Citizenship versus ethnicity: The role of institutions in shaping identity choice

Elizabeth Maggie Penn*
Department of Government
Institute for Quantitative Social Science
Harvard University

September 6, 2006

Abstract

This paper explores the role that political institutions play in sparking or mitigating ethnic identification. I provide a formal model of ethnic identification as a function of institutional design and social context that focuses on one question: What kinds of institutions will induce individuals to identify with the state rather than along ethnic lines? Varying the size and number of ethnic groups, the distribution of preferences across and within ethnic groups, and the wealth of groups, the model offers predictions about: when political institutions are capable of inducing a national identity; when economic aid and/or redistribution is capable of inducing a national identity; the types of societies that are most prone to strong ethnic identities; and, the types of groups an institution should favor when the institutional goal is to induce identification with the state. I conclude with an application of the model to the question of institutional design in Iraq. The model provides one explanation for why a period of low Sunni representation in Iraqi government would dramatically increase sectarianism, and why a more proportional Iraqi parliament may not necessarily remedy the problem.

*Assistant Professor of Government. Thanks to Robert Bates, Stephen Coate, Sven Feldman, Sean Gailmard, Yoi Herrera, John Patty, Robert Powell, Ken Shepsle, and seminar participants at Cornell, Berkeley, Harvard, Caltech and the Kellogg School of Management for helpful comments. Please send questions and comments to epenn@latte.harvard.edu.

> "Those who hold out hope for democracy in plural societies are virtually unanimous in their belief that institutional design is the key to avoiding disaster, with constitutional engineering, particularly of electoral systems, treated as an important lever."
> —*Institutional design in plural societies: mitigating ethnic conflict and fostering stable democracy*, Grofman and Stockwell (2003).

1 Introduction

Political institutions are frequently invoked as an important means of resolving societal conflict. In the Federalist #10, Madison wrote of the need to mitigate the problem of "factions" by delegating the management of government to elected representatives. In more recent times experts have been called upon to design political systems to help ameliorate intergroup rivalries and tensions. Examples include the use of list proportional representation in post-apartheid South Africa, which some believe led to a successful multi-ethnic government there, and the use of the alternative vote in Sri Lanka, which others argue led to a moderation-inducing presidential system in a country with a long history of bitter ethnic conflict [12].[1] Issues of intergroup conflict are also of relevance in established democracies, many of which have amended their electoral laws to ensure that a certain percentage of legislative seats go to women[2] or ethnic minorities[3], and that ban extremist parties from fielding candidates.[4]

This paper explores the role that political institutions play in sparking or mitigating ethnic

[1] The moderation-inducing properties of the alternative vote have been the topic of a lively debate; see [10, 11, 14].

[2] Sweden, South Africa, France and Belgium all utilize gender quotas in public elections.

[3] Parliamentary seats are reserved for the Maori in New Zealand, and for scheduled tribes and castes in India.

[4] Batasuna, a Basque party with ties to the terrorist group ETA, has been banned in Spain since 2003.

identification. I begin with the observation that every individual simultaneously belongs to a large collection of groups, and yet we all choose, either consciously or subconsciously, to associate with some groups more than others. If these choices are partly dependent on political context, then the questions of *why* we make associative choices and *how* these choices affect our political attitudes and preferences have important consequences for institutional design. In particular, the model I present will focus on one specific question in institutional design: What kinds of institutions will induce individuals to identify with the state rather than along ethnic lines?

The question of whether ethnic identification is beneficial or detrimental to democracy is an open one. It is easy to think of many situations in which strong ethnic identities can be beneficial to the nation as a whole. Such identities may mobilize individuals to become politically involved, give individuals a sense of social responsibility, and provide strong social networks. However, it is also generally acknowledged that strong and heterogeneous ethnic identities within a nation can result in a political system that is dominated by a single group, leading to the permanent exclusion of other groups from the political realm. This view is predicated on an assumption that fluid majorities and minorities are essential to stable democracies, and thus, that ethnic diversity poses a particular challenge to democracy ([13, p. 84] and [25, p. 217]). The motivation behind this paper is simply the observation that increased ethnic identification has been concordant with increased sectarian violence in many instances. Thus, when I describe the institutional goal of inducing "identification with the state" I am specifically considering the goal of inducing a civic nationalism, universalism, or simply what Elkins and Sides refer to as "state attachment," in which citizens possess some ethic of the common good [9].

I consider the case of a single nation that is composed of a finite number of ethnic groups. Every individual belongs to one of these groups. Individuals choose whether to identify with their ethnic group or with the nation as a whole, and these choices will affect individual preferences over policy. This captures a setting in which, for example, a man may think of himself as either Sunni or as an Iraqi, and each choice will imply a different utility function for him. Identification with a group implies that the individual cares about the well-being of the group, and thus exhibits a particular type of bias towards the group. The conception of identity as entailing an ingroup bias is motivated by a large literature in social psychology that defines identification with a group as yielding “a shift towards the perception of the self as an interchangeable exemplar of some social category and away from the perception of the self as a unique person” [30, p. 50].

Individual identity choices will depend upon the realized well-being, or status, of each group. Individuals choose an identity that yields the highest payoff given the particular situation at hand. This framework is compatible with the notion of “situational selection,” the idea that while ethnic groupings may be fixed, ethnic identification can depend in part on situational forces [4, 18, 19]. In this paper, identities are activated by a situation consisting of both political institutions and the social context that individuals live within. The “social context” I consider is composed of the *collection of groups* within society, the *distribution of individual preferences* over policies, and the *distribution of wealth* across social groups.[5]

[5] An important type of “situation” that I don’t consider is the strategic behavior of political elites seeking personal gain, as in [22]. While this sort of behavior is beyond the scope of this paper, it represents a potential direction for future extensions of the model.

While the question of “How to induce universalism over ethnocentrism?” is purposefully narrow, this paper provides a tractable analytic approach to modeling identity choice as a function of the composition of society. Varying the size and number of ethnic groups, the distribution of preferences across and within ethnic groups, and the wealth of groups, the model is capable of making predictions about:

1. When political institutions are and are not capable of inducing a national identity
2. When economic aid and/or redistribution is capable of inducing a national identity
3. The types of societies that are most prone to strong ethnic identities
4. The types of groups an institution should favor when the institutional goal is to induce identitification with the state.

With respect to the last item, I find that if an institutional goal is to induce identification with the state then the institution should “favor” those ethnic groups that are more heterogeneous and that are less wealthy, with favored groups being more capable of winning legislative seats.

The paper proceeds as follows: Section 2 presents the formal model of group identification and political institutions. It also presents the equilibrium concept, which is derived from recent work by Shayo [26]. Section 3 discusses several analytic implications of the model, including comparative statics and implications for institutional design. Section 4 presents an application of the model to the question of institutional design in Iraq, a setting in which there are three distinct ethnic groups with varying preferences over the degree of state secularism, and individuals face a trade-off between ethnic self-assertion and nationalistic identity. This section presents one explanation for the question of why a period of low Sunni representation in Iraqi government would dramatically increase sectarianism and violence, and why a more proportional Iraqi parliament may not necessarily remedy the problem. Section 5 concludes.

2 The Model

Society contains a finite collection of ethnic groups. Every individual belongs to one such group, but may choose whether to identify with his ethnic group or with the nation as a whole. Thus, ethnic groupings are fixed, but identities are not. Individual choices over identities affect the preferences of individuals, and thus affect any choice of policy made by society.

Individual decisions will be driven by three main factors: the *social context* that individuals reside within, the *effect of identity choice* on individual utility, and the *political institution* that collective decisions are made through. The following three sections define these concepts.

2.1 Social context

I use the term *social context* to refer to the environment in which all individuals live and interact within. Formally, social context will consist of three elements: the collection of ethnic groups within the nation, the distribution of individual preferences within and across these groups, and the distribution of wealth across groups.

To begin, society consists of a single nation, N, containing a continuum of citizens, or individuals. Each individual is indexed by a real number i on the $[0,1]$ interval. The policy space is assumed to be a closed and convex subset of the real line $X \subset \mathbb{R}$.

Within the nation there are a finite number of ethnic groups, $g_1, ..., g_k$. Every individual in the nation belongs to one of these groups. The groups may be of different sizes, with α_g denoting the percentage of the population in group g. The groups may also be differentially wealthy, with some groups richer than others. Let $c_g \in \mathbb{R}_+$ be a constant denoting the wealth of group g. I use the term $\bar{c} = \sum_g \alpha_g c_g$ to represent "national wealth," the average wealth of a citizen of the nation as a whole.

Let g^i denote the ethnic group that citizen i belongs to. The personal preferences of citizens are described by a quadratic *material payoff function*, $\pi_i(x) = c_{g^i} - (p_i - x)^2$, where $p_i \in X$ is citizen i's ideal point.[6] Thus, citizens that belong to wealthy groups will have higher realizations of their material payoff functions, ceteris paribus. This captures the idea that members of certain groups may have a material advantage over members of other groups, irrespective of policy x.

For each group g the ideal points of the citizens belonging to g are distributed according to an atomless probability density f_g over X, with cumulative density F_g. The total distribution of ideal points across society is then the convex combination of the group distributions: $f_N = \sum_g \alpha_g f_g$, with cumulative density F_N.

[6] The results that follow do not depend specifically on a quadratic specification of π_i, but do depend on the concavity of this function. In [21] I present a general version of this model in which the policy space is multidimensional, individuals may simultaneously belong to many different groups, and the only assumption made on individual utility functions is continuity.

2.2 The effect of identity choice

I assume that when an individual identifies with a group he cares about the well-being of that group, and exhibits a particular type of bias towards that group. This ingroup bias could stem from a "common fate" conception of group identity in which the individual perceives his payoff to be linked to the payoffs of others in his group [24]. Or it could stem from the notion that individuals seek a "positive distinctiveness," or an advantage for the ingroup over relevant outgroups. This would correspond to a conception of group identification based on social identity theory, which posits that the evaluation of any group depends on its standing relative to other groups, and that individuals choose to identify with higher-status groups because it enhances their self-esteem [27]. This theory has been borne out in experiments showing that individuals will sacrifice personal and group gain in order to achieve a positive *difference* between the economic gain of their group relative to other groups. These experiments suggest that social comparisons, stemming from a desire for a positive social identity, may be an important cause of ingroup bias that is distinct from more instrumental causes [29].

When individuals identify with the nation I will assume the first conception of bias in which individuals perceive their payoffs to be linked with those of other citizens of the nation. I make this assumption because I am particularly interested in identities that are conducive to a civic nationalism, or a conception of nation based on shared beliefs, purpose, and common goals. This specification implies that a national identity is consistent with caring about the well-being of the average citizen of the nation.

Following the model of Shayo [26] I will assume the second conception of bias (based on social identity theory) when individuals identify ethnically.[7] To justify the use of this assumption in this context I invoke arguments of Horowitz, who claims that ethnic *comparisons* form the basis of conflict in many states, with the comparison between backwards and advanced groups being particularly salient [13, pp. 143-149]. Horowitz refers to this type of identification as stemming from a fundamental tendency of individuals to "cleave and compare." Furthermore, he notes that the presence of a third party can play a significant role in these intergroup comparisons by stoking intergroup rivalries [13, p. 165]. While such third party effects were historically borne out through European colonists' favoritism towards certain ethnic groups, a more recent example is Sunni allegations of American favoritism toward the Shiites and Kurds in Iraq.

The following paragraphs formally define the notions of identity that I invoke. An *action* $a_i \in \{g^i, N\}$ for individual i is a choice of identity, or self-categorization. Individuals can choose to identify either with their ethnic group ($a_i = g^i$) or with the state ($a_i = N$).

Individuals may also choose to identify with both groups. Let i's *strategy space* be Σ_i, the set of probability distributions over $\{g^i, N\}$. A mixed strategy for player i, s_i, is an element of Σ_i, with $s_i(a_i)$ being the probability that s_i assigns to action a_i. Thus, $s_i(g^i) = .5$ and $s_i(N) = .5$ implies that player i identifies equally with both the nation and his ethnic group.[8]

[7] The general model I present in [21] allows for many different conceptions of ingroup bias. In fact, it allows for the general inclusion of an "identity" term in the utility function as in Akerlof and Kranton [1] that need not specifically be bias. An important difference between this model and theirs is that the identity term I focus on is group-specific rather than individual-specific.

[8] Note that while mixed strategies are allowed in this framework—and are necessary in order to prove the existence

At any fixed policy $x \in X$, individuals receive utility from both policy outcome x and from their choice of identity, s_i. Furthermore, individuals receive utility from an interaction between these two variables, because any given policy outcome may affect different groups differently, and individuals care about the well-being of the group that they choose to identify with. Let the *average material payoff* of a member of ethnic group g at policy x be denoted $\mu_g(x) = \int_{i \in g} \pi_i(x) dF_g(p_i)$. Similarly, let the average material payoff of the nation be $\mu_N(x) = \int_i \pi_i(x) dF_N(p_i)$.

Player i's utility from strategy g^i at policy $x \in X$ is

$$u_i(x, g^i) = \pi_i(x) + \gamma \sum_{g \neq g^i} (\mu_{g^i}(x) - \mu_g(x)),$$

or i's material payoff $\pi_i(x)$ plus a term representing the status of i's ethnic group relative to other groups in society: $\gamma \sum_{g \neq g^i} (\mu_g^i(x) - \mu_g(x))$, where $\gamma \in \mathbb{R}_+$ is the weight individuals assign to their identity choice. This conception of status is also used by Shayo [26] and, as discussed earlier in this section, is consistent with group identification being based on a desire for positive distinctiveness in the vein of social identity theory. Utility increases as the average well-being of a member of one's own ethnic group increases. However, utility is decreasing in the average well-being of members of other ethnic groups.

Player i's utility from strategy N at policy $x \in X$ is

$$u_i(x, g^i) = \pi_i(x) + \gamma \mu_N(x),$$

of an equilibrium—my later analytic results will focus solely on pure strategy equilibria (i.e. instances in which individuals only identify with a single group), in cases when such equilibria exist. This is done solely to make the analysis of the game more transparent.

or i's material payoff $\pi_i(x)$ plus a term representing the status of the nation. Again, as discussed earlier I use this specification of the status of the nation because I am interested in national identities that are conducive to a conception of nation based on shared beliefs and purpose. Thus, utility increases as the average well-being of a citizen of the nation increases. It follows that Player i's utility from mixed strategy s_i at policy $x \in X$ is

$$u_i(x, s_i) = \pi_i(x) + \gamma\left(s_i(g^i)\sum_{g \neq g^i}(\mu_{g^i}(x) - \mu_g(x)) + s_i(N)\mu_N(x)\right).$$

Finally, note that individual utility functions are only dependent upon policies and actions. At a fixed policy $x \in X$ and for each individual $i \in N$, utility is an implicit function of policy x and identity choice s_i. To simplify notation it will be useful to think of utility as an explicit function of x and s_i. Let $v_i(x, s_i) = \sum_{a_i} s_i(a_i)u_i(x, a_i)$ be termed individual i's *subjective utility function*.

2.3 Political institutions

Political institutions in this model govern how the preferences of different societal groups are aggregated into policy. If an institution favors one group over another, then the policy preferences of members of the favored group are weighed more heavily in determining national policy. Intuitively, we can think of an institutionally favored group as being more capable of winning legislative seats (but once a legislature is chosen the preferences of each legislator count equally in determining policy). The voting weight given to a group by a given institution may be a function of many different factors, the most obvious of which is the electoral formula used within the institution. However, other characteristics of a political institution can also affect proportionality; examples include minimum electoral thresholds, district boundaries, ballot structure, voting and candidacy requirements, and access to the media. Thus, political institutions are not necessarily equivalent to electoral rules.

Formally, a *political institution* is a collection of weights $\rho = (\rho_1, ..., \rho_k)$ assigned to ethnic groups $g_1, ..., g_k$ such that $\sum_j \rho_j = 1$. Thus, the institution represents the composition of parliament with respect to the various ethnic groups. Since the policy space is one-dimensional and individual preferences are single-peaked, the policy outcome will be the *weighted median*, an outcome that would be derived by a majoritarian process of intra-legislative bargaining assuming the legislature is composed according to ρ.

Before defining the concept of a weighted median, note that i's utility function is single-peaked for any choice of identity s_i by i.[9] Let $n_i(s_i)$ be i's utility-maximizing policy when i chooses identity s_i, or the peak of of u_i.[10]

Definition 1 *At strategy profile s let $f_g(n_i(s_i))$ be the distribution of group g voters' utility-maximizing policies. For a given institution ρ, a* weighted median *is a policy $x(\rho, s_i) \in X$ that satisfies the following:*

$$\int_{-\infty}^{x(\rho,s_i)} \sum_g \rho_g dF_g(n_i(s_i)) = \frac{1}{2}.$$

[9]This is because for any identity s_i chosen by Player i, i's utility function is a linear combination of concave functions. Thus, i's utility function is concave.

[10]Note that i's *utility-maximizing policy* is different than his *ideal point*. Player i's ideal point maximizes his material payoff function, irrespective of i's identity choice. His utility-maximizing policy maximizes his utility conditional upon a choice of identity.

In words, a weighted median is a policy outcome equal to the median of the distribution of voter utility-maximizing policies, when the preferences of members of each group are weighted according to ρ. We can interpret institutions as representing parliamentary systems in which each group g wins a percentage ρ_g of legislative seats, legislators are perfectly responsive to the preferences of their constituents, and legislative voting occurs through majority rule.

Finally, note that an institution biases policy in favor of particular groups regardless of whether individuals choose to identify with those groups or not. An example is the institutional norm in some countries of staggering male and female candidates on party lists (a practice called "zipping"), in order to ensure that a certain number of female candidates win seats. This institution can be regarded as biasing policy outcomes toward the interests of women, regardless of whether women choose to identify with "women" as a group.

2.4 Equilibrium concept

The equilibrium concept is a variant of *social identity equilibrium*, defined by Shayo [26]. At equilibrium, people choose to associate with the group that maximizes their utility out of the set of groups that they possibly *could* associate with. When people associate with such groups, and make decisions based upon their group identification, they still want to retain that group identification. Equilibrium is a collection of group identifications s^* and a policy x^* that satisfy this property. The following definition formalizes this idea.

Definition 2 *At a fixed institution ρ, a* social identity equilibrium *is a policy x^* and collection of* *identities s^* such that the following two conditions hold:*

1. *For all $i \in N' \subseteq N$, with $\int_{i \in N'} dF(p_i) = 1$, then $s_i^* \in \underset{s_i \in \Sigma_i}{\operatorname{argmax}} v_i(x^*, s_i)$*

2. *$x^* = x(\rho, s^*)$, the weighted median induced by institution ρ and strategy profile s^*.*

The first condition says that in equilibrium no individual wants to deviate from his choice of group identity s_i^* at equilibrium policy x^*, except for possibly a set of individuals of measure zero.[11] The second condition implies that policy x^* is indeed the median policy induced by ρ under strategy profile s^*. Theorem 1 proves that there exists a social identity equilibrium, possibly in mixed strategies. The theorem and its proof are relegated to the Appendix.

3 Results

The assumptions made in Section 2 have several useful implications. The first is that, at a given policy $x \in X$, an individual will choose to identify with his ethnic group g^i if and only if $\sum_{g \neq g^i} \mu_{g^i}(x) - \mu_g(x) > \mu_N(x)$, and will choose a nationalistic identity if and only if $\mu_N(x) > \sum_{g \neq g^i} \mu_{g^i}(x) - \mu_g(x)$. Thus, when two individuals i and i' are members of the same ethnic group then they will choose the same identity unless they are indifferent between the two choices. For ease of exposition I will assume that when individuals are indifferent between identity choices they identify nationally. A second useful implication is that ethnic identification simply shifts an individual's utility-maximizing policy to either the right or left of his ideal point by a fixed amount.

[11] Allowing for a set of measure zero to exhibit out-of-equilibrium behavior is done solely for technical reasons in order to prove Theorem 1.

This is a consequence of the quadratic specification of π. Let $\overline{p}_g$ denote the expected ideal point (or material payoff-maximizing policy) of a member of group g, so that

$$\overline{p}_g = \int_{i \in g} p_i dF_g(p_i).$$

Similarly, let

$$\overline{p^2}_g = \int_{i \in g} p_i^2 dF_g(p_i)$$

and define $\overline{p}_N$ and $\overline{p^2}_N$ similarly. If individual i identifies with g^i then his utility is maximized at policy $x = p_i + \gamma \sum_{g \neq g^i} (\overline{p}_{g^i} - \overline{p}_g)$. If an individual chooses a nationalistic identity then his utility is maximized at policy $x = (p_i + \gamma \overline{p}_N)/1 + \gamma$.

Note that the variance in the distribution of ideal points of members of group g, written σ_g^2, equals $\overline{p^2}_g - (\overline{p}_g)^2$. Using the definitions of μ_g and μ_N found in Section 2.2 we now get that if a pure-strategy equilibrium exists at a given institution ρ it can be characterized by the following:

$$a_i^* = \begin{cases} N \quad \text{if} \quad x^* \in \big[\sum\limits_{g \neq g^i} (\overline{p}_g - \overline{p}_{g^i}) + \overline{p}_N - K, \sum\limits_{g \neq g^i} (\overline{p}_g - \overline{p}_{g^i}) + \overline{p}_N + K \big] \\ g^i \qquad\qquad\qquad\qquad \text{otherwise,} \end{cases} \tag{1}$$

where

$$K = \sqrt{\big[\sum_{g \neq g^i} (\overline{p}_{g^i} - \overline{p}_g) - \overline{p}_N \big]^2 - \big[\overline{p}_N^2 - \overline{c} + \sigma_N^2 + \sum_{g \neq g^i} \big((c_{g^i} - c_g) - (\sigma_{g^i}^2 + \overline{p}_{g^i}^2) + (\sigma_g^2 + \overline{p}_g^2) \big) \big]}.$$

Thus, $2 * K$ captures the size of the policy interval on which i will choose to identify nationally. The size of this interval is a function of the mean member of every ethnic group, the wealth of each group, and the variance of each group. It is also an implicit function of the size of each group. The following section presents several observations that provide intuition for how this interval increases and decreases as a function of social context.

3.1 Ethnic identification as a function of social context

This section examines the dynamics of individual identity choice as a function of social context. For the moment I will leave institutions abstract in order to enable us to assess the feasibility of certain types of equilibria under any institution. The following observations follow immediately from this specification of the model (i.e. quadratic material payoffs and the assumed functional form of identity), and show that the parameterization of society in terms of the means, variances, sizes, and wealth of the existing groups will affect the types of equilibria that are possible. For example, under certain parameter values it will be impossible to induce an "all nationalistic" equilibrium under *any* political institution. Formalizations of these observations can be found in the Appendix.

Observation 1 *It is not always possible to induce an "all nationalistic" equilibrium. It* is *always possible to produce a situation in which* $a_i = g^i$ *for all* $i \in N$ *(all individuals identify ethnically) provided that the policy space is large enough.*

To see that it will not always be possible to construct an equilibrium in which every individual identifies with the nation, note that it is easy to construct examples in which members of a particular ethnic group will *never* identify with the nation (i.e. when the "K" interval for a group is not a real number). Such an example is provided in the Appendix.

Conversely, all members of a group will choose an ethnic identity if policy is outside of a closed and bounded interval of the real line. Since there are a finite number of groups there is an upper and lower bound of the real line beyond which all groups will pursue an ethnic identity. If one of these bounds lies within the policy space then an ethnic equilibrium can always be induced by fixing policy beyond that bound. This reflects the idea that if policy is unresponsive to the preferences of voters and extreme enough (in the sense of hurting all groups) then all individuals will identify ethnically. This could occur, for example, as the result of a negative political or economic shock such as a famine, war, or the rise of a tyrannical dictator. The observation is consistent with recent work by Brancati and Bhavnani [6] who show that natural disasters create and intensify and within-state conflicts.

Observation 2 *Individuals will be more likely to identify with their ethnic group as it becomes more homogenous, and as its rival groups become less homogenous (with homogeneity defined in terms of variance).*

This observation follows immediately from the equilibrium conditions defined in Equation 1. The interval of policies at which an individual i will identify nationally shrinks as the variance of group g^i decreases and shrinks as the variance of competing groups increases, ceteris paribus.[12] This observation does not depend specifically on quadratic material payoff functions, but does depend

[12]When showing this it is necessary to recall that $\sigma_N^2 = \sum_g [\alpha_g(\sigma_g^2 + (\overline{p}_g)^2)] + (\sum_g \alpha_g \overline{p}_g)^2$. This is because the total distribution of ideal points is a mixture of the group distributions.

on the concavity of these functions in ideal points p_i.[13] With general concave functions then group homogeneity must be defined in terms of second order stochastic dominance for this observation to hold generally: it follows directly from the definition of a mean-preserving spread and Jensen's inequality. The following figure graphically depicts this observation for the case of two groups.

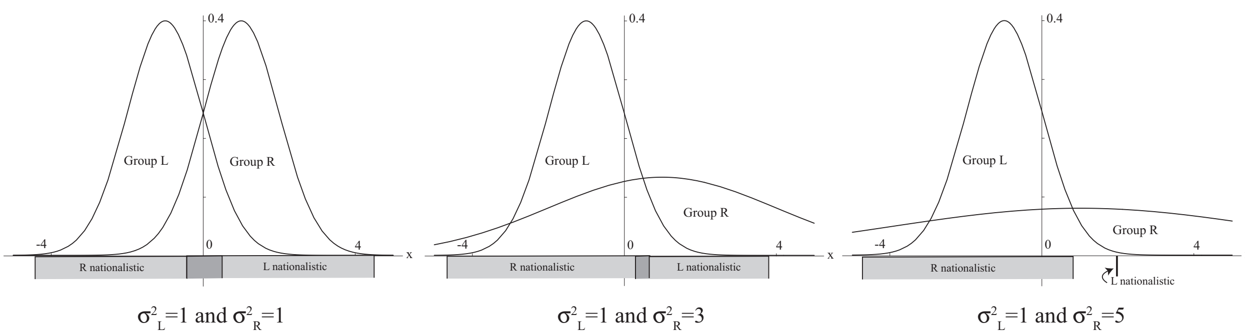

Figure 1: Ethnic identification as the variance of Group R increases

Figure 1 depicts a situation in which there are two ethnic groups, L and R of the same size. The ideal points of members of both groups are distributed normally, with Group L having mean $\overline{p}_L = -1$ and Group R having mean $\overline{p}_R = 1$. The figure shows the intervals of policies at which each group will identify nationally while varying the variance of R. As σ_R^2 increases, there are more policies at which members of R will identify nationally, and fewer policies at which members of L will identify nationally. The darkly shaded regions represent intersections of the groups'

[13]The assumption that material payoff π is concave in p_i may seem strange because it is typically assumed that utility is instead concave in policy x. However, if π is symmetric in p_i and x (i.e. is invariant to permutations of p_i and x) then concavity in p_i implies concavity in x. This symmetry will hold when, for example, utility is a function of the distance between p_i and x, because every distance function is symmetric.

nationalistic identification intervals—policies at which members of both groups will identify nationally.

Observation 2 is also consistent with a vast body of literature in social psychology, and in particular social identity theory, which posits that individuals value group identification more highly the more similar they are to other members of their group [27]. It could also be loosely interpreted as explaining the persistent finding that identification is less likely in large groups, which tend to be more heterogeneous. Although there is no strategic behavior in this model, this observation also has interesting implications that could be applied to more strategic settings. It suggests that under certain circumstances groups may have an incentive to pretend that they are more cohesive than they actually are, in order to induce other groups to not identify ethnically.

Observation 3 *When groups are not too dissimilar in wealth then an increase in national wealth decreases the likelihood that members of all groups will identify ethnically. When groups are very dissimilar then the effect of increasing national wealth is ambiguous.*

Recall that the wealth of group g, c_g, is simply an additive constant in the material payoff functions of all members of group g. National wealth is the average of these terms: $\overline{c} = \sum_g \alpha_g c_g$. It is clear from Equation 1 that if $c_{g^i} = c_g$ for all groups g then the interval of policies at which individual i will identify nationally increases as $\overline{c}$ increases. Because of the continuity of this interval in c^i_g and c_g, this interval will still be increasing in $\overline{c}$ when c_{g^i} and c_g are close for all g^i, g. Again, the following figure demonstrates this observation for the case of two groups.

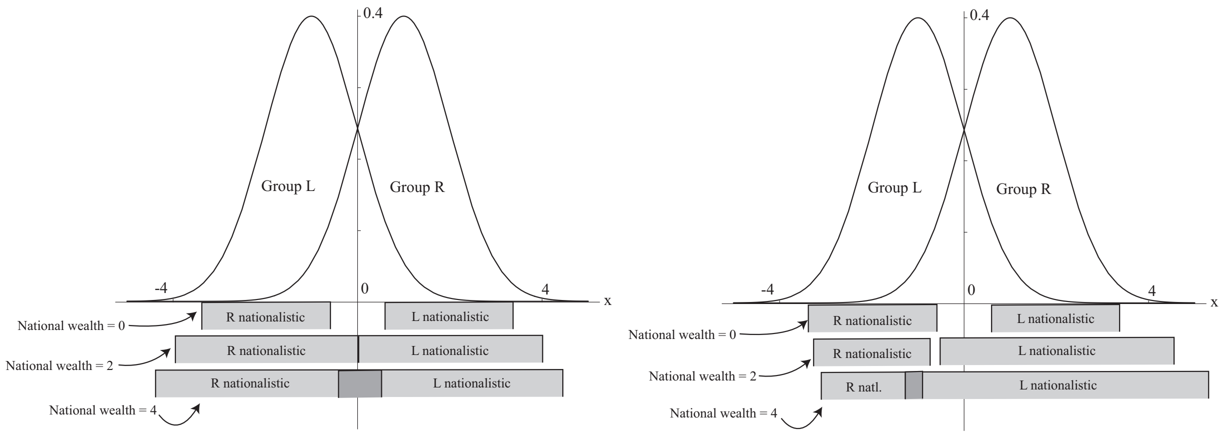

Figure 2: Increasing national wealth when groups are equally advantaged ($c_R = c_L$) and unequally advantaged ($c_R = 4c_L$)

Figure 2 depicts the effect of increasing national wealth ($\overline{c} = \frac{1}{2}c_L + \frac{1}{2}c_R$) in two cases. Again, both groups are distributed normally with $\overline{p}_L = -1, \overline{p}_R = 1$, and $\sigma_L^2 = \sigma_R^2 = 1$. The left graph shows the effect of an increase in $\overline{c}$ when the wealth of both groups is the same. The right graph shows the effect of increasing $\overline{c}$ when the wealth of R is four times that of L.[14] In the former case the interval of policies at which each group identifies nationally is always increasing in $\overline{c}$. In the latter case this interval is increasing for L and decreasing for R. Ultimately, for a high enough $\overline{c}$ this interval will disappear completely for group R.

It is not difficult to precisely characterize how different these wealth terms can be for an increase in national wealth to reduce the likelihood of ethnic identification for all individuals. Let g be the richest group (i.e. $c_g \geq c_h$ for all $h \neq g$). For all groups h, let $c_g = \beta_h * c_h$. Since g is the richest group, $\beta_h \geq 1$ for all h, and $\beta_g = 1$. Then a sufficient condition for an increase in $\overline{c}$ to

[14]In particular, when $\overline{c} = 0$ then $c_L = c_R = 0$, when $\overline{c} = 2$ then $c_L = \frac{4}{5}$ and $c_R = \frac{16}{5}$ and when $\overline{c} = 4$ then $c_L = \frac{8}{5}$ and $c_R = \frac{32}{5}$.

increase the range of policies at which *all* individuals identify nationally is that $\alpha_h + 1 \geq \beta_h$ for all groups h.

This observation suggests that, in addition to utilizing political institutions as a means of promoting non-ethnic identification, it may also be beneficial to design economic institutions that equalize material advantage across groups and that increase the material advantage of all citizens. However, if ethnic groups are too unequal in wealth then increasing the overall wealth of the nation may actually incite ethnic identification. Thus, the effect of national wealth on ethnic identification will vary depending on wealth inequality across groups. This leads immediately to the following implication of the model.

Observation 4 *While political institutions are not always capable of inducing an "all nationalistic" equilibrium, economic institutions are.*

This follows from the fact that when the wealth of all groups is equalized then the interval of policies on which each group identifies with the nation is increasing in $\overline{c}$. Furthermore, for any particular group g, the size of this interval $(2 * K)$ approaches ∞ as $\overline{c} \to \infty$. Since the midpoints of these intervals are fixed, they must all intersect at a centrally-located and measurable set of policies. Thus, by equalizing wealth across groups and increasing the wealth of the nation it is possible to induce an equilibrium in which all citizens identify with the nation.

3.2 Institutional design

Using some of the intuition gained from the previous section we can characterize certain desirable properties of institutions in terms of the policies they produce. The particular property I will focus on is the robustness of individual identifications to policy shocks. For example, if an equilibrium is possible in which all individuals identify nationally we may want to ensure that we can stay at that equilibrium even if there is a small, exogenous shock to policy. The following informal definition of a *social point* captures this idea.

Definition 3 *Suppose that there exists an equilibrium in which $a_i = N$ for all i. Then the* social point *is a policy x^* that maximizes the distance that policy would need to shift before any individual would deviate to strategy $a_i = g_i$.*

In terms of the figures presented in the previous section, the social point is the midpoint of the interval of policies on which all groups choose to identify nationally. Indeed, the results from the previous section can be reinterpreted in terms of the social point and the weighted median voter rule that induces it, as the following observation demonstrates. A more formal proof of this observation can be found in the Appendix.

Observation 5 *In a two-group setting, a weighted median voter rule that induces the social point will favor heterogeneous groups over homogeneous ones and poor groups over wealthy ones.*

This observation follows immediately from Observations 2 and 3 and the fact that at any equilibrium a^* such that $a_i^* = N$ for all i, the weighted median $x(a^*)$ is moving toward the point $x = \frac{\overline{p}_g + \gamma \overline{p}_N}{1+\gamma}$ (the median utility-maximizing policy of a member of g) as voting weight ρ_g increases.

Suppose there are two groups, L and R, with $\overline{p}_N = 0$ and $\overline{p}_L < 0 < \overline{p}_R$. The interval of policies at which group L identifies nationally is always centered at $\overline{p}_R - \overline{p}_L$. Therefore, increasing the variance of group L will shift the social point away from $\overline{p}_R - \overline{p}_L$ and toward $\overline{p}_L - \overline{p}_R$, as Figure 1 showed. This shift implies a shift toward the utility-maximizing point of the median member of L, and thus, will correspond to a higher voting weight ρ_L given to Group L.

To see that the institution will favor poor groups over wealthy groups the same intuition can be used. Decreasing the wealth of L will increase the size of the interval on which members of L will identify nationally, and shrink the size of the interval on which members of R will identify nationally. Again, this will correspond to a shift in the social point toward the utility-maximizing point of the median member of L. The following section provides an applied look at the question of institutional design in Iraq.

4 An application to the case of Iraq

> "Of all the changes that have swept Iraqi society since the American invasion almost three years ago, one of the quieter ones, yet also one of the most profound, has been the increased identification with one's own sect."
> — *Iraq Power Shift Widens a Gulf Between Sects*, New York Times, February 18, 2006. Page A1.

In January 2005 United Nations electoral specialist Carina Perelli decided upon a single-district list system of proportional representation for the first Iraqi legislative election. Perelli's rationale was driven in large part by concerns that the new system fully represent Iraq's ethnic diversity while not aggravating ethnic tensions. Perelli argued that a single district would reduce regional factions and tribalism while allowing for the possibility of historically repressed and displaced "communities of interest" to accumulate their votes [16]. However, low Sunni turnout posed one challenge to the legitimacy of the election; the largest Sunni party received only 1.78% of the vote, while Sunnis are believed to comprise over 20% of the Iraqi population. For the second legislative election in December 2005 Iraq's 230 legislative seats were apportioned among 18 provinces. The change from a single district to a system of 18 districts was carried out in the hope that Sunni Arabs would win a significant number of seats in those provinces in which they were a majority.

From a distributional standpoint the second election was a success; each of Iraq's three major communities (Shiite, Sunni and Kurd) received shares of legislative seats that were roughly proportional to their group's size.[15] However, it is unclear whether a more proportional allocation of legislative seats will translate into a more peaceful Iraq. Reports of Shiite death squads and a spate of bombings in early 2006 raised fears of renewed sectarian violence. Addressing reports of Shiite death squads, Iraq's American ambassador, Zalmay Khalilzad, said "We are not going to invest the resources of the American people to build forces run by people who are sectarian" [28]. The following day the New York Times wrote that the ambassador in his statement "hint[ed] for the first

[15]The Sunni Arabs and the Kurds each received slightly more than 20% of the 230 total legislative seats. The Shiites received slightly more than 50% of the total seats [15].

time that the United States would not be willing to support crucial public institutions plagued by sectarian agendas" [28]. This section presents one explanation for the question of why a period of low Sunni representation in Iraqi government would dramatically increase sectarianism, and why a more proportional Iraqi parliament may not necessarily remedy the problem.

Specifically, I will apply the model to a case where there are three groups: *Shiite*, *Sunni*, and *Kurd*, that compose 60%, 20%, and 20% of the population, respectively. The policy dimension I consider consists of the degree of state secularism, with higher policies corresponding to greater preference for a national government run under Islamic law. While considering a single policy dimension is a simplification of a complicated situation in Iraq, this dimension captures clear differences in preferences across the three groups. Indeed, the relationship between religion and state has been a point of contention between the groups since the task of rebuilding Iraqi government began in 2003 [8]. In 2004, United Press International reported that "Iraq elections scheduled for January will be about religion vs. secularism..." [23]. And in an online story posted in 2005 about the Iraqi parliament's failure to meet a deadline for drafting a new constitution, Aljazeera reported that "[t]he main sticking points ... were the role of Islam, federalism, and the distribution of national oil wealth." [2].

I will assume that the ideal points of members of each of the three groups are normally distributed over the policy space with variance equal to 1; the mean of the Kurds is $\overline{p}_K = -1$, the mean of the Sunni is $\overline{p}_{Su} = 0$, and the mean of the Shiites is $\overline{p}_{Sh} = 1$. Thus, the Kurds are most in favor of a secular government, followed by the Sunni. The Shiites are the least in favor of a secular government. The *ordering* of the means of the three groups, rather than the actual numbers assigned to these means, will drive the intuition behind this example. This ordering is consistent with a Zogby International poll released in February 2005 asking "Should Iraq have an Islamic government, or should the government let everyone practice their own religion?" [32].[16]

The groups are assumed to be similarly wealthy: $c_K = c_{Su} = c_{Sh} = 4$. This is motivated by a recent report by the United Nations Development Programme finding income inequality in Iraq to be low compared to other nations in the region, with the Gini coefficient on income inequality being .36 [31, p. 37]. Moreover, this report also found *perceived* income inequality to be low. [17] Last, γ, the weight assigned to the "identity" component of individual utility functions, is assumed to be equal to 0.5.

The following table depicts equilibria of this model under three different scenarios: (1) When the Sunni are monopolists over policy, with $\rho_{Su} = 1$ and $\rho_K = \rho_{Sh} = 0$, capturing the situation in Iraq before the American invasion; (2) When the Sunni have no input in policy and seats are distributed proportionally between the Shiites and Kurds, with $\rho_{Su} = 0, \rho_{Sh} = .75$, and $\rho_K = .25$, capturing the situation after the January 2005 legislative election that was boycotted by the Sunni[18]; And (3) when the seats are distributed proportionally across the three groups so that $\rho_{Su} = \rho_K = .2$ and $\rho_{Sh} = .6$, capturing the situation following the second legislative election in December 2005. A complete characterization of all equilibria as a function of seat share given to the Sunni is

[16] This poll found that 49% of the Shiite, 28% of the Sunni, and 5% of the Kurds favored an Islamic state.

[17] The report shows that in 17 of Iraq's 18 provinces the mode response to a question about the comparative "situation" of individuals within the province was "We are neither rich nor poor." [31, p. 40].

[18] In this election Kurds won slightly fewer than 30% of the legislative seats and Shiites won slightly fewer than 70% of the seats.

described in Figure 3 that follows. Note that in Case (3) two equilibria are possible.

Ethnic identification in Iraq as a function of government type

Government type	Distribution of seats	Equilibrium policy outcome	Equilibrium identities
(1) Sunni control	Sunni = 100% Kurd = 0% Shiite = 0%	Strongly secular state (x = 0.13)	Sunni nationalistic Kurd nationalistic Shiite nationalistic
(2) Kurd / Shiite control	Sunni = 0% Kurd = 25% Shiite = 75%	Strongly Islamic state (x = 2.07)	Sunni ethnic Kurd nationalistic Shiite ethnic
(3) Proportional representation	Sunni = 20% Kurd = 20% Shiite = 60%	Islamic state (x = 1.6) Secular state (x = 0.49)	Sunni ethnic Kurd nationalistic Shiite ethnic Sunni nationalistic Kurd nationalistic Shiite nationalistic

The following figure depicts all social identity equilibria as a function of the seat share allotted to the Sunnis. It assumes that at a fixed Sunni seat share the remainder of the legislative seats are allocated proportionally between the Kurds and Shiites (i.e. according to a 1-to-3 ratio). The three equilibrium cases described in the table above are labeled on the graph.

The graph is read as follows. Sunni seat share is labeled on the y-axis and the policy space is labeled on the x-axis. Holding Sunni seat share fixed (say at 40%) we know that the Shiites receive 45% of the seats and that the Kurds receive 15% of the seats. To find the equilibria that this government produces, draw a horizontal line that intersects the y-axis at 40. This line will intersect two curves: the solid curve at $x = 0.36$ and the small-dash curve at $x = 0.59$. The solid curve corresponds to equilibria in which all individuals identify with the nation. The small-dash curve corresponds to equilibria in which the Shiite is the only group that identifies ethnically. Thus, there are two equilibria for this particular government type: one in which all individuals identify with the nation and policy is $x = 0.36$, and another in which the Shiite identify ethnically (the Kurds and Sunni identify nationalistically) and policy is $x = 0.59$.

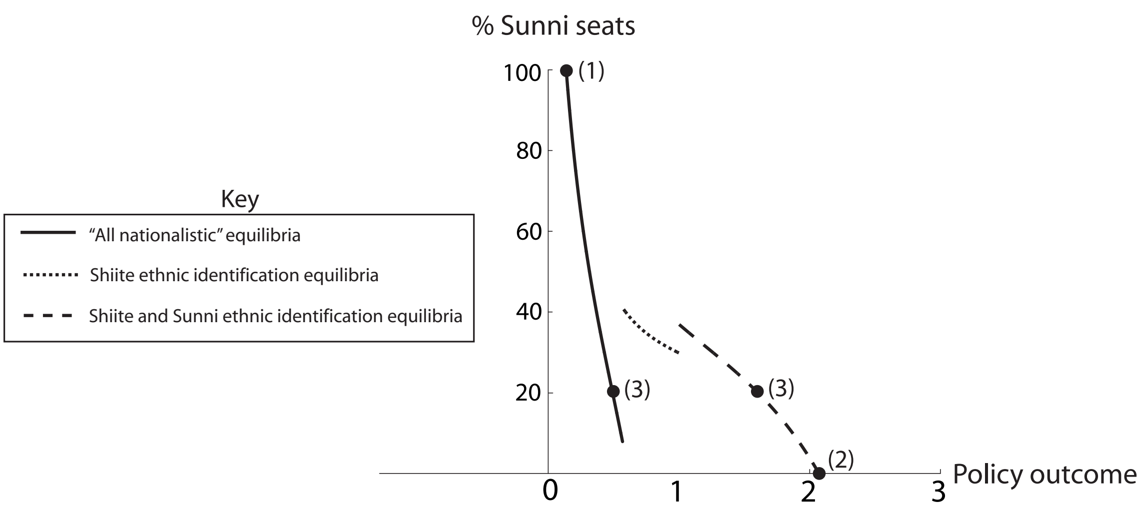

Figure 3: Equilibria as a function of Sunni seat share

While highly stylized, this example provides one explanation for the increase in sectarian identification among Shiites and Sunnis following the legislative elections in January 2005. In this example, when the Sunni have monopolistic control over government then there is a unique equilibrium in which policy is strongly secular and all of the three groups identify along nationalistic, as opposed to ethnic, lines. This is because, of the three groups, the Sunni have the most moderate policy preferences with respect to the relationship between Islam and the state. However, when the seats are proportionally distributed between the Kurds and Shiites and the Sunni are excluded from government, a new (unique) equilibrium emerges. In this case the Shiites and Sunnis both switch their identities, identifying along ethnic, rather than nationalistic, lines. While this change in identification moves the median Sunni slightly to the left (from 0.13 to 0), it moves the median Shiite far to the right (from 0.8 to 2.5).[19] This change in Shiite identity is accompanied by policy that is far more extreme, as Shiites have 75% of the seat share. In this example, disenfranchising the Sunni has a dramatic effect on sectarian identification, causing Shiites and Sunnis to suddenly identify along ethnic lines and bringing about a large divergence in their policy preferences.

Lastly, when seats are distributed proportionally across the three groups then *two* equilibria are possible. The first is an equilibrium in which the Shiites and Sunnis identify along ethnic lines and the Kurds identify nationalistically. The second is an equilibrium in which all groups identify along nationalistic lines. Thus, there is no guarantee that a more proportional government will spark the formation of an Iraqi national identity within all groups. However, both of these equilibria yield policy outcomes that are more moderate than the outcome yielded when the Sunni were granted no legislative seats. Furthermore, it is heartening to note that an "all nationalistic" equilibrium is

[19] Again, note that the "median Sunni policy" is the median *utility-maximizing policy* for a Sunni. This is different than the median ideal point of a Sunni. See Footnote 10.

achievable under a government in which each of the groups is represented fairly.

4.1 Equilibrium selection

Last, I will briefly discuss the problem of equilibrium selection in this model. As just discussed, a proportional distribution of legislative seats is capable of inducing two possible equilibria in this model: one in which members of all three groups identify as “Iraqi” and one in which the Shiites and Sunnis identify along ethnic lines. Thus, the question of equilibrium selection is important because even simple specifications of the model can generate multiple equilibria. The multiplicity of equilibria may be one explanation for a number of inconsistent findings in studies on the effect of ethnic context on group conflict and prejudice. V. O. Key’s “threat hypothesis” [17] predicts that large concentrations of ethnic minorities inspire hostility and prejudice among members of a dominant group by threatening competition for scarce resources. Alternatively, Allport’s “contact hypotheses” [3] predicts the opposite: that increased contact between groups reduces inter-group tension and conflict by breaking down ingrained stereotypes. Cain, Citrin and Wong [7] argue that the mixed support for both hypotheses may reflect the fact that racial attitudes appear to be more a product of the social and political backgrounds of individuals rather than the ethnic composition of their communities. This paper makes a different observation: the mixed support for both hypotheses may occur because the identity choices of individuals depend on an interaction between social context and political outcomes (modeled as the current policy induced by an institution). Looking at equilibria solely as a function of context will often not yield a unique prediction in this model.

5 Conclusions

This paper considers the role that political institutions can play in sparking or mitigating ethnic identification, focusing on the question of whether institutions are capable of inducing individuals to identify with the state rather than along ethnic lines. I provide an analytic framework for modeling identity choice as a function of both political institutions and the composition of society. I find that individuals are more likely to identify with a group as the group becomes more homogeneous, and are less likely to identify with the state as policy becomes more extreme relative to the preferences of individuals within society. I also find that the effect of national wealth is ambiguous; when groups are similarly wealthy then increasing the wealth of the nation increases the likelihood that individuals will identify with the state. However, when groups are very unequal then increasing national wealth will incite certain individuals to identify along ethnic lines. This leads to the observation that redistributive economic mechanisms may be capable of inducing a national identity in settings where political institutions cannot.

The results suggest that if an institutional goal is to induce an equilibrium in which individuals choose to identify with the state rather than along ethnic lines, then a well-designed institution will favor heterogeneous groups over homogeneous groups and poor groups over wealthy ones. Applying this model to the question of institutional design in Iraq, I provide one explanation for why a period of low Sunni representation in Iraqi government would dramatically increase sectarianism and violence. An unambiguous increase in sectarianism is caused by two factors: first, the fact that Sunni preferences for the role of Islam in Iraqi government stood somewhere between Kurd and Shiite preferences, and second, that when the Sunni are unrepresented in government then the Shiite can easily dominate politics through their larger numbers. The model also finds that a more proportional Iraqi parliament may not necessarily remedy the problem. In this case, two equilibria are possible: one in which all Iraqis identify as Iraqis, and another in which the Shiite and Sunni identify solely along ethnic lines.

These results demonstrate that the model is capable of generating a multiplicity of equilibria even in simple environments. While the existence of multiple equilibria may be one explanation for a number of inconsistent findings in studies on the effect of social context on group conflict, it also limits the predictive power of the model. Potential avenues for future research include incorporating strategic players into the model as a means of refining the set of equilibria. Examples of such players could include one or more political actors seeking to incite or quell ethnic conflict (as in [22]), or a government seeking to reduce racial or ethnic disparity through the use of affirmative action or monetary transfers.

References

[1] George Akerloff and Rachel Kranton. Economics and identity. *Quarterly Journal of Economics*, 115(3):715–753, 2000.

[2] Aljazeera. "Iraq cautious after missed deadline." *Aljazeera Online*, August 16, 2005. Accessed on May 23, 2006 at http://english.aljazeera.net/NR/exeres/72E579E2-97A8-4D13-B25B-A8DDCC9AE3CE.htm.

[3] Gordon Allport. *The Nature of Prejudice*. Addison-Wesley, Reading, MA, 1954.

[4] Robert Bates. Ethnicity. *Mimeo, Department of Government and the Weatherhead Center for International Affairs, Harvard University*, 2006.

[5] Patrick Billingsley. *Convergence of Probability Measures*. Wiley, New York, NY, 1968.

[6] Dawn Brancati and Rakhi Bhavnani. Natural disaster conflicts. *Mimeo, Institute for Quantitative Social Science, Harvard University.*, 2006.

[7] Bruce Cain, Jack Citrin, and Cara Wong. *Ethnic Context, Race Relations and California Politics*. Public Policy Institute of California, San Francisco, CA, 2000.

[8] John F. Cullinan. “Putting It in Ink: Getting Iraq’s constitution right.” *National Review Online*, October 6, 2003. Accessed on May 23, 2006 at http://www.nationalreview.com/script/printpage.p?ref=/comment/cullinan200310060825.asp.

[9] Zachary Elkins and John Sides. Can institutions build unity in multiethnic states? *Mimeo, Department of Political Science, University of Illinois at Urbana-Champaign*, 2006.

[10] Jon Fraenkel and Bernard Grofman. Does the alternative vote foster moderation in ethnically divided societies?: The case of Fiji. *Comparative Political Studies*, 39(5):623–651, 2006.

[11] Jon Fraenkel and Bernard Grofman. The failure of the alternative vote as a tool for ethnic moderation in Fiji: A rejoinder to Horowitz. *Comparative Political Studies*, 39(5):663–666, 2006.

[12] Donald L. Horowitz. Constitutional design: An oxymoron? In Ian Shapiro and Stephen Macedo, editors, *Designing Democratic Institutions: Nomos XLII*, pages 253–284. New York University Press, New York, 2000.

[13] Donald L. Horowitz. *Ethnic Groups in Conflict*. University of California Press, 2^{nd} edition, 2000.

[14] Donald L. Horowitz. Strategy takes a holiday: Fraenkel and Grofman on the alternative vote. *Comparative Political Studies*, 39(5):652–662, 2006.

[15] Independent Electoral Commission of Iraq. Independent Electoral Comission of Iraq Website, 2006. Accessed on May 4, 2006 at http://www.ieciraq.org.

[16] Iraqi Coalition Provisional Authority Briefing. Re: Election preparations in Iraq. Briefer: Carina Perelli, U.N. Electoral Assistance Division, June 4, 2004. Transcript accessed on May 4, 2006 at http://www.cpa-iraq.org/transcripts/20040604_Perelli_Prep.html.

[17] V. O. Key. *Southern Politics in State and Nation*. University of Tennessee Press, Knoxville, TN, 1949.

[18] Robert Melson. Ideology and inconsistency: The case of the ‘cross-pressured’ Nigerian voter. *American Political Science Review*, 65(1):161–171, 1971.

[19] Robert Melson and Howard Wolpe. Modernization and the politics of communalism. *American Political Science Review*, 44(4):1112–1130, 1970.

[20] Paul Milgrom and Robert Weber. Distributional strategies for games with incomplete information. *Mathematics of Operations Research*, 10(4):619–632, 1985.

[21] Elizabeth Maggie Penn. Institutions and identity. *Mimeo, Department of Government, Harvard University*, 2006.

[22] Daniel Posner. The political significance of cultural difference: Why Chewas and Tumbukas are allies in Zambia and adversaries in Malawi. *American Political Science Review*, 98(4):529–545, 2004.

[23] Beth Potter. "Religion and secularism focus of Iraq elections." *United Press International*, November 30, 2004. Accessed on May 23, 2006 at http://www.washtimes.com/upi-breaking/20041129-021229-6929r.htm.

[24] J. M. Rabbie, J. C. Schot, and L. Visser. Social identity theory: A conceptual and empirical critique from the perspective of a behavioral interaction model. *European Journal of Social Psychology*, 19:171–202, 1989.

[25] Alvin Rabushka and Kenneth Shepsle. *Politics in Plural Societies: A Theory of Democratic Stability*. Charles E. Merrill, Columbus, OH, 1972.

[26] Moses Shayo. A theory of social identity with an application to redistribution. *Mimeo. Department of Economics, Princeton University*, 2005.

[27] H. Tajfel and J. C. Turner. The social identity theory of intergroup behaviour. In S. Worchel and W. G. Austin, editors, *Psychology of Intergroup Relations*, pages 7–24. Nelson, Chicago, 1986.

[28] Sabrina Tavernise and Robert F. Worth. “U.S. Warns Iraq It Won’t Support Sectarian Goals.” *New York Times*, New York, NY., February 21, 2006. Late edition—Final. Section A, Column 1, page 1.

[29] J. C. Turner, R. J. Brown, and H. Tajfel. Social comparison and group interest in ingroup favouritism. *European Journal of Social Psychology*, 9:187–204, 1979.

[30] J. C. Turner, M. A. Hogg, P. J. Oakes, S. D. Reicher, and M. S. Wetherell. *Rediscovering the Social Group: A Self-Categorization Theory*. Blackwell, Oxford, 1987.

[31] United Nations Development Programme. *Iraq Living Conditions Survey 2004, Volume III: Socio-economic Atlas of Iraq* . Central Organization for Statistics and Information Technology, Ministry of Planning and Development Cooperation, Baghdad, Iraq, 2005.

[32] Zogby International. “Should Iraq have an Islamic government, or should the government let everyone practice their own religion?” *Zogby International Website*, February 11, 2005. Accessed on May 23, 2006 at http://www.zogby.com/news/ReadNews.dbm?ID=963.

6 Appendix

Let $a : [0, 1] \to A$ be a *pure strategy action profile*, a function mapping the collection of individuals into actions such that $a(i) = a_i$. Let $\mathcal{A}$ be the set of all action profiles. Function $s : [0, 1] \to \Sigma_A$ is a *strategy profile*, with $s(i) = s_i$ and (abusing notation slightly) Σ_A being the set of probability distributions over A. Σ is the set of all strategy profiles.

The proof of Theorem 1 is taken from [21]. It proves existence for a more general form of the model than is presented in this paper. In particular, it proves that existence will hold whenever the following hold:

1. Policy space $X \subset \mathbb{R}^M$ is compact and convex.

2. There is a finite number of "types" of players (where type denotes the collection of groups an individual belongs to), and the distribution of ideal points for individuals of a particular type is continuous.

3. Utility functions are continuous.

4. Material payoff functions are of the same functional form for all players.

5. The political institution is continuous in the policy preferences of individuals.

6. Identification with a group grants an individual a group-specific payoff.

Theorem 1 *There exists a social identity equilibrium, possibly in mixed strategies.*

Proof: I will first prove existence for a different game of incomplete information with a finite number of players. I will then show that equilibria of this game can be reinterpreted as equilibria of my model.

Let the new set of players be denoted $T \cup q$, where $T = \{1, ..., |T|\}$, with generic player $t \in T$. The institution is represented by a single non-strategic player, q. Thus, all individuals of a particular type are now represented by a single player t. Each player $t \in T$ observes his ideal point, p_t drawn from distribution f_t. After observing his own ideal point, each player chooses an action in A_t, where A_t denotes the collection of actions available to individuals of type t. Player q chooses an action in $A_q = X$ that is dependent on the strategies chosen by each t. An action profile is denoted $a = (a_1, ..., a_{|T|}, a_q)$.

As defined in [20], a *distributional strategy* for a Player t is a joint density μ_t over $X \times A_t$ for which the marginal density of X is f_t. A collection of distributional strategies for each player in T is denoted $\mu = \{\mu_1, ..., \mu_{|T|}\}$. A strategy for Player q is simply a function ξ mapping each μ into X, where ξ is assumed to be continuous in μ.

Each player t's payoff depends on his own ideal point and the action profile in the following way: $U_t : X \times \mathcal{A} \cup A_q \to \mathbb{R}$ such that $U_t(p_t, a) = w(p_t, a_q, a_t)$. Player q's payoff is constant: $U_q = 0$.

When the players adopt distributional strategies $(\mu_1, ..., \mu_{|T|}, \xi)$ then the expected payoff to Player t is:

$$EU_t(p_t, a) = \int_{X \times \mathcal{A}} w(p_t, a_q, a_t) d\mu_1 ... d\mu_{|T|}, \tag{2}$$

where $a_q = \xi(\mu)$.

Let S_t be the set of Player t's distributional strategies. Then an equilibrium is a fixed point in a correspondence C from $\prod_{t \in T} S_t \times X$ into itself, with:

$$C(\mu, a_q) = (\underset{\mu'_1 \in S_1}{\text{argmax}} \int_{X \times \mathcal{A}} w(p_1, a_q, a_1) d\mu_{-1} d\mu'_1, ..., \underset{\mu'_{|T|} \in S_{|T|}}{\text{argmax}} \int_{X \times \mathcal{A}} w(p_{|T|}, a_q, a_{|T|}) d\mu_{-|T|} d\mu'_{|T|}, \xi(\mu)).$$

Because the action spaces of players t are finite (and thus compact), each player's set of distributional strategies S_t is a tight set of probability measures.[20] By Prohorov's Theorem, the sets of distributional strategies are compact with respect to the topology of weak convergence.[21] They are also convex, trivially. Similarly, the strategy space of Player q is compact and convex by the assumption that X is compact and convex.

Also note that $EU_t(p_t, a) = \int_{X \times \mathcal{A}} w(p_t, a_q, a_t) d\mu_1 ... d\mu_{|T|}$ is linear (and thus quasiconcave) in μ_t which implies that the players' best response correspondences are convex-valued. Continuity of the players' utility functions implies that their best response correspondences are upper hemi-contiunous. This, along with compactness of the strategy space, implies that the best response correspondences are compact-valued. Function ξ is continuous (and hence upper hemi-continuous) in μ by assumption. By Kakutani's fixed point theorem, an equilibrium exists.

Last, we must show that the equilibrium distributional strategies found in the modified game correspond to equilibrium strategies of the original game. Let the function $w(p_t, a_q, a_t)$ equal $u(\pi(a_q|p_t), R(a_t, a_q))$ and let μ^* be a collection of equilibrium distributional strategies. For each type $t \in T$, and for all $i \in t$ let $s_i^* = \mu_t^*(\cdot|p_i)$, or μ_t^* conditional on ideal point realization p_i.

[20] A family of probability measures S on a general metric space X is *tight* if for every $\epsilon > 0$ there exists a compact set K in X such that $P(K) > 1 - \epsilon$ for all P in S.

[21] See [5, p. 240].

Suppose that for a collection of individuals of measure greater than zero s_i^* is not a social identity equilibrium. Since there are a finite number of types this implies that s_i^* is not a best response to s_{-i}^* for a collection of individuals of type t with measure greater than zero. However, this contradicts the fact that μ_t^* was a best response for Player t in the modified game. Thus, s^* is a social identity equilibrium. □

Formalization of Observation 1: To see that it will not always be possible to construct an "all nationalistic" equilibrium, consider the case where there are two equally-sized groups, g, and h, that differ only in wealth. Let $\overline{p}_g = \overline{p}_h = 0$, and let $\sigma_g^2 = \sigma_h^2 = 1$. As an extreme example, let $c_g = 100$ and $c_h = 0$. Then members of g will identify nationalistically on an interval of size $2 * \sqrt{-51}$, which is clearly not a real number. In this example, members of g will never identify with the nation.

There is, however, always a policy at which every individual will identify ethnically.

Let $x^{eth} = \underset{g}{\operatorname{argmax}} \sum_{h \neq g} (\overline{p}_h - \overline{p}_g) + \overline{p}_N +$

$$\sqrt{\Big[\sum_{h \neq g} (\overline{p}_g - \overline{p}_h) - \overline{p}_N\Big]^2 - \Big[\overline{p}_N^2 - \overline{c} + \sigma_N^2 + \sum_{h \neq g} \big((c_g - c_h) - (\sigma_g^2 + \overline{p}_g^2) + (\sigma_h^2 + \overline{p}_h^2)\big)\Big]}.$$

Then, by Equation 1, at any $x > x^{eth}$ all individuals will identify ethnically. Note, however, that it may be impossible to induce such extreme policies under a democratic institution such as the weighted median voter rule. □

Formalization of Observation 2: Let $\sigma_N^2 = \sum_g [\alpha_g(\sigma_g^2 + (\overline{p}_g)^2)] + (\sum_g \alpha_g \overline{p}_g)^2$. Plugging this into the equations below, this observation follows immediately from the fact that

$$\frac{\partial}{\partial \sigma_{g^i}^2}\sqrt{\Big[\sum_{g\neq g^i}(\overline{p}_{g^i}-\overline{p}_g)-\overline{p}_N\Big]^2-\Big[\overline{p}_N^2-\overline{c}+\sigma_N^2+\sum_{g\neq g^i}\big((c_{g^i}-c_g)-(\sigma_{g^i}^2+\overline{p}_{g^i}^2)+(\sigma_g^2+\overline{p}_g^2)\big)\Big]}\geq 0$$

and the fact that for any $g\neq g^i$,

$$\frac{\partial}{\partial \sigma_g^2}\sqrt{\big[(\overline{p}_{g^i}-\overline{p}_g)-\overline{p}_N\big]^2-\big[\overline{p}_N^2-\overline{c}+\sigma_N^2+\big((c_{g^i}-c_g)-(\sigma_{g^i}^2+\overline{p}_{g^i}^2)+(\sigma_g^2+\overline{p}_g^2)\big)\big]}\leq 0.$$

Thus, by Equation 1, individuals identify with the nation on a larger policy interval as their ethnic group's variance increases, and as the variance of rival groups decreases. □

Formalization of Observation 3: Specifically, I will show that a sufficient condition for an increase in $\overline{c}$ to increase the range of policies at which *all* individuals identify nationally is that $\frac{\alpha_h+1}{\beta_h}\geq 1$ for all groups h. Suppose that g is the wealthiest ethnic group. Let β_h be a constant such that $c_g=\beta_h c_h$ (defined for each ethnic group h). By definition, $\overline{c}=\alpha_g c_g+\sum_{h\neq g}\alpha_h c_h$. Defining c_g as a function of c_h, we get $\overline{c}=\alpha_g+\sum_{h\neq g}\alpha_h\frac{c_g}{\beta_h}$. Thus, $c_g=\frac{\overline{c}}{\sum_h\frac{\alpha_h}{\beta_h}}$ and $c_h=\frac{c_g}{\beta_h}$.

Recall that the K term in Equation 1 characterizes the size of the interval on which members of group g will identify with the nation. Using the work above, we can define both c_g and c_h in terms of $\overline{c}$ in this K term. For group g, $\frac{\partial K}{\partial \overline{c}}$ is positive whenever $\sum_h\frac{\alpha_h}{\beta_h}+\sum_h\frac{1}{\beta_h}-k>0$, where k is the total number of ethnic groups. Reducing, we get that a sufficient condition for K to be increasing in $\overline{c}$ for all groups is that $\frac{\alpha_h+1}{\beta_h}\geq 1$ for all groups h. □

Formalization of Observation 4: For any particular group g, the size of the interval $2*K$ defined in Equation 1 approaches ∞ as $\overline{c} \to \infty$ *when all groups are equally wealthy*. Formally,

$$\lim_{\overline{c}\to\infty} \sqrt{\Big[\sum_{g\neq g^i}(\overline{p}_{g^i} - \overline{p}_g) - \overline{p}_N\Big]^2 - \Big[\overline{p}_N^2 - \overline{c} + \sigma_N^2 + \sum_{g\neq g^i}\big(-(\sigma_{g^i}^2 + \overline{p}_{g^i}^2) + (\sigma_g^2 + \overline{p}_g^2)\big)\Big]} = \infty.$$

Thus, the size of the interval on which any group identifies with the nation is approaching infinity as the wealth of the nation approaches infinity. It follows that by equalizing the wealth of the groups and increasing the wealth of the nation it will be possible to induce an equilibrium in which all groups identify with the state. □

Formalization of Observation 5: Assume that there are two groups g and h, with $\overline{p}_N = 0$ and $\overline{p}_g > \overline{p}_h$. The center of the interval on which g identifies with the nation is $\overline{p}_h - \overline{p}_g$. Thus, increasing the size of the interval of policies on which g identifies with the nation, and decreasing the size of this interval for group h, moves the social point toward the center of this interval for group h, or toward $\overline{p}_g - \overline{p}_h$.

When both groups identify with the nation, then as the voting weight ρ_g assigned to group g increases, the weighted median $x(a^*)$ moves toward the point $x = \frac{\overline{p}_g}{1+\gamma}$, (the median utility-maximizing policy of a member of g). If policy moves toward $\overline{p}_g - \overline{p}_h$, this will correspond to an increased voting weight for g so long as the social point is smaller than $\frac{\overline{p}_g}{1+\gamma}$. When the social point is equal to $\frac{\overline{p}_g}{1+\gamma}$ then the institution that induces it gives g 100% of the voting weight. When the social point is greater than $\frac{\overline{p}_g}{1+\gamma}$ then it cannot be induced by any weighted median voter rule. □