A Model of Ethnic Conflict

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ABSTRACT

We present a model of conflict, in which discriminatory government policy or social intolerance is responsive to various forms of ethnic activism, including violence. It is this perceived responsiveness — captured by the probability that the government gives in and accepts a proposed change in ethnic policy — that induces individuals to mobilize, often violently, to support their cause. Yet, mobilization is costly and militants have to be compensated accordingly. The model allows for both financial and human contributions to conflict and allows for a variety of individual attitudes ("radicalism") towards the cause. The main results concern the effects of within-group heterogeneity in radicalism and income, as well as the correlation between radicalism and income, in precipitating conflict.

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1. INTRODUCTION

We study an elementary game-theoretic model of conflict between groups based on individual behavior. We focus on the role of heterogeneity between and, most especially, *within* groups in explaining conflict. Individuals differ not only in the group they belong to — their ethnicity or religion — but also in their incomes and in the radicalism of their commitment to the group's cause. This study of within-group heterogeneity in incomes and radicalism is the main feature of the paper.

Both within-group homogeneity and across-group differences in individual characteristics have been highlighted in recent literature on the conceptualization and measurement of polarization.[1] This literature views the homogeneity of individual characteristics within a group as particularly conducive to conflict, as it permits individuals "on the same side" to find common ground more easily. To some extent, this is borne out in our analysis. We show that intra-group homogeneity in the extent of radicalism promotes conflict.

On the other hand, there are characteristics, such as income or wealth, in which within-group *differences* may precipitate more conflict. The idea here is that effectiveness in conflict requires various inputs, most notably bodies as well as financial resources. Monetary contributions are used to finance militant activity, but militants have to be mobilized — at a cost. Thus, entry into conflict has (at least) two kinds of opportunity cost: financial and human. This interdependence between money and bodies provides new insights into the determinants of the level of conflict. One such insight is that economic inequality within a group has its own peculiar synergy: the rich provide the funds, while the poor provide the conflict labor. Both types of opportunity costs are lowered by inequality. This particular view informs both the construction of our model and the main results.

The potent nature of within-group economic inequality stands in marked contrast to the theoretical predictions for inequality *across* groups, or for balanced increases in income more generally. There are ambiguities here. Income may determine the stakes in case a victory over the opponent comes with (possibly partial) expropriation of the opponent's resources. From this angle, we should expect that the larger are income differences across groups the more likely it is that conflict will break out (see, e.g., Wintrobe (1995), Stewart (2002) or Cramer (2003)).[2] On the other hand, a rise in the income of a group might enhance its own capacity to fund militants. Then the closing of the income gap between two groups — rather than its widening — might ignite conflict instead.[3] A last source of ambiguity comes from the fact that increased wealth (while reducing the opportunity cost of funds) will raise the opportunity cost of mobilizing militants.

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[1] See Esteban and Ray (1994), Wolfson (1994), and Duclos, Esteban and Ray (2004) for the notion and measure of polarization and Esteban and Ray (1999) for the role of polarization among groups in conflict.

[2] The evidence on the impact of across group inequality is somewhat ambiguous. Cramer (2005) in his survey notes that "the conflicting claims of recent publications by economists using, for the study of conflict, the same source of data on inequality, for example, in Collier and Hoeffler (1998) and Nafziger and Auvinen (2002)." Besançon (2005) distinguishes between ethnic conflicts, revolutions and genocides and tests the role of inequality for the three types of conflicts separately. For the specific case ot ethnic conflicts she obtains the opposite result: deprived identity groups are more likely to engage in conflict under more economically equal conditions.

[3] This point is generally compatible with the abundant evidence — see Melson and Wolpe (1970), Olzak and Nagel (1986) and Tellis, Szayna and Winnefeld (1998) — that economic modernization might fuel rather than moderate ethnic conflict. The process of modernization might generate resources to fundamentalist segments (or cynical opportunists) which would then be channelled into financing (a thus far latent) conflict. See also Bourguignon (1998) for a careful quantitative analysis of the relationship between growth, inequality, and conflict.

The rise in human opportunity cost will serve to reduce conflict when there is a balanced increase in wealth. These observations are related to the findings of Collier and Hoeffler (2002), Fearon and Laitin (2003), Miguel, Satyanath and Sergenti (2004) and others that overall income increases are negatively related to conflict.

The sharp contrast between the unambiguous predictions for within-group economic inequality and the fuzzier effects of across-group inequality or overall growth in income should provoke detailed empirical inquiry. It is well-known that overall measures of inequality in society fail to correlate well with the existence of conflict. Our theory suggests that a decomposition of such inequality into within- and across-group sources will bear more fruit. Disequalizing income changes within groups are more dangerous precisely because they put resources in the hands of potential contributors, while at the same time they decrease the cost of mobilizing activists. In Section 5, we summarize some of the facts that appear to support this basic guiding principle of our model.

The model we employ is extremely simple, and is to be regarded more than anything else as a tool to classify different factors in conflictual situations. But even in this stripped-down form the model can incorporate several features. To accommodate the role of inequality discussed above, the model allows for inputs to conflict both in the form of (compensated) labor and financial contributions. This is achieved in a tractable way by introducing notions of equilibrium at two levels: one that describes a "group-equilibrium" response to the activists or militants supplied by the rival group, and the second that puts both group responses together into an "overall equilibrium".

The model also incorporates a major concern in the analysis of religious/ethnic conflict: an accounting of the obvious passion and rage overwhelmingly present on either side of the ethnic divide. Writers such as Horowitz (1985, 1998) and Brewer (1979, 1991 and 1997) have argued that "primordial" notions of group success has value *per se*, quite independently of the material benefits that the group members could derive from a victory over the opponent. Horowitz (1998) stresses the role of passion along with sheer material interest in explaining individual behavior in conflict. We allow individuals to be motivated by group success — conceived of here as the payoffs from an "ethnic public good" — and we permit these payoffs to vary across individuals as well the direct material components of their well-being. The individual perception of such non-material, group-defined rewards is what we call radicalism.

With notions of wealth and radicalism in place, the model generates simple yet clear predictions for various determinants of conflict: levels of radicalism and its distribution (Section 4.2), levels of income and its distribution (Section 4.3), and the effects of heightened correlation between radicalism and income (Section 4.4). There is also a general prediction relating changes in militancy on the part of one group (due to some parametric change) to the reactions by the opposing group (see Section 4.1). We hope that the gains in taxonomy and predictive power provided by this simple theory will be useful in further research.[4]

This summary suggests two important features which are *not* part of the current exercise. First, this paper assumes that the situation is inherently conflictual, and we make no attempt to model group decisions to enter into conflict in the first place. These are undoubtedly important issues.[5]

[4]For Horowitz (1985) lists up to ten distinct explanations for social conflict, some substitutes for each other, some complementary. To each such family of explanations he produces countering facts. This variety of possible causal factors, while rich, can be at the same time confusing and not easily amenable to analytical investigation.

[5]In particular, the question of why a "Coase theorem" may not be valid for conflictual situations is an important one; see, e.g. Fearon (1995), Slantchev (2003) and Powell (2004).

Secondly, we take as given that society is "already" split along ethnic lines. There is no *a priori* reason why this should be this way. It may well be that, in spite of the ethnic differences, economic inequality is so accute that class conflict will be dominant. We do not examine here which kind of conflict is more likely to occur. This specific issue is the object of Esteban and Ray (2008) where, the ethnic and income distribution of the population are the key factors explaining which alliances will form. In a model of coalition formation, this paper shows that in the absence of a bias favoring either type of conflict, ethnicity will be more salient than class.

To summarize, we construct a simple model of ethnic conflict. The model assumes that there are inter-group antagonisms, the intensity of which can vary from individual to individual. We take no position on whether such antagonisms are economic, political, or indeed primordially ethnic, but take it that they affect individual contributions to conflict. The model also embodies the economics of conflict, and contains an explicit description of the financial and human opportunity costs of conflict. In particular, individuals can both contribute financially to a conflict, or they can directly participate as activists. Such participation needs to be compensated (this includes "self-compensation", such as the willing bearing of opportunity costs). This model permits us to analyze different sorts of factors, which we've broadly classified into inter-group and intra-group categories. Among other things, we show that

An increase in activism by one contending group will create escalation or deterrence depending on whether that group was weaker or stronger to start with; this has implications for the relation between polarization and conflict;

A one-sided increase in within-group heterogeneity in levels of radicalism decreases the degree of activism of that group;

Balanced increases in the income of one group might reduce its activism: the higher money contributions may be insufficient to cover the higher costs of mobilization; but

An increase in income *inequality* within one ethnic group may make inter-ethnic conflict more violent: mobilizing the poor is cheaper, and the rich have more resources to implement that mobilization. Finally,

A heightened correlation of radicalism and wealth makes for greater conflict.

2. THE MODEL

We will use the notation H and M to denote two ethnic or religious affiliations, often referring to these as Hindu and Muslim respectively. [But the model that we lay down is more abstract and can be applied to other conflictual situations.] There are n^h and n^m people of each conviction, with $n^h + n^m = n$, the total population.

We place attention on "ethnic policies", to be thought of as actions or concessions (or social attitudes) that are effectively tilted towards one religious group or the other. To be concrete, suppose that there is some "status quo" policy already in place, against which an alternative proposal has been raised. For instance, fundamentalist Hindus might (and did) call for the razing of a mosque and the building of a temple on supposedly sacred ground. Or fundamentalist Muslims might (and did) decide to enforce aspects of Muslim personal law, pertaining to divorce or marriage.

In each of these cases, the acceptance of the newly "proposed" situation marks a distinct change in social attitudes, sometimes but not always mediated by state policy. Different people will, of course, feel differently about the change. Let us use the *individual-specific* variable x to capture the intensity of feelings regarding the proposed shift from the status quo. For the sake of concreteness, suppose that the proposed policy is favorable to the Hindu position, relative to the status quo. Consequently, in the Hindu camp, the variable x will stand for how strongly an individual feels about supporting the shift, while in the Muslim camp, x will stand for how strongly the individual feels about opposing it. Thus $x \geq 0$ in all cases.[6]

The different groups will voice their support or dissent regarding the proposed shift in religious policy. Such activism may take the form of open debate or discussion, but often it will take the form of demonstrations, processions, and riots, and occasionally looting, rape and murder. Denote by A^i, $i = h, m$ the total time devoted to "activism" by individuals of each creed and denote by p the probability that the proposed policy shift will indeed be successful. We assume that p depends on A^h and A^m in the following way:

$$p(A^h, A^m) = \frac{\psi(A^h)}{\psi(A^m) + \psi(A^h)}, \tag{1}$$

with ψ strictly increasing and concave and $\psi(0) = 0$.

We are interested in examining in some detail how these activists are mobilized. Because individuals care about the proposed policy shift, they can contribute money to finance the cause and their own time to furnish the necessary activism. Personal involvement has, however, an opportunity cost: time devoted to activism is at the expense of work. How large this opportunity cost is depends on the wage rate of each individual. Highly paid individuals would rather contribute with money because the opportunity cost of time is too high.

Militant organizations use the money contributions in various ways. We emphasize the use of these resources to lower the opportunity costs to participating militants, by compensating the individual supply of activism. For each group i, let c^i denote the compensation rate per unit of time; it is endogenous. Compensation might include free meals and transportation to rallies, money, and promises of reciprocal favors or job opportunities.

In sum, individuals in a group make financial contributions. These resources are used to "purchase" activist labor. Activist labor will be supplied with the going compensation rate in mind, which then adjusts to equate the supply of activist time with demand. Thus in our model, religious organizations are viewed in part as a clearing house for resources going into the funding of militants.

The individuals in our model vary in three ways. First, as already mentioned, they are H or M. Second, and also discussed, they can vary in their feelings about the proposed policy; this is captured by the variable x. Finally, individuals may also vary in the resources under their command; call this w. To fix ideas we shall think of w as the earning capacity of the individual. It will be used as a measure of the opportunity cost incurred by that individual of the time devoted to activism. We shall assume that individuals cannot contribute more than their earning capacity. So in summary, an individual is characterized by his religion, his religious attitudes and his resources.

[6] This is a bleak view indeed. Many tolerant Hindus might deplore the proposed shift as well. The model is easily amended to take this into account.

With religious affiliation given, we will refer to any combination of the remaining two characteristics as a "type". Use $z = (x, w)$ to denote a type in either group. There are $n^i(z)$ individuals of each type for each group $i = H, M$.

A typical individual of type z in group H, who contributes activist time s and financial resources r, while facing a probability p of success in the social outcome, receives payoff

$$px + u\Big(w\big(1-s\big) + c^h s - r\Big) \tag{2}$$

where u is a utility function defined on consumption and total available time has been normalized to unity. We assume fairly standard things about the utility function: that it is increasing, strictly concave and exhibits decreasing absolute risk aversion.[7]

An analogous expression with $1 - p$ in place of p holds for the M-individuals.

The present setup shares several features with a standard model of lobbying, but with a number of variations. First, we allow for heterogeneity in individual attitudes towards religious policy, something that will permit us to remark later on the correlation between income and extremist attitudes. Second, each *individual* makes his choice of contributions; the choice is not dictated by a group decision. On this matter, we are agnostic regarding the alternatives of group-based versus individual-based contributions.[8] Third (and most important in the model we study), these contributions can be of two types, financial or "physical".

By studying how money and activism are combined, we partially unpack the black box that maps contributions into win probabilities. Because activism is induced by appropriate compensations to the participants, available financial resources are important in determining the strength of group militancy. It is this particular emphasis that drives our results on within-group inequality and conflict.

3. Conflict Equilibrium

3.1. **Individual Contributions.** We begin by analyzing individual decisions based on the payoff function in (2). We focus on H-individuals; exactly the same analysis applies to M-individuals. For notational ease, we drop the superscript h on the relevant variables for the H-group.

Each H-individual of type $z = (w, x)$ takes as given the contributions of everyone else in society and selects his own contributions s and r. Denote r/c by d; this is the implicit activist time purchased ("demanded") by a financial contribution of r. Think of the equivalent problem of choosing s and d. We denote by A_- the aggregate activism contributed by the rest of the H-individuals. Then (s, d) solves

$$\max_{s,d} p(A_- + d, A^m)x + u\big((1-s)w + sc - dc\big),$$

subject to $s \in [0, \bar{s}]$ and $d \geq 0$, where $\bar{s}$ is some upper bound on individual activism.[9]

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[7] Formally, we assume that u is a smooth function with $u'(y) > 0$, $u'(y) \to \infty$ as $y \to 0$, and with second and third derivatives with alternating signs. A specific class that satisfies these properties is the constant elasticity, $u(y) = \frac{y^{1-\nu}}{1-\nu}, \nu > 0$.

[8] Esteban and Ray (1999) employ a group-based approach, and Esteban and Ray (2001) address the Pareto-Olson group size paradox by taking an individual-based approach.

[9] Remember that u has unbounded steepness at 0, so we do not need to worry about consumption being driven to zero.

The choice of s is trivial. Write the optimum as $s(z,c)$. It also depends on A_- and A^m but this will cause no confusion below. We see that

$$s(z,c) = \begin{cases} \bar{s} & \text{when } w < c \\ 0 & \text{when } w > c \\ \in [0,\bar{s}] & \text{when } w = c. \end{cases} \tag{3}$$

With (3) taken into account, the maximization problem with respect to d is strictly concave, and the individual best reply $d(z,c)$ (which also depends on A_- and A^m) is uniquely characterized by

$$p_1(A_- + d(z,c), A^m)x \leq \begin{cases} cu'\left((1-\bar{s})w + \bar{s}c - d(z,c)c\right) & \text{when } w \leq c \\ cu'\left(w - d(z,c)c\right) & \text{when } w > c, \end{cases} \tag{4}$$

with equality holding in either case when $d(z,c) > 0$.

3.2. **Group-Level Contributions.** In the previous section, we described individual contributions to conflict under the presumption that each individual treats the contributions of his fellow-group members (as well as the activism generated by the rival group) as given. We may put these individual contributions together to derive what one might call a group-level or "equilibrium" response to the activism of the rival group.

Formally, consider group H, and fix some level of activism A^m for group M. The pair (A,c) is an *equilibrium response* to A^m (by individuals in H) if there is a profile of individual contributions $\{s(z,c), d(z,c)\}$ such that

(i) For each type $z = (w,x)$, $s(z,c)$ and $d(z,c)$ satisfy (3) and (4) given (A_-, A^m), where $A_- \equiv A - d(z,c)$.

(ii) $S^h \equiv \sum_z s(z,c)n(z) = D^h \equiv \sum_z d(z,c)n(z) = A$.

The first condition requires that every individual choose a best response as in Section 3.1, and the second guarantees that these responses generate an equilibrium in the "market" for activism.

We now show that under a mild restriction, there exists a unique equilibrium response (A,c) to every $A^m > 0$. For every compensation rate c we can construct an aggregate supply correspondence $S(c)$ for activists. Define $\underline{n}(c)$ to be the number of all H-individuals with wage $w < c$, and $\bar{n}(c)$ to be the number of all H-individuals with $w \leq c$. Define

$$S(c) \equiv [\bar{s}\underline{n}(c), \bar{s}\bar{n}(c)]$$

for every c. Because there are finitely many people, $\underline{n}(c) = \bar{n}(c)$ for all but finitely many values of c, so that this aggregate supply function is an increasing step function. The step function in Figure 1 plots the inverse of this supply by showing the compensation rate(s) that will elicit various quantities of supply of activism. We've filled in the jumps in the obvious way by including all compensation rates between the extremes at each jump. These jumps will be small if the gaps between wage rates of neighboring types are small.

Now we construct the aggregate demand for activists. This is a more complex exercise. Fix c (and A^m, of course). For each given value of D define a nonnegative function $d(z,c,D)$ by

$$p_1(D, A^m)x \leq \begin{cases} cu'\left((1-\bar{s})w + \bar{s}c - d(z,c,D)c\right) & \text{when } w \leq c \\ cu'\left(w - d(z,c,D)c\right) & \text{when } w > c, \end{cases} \tag{5}$$

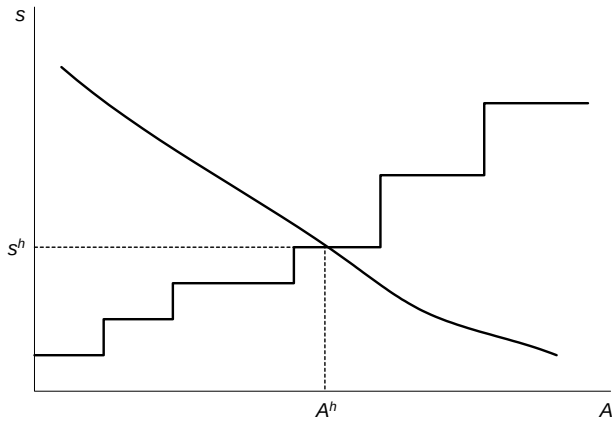

FIGURE 1. EQUILIBRIUM RESPONSES

with equality holding in either case whenever $d(z, c, D) > 0$. It is easy to see that (5) uniquely pins down $d(z, c, D)$ for every type z. It follows that the aggregate demand for activism is given by

$$\sum_z d(z, c, D).$$

A cursory examination of (5) reveals that for each type z, $d(z, c, D)$ must be decreasing in c provided that $w > c$. On the other hand, for types such that $w < c$, an increase in c has both an income and substitution effect and it is formally possible that d might increase for such individuals. It is easy to check that for any constant-elasticity utility function of the form $u(y) = y^\alpha$, for $\alpha \in (0, 1)$, this cannot happen. Moreover, the smaller is the activism cap $\bar{s}$ relative to total labor time, then the less likely is this perverse effect to occur for *any* utility function. We impose the still weaker restriction

[D] $\sum_z d(z, c, D)$ is decreasing in c for every D.

Under Condition [D], then, for every $D > 0$, we can find a *unique* value of c such that

$$D = \sum_z d(z, c, D) \equiv D(c). \tag{6}$$

To show this, observe that $\sum_z d(z, c, D)$ is decreasing, continuous and satisfies the end-point conditions $\sum_z d(z, c, D) \uparrow \infty$ as $c \downarrow 0$ and $\sum_z d(z, c, D) \downarrow 0$ as $c^h \uparrow \infty$. Hence, there is a unique value of c solving (6). We have found *one* point on the "aggregate demand" curve: a pair $(c, D(c))$ satisfying (6).

To construct all of the "aggregate demand curve", consider an increase in D to $\tilde{D}$. A higher D will decrease the left-hand side of (5), because p is strictly concave in its first argument. Therefore if $d(z, c, D) > 0$, it must (continuously) decrease to preserve the equality in (5). It follows right away that the new value of c — call it $\tilde{c}$ — solving (6) is such that $\tilde{c} < c$. We have found another point on the "aggregate demand curve" for activists, and we have shown that this demand curve is strictly declining. Figure 1 plots this curve as well.

It is now obvious that there will be a unique intersection between the supply and demand functions, and that this intersection — call it (A^h, c^h) — is an equilibrium response to A^m. Summarizing:

OBSERVATION **1.** *Under Condition* [D]*, there exists a unique equilibrium response (A^h, c^h) to every value of $A^m > 0$, and the same is true for the M-group as well.*

3.3. **Equilibrium.** An *equilibrium* is a collection (A^h, c^h, A^m, c^m) such that (A^h, c^h) is an equilibrium response to A^m, and (A^m, c^m) is an equilibrium response to A^h.

The following background result sets the stage for the rest of the paper.

OBSERVATION **2.** *The equilibrium response (A^h, c^h) to A^m — unique, by Observation 1 — has the property that $A^h > A^m$ for all A^m in some region $(0, A_1^m)$. In this region A^h increases with A^m.*

There is a subsequent region (A_1^m, A_2^m) such that A^h decreases with A^m for all $A^m \in (A_1^m, A_2^m)$, dropping to 0 when $A^m = A_2^m$.[10]

An entirely analogous result holds for the equilibrium response by group M.

Proving this observation is a simple exercise. All we need to do is study whether the LHS of (4) increases or decreases with A^m. For instance, if the LHS increases in A^m, then by the earlier argument, A^h increases.[11] Using a standard complementarity argument, it is easy to see that the LHS of (4) increases with A^m if the derivative $p_1(A^h, A^m)$ increases with A^m, and decreases otherwise. Recalling (1), we see that

$$p_1(A^h, A^m) = \frac{\psi(A^m)\psi'(A^h)}{[\psi(A^m) + \psi(A^h)]^2},$$

so that

$$\frac{\partial p_1(A^h, A^m)}{\partial A^m} = \frac{\psi'(A^m)\psi'(A^h)}{[\psi(A^m) + \psi(A^h)]^3}[\psi(A^h) - \psi(A^m)].$$

Hence, the derivative of p with respect to A^h increases or decreases with A^m depending on whether A^h is larger or smaller than A^m.

To complete the proof, observe that once A^h is smaller than A^m it will decline as A^m increases (just proved) so that after the change A^h will continue to be smaller than A^m. Moreover, $A^h > 0$ when $A^m > 0$, but goes to zero as $A^m \to 0$. Finally, there must be a point at which A^h equals A^m, for our assumptions on cost function assure us that equilibrium responses must be bounded. These assertions prove the existence of the intervals $(0, A_1^h)$ and (A_1^h, A_2^h).

Observation 2 tightly pins down the shape of the equilibrium response function. It is "hump-shaped", initially rising with the response exceeding the "provocation" that caused it, flattening out at the 45^0 line, and declining thereafter with responses falling short of provocations.

This profile of the equilibrium response function is exactly what one would expect. When a given group is faced with increasing opposition it will initially respond with increased activism of its own. However, the limits of group resources (financial and human) will eventually lead

[10] The zones of increase and decrease will be punctuated by flats corresponding to the jump segments in c; these flats will be small if the wage rate differential across neighboring types are small. In any case, these have no effect on the results.

[11] It will stay constant with the entire increase transferred to c^h in case we are at a jump segment; see previous footnote.

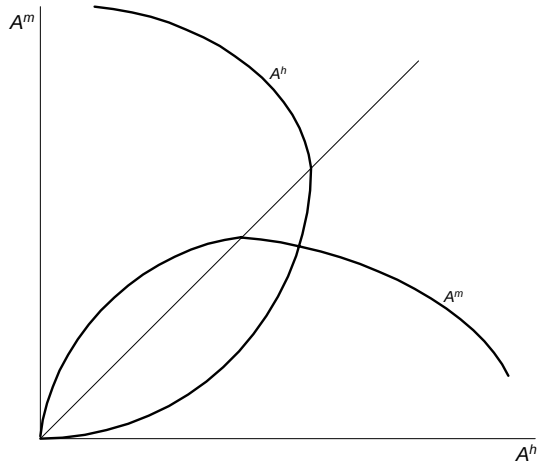

FIGURE 2. THE SHAPE OF EQUILIBRIUM RESPONSES

to a decrease in activism as opposition militancy continues to climb. That this point is on the 45^0 line follows from the symmetry of the probability function with respect to activism on the two sides. If "effective" activism were proportional to activist time and this proportion were higher in one side than in the other, best reply functions would still be "hump" shaped but the maximum would not be attained on the 45^0 line.

Both response curves — one for H and one for M — are depicted in Figure 2.[12] It follows immediately that the two curves intersect and that the intersection can only be unique. We have therefore established

PROPOSITION **1.** *There exists a unique equilibrium.*

4. DETERMINANTS OF CONFLICT

The equilibrium level of conflict is determined by the intersection of the equilibrium response functions of the two groups. These functions depend on the individual characteristics of the group members. In what follows, we change these characteristics and examine the implications for equilibrium conflict. Perhaps our most significant finding is that within-group inequalities feed militancy: additional funds concentrated in the hands of the rich and the low opportunity cost of the poor come together in a perverse synergy.

4.1. **Co-Movements in Activism Across Groups.** We begin with a general observation about the comparative statics of this model.

Suppose that there is a change in parameters that pushes one side into supplying more activists. [For instance, the distribution of x for each income level could move rightwards in the sense of first-order stochastic dominance, for one of the groups.] In general, this increase in aggressiveness on one side will affect the equilibrium supply of activists for *both* sides. The increase may provoke greater aggression from the rival group. At the same time, it might enforce greater

[12]The depiction of these curves neglects — without any substantive loss — the small flats that correspond to jump points in the s-function for activists.

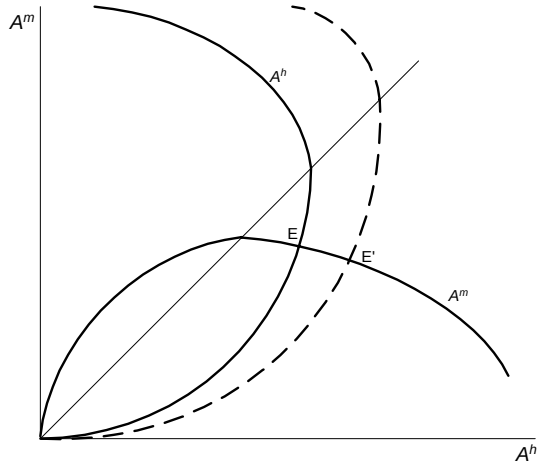

FIGURE 3. JOINT MOVEMENTS IN ACTIVISM

acquiescence. Either might happen. Therefore, in assessing the full impact of any change, it may be useful to keep the following observation in mind.

PROPOSITION **2.** *Suppose that a change occurs in the parameters for a particular group, thereby shifting their equilibrium response function outwards: they are now more "aggressive" in supplying activists. Then*

(i) *If the change in parameters has taken place for the group that had a smaller number of activists to start with, then the equilibrium A^h and A^m both move in the same direction; while*

(ii) *If the change in parameters has taken place for the side that had the larger number of activists to start with, then the equilibrium A^h and A^m move in opposite directions.*

This result follows immediately from the properties of the equilibrium response functions described earlier.[13] Indeed, Figure 3 contains a self-contained diagrammatic exposition of the proof.

Thus if a group that has been so far "moderate" (in the sense that it mobilizes fewer activists than its rival) becomes more aggressive, this has the primary effect of precipitating an escalation of conflict with *both* groups contributing more activists. However, if the increase of agressiveness leads this group to become the more radical (in the sense of mobilizing the larger number of activists) any further increase in aggressiveness will have the opposite effect on the other group. The more moderate group will respond to the increase of activists by the aggressive group with a cut in the number of their own activists. An increase in radicalism does not necessarily translate into an escalation of conflict. It can also become a deterrent.

We emphasize three implications of this result.

[1] Empirical work on conflict focuses on factors — radicalism, inequality, poverty — that might precipitate greater or less violence. Proposition 2 shows that even if these factors succeed in

[13]This neglects the case in which there are small flats in the response function arising from gaps between the wages of neighboring types. Such flats might create no change in cross-group activism if the parametric changes are very small, but in any case does not reverse the sign of the correlation. So we do not emphasize this point in the main text.

affecting a group in some predictable way, the impact on the response by the other group can go in either direction. It follows that we should not expect a monotonic relationship between such factors and the *overall* intensity of conflict, though we can say something about the militancy of each of the groups separately.

[2] If we think of "highly polarized" conflict as roughly corresponding to an equal number of activists on each side, then an increase in aggressiveness in one group that moves a society towards greater polarization must generate escalation (part (i) of Proposition 2 will apply).

[3] It is even possible (though a proper implementation of this idea will need more care) that the proposition can be used to throw light on the identity of the group that initially experiences a parametric change. Suppose that after some (unobservable) change in some parameters we see that *both* groups have become more aggressive. Then we can deduce that the initial impetus for conflict must have occurred in the group that was less militant to begin with. If we observe instead that the change in aggressiveness in the groups has gone in opposite directions, it has to be that the change took place in the more militant group.

We now turn to three sets of results that describe the relationship between group characteristics and group militancy. These concern radicalism (the distribution and level of x), income (the distribution and level of w), and the correlation between radicalism and income.

4.2. **Radicalism.** The simplest and most predictable case is one in which radicalism increases across the board for a group. From the first order condition (4) it is immediate that each individual of each type will increase his contribution to conflict. Since for every degree of activism by the opponent the radicalized group will contribute more resources and hence more activists, it follows that activism by that group will increase, both as an equilibrium response and in equilibrium itself.

Of greater analytical interest are changes in the *distribution* of radicalism across the population.

Making radicalism more dissimilar across the population of a given group decreases its internal cohesion. However, this decreased cohesion has the effect of increasing the extremism of the most radical part of the population, and decreasing the radicalism of those who already were more lukewarm. We want to examine which of these two forces will prevail. Will more religious heterogeneity decrease or increase group aggressiveness? This is a case of clear empirical interest, especially for religious conflict. As already pointed out by Juergensmeyer (1993) and (2008), among others, in many societies the contemporary increase in religious radicalism often arises side by side with increased secularism on the part of the remaining population.[14]

The exercise we perform, then, is to change the distribution of radicalism within one group — say H — without invoking any income effects. We do this by redistributing population over x so that there is *either* a Lorenz-worsening change in the distribution of radicalism, *or* no change at all, at every income level. Thus religious attitudes are now more dispersed for all affected incomes.

Define a (financial) *contributor* to be an individual who donates positive monetary amounts to militancy. Then one part of this exercise has an obvious answer: if "radicalism is transferred" from those who are not contributors to those who are, overall contributions must rise. After all, the non-contributor (who is already supplying zero) cannot reduce his contributions any

[14]The analysis of which factors might trigger this process is beyond the scope of our work.

further, while the contributor will step up his contributions. What is of interest is that this finding is entirely reversed when radicalism is made more dispersed among contributors.

PROPOSITION **3.** *Suppose that the distribution of radicalism shifts from individuals who are not financial contributors to those that are. Then group activism must increase.*

Suppose that the distribution of radicalism Lorenz-worsens among those who are financial contributors before and after the change, and only among such individuals. Then group activism must decline.

To prove the proposition, unpack the group equilibrium of H. It is determined by the intersection of the aggregate cost of mobilizing a number A^h of activists with the funds individuals will willingly supply when A^h activists are being mobilized (all in the ambient context that some given number of activists are being mobilized by the opposing group). It will be sufficient to study how the supply of funds, evaluated at the immediate location of this equilibrium response, will be modified as the distribution of radical feelings becomes more dispersed. This change in direction will be preserved as we move to the new equilibrium, given the shapes of the equilibrium response functions.

As already discussed, the first part of the proposition is immediate. To establish the second part, the function of interest is the one defined in (5). When that equation holds with equality at the original equilibrium, we may rewrite it as

$$p_1(A^h, A^m)x = c^h u'\left(W - d(z, c^h, A^h)c^h\right),$$

where $W \equiv \max\{w, (1 - \bar{s}w + \bar{s}c\}$.

In what follows, we hold (A^h, A^m, c^h) fixed and simply examine the *curvature* of the function $d(z, c^h, A^h)$ as we move over radicalism x. It suffices to do so when $d > 0$. Differentiating the equality once and then once more, we see that

$$\frac{\partial d}{\partial x} = -\frac{p_1(A^h, A^m)}{(c^h)^2 u''\left(W - c^h d\right))} > 0,$$

and

$$\frac{\partial^2 d}{\partial x^2} = -\frac{u'''\left(W - c^h d\right) p_1(A^h, A^m)}{c^h u''\left(W - c^h d\right)^2}\frac{\partial d}{\partial x} < 0.$$

We have therefore established that d is strictly concave in x whenever $d > 0$. The result now follows.

This is a strong finding. An increase in the inequality of radicalism creates more moderation just as it creates more fundamentalism. But the net effect on overall militancy is negative, evaluated at the earlier equilibrium. The compliant shapes of our response functions allows us to conclude that this effect carries over into the new equilibrium.

This result is consistent with the classic motto *divide et impera*.[15] It is also consistent with the axioms that drive the measure of polarization in Esteban and Ray (1994). We argue there that greater homogeneity within groups creates a stronger sense of "identification", and therefore heightened "social tension". Our results on radicalism, at least that part of it restricted to active

[15]See Esteban and Ray (1999) for a similar result in a game-theoretic model of conflict. The fall in the win probability is driven there by increasing returns to group size.

contributors, is in line with such a postulate. On the other hand, we will see later that a change in the dispersion of *income* has very different effects.

Finally, does the changed aggression of the group under consideration go hand in hand with a similar change on the part of the opponent? To discuss these consequences we have to stitch our proposition together with the earlier Proposition 2. The answer is that there will be an overall decline of violence if our group was the less aggressive of the two groups to start with. That observation is reversed if our group was initially the more aggressive of the two.

4.3. **Incomes.** As in the case of radicalism, we could study both changes in the level of income as well as in its distribution within a group.

4.3.1. *Levels.* A uniform change in the wealth levels of a particular group also corresponds to a change in distribution *across* groups. The impact of such "horizontal" inequalities in conflict has been discussed by Wintrobe (1995) and Stewart (2002). Explicitly or implicitly, inequality also is at the core of the argument that conflict is essentially driven by "greed" as in Collier and Hoeffler (1998, 2004). According to this literature, an increase in wealth whets the appetite of the opponent and leads to an increase in conflict.

We are not in full disagreement with this view; after all, there is ample evidence of looting in situations of civil conflict. Yet it is entirely possible that such looting may have more to do with the collapse of social order rather than being the sole aim of the group that triggered conflict.[16] However, quite independently of whether or not resource-grabbing is an intentional goal, wealth is also the means that permits the financing of a higher degree of activism. An increase in incomes will certainly increase the financial contributions to conflict by the enriched group. However, it will also make the opportunity cost to mobilization higher. Since the two effects — financial opportunity cost and human opportunity cost — go in opposite directions, their net effect has to be ambiguous. We omit a formal analysis which fully supports this intuitive speculation.[17]

We note that a decline in conflict which is connected to increased wealth would be in line with several empirical studies (see, e.g., Miguel, Satyanath and Sergenti (2004) for sub-Saharan Africa or Dube and Vargas (2008) for the case of coffee in Colombia).

4.3.2. *Within-Group Inequality.* Perhaps the central result of our paper concerns the effect of increased within-group inequality in income. It stands in striking contrast to Proposition 3 on changes in the dispersion of radicalism. Our result is of particular interest because empirical research on conflict has focused on *aggregate* inequality, largely neglecting the within-group dimension. But aggregate inequality can only have ambiguous effects, as we've seen in the previous section. There is no theory that suggests otherwise. In contrast, there is good reason to believe that an increase in within-group inequality may be a powerful determinant of activism in conflict.

In parallel fashion to our study of radicalism, the simplest change in within-group inequality is one that is purged of "radicalism effects". We do this by generating *either* a Lorenz-worsening in w, *or* no change at all, at every levels of radicalism x.

[16] For instance, there is widespread evidence of looting during natural disasters or other breakdowns (such as earthquakes or electrical power blackouts) that do not involve conflict.

[17] Whether or not an increase in group wealth increases the overall militancy of that group will depend on further restrictions on the curvature of the utility function; specifically, on the elasticity of marginal utility. Because there is no strong justification for siding with any of these restrictions, we feel that a formal analysis would add little.

PROPOSITION **4.** *For a given group, consider a Lorenz-deterioration in the income distribution at some or all values of radicalism, with the property that some individuals with w below the going compensation rate lose income, while income is gained only by those with w above the going compensation rate.*

Then group activism cannot decline, and must strictly increase if the income of some financial contributors is affected.

The strategy of proof is the same as that for Proposition 3. We unpack the equilibrium response of the affected group. That response is determined by the intersection of activist supply and activist demand (in the ambient context that some given number of activists are being mobilized by the opposing group). In particular, we show that both the supply of activists and the supply of funds shift upwards at the original equilibrium. This increases the extent of activism as an equilibrium response. Moreover, the change will be preserved as we move to the new equilibrium, given the shapes of the equilibrium response functions.

The impact on the supply of activists is straightforward. Simply look at (3), and use the fact that no individuals with w below the going compensation rate gain in income. Therefore evaluated at the going rate, the supply of activists either stays the same, or it increases.

Now turn to the demand for activists, evaluated in the local vicinity of equilibrium. Without loss of generality suppose that group H is the affected group. As in our analysis of radicalism, we invoke the function d defined in (5). When that equation holds with equality, we have

$$p_1(A^h, A^m)x = c^h u' \left(W - d(z, c^h, A^h)c^h\right),$$

where $W \equiv \max\{w, (1 - \bar{s}w + \bar{s}c\}$.

We claim that d is affine in w as long as d is positive. The argument is exactly the same as in the voluntary contributions model for the provision of public goods (Bergstrom, Blume and Varian (1986)), and follows from a cursory examination of the equality above. Thus for every level of radicalism, d is initially zero and then increases linearly in w. If all income redistribution were to take place in the linear segment, therefore, there would be no immediate effect on the demand for activists. On the other hand, if the income of some financial contributors is affected, it must be the case that the total demand for activists goes up.

We have therefore shown that evaluated at the original equilibrium, there is a rightward shift in both the supply of and demand for activists. Moreover, that shift is strict if the income of some financial contributors is affected. The proposition follows.

Thus, inequality of income *within* groups definitely increases the aggressiveness of the group response. Within-group inequality tends to heighten conflict for two reasons. First, higher inequality will generally increase the supply of individuals with now lower opportunity costs of activism, and in this way the supply of activists. Second and more importantly, it shifts income from those who contribute little or no resources to conflict and concentrates that money in the hands of those who are in a better position to make such contributions.

This unambiguous impact of within-group inequality stands in stark contrast to the ambiguities displayed when there are changes in inter-group income distribution. It is the central empirically testable proposition of the paper, and reveals the perverse synergy of economic inequality.

Returning to the measure of polarization introduced in Esteban and Ray (1994), notice how Proposition 4 runs against the grain of the identification axiom, in contrast to Proposition 3 on radicalism which supports that axiom. The reason is that income is not just a characteristic that

makes for greater social identification: it also serves as an input into the technology of conflict. Conflict requires both money and bodies. Heightened economic inequality makes for an easier supply of both.

As discussed in the Introduction, a simplified variant of this idea (with exogenous compensation rates) is used to generate the main result in Esteban and Ray (2008). That paper demonstrates that when alternative conflicts — across class lines or along ethnic lines — are available, ethnic conflict may well be the outcome, because of the synergy of economic inequality. Class warfare lacks this within-group synergy.

4.4. **The Correlation of Income and Radicalism.** Our last exercise studies the effect of an increased correlation between radicalism and income.

A specific way to do this by leaving all marginal distributions unchanged is simply by changing moderates to radicals at high income levels and vice versa for lower income levels. More formally, fix a income pair (w_1, w_2) with $w_1 < w_2$ and a pair of radicalism levels (x_1, x_2) with $x_1 < x_2$ and construct a new distribution $\hat{n}^h$ over types as follows:

$$
\begin{array}{ll}
\hat{n}^h(x_1, w_1) = n^h(x_1, w_1) + \epsilon, & \hat{n}^h(x_2, w_2) = n^h(x_2, w_2) + \epsilon, \\
\hat{n}^h(x_1, w_2) = n^h(x_1, w_2) - \epsilon, & \hat{n}^h(x_2, w_1) = n^h(x_2, w_1) - \epsilon, \text{ and} \\
\hat{n}^h(x, w) = n^h(x, w) \text{ otherwise.} &
\end{array} \tag{7}
$$

It should be clear from this construction that a change of this sort will positively affect overall contributions if higher income increases the marginal propensity to contribute from radicalism. If the lower income in question has zero contributions anyway, then this condition will hold automatically and the increased correlation between radicalism and income must increase the tendency for this group to engage in conflict.

The issue of an increased correlation of income and radicalism is of interest in several conflictual situations. Perhaps the most obvious instance, and one that has received the greatest amount of international attention, is the presence of large amounts of financial resources behind terrorist activities linked to Al-Qaeda and similar fundamentalist groups. But there are several other examples, and they span different religious beliefs, not just Islam. In the example of Hindu fundamentalism that we have referred to in this paper, there is rising awareness of the role that rich Hindu expatriates play in the funding of organizations that explicitly lay down *Hindutva* goals.

5. Within-Group Inequality, Poverty and Conflict: Stylized Facts

A central point of this paper is that within-group inequality has a synergistic effect on violence against other groups. To our knowledge, there is no systematic empirical study of this phenomenon. But there is ample circumstantial evidence for it, especially in detailed case studies of civil war. While we cannot come close to providing a comprehensive review of this literature in this brief article, some discussion may be revealing.

Our argument on the synergistic effect of inequality on conflict rests on three premises:

(i) the poor contribute their labor to conflict, while

(ii) the rich militants specialize in the provision of financial resources. Consequently,

(iii) when the rich become richer they contribute more and when the poor become poorer they more easily turn to activism: within-group inequality is conducive to across-group conflict.

5.1. **The Supply of Funds and Militants.** The point that rich ethnic elites often lead and instigate ethnic conflict is well known (see. e.g. Horowitz (1985), and Fearon and Laitin (2000)). For instance, in their survey of a literature on ethnic conflict, Fearon and Laitin (2000) note that "a dominant or most common narrative in the texts under review . . . is that large-scale ethnic violence is provoked by elites seeking to gain, maintain or increase their hold on political power". In addition, several writers, including Anderson (1992), observe that such elite participation transcends national frontiers, involving funds from diaspora groups.

As a specific instance, the website http://stopfundinghate.org contains an impressive compendium of resources documenting sectarian violence by fundamentalist Hindu groups against Muslim (and Christian) minorities, as well as the flow of funds to such groups via charitable organizations based in the United States. Engineer (2003a) summarizes the situation thus:

> "There is one more important phenomenon which has had a great impact on the communal situation in Gujarat. This is the large-scale migration of upper-caste Gujaratis to the UK and USA. These non-resident Indians (NRIs). . . are liberally funding the VHP [Vishwa Hindu Parishad]. The VHP has established its branches in these countries and is promoting Hindutva politics among them . . . the VHP has been thriving financially mostly because of these NRIs, especially in Gujarat."

The fact that the violence was highly organized and targeted and not simply a series of sporadic events is well known. Militants were well armed and well informed; for instance, they were given voters' lists (from which a Muslim could be readily identified by name) as well as sales tax details for identifying Muslim business establishments.

On the flip side of the funding and organizational equation, we see a distinct pattern among those who actually physically in conflict: they are likely to be poor, unemployed and marginal. Sometimes they are in it for the money. The phenomenon is worldwide. The general point is noted by Brubaker and Laitin (1998): "[a]lthough most ethnic leaders are well educated and from middle-class backgrounds, the rank-and-file members of such organizations are more often poorly educated and from lower or working-class backgrounds."

Consider some specific examples. Kapferer (1998) notes of the internal conflict in Sri Lanka that "Sinhalese gangs made up largely of impoverished and unemployed youth attacked Tamils in their houses and shops, settling old scores and looting." Senanayake (2004) notes that "[Sri Lankan] rural youth from low caste communities have overwhelmingly comprised the fighting forces on both sides [the GoSL and LTTE]. While combatants, including children, were mainly "recruited from marginalized castes and indigenous Tamil-Veddha east coast communities, soldiers wages subsidized restructuring of the rural economy and agriculture sector in the South during the war years when the economy recorded 5-6 percent growth and morphed into a "war economy.

The situation is not different in Africa. For instance, Huggins et al. (2004) observe of conflict in the Great Lakes region that "poverty is a reason for many peoples recruitment into armed groups: while they are rarely well paid, militia members or members of regular forces are able

to sustain themselves by looting. . . . In Rwanda, . . . many of those civilians who took part in the violence were the 'lumpen-proletariat in urban areas; the dispossessed, such as the homeless, street vendors, and garbage collectors." Indeed, child soldiers have the very same origin. In his monograph on the topic, Singer (2005) concludes that "the overwhelming majority of child soldiers are drawn from the poorest, least educated, and most marginalized sections of society, who have been forced to grow up in what one writer aptly termed a 'roving orphanage of blood and flame' ".

This phenomenon has also been recorded in Europe. There are, of course, several case studies of Northern Ireland, but among the much fewer statistical studies, Honaker (2008) disaggregates unemployment rates among Catholics and Protestants and concludes that "unemployment becomes a significant causal mechanism for the intensity of conflict . . . The sectarian differences in unemployment rates was a leading predictor of violence in Northern Ireland, and furthermore can be demonstrated to be an important causal factor." Similar connections have been made for Bosnia (see, e.g., Woodward (1995)).

Certainly, Gujarat in 2002 was remarkable for the participation of poor Dalit and Adivasi groups against Muslims. The violence was indubitably made possible by the presence of these poorer groups, as well as poor and unemployed Hindu youth. Gandhi (2003) writes[18]:

> "The picture suggests the constituency that the extremists have focussed on — youths on the margins of crime and unemployment . . . Tribal, Dalit and OBC [Other Backward Caste] youth were specially cultivated . . . Years of persistent propaganda, aided by a flow of funds, including from NRIs, and helped also by corruption and division in Gujarat's secular polity, did their work. There were many recruits."

In their in-depth study on participation in conflict, Humphreys and Weinstein (2008) conclude that

> "marginalization produces a greater disposition to participate in violence, but not through the logic of protest underpinning classic arguments of rebellion. (...) The results support arguments that hold that an individuals relative economic position shapes the likelihood with which he or she is mobilized (or conscripted) to fight in a civil war."

5.2. **Within-Group Inequality and Conflict.** While the previous section is necessarily brief and impressionistic, there is little doubt that (a) the funding for ethnic conflict come from the rich, while (b) the poor and unemployed engage in violent (and potentially lucrative) acts because the opportunity cost of doing so is low. What has received somewhat less attention are the implications for the effects of within-group inequality, when side by side with a willing supply of labor there is also a willing source of funds. We see this very clearly in the Gujarat example discussed above but there are certainly others that deserve greater attention.

[18]Engineer (2003b) makes a similar observation: "It is . . . not very surprising that earlier the Jan Sangh and now the BJP, [have] systematically used the Dalit masses in Gujarat to advance [their] own political agenda, and alop have always used them for attacking minorities. The poor Dalit minority are always in the forefront of all the riots . . . The job of killing is done usually by Dalit youth, and the upper caste followers of the BJP keep themselves away from this 'dirty job' ".

This is not to say that within-group inequalities have received no attention at all. The work of Bates (1999), who emphasizes within-group inequality as a potential source of increased conflict against the opposing ethnic group, comes particularly to mind. The emergence of an economic and cultural élite appears as a critical factor in substantial escalations in many ethnic conflicts in Africa. They provide the leadership and the means that facilitate the escalation. Thus, according to Bates, conflict will be higher the more uneven is the distribution of the benefits of modernization *within each rival group.*

The view that intra-group inequality can play a key role in explaining conflict has also been expressed by other analysts of particular cases. For Sri Lanka Senanayake (2004) observes that "the 'ethnic conflict' between the GoSL and LTTE are embedded in complex patterns of intra-group inequality and conflict within the dominant Sinhala and Tamil linguistic communities, which require redress for sustainable peace." Likewise, for Fiji, Sriskandarajah (2003) notes that "a key to understanding the relationship between ethnic and economic cleavages in post-colonial plural societies, such as Fiji, is in the interaction between intra-group and inter-group inequality." With respect to Kosovo, Bhaumik *et al.* (2008) assert that "while the between-group differences in living standards are not remarkably high, the high level of within-group income inequality is possibly and indication as to why hostilities in Kosovo persist nearly seven years after NATOs intervention".

The only close test for our claim on the positive link between within-group inequality and militancy in conflict is the work of Østby *et al.* (2006). This work examines the relationship between conflict and within-region inequality in African countries. (Within-region inequality is taken here as a reasonable proxy for within-ethnic-group inequality.) Furthermore, within-regional inequality is key in understanding inequality in Africa. Sahn and Stifel (2003) conclude that "the vast majority of the total inequality is attributable to the within region effects". Østby et al (2006) obtain a strongly significant evidence that within regional inequality favors rather than defuses conflict. They measure inequality in two alternative ways: household assets and education. Their results are that

> "the coefficients for the Gini scores both in terms of household assets and education years are in fact strongly and positively related to conflict, both separately ... and when tested jointly in the same model .... These results could be interpreted in different ways. For example, one could argue that when there are severe inequalities within regions there will be a large amount of very poor people who are more likely to join rebel movements due to low utility costs."

The case studies and indirect evidence that we have surveyed all appear to be aligned with the central arguments in this paper.

6. Conclusions

We present a model of religious/ethnic conflict, in which discriminatory government policy or social intolerance is responsive to various forms of ethnic activism, including violence. It is this perceived responsiveness — captured by the probability that the government gives in and accepts a proposed change in ethnic policy — that induces individuals to mobilize support for their cause.

Yet, mobilization is costly. A central tenet of this paper is that mobilization has many inputs. It requires bodies and it requires financing (and organizational skills, leadership, propaganda,

and the like). We model this in the simplest possible way by presuming that activists often need to be compensated for their lost time through monetary payments. (We include the imputation of self-financing for particularly radical activists.)

The central results of our paper concern the within-group *distribution* — as opposed to overall level — of characteristics such as income or radicalism. First, we show that an increase in the within-group dispersion of radicalism (among active contributors to the cause) tends to reduce the level of aggressiveness displayed by that group. To be sure, such a result requires us to anchor the notion of radicalism in some way: we do so by equating it to the perceived value of the prize in the conflict at hand). Given this definition, a spread in radicalism lowers overall contributions. After all, for a given income level it becomes progressively harder to make financial contributions as radicalism increases: this guarantees that monetary contributions to the cause are concave in the degree of radicalism.

We then study inequalities in income. Here the results are very different. We argue that greater economic inequality within a group facilitates a perverse synergy of finance and human inputs, one that serves to more easily mobilize militants for the cause.

Throughout, these results are tempered by the fact that an increase in the aggressiveness of one side (stimulated by some parametric change) could have both a positive or a negative effect on the militancy of its rival, and this effect must be properly accounted for before determining the "final" effect on conflict as a whole. It turns out that this effect is easily signed: if the less aggressive side experiences a parametric change that causes it to become more conflictual than it was before, this will lead to an overall escalation: the other side will react by ramping up *its* level of aggression. Likewise, if the more aggressive group becomes more militant still, this will dampen militancy on the part of its opponent.

We believe that our model provokes new lines of empirical research by drawing attention to the importance of "within-group" characteristics, such as income and radicalism, and particularly their dispersion. It is of some interest that such within-group changes have fairly unambiguous implications, while inter-group changes in income have far more ambiguous effects. After all, income plays a dual role. Richer individuals may be predisposed to contribute more money to the cause. However, richer individuals are harder to mobilize. The net balance between the two opposing effects in the event of a an overall increase in incomes critically depends on the *distribution* of income gains and not just the average gains. This ambiguity disappears when income inequalities increase *within* the group: that change creates both richer people (who contribute more finance) and poorer individuals (who contribute more labor). These observations are very much in the spirit of Horowitz (1997) and Bates (1999), who argue that increased within-group inequality has a major role in igniting conflict.

The theory we develop can be extended in many directions. In the first place, we need an explanation for the origin of the very alternatives that are put forward to the population. Why might an ethnic goal come to the forefront, rather than the more "classical" class objective of seizing economic power? Or is it economics all along, except that in some cases economic goals are better served using noneconomic cleavages such as ethnicity? This is the all-important question of group *salience*, and a first step to studying this is taken in Esteban and Ray (2008).[19]

[19] Robinson (2001) presents a model in which conflict can take place either along class lines or along ethnic lines and shows that the latter will in general be more severe than the former. But this paper does not address the question of salience directly, choosing instead to compare two different forms of conflict.

A second — and in our view important — line of progress is to endogenize individual attitudes, possibly in a dynamic model. One of the effects of proposals that we may judge as "extreme" today is that, by the mere fact of having been put forward, they become more acceptable tomorrow. It might well be that a moderate or a radical attitude is not absolute, but relative to what is being on the table today. This process might generate dynamics interesting to investigate. Finally, the gain from conflict should be made to include economic benefits as well as psychological ethnic pay-offs. Higher economic resources provide more means to confront the others, but it also provides a more attactive bounty to the other party in case of victory.

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