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Bridging communal divides: Separation, patronage, integration

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by

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Bridging Communal Divides: Separation, Patronage, Integration

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Indraneel Dasgupta and Ravi Kanbur

Abstract
We analyze conflicts between communities. A community-specific public good, to which members make voluntary contributions, defines communities. Some, but not all, members of one community may contribute towards another community's public good. Such 'bridging' contributions will not occur when communities have relatively equal wealth endowments. 'Separation' of communities in this sense provides incentives to individuals to support confiscation of the other community's wealth, thus generating communal conflicts. Individuals' incentives to support inter-community conflicts can be moderated by the presence of a public good common to both communities. Such moderation however occurs only when communities are separated at the level of public goods constitutive of a community's self-identity.

Outline

1. Introduction
2. The Basic Model
3. Syncretism as Patronage
4. Separation, Patronage and Communal Conflicts
5. Integration via Meta-Community
6. Discussion and Conclusion

1. INTRODUCTION

Simmering communal tensions, between relatively well-defined social groups divided along racial, religious, linguistic or ethnic lines, are a pervasive feature of most societies. In both developed and developing countries, such tensions often spill over into open and widespread conflict, including large-scale violence. While the recent history of countries such as Indonesia, India, the Philippines, Rwanda and Yugoslavia bear extreme testimony to this phenomenon, few societies, if any, past or present, have been completely free of non-class communal divisions. Indeed, one of the major challenges facing both individual countries and supra-national institutions today appears to be the problem of holding inter-group conflicts in check.[1]

At a very broad level, one can observe at least three major types of individual responses to the existence of sharp non-class identity cleavages in society along, say, ethnic, religious, racial or linguistic lines. We can term these responses 'separatist', 'syncretist' and 'integrationist'. The separatist response consists in an exclusive, celebratory, assertion of one's own communal identity and a conscious rejection of other possible forms of communal identity. The syncretist response involves attempts by some members of one community to relate to members of another community through active engagement with the identity markers of the latter. The integrationist response, on the other hand, is constituted by attempts on the part of members of one community to relate to members of another community via activities or commitments that do not appear, a priori, to be exclusively, or even primarily, associated with either community.

One example of separatist practices is provided by strong espousal of restrictions on social interaction among different caste groups in India. More generally, activities associated with identity politics and 'community' or 'self-help' initiatives along ethnic, linguistic, racial or religious lines can be thought of as examples of separatist responses. 'Acting black', 'going native', participating in ethnic or religious activities of another community, contributing to the development of a different language, contributing to the study of another culture or civilization, etc., all provide common examples of syncretist practices. As examples of integrationist responses, one may cite activities such as

1 See, for example, Gurr (1993), Hardin (1995), Uvin (1998) and Esman and Herring (2002).

interethnic or interreligious marriage, supporting a racially mixed sports club or political party, cheering for the national cricket team, etc.

In light of the pervasive nature of all three types of responses highlighted above, two questions naturally suggest themselves to economists. First, what is the relationship between a given wealth distribution across communities and the pattern of these alternative responses to pre-existing notions of communal distinctiveness? Second, what implications do these individual responses carry, when aggregated, for the nature and extent of communal tensions? The answer to the first question would provide an understanding of how individual responses to historically given notions of identity and communal distinctiveness are shaped by inequalities in wealth distribution. The answer to the second would explicate conditions under which inequalities in wealth distribution have the potential to generate social strife and distributive conflict between communities. The purpose of this paper is to address these issues.

Studies by economists as well as other social scientists have explored various aspects of identity and inter-group conflict.[2] Recently, Dasgupta and Kanbur (2002, 2001) have developed a public (or rather, 'club') good-based interpretation of community identity and membership, and analyzed its implications for inequality, income distribution and class conflict. They begin from the premise that what seems to define communities as communities is the presence of something, (a) to which all members have common access, and (b) in the process of accessing which members also acquire social access to each other. Thus, one way of formalizing the notion of *belonging* to a community is by positing access to a community-specific local public good. For example, belonging to a religious community can be interpreted to imply (a) common access to that community's places of worship and religious activities, and (b) access to social interaction with other members of the community *via* common participation in worship and collective religious activities. Similarly, the right to participate in ethno-linguistic festivals and rituals can be considered constitutive of the ethnic identity of an individual, and participation in

2 There is a large anthropological literature on community identity. Economists have recently become interested in this notion. See, for example, Akerlof and Kranton (2000), and Bowles and Gintis (2000). The link between public goods provision and ethnic divisions has been explored in Alesina, Baqir and Easterly (1999). There is also a psychological literature on group identity, as exemplified by Wetherell (1996). Hardin (1995) is a recent analytical contribution to issues surrounding identity and group conflict.

such activities may provide a platform where members of the ethnic group come together to interact socially. At a slightly different level, the presence of local or neighborhood public goods (such as parks, roads, libraries, concert halls, auditoria, museums, sports clubs, safety etc.), and the social interaction which is brought about as an indirect consequence of accessing and using such public goods, can be considered as defining that which constitutes a *community* out of a collection of individuals living in geographical proximity to each other.

What each individual in a community enjoys is the aggregation of individual level activities that constitute the community. But the aggregation is made up of each individual participating in the community and contributing to it. How much each individual contributes to community activity depends on her resources and her preferences, and of course on how much other individuals are already contributing. Thus the equilibrium of a game of voluntary contributions to the community specific public good seems a natural way to model how individual choices lead to community outcomes.

In their analysis, Dasgupta and Kanbur (2002, 2001) assume a tight connection between an individual and a community. Each individual is associated with one community and its public good, and either does not have access to or does not value the public good of another community. No individual contributes to any public good other than that constitutive of her own community *qua* community. Thus, their investigation is entirely confined to the "separatist" case, and does not incorporate different patterns of separatist, syncretist or integrationist responses as a function of the distribution of wealth across communities. Our paper generalizes and extends their framework to analyze the richer set of possibilities. In so doing, we also contribute to the formal analysis of voluntary contributions to multiple public goods, an issue which has been largely neglected in the literature.[3]

3 Exceptions include Kemp (1984), Bergstrom, Blume and Varian (1986), and Cornes and Schweinberger (1996). Some of the formal results presented here are similar to those recently, and independently, arrived at in a general theoretical setting by Cornes and Itaya (2003).

Section 2 sets up the basic model. We consider two communities of equal size defined by community-specific public goods. Each community consists of some *core* members, who do not derive positive utility from the other community's public good, and some *fringe* members, who do. All members of a community are assumed to have identical wealth endowments, though wealth endowments can vary across communities. Individuals play a Cournot game of voluntary contributions towards the two public goods. Section 3 investigates the conditions under which fringe individuals in one community will contribute towards the public good constitutive of the other's community self-definition *qua* community. Specifically, we analyze how the extent of wealth inequality across communities determines whether individuals will engage in separatist or syncretist activities. We show that a relatively egalitarian cross-community wealth distribution makes for separatist responses on the part of every individual in society. If one community is significantly wealthier than the other, then fringe individuals in the richer community will engage in syncretist activities. However, all individuals in the poorer community will turn separatist. Section 4 examines the implications, of these results, for distributive conflicts between communities. We show that separatism generates incentives for all individuals to support the expropriation of the other community, and, thereby, provides grounds for communal conflict. Except in a special case, such grounds exist *even* in a syncretist equilibrium. Section 5 expands the analysis by incorporating a 'meta-communal' element to an agent's self-identity, i.e., a public good that is 'common' to all communities. We show that both communities undertake integrationist activities, i.e., contribute to this meta-communal public good, when the wealth gap between communities is relatively low. In such an equilibrium, while communities remain separated at the level of the public good constitutive of a community's self-identity, no individual has any incentive to support expropriation of the other community. This is so because what an individual would gain in terms of additional wealth would be exactly compensated by a corresponding reduction in the other community's contribution to the meta-communal public good. However, large wealth gaps imply that only individuals in the richer community will contribute to the meta-communal public good. This once again provides grounds for distributive conflicts between communities. Section 6 discusses some concrete illustrations of our theoretical analysis and provides concluding remarks.

2. THE BASIC MODEL

Consider a society consisting of two communities, A, B, defined by the presence of the community-specific public goods A and B, respectively. All individuals are born into, and grow up in, one of these two communities. Thus, by $i \in A$, we shall denote an individual born into community A, and similarly for individuals born into the other community. There are n individuals in society, $n \geq 4$. We shall assume that the communities are equal in size, so that $n_A = n_B = \frac{n}{2}$.

For any individual i born into community $\alpha, \alpha \in \{A, B\}$, preferences are given by an additively separable, homothetic utility function:

$u_i^{\alpha} = u^{\alpha,i}(x_i, y_A, y_B)$,

where y_A, y_B denote the amounts of the two public goods A and B, respectively, while x_i denotes the amount of the private good. We shall assume that:

$$\frac{u_x^{\alpha,i}}{u_{y_\alpha}^{\alpha,i}} = \left(\frac{y_\alpha}{x_i}\right)^{\varepsilon}, \frac{u_{y_\alpha}^{\alpha,i}}{u_{y_\beta}^{\alpha,i}} = \theta_i^{-1}\left(\frac{y_\beta}{\bar{k} y_\alpha}\right)^{\varepsilon},$$

where $\varepsilon \in (0,1], \theta_i \in \{1\} \cup \Re_-$, $\bar{k} \in (0,1)$, and $\beta \in [\{A, B\} \sim \{\alpha\}]$. All prices are assumed to be one for notational simplicity. To fix ideas, one may assume preferences to have Cobb-Douglas or CES representation.

The essential idea that we wish to capture through our restrictions on preferences is the following. All individuals, by virtue of having grown up within a particular community, acquire a particular community *identity* as an integral part of their psychological make-up. However, attitudes towards the other community vary among individuals within the same community. Each community contains some *core members*, who grow up to be indifferent, or even hostile, to that which is constitutive of the very identity of the other community. Formally, we define core members as such by virtue of the fact that the other community's public good provides zero, or, possibly even negative, utility to them. We model these individuals by ascribing $[\theta_i \leq 0]$ to them. For example, some members of one religious community may find the other community's places of worship of no value whatsoever. This possibility is captured in our model by ascribing a value of *0* to θ_i. Core members of one religious community may even find the religious practices of the other community abhorrent. We can incorporate this case by means of a negative

value of θ_i, a larger absolute value of θ_i implying a stronger degree of abhorrence for the public good that is constitutive of the other community. Each community also contains some *fringe members* who have a dual character. Like core individuals, fringe individuals also have historically given communal identities. Thus, fringe individuals also have a preference bias against the public good constitutive of the other community, reflecting their personal history and upbringing. Given identical amounts of the two public goods, they would be willing to give up less than one unit of their own community's public good in exchange for an additional unit of the other community's public good. The preference bias of these individuals against the public good definitive of the other community is, however, contingent and not absolute. They relate to the other community in a positive way. If the other community's public good is sufficiently low compared to that of their own community, fringe individuals would be willing to give up more than one unit of their own community's public good in exchange for an additional unit of the other community's public good. We model such individuals by ascribing a value of 1 to θ_i, and by assuming $0 < \bar{k} < 1$.

To explicate further the nature of restrictions imposed by our specification of preferences, we note the following. Since all prices are unity, if an individual *i* happened to own the entire wealth endowment of society, then *i* would purchase identical amounts of her private good and her own community's public good. Additionally, if *i* happened to be a fringe individual born into, say, community A, then she would purchase $\bar{k}y_A$ amount of *community B's* public good (and zero amount of community B's private consumption good). If, however, *i* happened to be a core individual in community A, and happened to own the entire society's wealth, then she would allocate her entire wealth equally between her own private consumption and the public good A, spending nothing on B.[4]

4 The restriction on preferences that generates an optimal ratio of 1:1 between private consumption and own community's public good consumption is purely for notational simplicity. We can allow any optimal ratio between these two goods without qualitatively altering our results. Separability and homotheticity are not crucial either. In essence, we need two assumptions: given identical consumption bundles, (i) the marginal rate of substitution between public good A and public good B is always higher for fringe individuals in A compared to fringe individuals in B, and (ii) this rate is always greater for core individuals, compared to that for fringe individuals. These weaker restrictions on preferences however make the exposition cumbersome without adding any insight.

Let $\underline{A} = \{i \in A \mid \theta_i \leq 0\}$, $\underline{B} = \{i \in B \mid \theta_i \leq 0\}$, $\overline{A} = [A \sim \underline{A}]$ and $\overline{B} = [B \sim \underline{B}]$. Thus, the set $\underline{A}$ represents the group of *core* members of community A. The set $\underline{B}$ is interpreted analogously. $\overline{A}, \overline{B}$ are the groups of fringe members in communities A and B, respectively. $[\overline{A} \cup \overline{B}]$ is thus the collection of all individuals in society who can possibly engage in syncretist activities, and, thereby, act as a *bridge* between the two communities. The numbers of individuals belonging to the different groups are $n_{\overline{A}}, n_{\overline{B}}, n_{\underline{A}}, n_{\underline{B}}$, respectively; $n_{\overline{A}}, n_{\overline{B}}, n_{\underline{A}}, n_{\underline{B}} \geq 1$. For every $j \in \{A, B\}$, the wealth of an individual belonging to community j is I_j. Thus, all agents within a community have identical wealth, but wealth ownership may vary across communities. We abstract from wealth differentials within a community in order to focus on wealth differentials across communities. [5]

Individuals simultaneously choose their contributions to the public goods. Thus, we model the problem as a Cournot game involving voluntary contributions to the two community-specific public goods.

Given any $\alpha \in \{A, B\}$, for every $i \in \alpha$, the problem is:

$$\underset{x_i, y_A, y_B}{Max} \quad u^{\alpha,i}(x_i, y_A, y_B) \tag{2.1}$$

subject to the budget constraint:

$$x_i + y_A + y_B = I_\alpha + y_{-i,A} + y_{-i,B}, \tag{2.2}$$

and the additional constraints:

$$\text{for all } \chi \in \{A, B\},\ y_\chi \geq y_{-i,\chi}; \tag{2.3}$$

where $y_{-i,\chi}$ represents the total amount spent on community χ's public good by all individuals in society except *i*.

Our assumed restrictions on preferences suffice to guarantee the existence of a Nash equilibrium. We shall use the superscript N to denote the Nash equilibrium values of

5 We leave out the possibility that for some individuals, the two public goods are perfect substitutes. This might be the case, for example, for atheists when communities are defined along religious lines. These 'rootless' individuals do not possess any particular community identity in a substantive sense, even though they are born into some particular community. Since they don't belong, they are irrelevant in our present context.

variables, whereas $y_{\alpha\beta}^{N}$ will denote the total contribution by group α to community β's public good in a Nash equilibrium, where $\alpha \in \{\underline{A}, \underline{B}, \overline{A}, \overline{B}, A, B\}$ and $\beta \in \{A, B\}$.

It is easy to see from (2.1)-(2.3) that any two agents belonging to the same group must make identical *total* contributions to the two public goods. It is clear that neither any $\underline{A}$ individual, nor any $\underline{B}$ individual will ever contribute to the other community's public good, since by assumption $\theta_i \leq 0$ for such individuals. It follows that all core individuals in a community must make identical contributions to that community's public good in a Nash equilibrium. If the total contribution from the set of all fringe individuals in a community is zero for one public good, then it follows that all fringe individuals in that community must contribute identical amounts to the other public good in that Nash equilibrium. However, if the total contribution from the set of all fringe individuals in a community happens to be positive for both public goods, then one has multiple Nash equilibria. One can sustain as Nash equilibria situations where two fringe individuals in the same community contribute different amounts to the two public goods (though their total individual expenditures on the two public goods must be identical and uniquely determined, as must be the total amounts of the two public goods provided). In our discussion, we shall focus on the symmetric equilibrium for such cases, where all fringe individuals in a community contribute identical amounts to each public good.

3. SYNCRETISM AS PATRONAGE

We now proceed to investigate the conditions under which different groups of agents will be contributory to the different public goods. More specifically, we focus on the nature and determinants of syncretist activities, i.e., contribution to the public good constitutive of the other community. Recall that no core individual can ever engage in such activities. When will fringe individuals do so? What determines the community identity of such fringe individuals who, by engaging in syncretist activities, become actual, rather than merely potential, *bridge individuals*?

In order to organize our discussion of these issues, we first introduce the notion of *communal separation*.

Definition 3.1. Two communities, A and B, will be said to be *separated* in a Nash equilibrium if, and only if, in that Nash equilibrium, $y^N_{\overline{A}B}, y^N_{\overline{B}A} = 0$. They will be called *connected* otherwise.

Thus, two communities are 'separated' if no individual in either community contributes to the public good definitive of the other community. Note that, in this construction, 'separated' communities need not necessarily be 'segregated' in any standard sense. For example, communities can live in the same neighborhood, attend the same workplace, use the same public facilities, or enter into economic relations with one another, and yet be considered separated according to our definition. What is key to our notion of communal 'separateness' is the non-contribution, by members of the other community, to that which is constitutive of one community's specific identity, *qua* community. Thus, for example, two ethnic groups may live, and work, together in the same neighborhood, yet neither may contribute towards the expenses for collective assertions/celebrations of the other's sense of ethnic self, such as ethnic rituals and festivals. While one would not, typically, describe such a situation as ethnic segregation, one would still seem to feel intuitively that the two communities are 'separated' in an important way. It is this intuitive understanding that we seek to capture in our formal definition. Of course, communities can be both segregated in the standard sense, and separated, in our sense.

On the other hand, if individuals born into one community contribute to the public good constitutive of the identity of the other community *qua* community, we shall consider the two communities to be 'connected'. Within the class of Nash equilibria where communities are connected, the nature of their connectedness may however be varied. One a priori possibility is that fringe members of both communities will become bridge individuals, i.e., contribute to one another's public good. Alternatively, one community may be connected to another only by virtue of the fact that the fringe individuals of one community, say A, contribute to the other community's public good, the favor not being returned by community B. We term such a Nash equilibrium 'patronizing'.

Definition 3.2. A Nash equilibrium is *patronizing* if, and only if, there exists $\alpha \in \{A, B\}$ such that $\left[y^N_{\overline{\alpha}\beta} > 0, y^N_{\overline{\beta}\alpha} = 0, \text{ where } \beta \in \{A, B\} \sim \{\alpha\} \right]$ in that Nash equilibrium. Then, community α will be called the *patron* community, and community β the *client* community, in that Nash equilibrium.

Remark 3.3. Every *connected* Nash equilibrium is necessarily *patronizing.*

To see this, note that, if $y^N_{\overline{A}B} > 0$, then $\left[\bar{k} y^N_A \geq y^N_B \right]$. A symmetric claim is true when $y^N_{\overline{B}A} > 0$. Since $\bar{k} < 1$, it immediately follows that, in a Nash equilibrium, $y^N_{\overline{A}B}, y^N_{\overline{B}A}$ cannot both be positive. Thus, in our framework, communities can only be either separated or exist in a patron-client relationship.[6] In light of this finding, it is natural to examine the conditions under which one community will patronize another.

Proposition 3.4.
(i) Communities A, B are separated in a Nash equilibrium if, and only if, $\left[\bar{k} I_B \leq I_A \leq \left(\frac{I_B}{\bar{k}} \right) \right]$.
(ii) For all $\alpha \in \{A, B\}$, community α patronizes community β, $\beta \in [\{A, B\} \sim \{\alpha\}]$, if, and only if, $\left[I_\beta < \bar{k} I_\alpha \right]$.

Proof: See the appendix.

Proposition 3.4(i) provides necessary and sufficient conditions for communities to be separated in the Nash equilibrium. Given our assumption that the two communities are identical in size, the requirement essentially is that all individuals have roughly similar

6 If all fringe individuals engage in syncretist activities, then, in such a Nash equilibrium, the marginal rate of substitution between the public goods A and B must be identical for fringe individuals in both communities. However, this would seem to intuitively imply that the community origins of fringe individuals become irrelevant to their sense of identity at the margin. The situation we are focusing on is one instead where individuals always maintain their communal identity, so that, for example, a fringe Hindu such as Gandhi remains a Hindu nevertheless, even at the margin, and thus different from a fringe Muslim such as Moulana Azad. Formally, this feature is embedded into our model by the assumption that, for any arbitrary (positive) consumption bundle, the amount of community A's public good that fringe individuals in A are willing to give away for an additional unit of community B's public good is always lower than the corresponding amount for fringe individuals in B.

wealth holdings. Thus, broadly, the communities must be relatively close in terms of total community wealth for them to be separated.[7] *An egalitarian wealth distribution between communities makes for division.*[8]

Proposition 3.4(ii) implies that if a community has much higher per capita wealth holdings, it will patronize the other.[9] Thus, a sharply inegalitarian distribution of wealth across communities actually binds the communities together, albeit in an unequal relationship of dominance and dependency, with the subaltern community (the one with the smaller amount of total wealth holding) becoming the client of the dominant community.

The act of patronage *differentiates* the patron community, in that, in a patronizing Nash equilibrium, every fringe individual in the patron community contributes *less* to her own community's public good than any core individual of that community. In light of Proposition 3.4, it is easy to check that the following must hold.

Proposition 3.5. *For all* $\alpha \in \{A, B\}$, *[(i)* $\left[\frac{y^N_{\underline{\alpha}\alpha}}{n_{\underline{\alpha}}} > \frac{y^N_{\overline{\alpha}\alpha}}{n_{\overline{\alpha}\alpha}}\right]$ *if* $\lfloor I_\beta < \bar{k} I_\alpha \rfloor$, *and (ii)* $\left[\frac{y^N_{\underline{\alpha}\alpha}}{n_{\underline{\alpha}}} = \frac{y^N_{\overline{\alpha}\alpha}}{n_{\overline{\alpha}}}\right]$ *otherwise; where* $\beta \in [\{A, B\} \sim \{\alpha\}]$.

It can be easily seen that client communities cannot be differentiated: core and fringe individuals will all contribute identical amounts to the community's own public good within such a community.

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7 This generalizes to the case where the communities differ in size. If individuals born into one community have much larger wealth holdings than those born into the other, then this must be compensated by a correspondingly significant numerical advantage on part of the poorer community in a separated equilibrium.

8 Note that, if $\bar{k}$ is small, i.e., if even fringe individuals in a community have a sharp preference bias against the identity marker of the other community, then a relatively large wealth gap can co-exist with communal separation. Racially segregated societies such as the American South and apartheid South Africa would seem to present examples of such 'separate but *unequal*' social equilibria.

9 Unless, in the general case (see footnote 7), the poorer community has a countervailing advantage in numbers.

Patron-client relationships can be of various kinds. Firstly, one can distinguish between Nash equilibria marked by *active* and *passive* client communities. By *active* clients, we mean communities which, while receiving contributions from the patron community, also make positive contributions themselves towards their own public goods. *Passive* client-communities do not, depending entirely on the patron community for the provision of the public good which defines their own community. The construction of the community identity of passive client communities is thus completely parasitical on the syncretist behavior of fringe individuals born into the patron community.[10] Secondly, we can make a parallel demarcation with reference to the patron community. We call a patron community *loose* if the fringe individuals in that community contribute only to the public good of the client community, depending entirely on the contributions of core members within their community for provision of their own community's public good. A patron community is *compact* if all individuals born into that community contribute towards its own public good.

A client community is passive when its per capita wealth is significantly less than that of the patron community. The larger the fringe group within the patron community, the smaller the wealth differential that suffices to make a client community passive. More formally, we have the following result, which follows immediately from (2.1)-(2.3), once we note that, in any Nash equilibrium, it must be the case that, for any community, say A, $y_A^N \geq \dfrac{\bar{k} n_{\bar{B}} I_B}{n_{\bar{B}} + 1 + \bar{k}}$.

Proposition 3.6. For any $\alpha \in \{A, B\}$, $\left\lfloor y_{\alpha\alpha}^N > 0 \right\rfloor$ only if $\left[I_\alpha > \dfrac{\bar{k} n_{\bar{\beta}} I_\beta}{n_{\bar{\beta}} + 1 + \bar{k}} \right]$, where $\beta \in \{A, B\} \sim \{\alpha\}$.

We now proceed to investigate the conditions which determine whether a patron community will be loose or compact.

10 Contributions by 'orientalist' historians and archaelogists from Europe to the reconstruction of Asian history in the 19th and early 20th centuries can be interpreted along these lines. See Said (1978, 1993).

Proposition 3.7. Consider $\beta \in \{A, B\}$, and let $\alpha \in \{A, B\} \sim \{\beta\}$.

(i) Suppose $\lfloor n_{\overline{\beta}} > \bar{k} n_{\underline{\beta}} \rfloor$. Then there exists $p \in \left(\frac{1}{1+\bar{k}}, 1\right)$ such that:

(a) if $I_\beta \in \left(\frac{I_A + I_B}{(1+\bar{k})}, p(I_A + I_B)\right)$, then β is a compact patron community, and α an active client community, in the (symmetric) Nash equilibrium, and

(b) if $I_\beta \in [p(I_A + I_B), (I_A + I_B)]$, then β is a compact patron community, and α a passive client community, in the (symmetric) Nash equilibrium.

(ii) Suppose $\lfloor n_{\overline{\beta}} < \bar{k} n_{\underline{\beta}} \rfloor$. Then there exists $q_1, q_2 \in \left(\frac{1}{1+\bar{k}}, 1\right), q_1 > q_2$, such that:

(a) if $I_\beta \in \left(\frac{I_A + I_B}{(1+\bar{k})}, q_2(I_A + I_B)\right)$, then β is a compact patron community, and α an active client community, in the (symmetric) Nash equilibrium,

(b) if $I_\beta \in [q_2(I_A + I_B), q_1(I_A + I_B))$, then β is a loose patron community, and α an active client community, in the Nash equilibrium, and

(c) if $I_\beta \in [q_1(I_A + I_B), (I_A + I_B)]$, then β is a loose patron community, and α a passive client community, in the Nash equilibrium.

(iii) Suppose $\lfloor n_{\overline{\beta}} = \bar{k} n_{\underline{\beta}} \rfloor$. Then there exists $p \in \left(\frac{1}{1+\bar{k}}, 1\right)$ such that:

(a) if $I_\beta \in \left(\frac{I_A + I_B}{(1+\bar{k})}, p(I_A + I_B)\right)$, then β is a compact patron community, and α an active client community, in the (symmetric) Nash equilibrium, and

(b) if $I_\beta \in [p(I_A + I_B), (I_A + I_B)]$, then β is a loose patron community, and α a passive client community, in the Nash equilibrium.

Proof: See the appendix.

Suppose the per capita wealth holding of one community, say A, is much lower than that of the other community, B. Then Proposition 3.7 essentially implies that the patron community B will be *loose* if it contains a large number of core individuals, but relatively few fringe individuals, i.e., if patronage activity happens to be undertaken by a relatively small proportion of community members. The patron community will be *compact* if patronage activities are widespread in the community.

Consider now the case where the client community, say A, is active, and the patron community, B, is compact, in the Nash equilibrium. Then we must have:

$$\left[x_A^N = y_A^N = \bar{k}y_B^N = \bar{k}x_B^N\right], \tag{3.1}$$

which yields:

$$y_B^N = \frac{\sum_{\alpha\in\{A,B\}} n_\alpha I_\alpha}{(1+n_B)+\bar{k}(1+n_A)}. \tag{3.2}$$

Using (3.1) and (3.2), we get the following.

Remark 3.8. Consider two Nash equilibria, generated by two different wealth distributions, such that the client community is active, and the patron community compact, in both Nash equilibria. Then the consumption bundle of every individual in society must be invariant in the two Nash equilibria.

4. SEPARATION, PATRONAGE AND COMMUNAL CONFLICTS

We now proceed to analyze the implications, of the results presented in Section 3 above, for the nature of distributive conflicts between communities, where members of one community seek to dispossess the members of another community of their wealth. For analytical clarity, we think of such conflicts as proposals to reduce the wealth of every member of one community, say B, by some given amount ΔI_B, and distribute the total proceeds equally among the members of the other community, A, so that every member of the latter community receives a wealth increment $\Delta I_A = -\Delta I_B$. Let the initial, status quo distribution of wealth be $\langle I_A^*, I_B^* \rangle$.

First consider the case where the two communities are separated in the Nash equilibrium before, as well as after, such a redistribution of wealth. It can be easily checked that, in any Nash equilibrium where the two communities are separated,

$$\left[x_A^N = y_A^N = \frac{n_A I_A}{n_A+1}\right] \text{ and } \left[x_B^N = y_B^N = \frac{n_B I_B}{n_B+1}\right].$$

Then, if a total amount T is taken away from community B and distributed amongst the members of community A, then, for every individual born into that community, total money value of her consumption of the private good and the public good A increases by

$\left[\frac{2T}{n_A+1}\right]$. For every individual born into community B, total money value of her consumption of the private good and the public good B decreases by the same amount (since the communities are identical in size). Clearly, therefore, such a redistribution makes all core individuals in the winning community A better off, and all core individuals in the losing community B worse off. Fringe members of A also effectively gain an amount $\left[\frac{2T}{n_A+1}\right]$, but the reduction in the amount of the public good B (by $\left[\frac{T}{n_A+1}\right]$) reduces their gain. Clearly, then, fringe members of A are better off overall as well.[11] Analogously, all members of B are worse off. We summarize this analysis in the following Proposition.

Proposition 4.1. *Suppose that the two communities are separated in the Nash equilibrium corresponding to some initial wealth distribution* $\langle I_A^*, I_B^* \rangle$. *Consider a proposal to alter the wealth distribution to* $\langle I_A^* + \Delta I_A, I_B^* + \Delta I_B \rangle$, *such that: (a)* $\Delta I_A = -\Delta I_B > 0$; *and (b) the communities would remain separated in the Nash equilibrium corresponding to* $\langle I_A^* + \Delta I_A, I_B^* + \Delta I_B \rangle$. *Then, if the proposal is implemented: every member of* A *will be better off, while every member of* B *will be worse off.*

Recall that, by Proposition 3.4, the two communities will coexist in a separated equilibrium when the distribution of wealth across communities is roughly equal. Proposition 4.1 implies that such a distribution may be inherently fragile and conflict-laden, in that it generates incentives for individuals in both communities to support political entrepreneurs, formations or agendas which seek to dispossess the other community. Core individuals in either community will always have an incentive to support such divisive proposals. Even fringe individuals will join the bandwagon when the two communities are not too dissimilar numerically. Consequently, communal

11 If the communities are of different size, then, while core individuals in A must necessarily be better off, fringe individuals in A can possibly be worse off. The necessary (but not sufficient) condition for this is $n_A > 2n_B + 1$. Thus, fringe members of A may have an incentive to oppose expropriation of B only when B is numerically much smaller than A. Conversely, fringe members of B may have an incentive to support the expropriation of their own community, or oppose that of the other community, only when A is numerically much smaller than B.

separation, consequent upon an egalitarian cross-community distribution of wealth, has the potential to generate mass support in both communities for sectarian political platforms, and thus, for communal strife.

By Proposition 3.4(ii), an unequal distribution of wealth across communities connects communities in a patron-client relationship. Does such syncretist behavior by fringe individuals in the patron community reduce individual incentives to support proposals to dispossess the other community? A straightforward comparison of the Nash equilibrium levels of public goods yields the following conclusions.

If the per capita wealth gap between the two communities is extremely large, then, by Proposition 3.6, the poor community, say B, will become the passive client of the rich community A. It is easy to see that, in this case, every member of the rich community is better off in case that community can expropriate any part of the wealth of the poorer community. Thus, every individual born into A, whether core or fringe, has an incentive to support expropriation of the poor community, B, and thereby, further extend the degree of its impoverishment.[12] On the other hand, every core member of the client community has an incentive to oppose the expropriation of her own community (and support expropriation of the patron community).[13] Interestingly, fringe members of the poor community may (though not necessarily) support the expropriation of their *own* community. Thus, under some parametric configurations, fringe members of the poor community may turn *comprador*, supporting the dispossession of their own community, even though they themselves also stand to lose wealth directly from such dispossession.[14] Under other parametric configurations, however, the interests of fringe individuals in the poor community will be in line with those of core members of their

12 This is in line with the fact that many 'Orientalist' scholars of European extraction were also staunch imperialists.

13 That client communities are 'ungrateful' is a comment often heard from members of the patron community. A succinct expression of this understanding, with its associated strains of exasperated martyrdom, can be found in the following lines from Rudyard Kipling's notorious poem 'The White Man's Burden': "Take up the White Man's burden- / And reap his old reward: / The blame of those ye better, / The hate of those ye guard …." (Kipling (1996, p.18)). Kipling wrote the poem in 1899 following the colonization of the Philippines by the United States.

14 For related discussions of cases where individuals who themselves directly *lose* wealth from a redistribution may nevertheless benefit overall from such a redistribution, because of the additional public goods provision it brings about, see Dasgupta and Kanbur (2001) and Cornes and Sandler (2000).

own community. In either case, core individuals in the client community have an incentive to support expropriation of the fringe in their own community.

Now consider the case where the per capita wealth gap between the two communities is large, so that the rich community A patronizes the poor community B, but not exceedingly so, in that the client community is active.

First consider the sub-case where the rich community A consists largely of core individuals, so that the patron community is loose (see Proposition 3.7(ii)). In this case, every core individual in the patron community would support measures to expropriate the client community. In fact, such individuals would support measures to expropriate fringe, 'heretical', 'liberal' or 'cosmopolitan' members of their own community as well. However, fringe members of the patron community may now acquire incentives to oppose the expropriation of the client community. On the other hand, every core member of the client community benefits from an expropriation of the patron community. As before, fringe members of the client community have a dual character: they may or may not benefit from an expropriation of the patron community. However, irrespective of the political interests of the fringe in the client community, the core in that community no longer has any interest in dispossessing its own fringe.[15]

Lastly, given an active client community B, consider the sub-case where the patron community contains a significant proportion of fringe individuals, and is therefore compact (see Proposition 3.7(i)). In this case, since the consumption bundle of any individual in society in a Nash equilibrium depends only on total wealth of society as a whole, and not on its distribution (see Remark 3.8), no A individual has any incentive to support agendas of wealth redistribution, unless they involve an expropriation large enough to turn the client community passive in the new Nash equilibrium. Thus, only in this case does patronage generate incentives that provide even a limited degree of protection to the poor community from political agendas that seek to further impoverish

15 The 19th century Indian poet Mirza Galib, himself a fringe Muslim, captured well the dual and self-contradictory responses of fringe individuals: "Eeman mujhey rokey hai jo kheenchey hai mujhey kufr / Kaba mere peechey hai kaleesa mere agey" (If faith checks me, paganism attracts, / Kaba is behind me, a temple in front" (trans. Joshi (1998, Couplet 87)).

that community. Analogously, no individual in B has any incentive to support relatively small expropriations of the patron community.[16]

5. INTEGRATION VIA META-COMMUNITY

The analysis of inter-community conflicts provided in Section 4 above does not appear to provide any ground for optimism regarding the incentives individuals may have for opposing distributive conflicts with another community. Syncretist activities, which necessarily take the form of patronage, can restrain inter-community conflicts, but only under quite special conditions, namely (1) the act of patronage is widespread in the patron community, and (2) the wealth holding of the client community is relatively close to that of the patron community, so that the client community is active in the Nash equilibrium. For egalitarians, in particular, the prospects are glum. Communities will be separated when their wealth holdings are roughly similar, providing the greatest incentive for individuals to support agendas of communal conflict. [17]

Can communities be brought together through the presence of a public good which stands 'above' particular communities? In most multi-ethnic, multi-religious, or otherwise fragmented, societies, one can perceive a strand within the public discourse which urges individuals to relate to a 'broader' identity, an overarching public good of sorts, which is not specific to one's own 'narrow' community. 'The Nation', of course, is a common example, as are its variants such as 'American values', 'Britishness' or the national sports team.[18] But so are the calls to the poor to relate as a class, to Muslims to relate as the Umma, to Catholics to relate as members of the Church, etc.

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16 This is an immediate implication of the well-known neutrality result for Cournot games of voluntary contributions to public goods. See Bergstrom, Blume and Varian (1986) and Cornes and Sandler (1996). Bernheim and Bagwell (1988) present a similar result in the context of interlinked 'dynastic' families.

17 Liberal white 'Third Way' politicians in the US and UK often project 'cultural understanding' i.e., individual syncretism, as a key strategy for reducing social tensions. Our analysis suggests this strategy would be ineffective unless associated with other measures that reduce the wealth gap between white and non-white communities. Perhaps paradoxically, this multi-culturalist strategy would also be ineffective if the wealth gap is entirely eliminated. Gitlin (1995) provides an insightful account of social tensions generated by 'multiculturalist' identity politics in contemporary America.

18 "The identification of the citizen with the republic as a common enterprise is essentially the recognition of a common good" (Taylor, 1995, pp.191-2). The British Conservative politician Norman Tebbit once famously demanded of British South Asians that they actively support the English national cricket team against their Indian or Pakistani rivals.

How does one incorporate such a non-sectarian, or '*meta-communal*', public good within our framework? One way of doing this seems to be to assume that the marginal rate of substitution between such a meta-communal public good and the private good is identical for individuals who consume identical amounts of the two goods, regardless of their communal identity.

We then have: for any individual *i* born into community $\alpha, \alpha \in \{A, B\}$, preferences are given by an additively separable, homothetic utility function:
$u_i^{\alpha} = u^{\alpha,i}(x_i, y_A, y_B, z)$,
where z is the amount of the meta-communal public good, Z, $\frac{u_x^{\alpha,i}}{u_z^{\alpha,i}} = \left(\frac{z}{\lambda x_i}\right)^{\varepsilon}$, $\lambda \in (0,1]$,
and the other restrictions on preferences are as specified earlier in section 2 above.

Definition 5.1. A Nash equilibrium is meta-communally integrated if, and only if, both communities contribute a positive amount to the meta-communal public good Z in that Nash equilibrium.

Proposition 5.2. *A Nash equilibrium is meta-communally integrated only if that Nash equilibrium is separated.*

Proof: See the appendix.

Proposition 5.2 states that communal separation is necessary for meta-communal integration.

Remark 5.3. In light of Proposition 5.2, it can be easily checked that, in a meta-communally integrated Nash equilibrium, the amounts of the two community-specific public goods must be equal. Furthermore, all members of society must consume identical amounts of the private good. Thus, meta-communal integration generates complete identity in terms of consumption bundles, in spite of possible wealth differences, and actual preference differences, across communities.

Remark 5.4. If community A patronizes community B in the sphere of communal identity, it must patronize community B in the meta-communal sphere as well. However, community A may patronize community B in the meta-communal sphere, and yet the two communities may remain separated in the communal sphere. Furthermore, all core individuals in the patron community must spend a positive amount on the patron community's public good and the meta-communal public good, taken together. [19]

When will two communities be meta-communally integrated? Consider first the benchmark case of equal wealth distribution, where $I_A = I_B = \bar{I}$. It is easy to show that, in this case, the communities will be separated in the communal sphere, but integrated at the meta-communal level. Each community will provide $z/2$ amount of the meta-communal public good. Then, since $\left[x_A^N = x_A^N = y_A^N = y_B^N = \frac{z^N}{\lambda} \right]$, we have:

$$z^N \left(\frac{n+2+\lambda}{\lambda} \right) = n\bar{I},$$

which yields: $\bar{\omega} = \frac{z^N}{n} = \frac{\lambda \bar{I}}{(n+2+\lambda)}$.

Using the well-known neutrality property of Cournot games with voluntary contributions to public goods (Bergstrom *et al*. (1986)), we immediately get the following.

Proposition 5.5. *A Nash equilibrium is meta-communally integrated if, and only if, for some* $\alpha \in \{A, B\}, [I_\alpha \in (\bar{I} - \bar{\omega}, \bar{I} + \bar{\omega})]$, *where* $\left[\bar{I} = \frac{I_A + I_B}{2} \right]$ *and* $\left[\bar{\omega} = \frac{\lambda \bar{I}}{(n+2+\lambda)} \right]$.

Proposition 5.5 states the necessary and sufficient condition for communities to be meta-communally integrated, when they are of the same size numerically. Essentially, this is the requirement that the cross-community wealth distribution be not too unequal.[20] It follows (from the neutrality property) that, if communities are meta-communally integrated, then no individual in either community has any incentive to support measures to expropriate the other community (so long as those measures are relatively small, in that they would leave the two communities meta-communally integrated even after implementation).

19 Note that the claims stated in Proposition 5.2, Remark 5.3 and Remark 5.4 are all valid irrespective of the numerical sizes of the two communities.

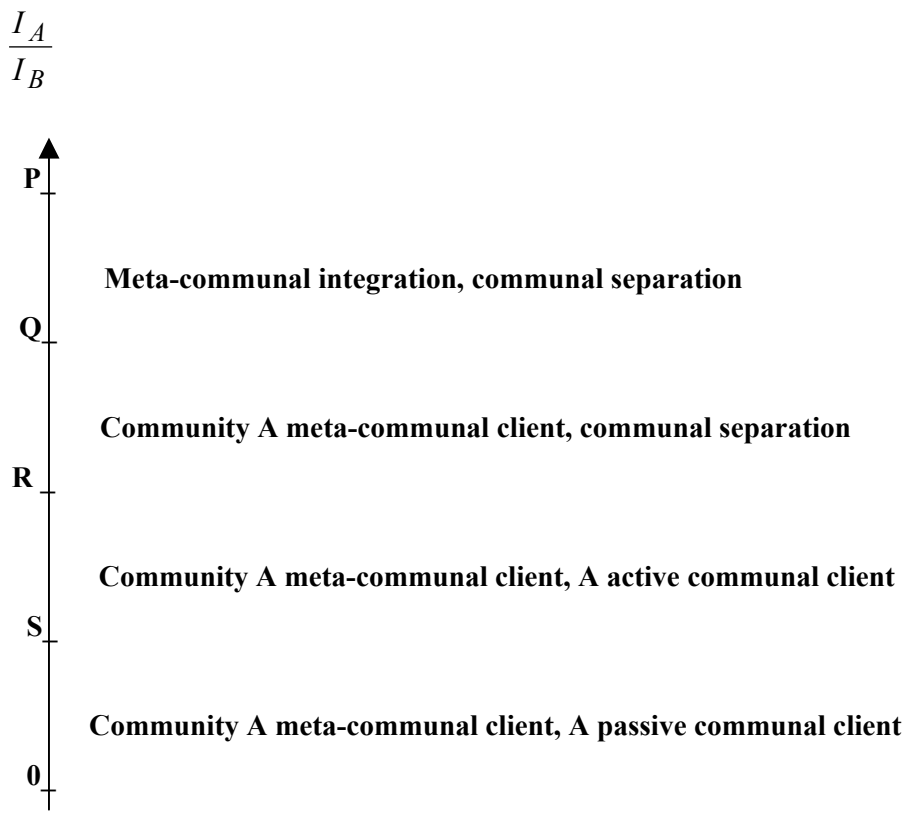
20 This result can be easily generalized, at the cost of some notational complexity, to cover the possibility of the two communities being dissimilar numerically.

Thus, in a society where sharp wealth inequalities exist between communities, even non-communal forms of identity, such as nation, class or language, would become identified with the dominant community, and would not have the capacity to hold distributive conflicts in check. On the other hand, such meta-communal identities can in fact remove individual incentives to support distributive conflicts across communities when inter-community wealth disparities are relatively low.

Figure 1 shows how patterns of patronage change with changes in the distribution of a given amount of wealth across communities. In the region PQ, the distribution of wealth is relatively equal, though B is the richer community. The two communities are separated at the communal level, but integrated at the meta-communal level. No individual has any incentive to support political proposals to dispossess the other community (nor, indeed, other members of her own community) in this zone. As the wealth distribution changes in favor of community B, in the zone QR, only community B contributes to the meta-communal public good, while the two communities remain separated at the level of communal identity. All members of both A and B now acquire incentives to dispossess the other community. However, no member of any community has any incentive to support expropriation of other members. Thus, the two communities are directly pitted against one another. Further enrichment of B however turns it into a patron community, while A becomes an active client community. In the zone RS, distributive conflicts will be held in check provided fringe individuals in B contribute to at least two public goods, which need not be the case unless patronage activities are widespread in the richer community. Otherwise, the patron community will turn loose. In that case the core in the patron community will acquire incentives to expropriate both the client community and the patron fringe. No individual in the client community however can benefit from expropriating other members of her own community. Lastly, no B individual, whether fringe or core, has any incentive to oppose measures to dispossess A, when community B's relative wealth rises further. Intra-community conflicts in B will persist in this zone if B happens to be loose. Additionally, all individuals in the client community now stand to benefit directly from expropriating other members of their own community. It is also possible that fringe members of A will benefit if B expropriates A, but that core members of A will be worse off from such

expropriation. Thus, core and fringe groups in the client community may be pitted against one another. In sum, an egalitarian distribution of wealth across communities provides the most effect check against conflicts between communities (zone PQ). However, this is associated with separation between the communities at the level of communal identity.

Figure 1: OP = 1



6. DISCUSSION AND CONCLUSION

The formal propositions of this paper can serve to anchor a discussion of the nature of communal tensions, and of the relationship of these tensions to the distribution of wealth across communities. The theoretical insights gained warn us not to expect a simple monotonic relationship between wealth disparities and communal tensions, the complications arising precisely because of the very nature of the activities that define community. The theoretical analysis also highlights the importance of meta-communal

activities, as opposed to simply cross-communal engagement by a fringe of individuals, in reducing communal tensions.

When there are no meta-communal public goods, cross-communal engagement depends on "fringe" individuals in a community who value positively the public good that defines the other community. But putting a value on a public good, and contributing to its upkeep, are two very different things. Who contributes to which public good is the outcome of an interaction between and within communities. We show that when the two communities' wealth levels are similar, the fringe individuals from each community, who get utility out of the other community's public good, will nevertheless free ride and will not contribute to this public good, although they will contribute to the public good of their own community, along with the "core" members of their community. There is thus a clear separation, and no engagement, across the two communities.

Such separation breeds communal tension in the sense that we have formalized the notion here. Proposals to expropriate the wealth of the other community will find willing listeners in either community. Expropriation of the wealth of the other community generates net gains for those expropriating, because no one from either community is engaging with, i.e., contributing to, the public good of the other community. It may seem paradoxical that such communal tension is the outcome in a world where wealth differences are not large, but it is precisely communal equality which leads to lack of cross-communal engagement. Lack of significant engagement between middle class black and white communities in the US, or between middle class Asian and white communities in Britain, might be understood in these terms.

As wealth disparities between the communities grow, a form of engagement does develop. Fringe individuals of the wealthier community begin to contribute to the public good of the less wealthy community—they act as patrons to the poor community's clientist role. Might this engagement reduce or eliminate communal tensions? The answer to this question turns out to depend subtly on the relationship between fringe and core individuals inside the dominant community, and on the magnitude of the wealth differential. If the fringe individuals in the wealthy community are sufficiently numerous so that they contribute to both their own and the other community's public good, and all

individuals in the client community contribute to their own public good, then all individuals in society are linked together in a web of relationships that ensure that neither community can gain from expropriating the other, since what is gained in the transfer of private resources will be lost in the supply of the public good. Cross-community engagement of significant numbers of whites at the height of the US civil rights movement, who were nevertheless not dissociated from white society but indeed very much part of it, is the picture conjured up here to illustrate how linkages can reduce communal tensions.

But the above happy state of affairs is a special case that requires a particular configuration of the relative numbers of core and fringe individuals in the dominant community. Deviations will reintroduce communal tension. Thus if the wealthy community's fringe is not contributing to its own public good but only to the public good of the other community, so that there is no linkage between core and fringe in the wealthy community, proposals to expropriate the wealthy community will find willing listeners in the less wealthy community. And proposals for wealth transfers from the poorer community to the richer community will always have support in the majority core of the richer community. During the British Empire in India, a small number of the white ruling community "went native" and not only put value on, but also contributed to, the development of the sense of history and culture of India. But these were few and far between, had little connection to the heart of the community they came from, and were seen as outcasts. There was indeed cross-communal engagement through this fringe as it helped create a new sense of "Indianness" among the Indians. But communal tensions were not thereby reduced. Indians still resented the power and wealth of the white community and were willing, in our terms, to expropriate it.

When the fringe in the richer community free rides on the contributions of the core from its own community, and the poorer community free rides in turn on the former, then, in addition to cross communal tensions, tensions are generated within each community as well. The core in each community now has an interest in expropriating its own fringe. These tensions are recounted in the history books and novels of Empire. The *comprador*, or 'collaborationist', Bengali intelligentsia of early-19th century India, engaged as it was in acquiring and learning the culture of the ruling British, as well as benefiting from the

indigenous Bengali identity, was vulnerable to attack from its own conservative core, since (a) it was not contributing significantly to Bengali identity, and (b) it stood to benefit from further enrichment and consolidation of the British community. Thus, for example, the Westernized rebel 'Young Bengal' of Calcutta were subjected to much scorn, ridicule and attack in their own community. Similarly, the fringe of the British ruling community were vulnerable to attack from their own core, and were reviled for 'going native', since they were contributing to the sense of Indian identity in their own fashion, but were free riding on the contribution of their own core to British identity. These conflicts between British and Indian communities, as well as between core and fringe in each community, during the later period of British rule in India are well depicted for example in E.M. Forster's novel *A Passage to India*.

It should perhaps not be surprising that with community specific public goods it is difficult to eliminate communal tensions, although the intricate patterns of when and how they emerge as wealth gaps vary produces many surprises. But what of meta-community activities, activities to which all can contribute and from which all can benefit? Varshney (2002) talks of two forms of engagement between communities—"associational" and "everyday". The distinction is that the former requires an organizational setting, a platform on which there is an interaction between the two communities, and he gives many concrete examples. In our terminology, the hope is that if such cross-communal public goods emerge, or are created, they could act to reduce communal tension because now expropriating the other community serves to reduce its capacity to contribute to the public good that both communities value.

But the logic of individual interactions in the supply of the meta-public good, in the presence of interactions on the community specific goods, and in the context of cross-community difference in wealth, produces an intricate set of patterns. When the two communities are relatively equal in wealth, they are separated at the community level but integrated at the meta-community level. Despite the separation at the community level, in the sense that no individual in either community contributes to the public good of the other community, there is no communal tension, in the sense that there is no incentive for one community to propose an expropriation of the wealth of the other. When both communities contribute to the meta-public good, which happens when they

are relatively equal, communal tensions are minimized. Thus in a multi-ethnic nation, ethnic tensions are greatly reduced when two things happen simultaneously—a strong sense of national identity is developed, and wealth gaps between ethnic groups are reduced. It can be argued that this is the strategy that has been followed successfully in Malaysia and in Singapore. On the other hand, despite attempts at developing a national identity in Indonesia, ethnic tensions have remained strong because of the continuing wide disparities among ethnic groups.

As wealth disparities between communities grow, there comes a point where only the wealthy community contributes to the meta-communal public good, while the two communities only contribute to their own community specific good. This state of affairs creates an incentive for each community to expropriate the other. The wealthy community gains resources from the poorer community which was in any case not contributing to the meta-communal public good. The poorer community gains resources, loses some supply of the meta-communal public good, but benefits overall from expropriating the wealthier community. This is an account of ethnic tensions which many will find illustrative of Indonesia.

Further increases in wealth disparities lead to a state of affairs where not only is the wealthy community the sole contributor to the meta-public good, but the fringe individuals in the wealthy community contribute the public good of the poorer community as well. In this state of patronage, as we have labeled it, as discussed above, there is a possibility that communal tensions will reduce, if the fringe in the wealthy community contributes to its own public good, as does the poorer community. But outside this special case, which disappears as the wealth distribution gets even more unequal, communal tensions increase with wealth inequality across communities.

The central message from this analysis is the simultaneous importance of two factors—a meta-communal public good, and cross-community equality in wealth. Both are needed in order to eliminate communal conflict. Either on its own is not enough. Equality of wealth on its own will lead to separation of the two communities and communal tension. A meta-communal good with great communal inequality will lead to patronage and communal tension. But equality *and* meta-communal public goods jointly produce a

situation of reduced communal tension, in the sense that they eliminate the incentive for individuals in either community to expropriate the wealth of members of the other community.

Purposive creation of meta-community public goods *and* purposive equalization of cross-communal wealth gaps thus holds the key to communal harmony in societies with deep divisions of race, ethnicity, religion or language. Of course, this analysis only opens up more questions. What exactly is the nature of communal tension, which we have captured simply as the gain from expropriating wealth from the other community? Such expropriation is not costless, and itself involves collective action problems within the community. It will be important to model these costs explicitly to get a better handle on the gains from expropriation, which in turn goes into our concept of communal tension. At the same time, if it was costless to "create" meta-communal public goods, and the return from such creation was a reduction in communal tension, why do we not see so many of these goods that communal tensions are reduced to zero? Clearly, there are costs to the creation of public goods, and these have to be balanced against the benefits. Such an analysis needs to be developed if we are to better understand why we see certain meta-communal public goods and not others (for a start in this direction, see Clark and Kanbur, 2002). Finally, we have of course abstracted from wealth difference within each of the communities. Examination of the relationship between class and community tensions, an analysis begun in Dasgupta and Kanbur (2001), will merit much closer attention.

Appendix

Proof of Proposition 3.4.

(i) First consider the case where $\lfloor y_{AB}^N, y_{BA}^N = 0 \rfloor$. Then, noting that Nash equilibria must be symmetric, it is easy to check that:

$$\forall \alpha \in \{A,B\}, [\left[y_\alpha^N = \frac{n_\alpha I_\alpha}{n_\alpha + 1} \right], \text{ and } \left[y_\alpha^N \geq \bar{k} y_\beta^N \right], \text{ where } \beta \in [\{A,B\} \sim \{\alpha\}]].$$

The required inequality follows. Now suppose, without loss of generality, that $\lfloor y_{BA}^N > 0 \rfloor$. Then $\lfloor y_{AB}^N = 0 \rfloor$ (see Remark 3.3). It follows that $\left[\bar{k} y_B^N \geq y_A^N > \left(\frac{n_A I_A}{n_A + 1} \right) \right]$.

Furthermore, $\left[y_B^N \leq \frac{n_B I_B}{n_B + 1} \right]$. Noting that $n_A = n_B$, part (i) of Proposition 3.4 follows.

(ii) Suppose now, without loss of generality, that $\left[I_A < \bar{k} I_B \right]$. Then, from Proposition 3.4(i), either $\lfloor y_{BA}^N > 0 \rfloor$, or $\lfloor y_{AB}^N > 0 \rfloor$. The latter possibility is ruled out by an argument exactly analogous to that presented in the preceding paragraph.

◊

To prove Proposition 3.7, we shall use the following result.

Lemma N.1. *Suppose, for some* $\alpha \in \{A,B\}, \lfloor y_{\alpha\alpha}^N = 0 \rfloor$. *Then, for* $\beta \in [\{A,B\} \sim \{\alpha\}]$, $\left[y_{\bar{\beta}\beta}^N > 0 \right]$ *if, and only if* $\lfloor n_{\bar{\beta}} > \bar{k} n_{\underline{\beta}} \rfloor$.

Proof of Lemma N.1.

Suppose $y_{\bar{\beta}\beta}^N = 0$. Then we have: $\left[y_\beta^N = \frac{n_{\underline{\beta}} I_\beta}{n_{\underline{\beta}} + 1} \right]$, and, (noting that $y_{\alpha\alpha}^N = 0$ by assumption), $\left[y_\alpha^N = \frac{\bar{k} n_{\bar{\beta}} I_\beta}{n_{\bar{\beta}} + \bar{k}} \right]$. Noting that $\bar{k} y_\beta^N \geq y_\alpha^N$, we thus get: $\lfloor n_{\bar{\beta}} \leq \bar{k} n_{\underline{\beta}} \rfloor$.

Hence, if $\lfloor n_{\bar{\beta}} > \bar{k} n_{\underline{\beta}} \rfloor$, then $y_{\bar{\beta}\beta}^N > 0$. Now suppose $y_{\bar{\beta}\beta}^N > 0$. Then $\left[y_\beta^N > \frac{n_{\underline{\beta}} I_\beta}{n_{\underline{\beta}} + 1} \right]$.

However, (noting that $y_{\alpha\alpha}^N = 0$), we

have: $\left[\dfrac{I_\beta + y^N_{\underline{\beta}\beta} + \left[\dfrac{n_{\overline{\beta}} - 1}{n_{\overline{\beta}}}\right] y^N_\alpha + \left[\dfrac{n_{\overline{\beta}} - 1}{n_{\overline{\beta}}}\right] y^N_{\overline{\beta}\beta}}{2 + \bar{k}} = y^N_\beta\right]$, and $\left[y^N_\alpha = \bar{k} y^N_\beta\right]$, which,

together, yield: $\left[\dfrac{n_{\overline{\beta}} I_\beta}{n_{\overline{\beta}} + \bar{k}} > y^N_\beta\right]$. Hence, if $y^N_{\overline{\beta}\beta} > 0$, then $\left[n_{\overline{\beta}} > \bar{k} n_{\underline{\beta}}\right]$.

◊

Proof of Proposition 3.7.

Without loss of generality, suppose $I_B > I_A$. First consider the benchmark case where $I_A = \bar{k} I_B$. By Proposition 3.4(i), the communities must be separated in the Nash equilibrium. It can be easily checked that each individual in A will spend an amount $\dfrac{\bar{k}(I_A + I_B)}{(n_A + 1)(1 + \bar{k})}$ on the public good A, while each individual in B will spend an amount $\dfrac{(I_B + I_A)}{(n_B + 1)(1 + \bar{k})}$ on the public good B. Consider now an income redistribution such that every individual in A loses an amount r, while every individual in B gains this amount (since, by assumption, $n_A = n_B$). By Proposition 3.4(ii), any such redistribution will turn A into the client of B. The transfer to B can be conceptualized as: (i) a prior gain of $\dfrac{n_B r}{n_{\overline{B}}}$ by every fringe individual in B, and (ii) a subsequent loss of $\dfrac{r n_{\underline{B}}}{n_{\overline{B}}}$ by every fringe individual in B, with r gained by every core individual in B.

Note first that, if $n_{\overline{B}} > \bar{k} n_{\underline{B}}$, then, for any $0 < r < \left[\dfrac{\bar{k}}{n_A + 1}\right]\left[\dfrac{I_A + I_B}{1 + \bar{k}}\right]$, $\dfrac{r n_{\underline{B}}}{n_{\overline{B}}} < \left[\dfrac{1}{n_B + 1}\right]\left[\dfrac{I_A + I_B}{1 + \bar{k}}\right]$. It immediately follows from the neutrality result that, if $0 < r < \left[\dfrac{\bar{k}}{n_A + 1}\right]\left[\dfrac{I_A + I_B}{1 + \bar{k}}\right]$, then B will be a compact patron, and A an active client, in the post-redistribution Nash equilibrium. It is easy to check that, if $r \geq \left[\dfrac{\bar{k}}{n_A + 1}\right]\left[\dfrac{I_A + I_B}{1 + \bar{k}}\right]$, then A must become a passive client. It immediately follows from Lemma N.1 that B must remain compact for such redistributions as well. This completes the proof of part (i) of Proposition 3.7.

Now suppose $n_{\overline{B}} \le \bar{k} n_{\underline{B}}$. It is obvious that there must exist $q_1 \in \left(\frac{1}{1+k}, 1\right)$ such that A would be a passive client community if and only if $I_B \in [q_1(I_A + I_B), (I_A + I_B)]$. That B must be loose for such cases follows from Lemma N.1. Now note that, if $n_{\overline{B}} \le \bar{k} n_{\underline{B}}$, then, for $r^* = \left[\frac{\bar{k}}{n_A + 1}\right]\left[\frac{I_A + I_B}{1+\bar{k}}\right]$, $\frac{r^* n_{\underline{B}}}{n_{\overline{B}}} \ge \left[\frac{1}{n_B + 1}\right]\left[\frac{I_A + I_B}{1+\bar{k}}\right]$. It immediately follows from the neutrality result for Cournot games of voluntary contributions to public goods that, if $0 < r < \left[\frac{n_{\overline{B}}}{n_{\underline{B}}}\right]\left[\frac{1}{n_B + 1}\right]\left[\frac{I_A + I_B}{1+\bar{k}}\right]$, then B will be a compact patron, and A an active client, in the post-redistribution Nash equilibrium. However, if $r \ge \left[\frac{n_{\overline{B}}}{n_{\underline{B}}}\right]\left[\frac{1}{n_B + 1}\right]\left[\frac{I_A + I_B}{1+\bar{k}}\right]$, then B must become a loose patron. For values of r sufficiently close to $\left[\frac{n_{\overline{B}}}{n_{\underline{B}}}\right]\left[\frac{1}{n_B + 1}\right]\left[\frac{I_A + I_B}{1+\bar{k}}\right]$, A must remain active if $n_{\overline{B}} < \bar{k} n_{\underline{B}}$. Part (ii) of Proposition 3.7 follows. Lastly, if $n_{\overline{B}} = \bar{k} n_{\underline{B}}$, then for all $r \ge \left[\frac{n_{\overline{B}}}{n_{\underline{B}}}\right]\left[\frac{1}{n_B + 1}\right]\left[\frac{I_A + I_B}{1+\bar{k}}\right]$, A must become passive. That B must be a loose patron for these cases follows from Lemma N.1, yielding Part (iii). ◊

Proof of Proposition 5.2.

First consider a Nash equilibrium which is connected, and therefore, patronizing (Remark 3.3). Suppose, without loss of generality, that, in this equilibrium, $y^N_{\overline{A}B} > 0$. Then $\left[\frac{z^N}{\lambda} \ge y^N_A \ge \frac{y^N_B}{\bar{k}}\right]$, which implies $\left[\frac{z^N}{\lambda} > y^N_B\right]$. Now suppose community B contributes to Z. Then $\left[y^N_B \ge \frac{z^N}{\lambda}\right]$. ◊

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