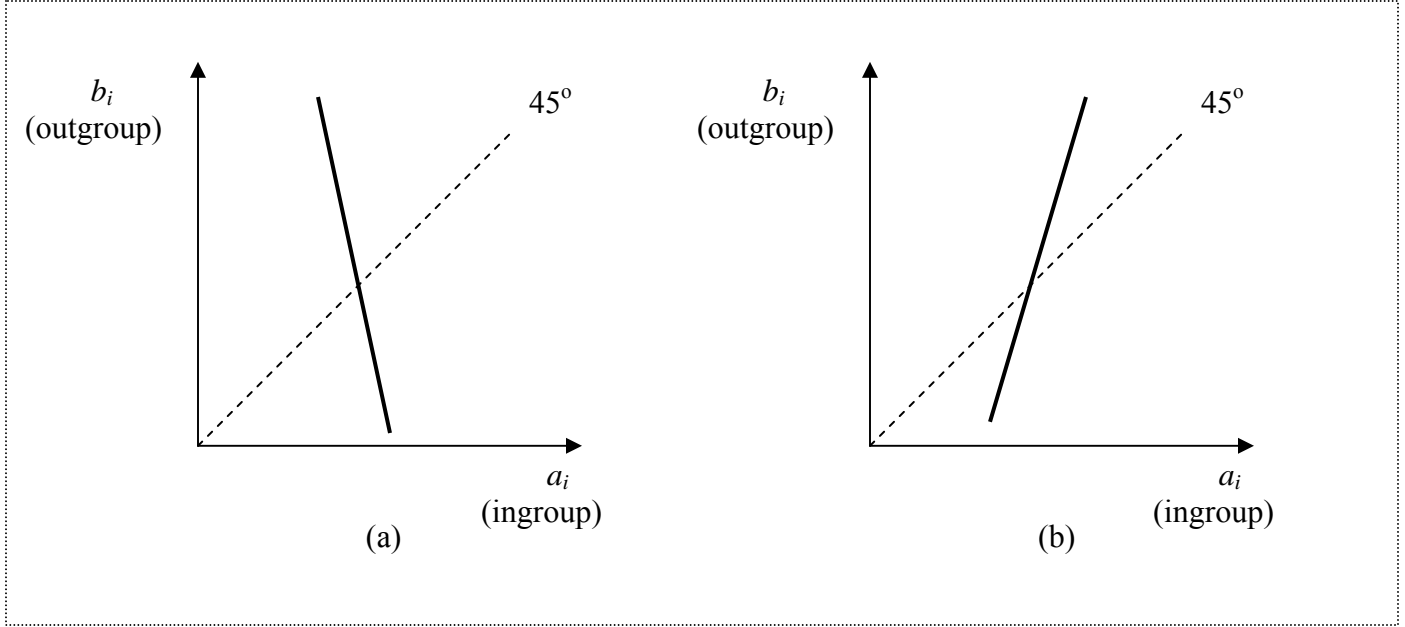
The solid lines represent continuous versions of the commonly used "Tajfel Matrices" (Tajfel et al., 1971). Panel (a) presents a choice between "Maximum Joint Profits" and both "Maximum Difference" and "Maximum Ingroup Profits". Panel (b) presents a choice between "Maximum Difference" and both "Maximum Ingroup Profits" and "Maximum Joint Profits".
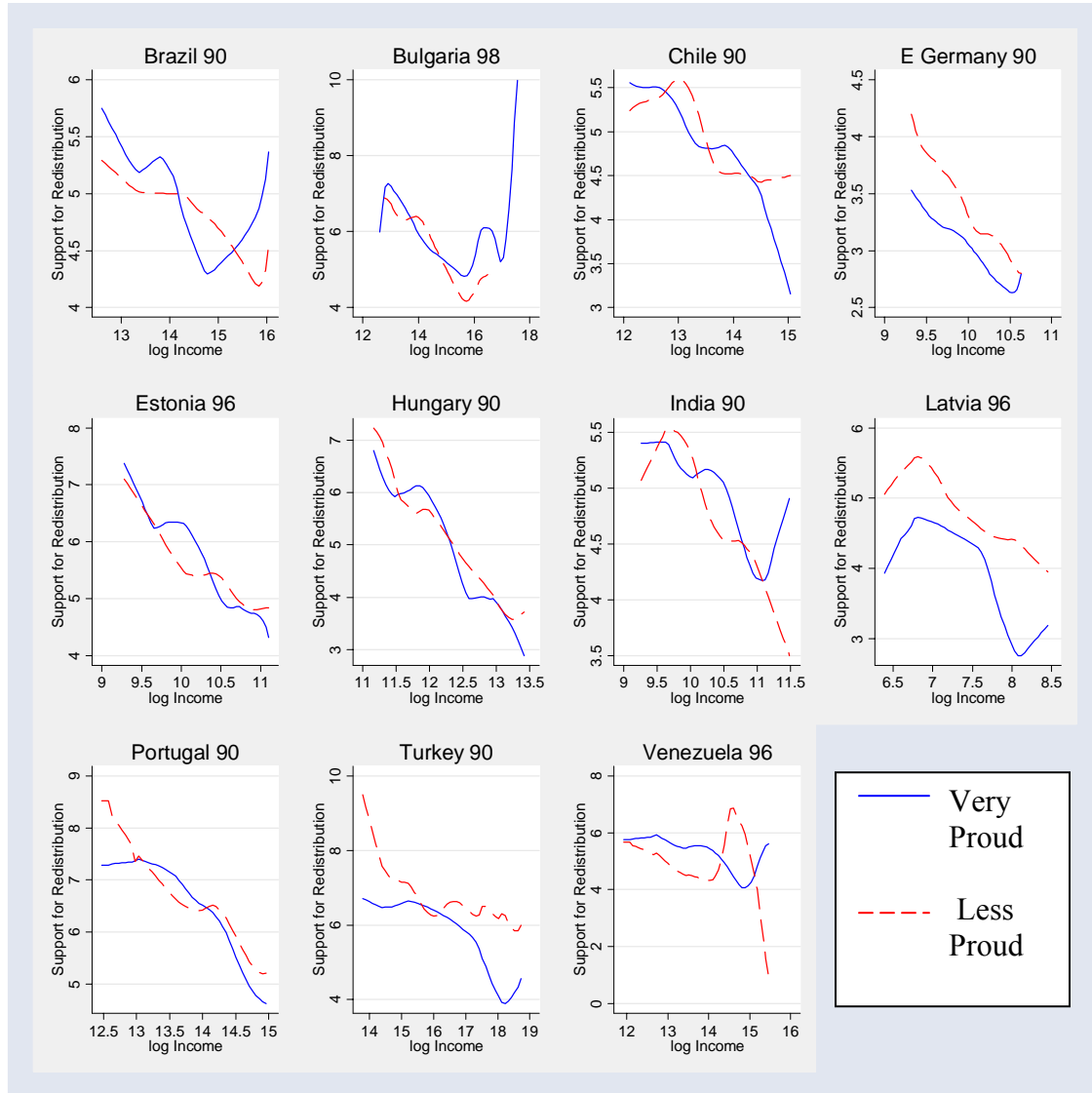
Figure 2: SIE in the Two-Class Model
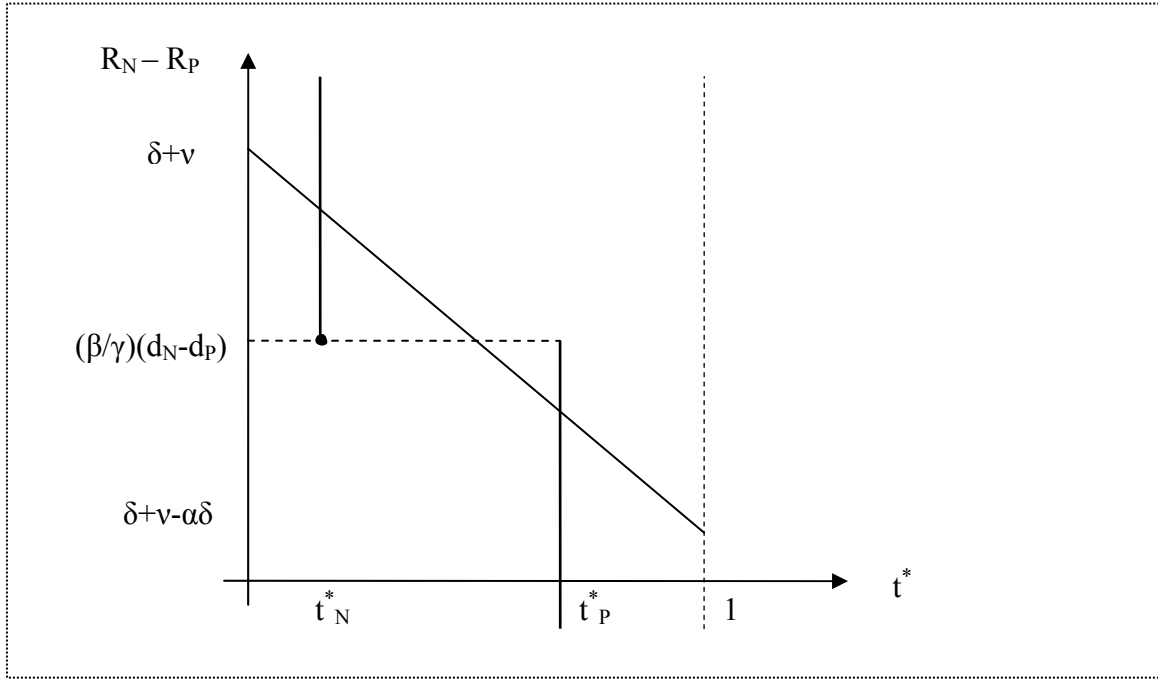
Figure 3: Support for Redistribution by National Identity and Income

a. Advanced Economies
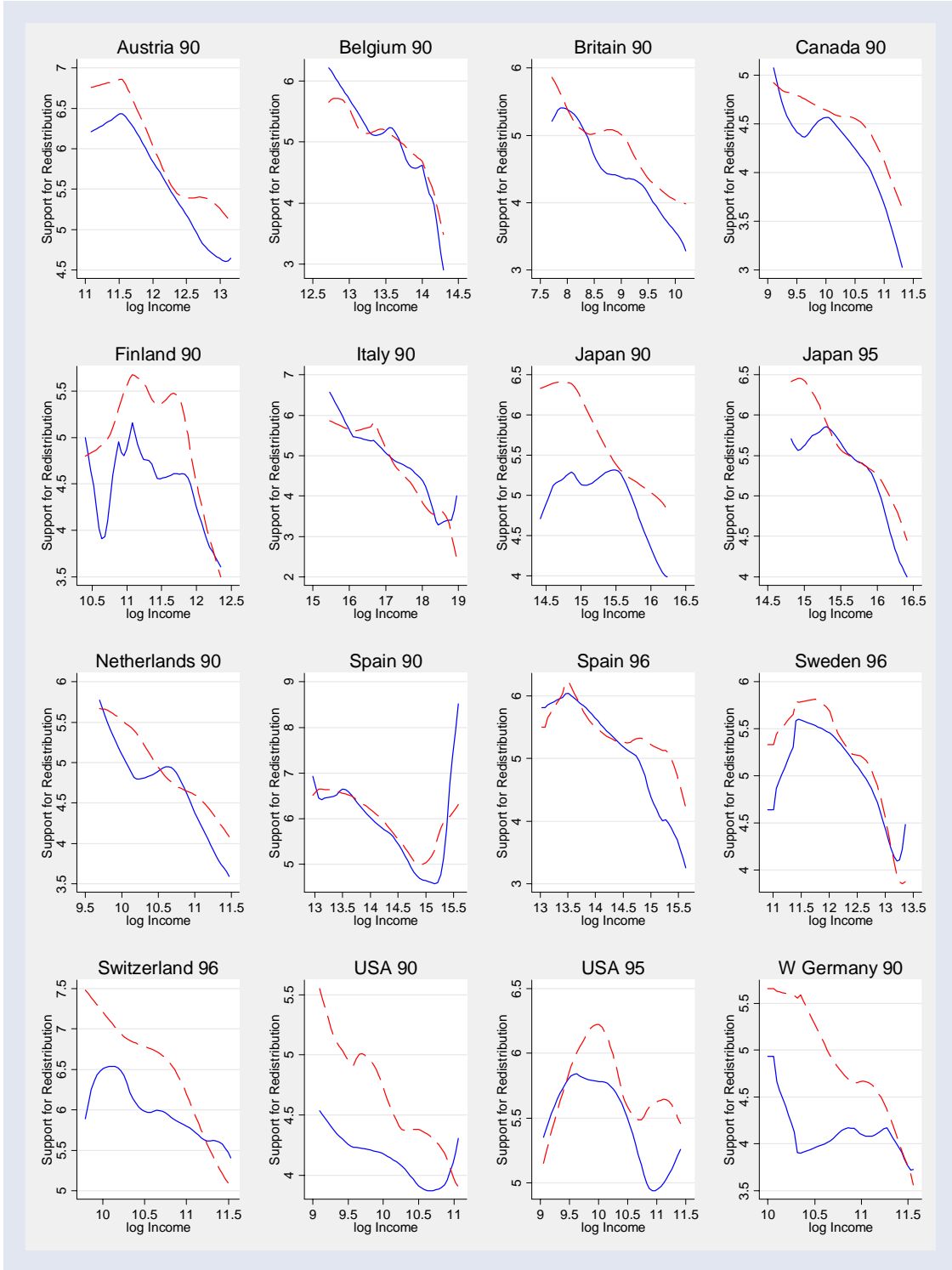
Figure 3 (continued): Support for Redistribution by National Identity and Income

b. Less Advanced Economies

1. WVS data. Locally weighted regressions, Fan (1992), with quartic kernels.
2. Household income is in local currency, bandwidths vary accordingly from 0.3 in Britain and West Germany to 0.9 in Turkey. The top or bottom income category is dropped if it contains less than 1% of the relevant sample. Thus the bottom category is dropped in USA 95 and the top category is dropped in Brazil 90, Hungary 90, India 90, Italy 90, Spain 96, Turkey 90, USA 90 and Venezuela 96. The observed hump shape in Finland 90 and Sweden 96 is caused by the bottom category, containing 15 (2.3%) and 14 (2.6%) observations respectively. The hump shape in USA 95 is caused by the second category, with 71 observations.
3. Support for redistribution is on a 1 to 10 scale (see Appendix B.3).
4. Each survey population is divided according to whether respondents are "very proud" to be members of their nation (the highest possible level) or not. The solid line is the regression function of support for redistribution among the very proud. The dashed line is that regression for respondents with lower national pride.
5. Economies are divided into "Advanced" and "Less Advanced" according to whether real GDP per capita (PWT 6.1, Heston et al. 2002) is less than 50% of USA real GDP per capita.
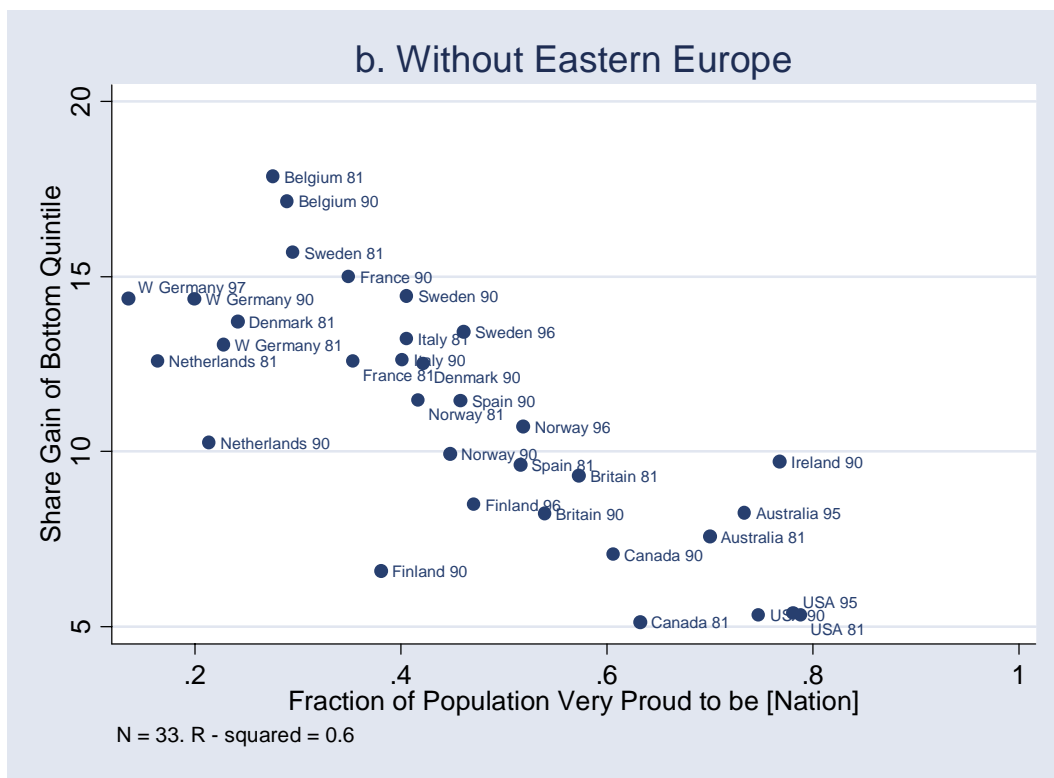
Figure 4: Redistribution and National Identity: ISSP data

a. All Democracies

N = 15. R - squared = 0.49.

b. Without Eastern Europe

N = 11. R - squared = 0.72.
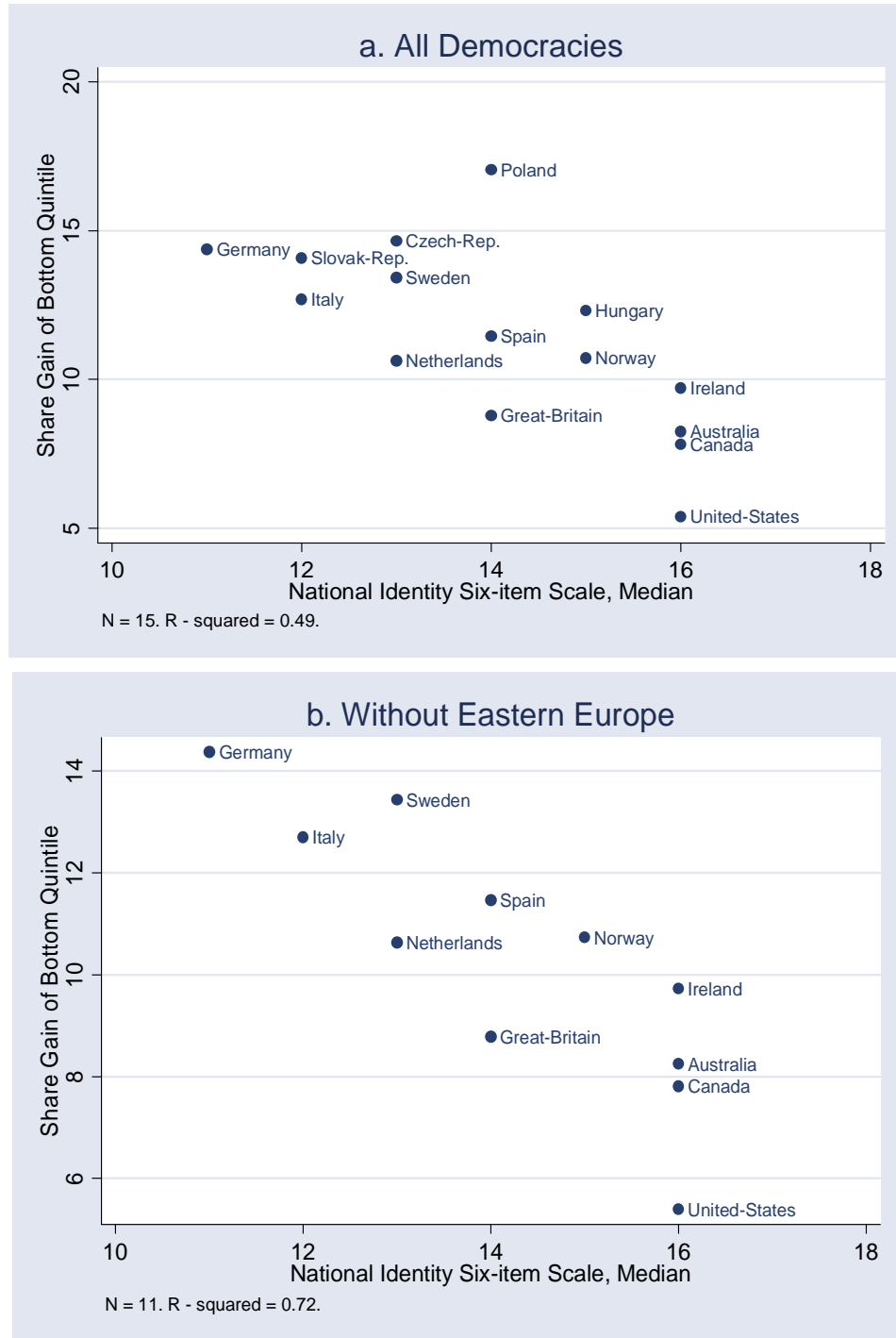
National identity scale from ISSP 1995 (see main text for details). Share gain from LIS (Milanovic 2000). Data are taken from the LIS household income surveys closest to 1995 (see Data Appendix). Germany is represented as a single point since the median national identity score is identical in both East and West Germany.

Figure 5: Redistribution and National Identity: WVS data
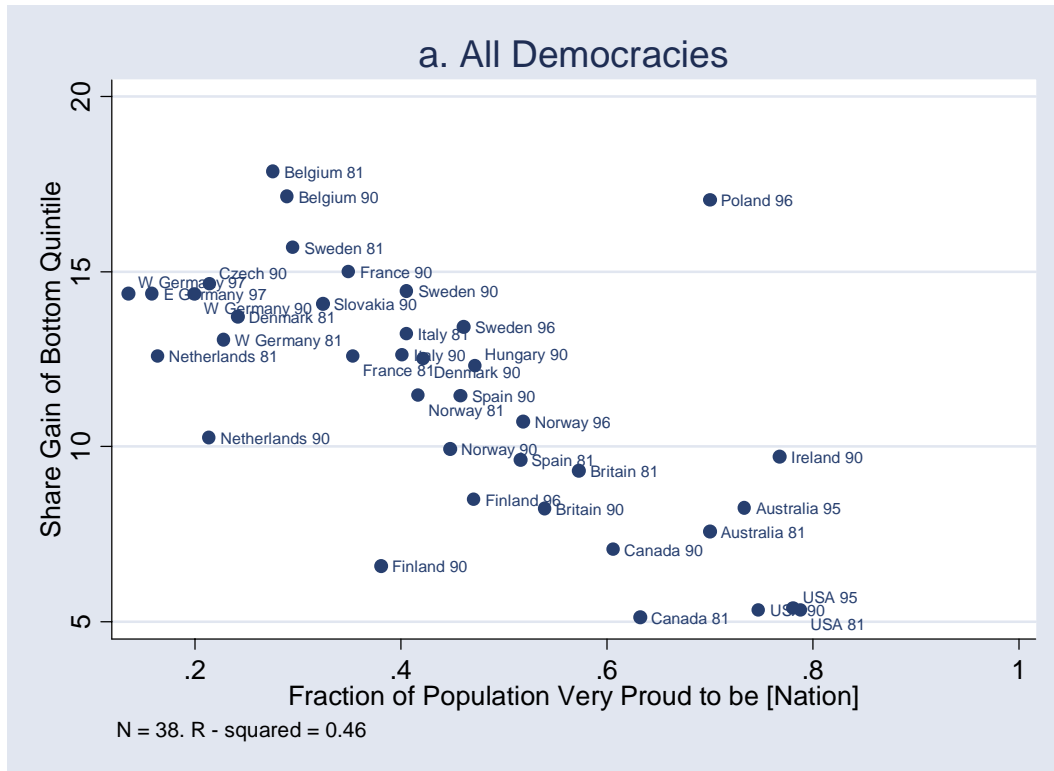
a. All Democracies

N = 38. R - squared = 0.46

b. Without Eastern Europe

N = 33. R - squared = 0.6

Fraction very proud from WVS waves 1-3. Share gain from LIS (Milanovic 2000). Data are taken from the LIS household income surveys closest to the WVS survey (see Data Appendix).

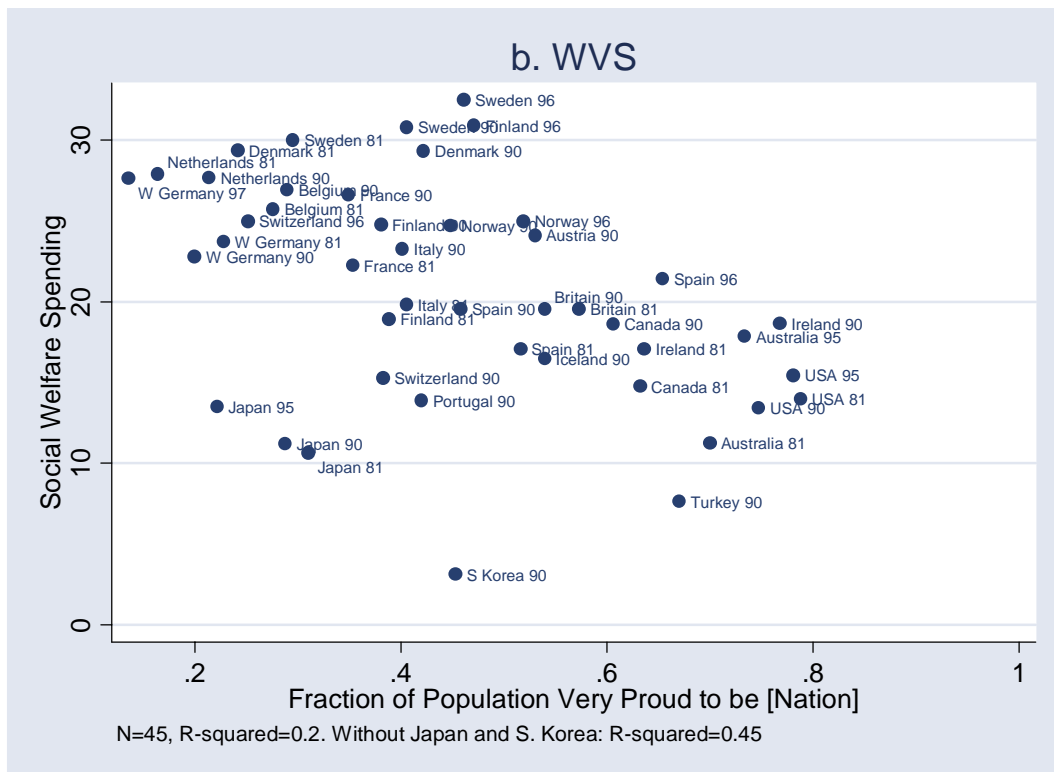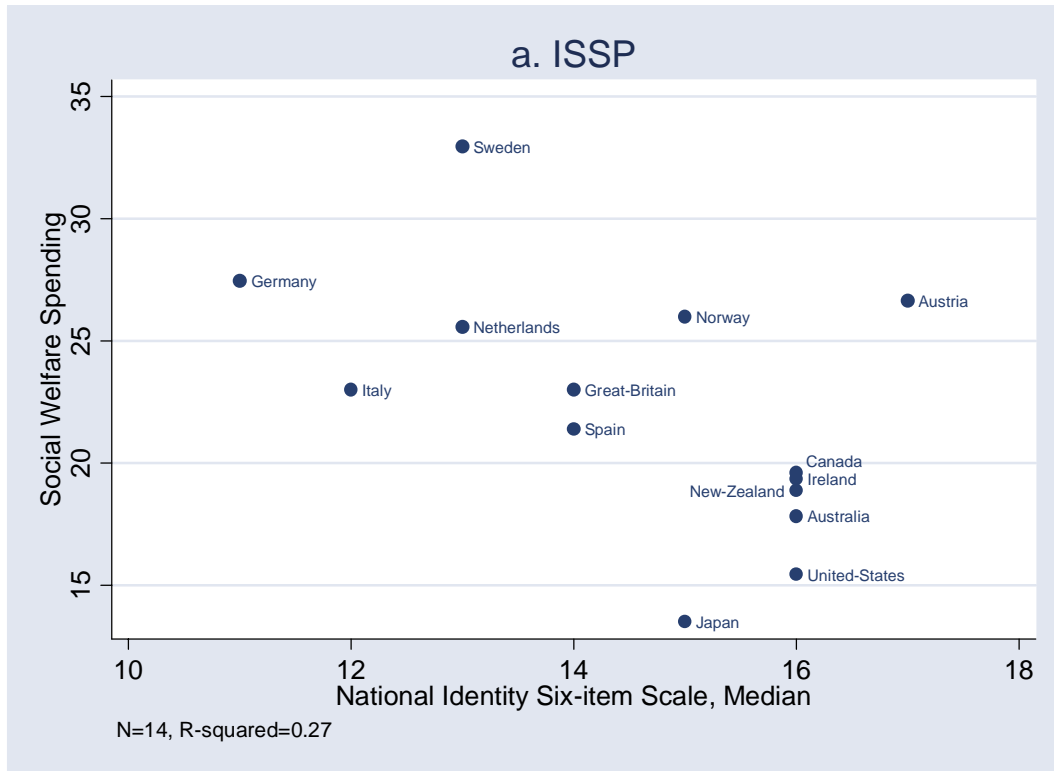# Figure 6: Redistribution and National Identity Within countries Over Time
WVS data

Fraction very proud from WVS waves 1-3. Share gain from LIS (Milanovic 2000). Data are taken from the LIS household income surveys closest to the WVS survey (see Data Appendix). Germany WVS data are from West Germany.

Figure 7: Social Expenditure and National Identity

a. ISSP

Social Welfare Spending

Sweden

Germany
Austria
Netherlands
Norway

Italy
Great-Britain
Spain

Canada
Ireland
New-Zealand
Australia

United-States

Japan

National Identity Six-item Scale, Median

N=14, R-squared=0.27

b. WVS

Social Welfare Spending

Sweden 96
Sweden 90
Finland 96
Denmark 81
Sweden 81
Netherlands 81
Denmark 90
Netherlands 90
W Germany 97
Belgium 90
France 90
Belgium 81
Switzerland 96
Finland 90
Norway 81
Norway 96
W Germany 81
Austria 90
Italy 90
W Germany 90
France 81
Spain 96
Italy 81
Spain 90
Britain 90
Finland 81
Britain 81
Canada 90
Ireland 90
Australia 95
Spain 81
Ireland 81
Iceland 90
Switzerland 90
Canada 81
USA 95
Japan 95
Portugal 90
USA 90
USA 81
Japan 90
Japan 81
Australia 81
Turkey 90
S Korea 90

Fraction of Population Very Proud to be [Nation]

N=45, R-squared=0.2. Without Japan and S. Korea: R-squared=0.45

Social Welfare spending is total social expenditure as percentage of GDP, from OECD (2004), Social Expenditure database (SOCX), 1980-2001. National identity scale is from ISSP 1995 (see main text for details). Fraction very proud is from WVS waves 1-3. Figures exclude Eastern Europe.