Cleavage Patterns and Social Conflict:
A Theory with an Application to Political Conflict over Fiscal Policy

Tsung-Tao Yang

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Department of Economics
University of California at Berkeley

ABSTRACT

Recent work in the political economy literature has yielded evidence linking social fragmentation to heightened political conflict over economic policy. I do not dispute this result, but argue that the conventional view of social fragmentation fails to account for a critical determinant of conflict incentives: the extent to which social cleavages based on different politically salient characteristics act to mutually reinforce versus cut across one another. I focus in this paper on cleavages based on class and ethnicity. Using a formal modeling approach as well as drawing on arguments from scholars outside of economics, I will present theoretical evidence that political conflict is likely to be more severe when social cleavages based on class and ethnicity help to mutually reinforce one another. I will employ an empirical framework that has previously been used to demonstrate a link between social fragmentation and fiscal policy outcomes in order to demonstrate the practical significance of my argument. This is a new result that I hope will help to inform future research on topics related to social fragmentation.

I. Introduction

Cleavages based on class or ethnicity can polarize a society, undermining opportunities for social cooperation and stimulating incentives for social conflict. Economists have employed different versions of this argument to explain why a wide array of problems might arise more sharply and with less hope for resolution in economically- and ethnically-fragmented societies. These include heightened political conflict over economic policy—which will be my focus—as well as other problems involving slow economic growth, credit market inefficiencies, excessive rent-seeking, and non-contribution to collective goods.[1] In this paper, I will argue that there is nothing wrong with the general argument linking social fragmentation to various dangers involving breakdowns of cooperation and eruptions of conflict, but that there *is* something wrong with the way we have grown accustomed to thinking about social fragmentation. I will make the argument in general terms before exploring its applicability in the specific context of political conflict over fiscal policy.

Existing research in the general vein of this paper has sought to address the following question: what are the anticipated consequences of an increase in either the severity of a society's economic inequality or the severity of its ethnic fragmentation, while the other is held fixed?[2] While potentially useful, this question carries the implicit assumption that it is possible to identify the analytically relevant extent to which a society is fragmented by its class and ethnic cleavages by observing its extent of fragmentation in each dimension. This assumption can be problematic, and for a simple reason: even *fixed levels* of economic inequality and ethnic fragmentation can interact with one another in different ways that carry different analytical implications.

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[1] With regard to economic growth, see Aghion, Caroli, and Garcia-Penalosa (1999), Rodrik (1999), and Duflo and Banerjee (2003). With regard to credit market inefficiencies, see Banerjee and Newman (1993) and Aghion and Bolton (1997). With regard to rent-seeking, see Hirshleifer (1991) and Rajan and Zingales (2000). And with regard to collective goods, see Bardhan, Ghatak and Karaivanov (2002) and Miguel and Gugerty (2002).

[2] This analytic approach is most easily observed in empirical studies that attempt to estimate the effects of social fragmentation on various dependent variables of interest by introducing dual measures of economic inequality and ethnic fragmentation into the set of regressors.

To illustrate the point, consider two hypothetical economies, *East* and *West*, and suppose that each economy is evenly split into two economic classes, wealthy and poor, and also evenly split into two ethnic groups, natives and immigrants. The two economies therefore exhibit identical levels of fragmentation along both the dimensions of class and ethnicity. However, suppose that in the *East*, the wealthy are composed exclusively of natives and the poor composed exclusively of immigrants, while in the *West*, each economic class sees equal representation by natives and immigrants. While even casual observers would likely interpret the *East* as being in some important sense more socially divided than the *West*—class and ethnic cleavages are mutually reinforcing in the *East* while they cut across one another in the *West*—an analytic framework that adopts the conventional view of social fragmentation would be forced to interpret them as being identical.

This points to a need for a more accommodating view of social fragmentation—one that accounts for not only the extent of a society's cleavages along the dimensions of class and ethnicity but also the manner in which those cleavages can interact to form different overall patterns of fragmentation. In this paper, I will emphasize the concept of overlapping versus cross-cutting patterns of class and ethnic cleavage: overlapping cleavages cause class and ethnic divisions to be mutually reinforcing, while cross-cutting cleavages cause class and ethnic divisions to cut across and potentially offset one another—put differently, the extent to which cleavages are overlapping rather than cross-cutting determines the extent to which class and ethnicity are statistically correlated. I will focus on demonstrating the importance of this concept to our understanding of politically-determined economic outcomes in plural societies.

While I am aware of no formal attempts to demonstrate a clear causal link between the extent to which social cleavages overlap and the intensity of conflict arising from those cleavages,[3] there is ample descriptive evidence to suggest that such a link exists. Before describing the paper's results in more detail, it will be useful to consider

[3] A near exception is Robinson (2001), whose theoretical model does consider cross-cutting and overlapping cleavages based on class and ethnicity and their relationship to conflict. However, he focuses on conflict based on either ethnicity or class, but not both simultaneously. As one result, perfectly cross-cutting cleavages leave individuals in his model indifferent between engaging in class or ethnic conflict, but no less predisposed towards conflict along either front than they would be if the cleavages were overlapping.

one example of overlapping and cross-cutting cleavages in action. The example I have chosen comes from rural India, where field researchers have observed that eruptions of conflict between peasants and landowners occur far more frequently in regions where the two classes are each well-defined by caste than in regions where class and caste cleavages cut across one another. Marshall Bouton (1985) writes that in the former regions, the "greater social homogeneity of both agricultural labor and landowners and the wider social gap between the two groups help to create a climate more receptive to radical ideology and organization," whereas in the latter regions, the "perception of mutually opposing [class] interests is blurred by intervening social complexity."[4] Bardhan (1984) emphasizes a similar theme in his description of the psychology of class mobilization in rural India:

> Even when an individual peasant does not find the terms of exchange within the existing stratification tolerable and feels exploited, his sense of outrage usually takes on a social dimension only when he perceives it to be shared by the kinship or ethnic group with which he identifies… Clear cases of class confrontation in the Indian countryside… are usually also cases of *clear demarcation of caste or ethnic homogeneity on each side of the opposing classes*.[5]

This example from rural India illustrates the potential importance of social cleavage patterns as a phenomenon distinct from the extent of cleavage along any single dimension. My particular application of this general idea addresses a growing literature in political economy.

Recent work in the political economy literature has yielded both theoretical and empirical evidence that, in democratic societies, social fragmentation can lead to political conflicts that reveal themselves in fiscal policy outcomes. On the theoretical side, it is argued that social fragmentation tends to exacerbate problems involving i) an inability to reach consensus over fiscal policy matters of collective importance, ii) a refusal by compartmentalized interest groups to compromise their policy demands in the face of what they perceive to be the unfair policy demands of other groups, and iii) a failure on the part of these interest group to internalize the fiscal costs and benefits that their

[4] Bouton (1985), p.150.

choices impart on other groups. A prominent theoretical framework that incorporates elements of all three of these problems is the common pool model of fiscal policy. Although it can take many specific forms, the model is simply a fiscal policy application of the "Tragedy of the Commons." Just as in the canonical model, the potential "tragedy" in the context of fiscal policy arises out of negative externalities in the demand for public resources: the benefits of public spending on any one group are concentrated within that group, while the costs are distributed uniformly across all groups (in the form of interest on public debt, or inflation taxes arising from seignorage, for example); each group therefore weighs the private marginal benefits of securing additional spending against only a fraction of the social marginal costs. This form of collective irrationality increases the likelihood of fiscal mismanagement in the forms of overspending on special interest groups and overborrowing to finance those expenditures.[6]

On the empirical side, measures of ethnic fragmentation and economic inequality have been used as joint proxies for social fragmentation—an example of the conventional approach to measuring social fragmentation that I have criticized for its incompleteness—leading to empirical results that are consistent with the theoretical predictions. In probably the best known empirical study,[7] Alesina, Baqir, and Easterly (1999) find that U.S. cities characterized by higher levels of ethnic fragmentation and economic inequality exhibit higher overall levels of both government spending and debt while at the same time devote lower shares of total spending towards investment in public goods, suggesting that these cities spend more on patronage for conflicting special interest groups organized by class and ethnicity.

This growing body of work in the political economy literature provides an interesting and timely opportunity to explore the significance of social cleavage patterns. To the extent that i) social fragmentation is relevant to our understanding of fiscal policy outcomes, and ii) patterns of class and ethnic cleavage play an important role in defining an analytically appropriate concept of social fragmentation, one would like to know whether social cleavage patterns are linked to fiscal policy outcomes in ways that have been overlooked by the existing literature. I will present both theoretical and empirical

[5] Bardhan (1984), p.186.
[6] See, for example, Alesina, Baqir, and Easterly (1999), Drazen (2000), Persson and Tabellini (2000).

evidence that social fragmentation is more severe and political conflict over fiscal policy more intense when class and ethnic cleavages are overlapping rather than cross-cutting. This is a new result that hints of the general significance of social cleavage patterns, and that I hope will help inform future research on other topics related to social fragmentation.

I construct a simple model that illustrates two plausible mechanisms through which social cleavage patterns can help to shape political conflict over fiscal policy. The first mechanism involves externalities in the demand for public resources. In the model, negative demand externalities are more severe when individuals on opposite sides of a political conflict based on class are also opposite sides of a political conflict based on ethnicity—i.e., when class and ethnic cleavages are more overlapping rather than cross-cutting. The reason is simple: individuals derive some utility from spending secured by other individuals belonging to either their class or ethnic group (even if not both), but derive no utility from spending secured by individuals with whom they share no common traits. This feature of the model formalizes an observation made by the sociologist Donald Horowitz (1985), who noted that individuals often derive enjoyment from seeing benefits accrue to members of their group (be it class- or ethnic-based) even when they themselves do not directly share in those benefits.[8] This modeling strategy can also be justified by survey results which indicate, for example, that middle-class whites voice greater support for public spending programs that benefit poor whites than those that benefit poor blacks.[9]

While this first mechanism involves a departure from methodological individualism, the second mechanism does not. The second mechanism involves spillovers from political mobilization. In the model, cleavage patterns help to determine the transaction costs of achieving political mobilization based on class and ethnicity. The intuition is that the costs of achieving organization behind one cause (e.g., based on class) are lower when a greater share of those who must be organized behind it have already made investments in effort in order to achieve organization behind *another* cause (e.g., based on ethnicity). As a result, overlapping cleavages allow individuals to economize

[7] Easterly and Levine (1997) and Baqir (2002) are two other well regarded studies that yield similar results.
[8] Horowitz (1985), p. XX.

on the transaction costs of achieving political organization while cross-cutting cleavages raise those costs. Note that this second mechanism does not rest on an assumption about how demand for class and ethnic patronage responds to social cleavage patterns. Instead, it takes that demand as constant and focuses on how different cleavage patterns produce different opportunities for acting on it. As I will discuss in the related literature section, this second mechanism has also been described but not formalized by political scientists.

The empirical section of the paper presents a test of the overlapping versus cross-cutting cleavages hypothesis. I employ the same empirical framework as the one employed by Alesina, Baqir, and Easterly (1999) in their well-known study, described earlier. Working with a large sample of U.S. cities, Alesina and his co-authors find that ethnic fragmentation and economic inequality are both good predictors of a number of fiscal policy variables of interest, including total government spending and deficits. Their findings are commonly cited as evidence that social fragmentation can influence policy outcomes by making consensus more difficult and conflict more severe in the decision making process. My primary purpose is to explore whether and how the results of Alesina et. al. are affected when one adopts a view of social fragmentation that accounts for not only cross-city variation in the extent of cleavage by class and ethnicity but also cross-city variation in the pattern of cleavage.

Towards this end, I introduce a variable that measures the extent of inter-ethnic inequality in a U.S. city. Inter-ethnic inequality has a natural interpretation in the context of overlapping versus cross-cutting class and ethnic cleavages: more overlapping leads to higher inter-ethnic inequality, while more cross-cutting leads to lower inter-ethnic inequality. I present my core results using a measure of inter-ethnic inequality that considers the extent to which non-white households are overrepresented among the relatively poor relative to the extent to which they are represented in the overall population. However, as I will show, the core results are robust to an array of adjustments in how precisely inter-ethnic inequality is measured.

The empirical exercise yields two core results. First, inter-ethnic inequality is a highly significant determinant of both overall government spending and fiscal deficits in cities, and this is true regardless of whether or not one controls for the effects of overall

[9] Page (1996), Luttmer (1997).

inequality and ethnic fragmentation. Cities characterized by higher levels of inter-ethnic inequality exhibit significantly higher overall government spending as well as higher deficits. To the extent that these fiscal outcomes are reflective of underlying political conflict over public resources, this result is consistent with both the conventional argument that social fragmentation lends itself to political conflict, as well as the novel argument that social cleavage patterns play a critical role in defining the analytically relevant extent of social fragmentation.

The second core result concerns the relative importance of the three candidate measures of social fragmentation: overall inequality, ethnic fragmentation, and inter-ethnic inequality. When inter-ethnic inequality is introduced alongside both overall inequality and ethnic fragmentation in the set of regressors, the latter two variables become considerably less reliable predictors of fiscal outcomes than they appear to be when inter-ethnic inequality is left out of the regression. The reverse does not hold: introducing and removing the two conventional measures of social fragmentation from the set of regressors does not affect the predictive value of inter-ethnic inequality. Because inter-ethnic inequality is correlated with both overall inequality and ethnic fragmentation (although the correlation is far from perfect in U.S. cities), this result suggests that the two conventional measures of social fragmentation have served in previous studies as proxies for inter-ethnic inequality.

By placing an emphasis on the manner in which social cleavages based on class and ethnicity interact to form overlapping versus cross-cutting patterns, I hope to introduce what I believe to be an important new concept to future economics research on topics relating to social fragmentation. I have learned through conversations with non-economists that an earlier generation of scholars in political science and sociology also noted the potential significance of social cleavage patterns.[10] This paper's central argument is most forcefully advocated in the writings of Lewis Coser. In *The Functions of Social Conflict*, Coser (1956) argues at one point that a pattern of cross-cutting social cleavages lends itself to a "multiplicity of *noncumulative* conflicts" that in turn provide

[10] I am grateful to Peter Evans, Nelson Polsby, Bruce Cain, and Taeku Lee for helping guide me through this literature.

an "important check against basic consensual breakdown in an open society."[11] In another passage, Coser writes:

> [T]he multiple group affiliations of individuals make for a multiplicity of conflicts criss-crossing society. Such segmental participation, then, can result in a kind of balancing mechanism, preventing deep cleavages along one axis.[12]

Some of the descriptive observations of this earlier generation of non-economists, which I think hold great potential value to modern economists conducting formal theoretical and empirical research, will be explored much more carefully in the next section.

The paper is organized as follows. The next section provides a selected review of the literature, and further motivates the approach to social fragmentation that I have now advocated. Section III describes the theoretical framework. Section IV describes the data, methodology, and results of the empirical exercise. Section V concludes.

II. Related Literature

Let us begin the literature review by continuing the discussion that was started at the end of the introduction. As was noted there, a previous generation of scholars from fields outside of economics first noted the potential significance of social cleavage patterns in relation to social conflict. Seymore Martin Lipset (1960) echoes the theme that emerges in the passages drawn from Coser (1956) in a passage from his book *Political Man: The Social Bases of Politics*; he writes:

> The available evidence suggests that the chances for stable democracy are enhanced to the extent that groups and individuals have a number of cross-cutting, politically relevant affiliations. To the degree that a significant proportion of the population is pulled among conflicting forces, its members have an interest in reducing the intensity of political conflict.[13]

[11] Coser (1956), p. 79. Emphasis added.
[12] Coser (1956), p.78.
[13] Lipset (1960), pp. 88-89.

Gusfield (1962) makes a similar argument using different terminology. He distinguishes between two types of social segmentation: "linked pluralism," which occurs when "there are multiple groups but membership in one often cuts across membership in others," and "superimposed segmentation," which occurs when "membership in one group also implies membership in another."[14] Gusfield then observes that "[i]t is fairly evident that intense social conflicts are maximized under conditions of superimposition and minimized under conditions of linked pluralism."[15]

As discussed in the introduction, the theoretical model that I present in this paper includes a mechanism through which social cleavage patterns help to determine the costs of achieving political mobilization along any one front of conflict. This idea is related to an observation made by the political scientist David B. Truman. Truman (1951) observed that individuals who belong to one side of a given front of conflict (his example, a labor union versus an employer's association) tend to be less likely to engage heavily along that front in instances where they and their opponents share common interests relevant to *other* fronts of conflict (his example, Republican versus Democrat).[16] Truman conjenctured that individuals in such a position are "cross-pressured" by demands and responsibilities that compete for their time, effort, and loyalty. Truman presented this observation as part of a discussion on the determinants of political cohesion *within* groups, but it clearly bears on the issue of conflict between groups, and is also consistent with the general overlapping versus cross-cutting cleavages argument that I have laid out.

To my knowledge, the idea that cross-cutting social cleavages can serve to facilitate social compromise dates as far back as Bentley (1908). Commenting on the question of whether an "all embracing classification" exists in modern nations in the form of "classes that enter into the class warfare of socialism," he writes:

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[14] This terminology is similar to that employed by Ralf Dahrendorf (1959). As Lipjhart (1968) observes in his excellent review of issues pertaining to cleavage patterns, Dahrendorf uses three sets of terms for the distinction between cross-cutting and mutually reinforcing cleavages, contrasting "pluralism" with "superimposition," "dissociation" with "congruence," and "divergence" with "parallelism."

[15] Gusfield (1962), p.29.

[16] See Truman (1951), particularly pp.156-187.

> [T]he observed reactions in our societies are not such as would follow from such a grouping in which the criss-cross had disappeared, and sharply defined outlines were traceable—the war in fact is not to the finish, the socialism that extends itself to large portions of the population is, wherever we know it, a socialism that ends in political compromises. *And compromise—not merely in the logical sense, but in practical life—is the very process itself of the criss-cross groups in action.*[17]

Robert Dahl (1961) points to the political relevance of cleavage patterns specifically involving class and ethnicity in his study of the political history of New Haven, Connecticut. He describes three "stages of assimilation" for the major European immigrant groups, involving a progression from economic homogeneity (all members of the freshly-arrived immigrant group are poor) to much greater levels of economic heterogeneity over time. In the first stage of this process of economic assimilation, ethnicity is a highly salient form of social identity: members of the ethnic group share similar interests, similar political attitudes, and associate almost exclusively with other members of the ethnic group. But Dahl writes that by the final stage of assimilation, "large segments are assimilated into the middling and upper strata… accept middle-class ideas, adopt a middle class style of life… and look for others in the middling strata for friends, associates, marriage partners;" to these people, Dahl writes, "ethnic politics is often embarrassing or meaningless." In sum, and echoing a theme that appears throughout his book, Dahl observes that "[p]olitical homogeneity, then, is a function of socioeconomic homogeneity."[18]

Having hopefully persuaded the reader to consider the general importance of social cleavage patterns, I will now turn to the economics literature that I address in this paper. As I described in the introduction, existing research on the consequences of social fragmentation spans a wide a range of fields in economics. Banerjee and Newman (1993), Aghion and Bolton (1997), and others have provided theoretical evidence that highly unequal economies may suffer from credit market inefficiencies that form an obstacle to economic growth.[19] Hirshleifer (1991), Skaperdas (1992), Grossman and Kim

[17] Bentley (1908), p.208. Emphasis added.
[18] Dahl (1961), pp.34-35.
[19] Benabou (1996) and Aghion, Caroli, and Garcia-Penalosa (1999) provide comprehensive surveys of this literature. Banerjee, Mookherjee, Munshi, and Ray (2001) provide an interesting empirical test of the general argument.

(2000), Rajan and Zingales (2000), and others have provided both theoretical and empirical evidence that, in settings characterized by imperfect property rights, larger class cleavages hinder economically productive activities and encourage pure rent-seeking activities. Bardhan, Ghatak, and Karaivanov (2002) provide theoretical evidence that voluntary contributions to collective goods are likely to be lower in economically-fragmented communities, while Miguel and Gugerty (2002) provide theoretical and empirical evidence to support the same claim with regard to ethnically-fragmented communities. And Alesina and La Ferrara (2000) provide empirical evidence that participation in social activities is lower in communities that are more highly fragmented according to either class or ethnicity.

I focus in this paper on the effects of social cleavage patterns on fiscal policy outcomes. Fiscal policy outcomes have been examined in conjunction with conventional measures of social fragmentation by a growing number of scholars. On a general level, it is commonly argued that the fragmentation of a society into well-defined interest groups introduces a common pool problem to fiscal policy. This argument addresses a setting in which 1) each interest group is powerful enough—or equivalently, is represented by political leaders who are powerful enough—to have some degree of discretionary access to public resources, and 2) the benefits of public spending on any one group are concentrated in that group, while the costs are distributed uniformly by all groups (for example, in the form of interest on public debt, or inflation taxes arising from seignorage). These two elements combine to create a situation that lends itself to socially excessive levels of public spending, as those with the power to control public spending compare its (private) marginal benefits against only a fraction of its (social) marginal costs. Weingast, Shepsle, and Johnson (1981) were among the first to formalize this common pool argument in the context of fiscal policy. The argument is exposited and applications of it developed in Drazen (2000) and Persson and Tabellini (2000). Some recent examples of papers that employ versions of the argument are Velasco (1998 and 1999), Aizenman (1998), and Mondino, Sturzenegger, and Tommasi (1998).

The empirical portion of this paper closely follows Alesina, Baqir, and Easterly (1999), a paper that is frequently cited for demonstrating a statistically significant link between fiscal policy outcomes and social fragmentation arising from class and ethnic

cleavages. Using a large sample of U.S. localities, Alesina and his co-authors find that greater levels of ethnic fragmentation and economic inequality are associated with (i) higher overall levels of public spending, (ii) larger deficits (or smaller surpluses), and (iii) lower expenditures on public goods as a share of total expenditures. Using an even larger sample of U.S. cities, Baqir (2002) also finds that both conventional measures of social fragmentation are positively correlated with overall levels of public spending.

III. Theoretical Framework

A. Setup

Consider a population of individuals of mass one who differ along just two dimensions: class and ethnicity. The society is divided into two even-sized economic classes, the rich (R) and the poor (P), and also two even-sized ethnic groups, white (W) and non-white (N). The assumption of even divisions by class and ethnicity helps to simplify the notation, but is not necessary for the model's intuition. Without loss of generality, let us assume that non-whites are at least as heavily represented among the poor as are whites. Let π denote the share of the poor who are non-white, where $\pi \in [0.5, 1]$.

The variable π will be our primary state variable of interest. Note that due to the assumption of even divisions by class and ethnicity, π measures both the share of the poor who are non-white and the share of the rich who are white, while $1 - \pi$ measures both the share of the rich who are non-white and the share of the poor who are white.

Individuals derive utility from public spending that benefits either their economic class or their ethnic group. Individuals may also derive utility from public spending that benefits members of opposing classes and groups with whom they share common ethnic or class identities. There are two ways to interpret this latter assumption. One interpretation is that members of a group derive enjoyment from seeing benefits accrue to members of their group (be it class- or ethnic-based), even when they do not directly share in those benefits. This is a facet of group membership emphasized by Horowitz (1985). A second interpretation is that individuals temper their engagement in political

conflict along one front on conflict when they and their opponents share common interests along other fronts of conflict. This is the phenomenon of "cross-pressures" emphasized by Truman (1951).

Public spending involves two types of cost. The first type of cost is fully internalized by decision makers: the effort costs of lobbying for public spending. The second type of cost is only partly internalized: the uniformly distributed costs arising from depletion of public resources. This latter cost introduces the common pool problem: the benefits of public spending on any one interest group are concentrated in that group, but the costs are spread out across all groups. For simplicity, I will refer to these costs as costs arising from deficit spending.

Formally, the utility of an individual belonging to economic class C and ethnic group E is given by

$$u^{CE} = v^{C}\left(\mathbf{g}^{\mathbf{C}}\right) + v^{E}\left(\mathbf{g}^{\mathbf{E}}\right) \; - \; \left(c^{C}\left(l^{C}\right) + c^{E}\left(l^{E}\right) + \delta \sum_{j} g^{j} \right), \quad j = R, P, W, N \tag{1}$$

where $\mathbf{g}^{\mathbf{C}}$ is a vector of government spending on the two economic classes, $\mathbf{g}^{\mathbf{E}}$ is a vector of government spending on the two ethnic groups, l^{C} and l^{E} denote the individual's lobbying efforts to secure public spending for his particular class and ethnic group, respectively, and $\delta > 0$ denotes the cost of deficit spending. Preferences for public spending are defined as follows:

$$v^{C}\left(\mathbf{g}^{\mathbf{C}}\right) = v\left(g^{C} + \alpha(\pi) \cdot g^{\sim C}\right) \tag{2}$$

$$v^{E}\left(\mathbf{g}^{\mathbf{E}}\right) = v\left(g^{E} + \alpha(\pi) \cdot g^{\sim E}\right), \qquad v' > 0, \; v'' < 0 \tag{3}$$

where $g^{\sim C}$ denotes public spending devoted to the opposing economic class and $g^{\sim E}$ denotes public spending devoted to the opposing ethnic group. The weighting function $\alpha(\cdot)$ is a decreasing functions of π. Recall that as π increases, the share of the poor (rich) class with ethnic ties to members of the rich (poor) class falls—therefore, members of both classes place less weight on public spending that benefits the other class (equation 2). Similarly, as π increases, the share of whites (non-whites) bearing economic ties to

non-whites (non-whites) also falls—therefore members of both ethnic groups place less weight on public spending that benefits the other group (equation 3).

Lobbying costs are defined as follows:

$$c^C\left(l^C\right) = c\left(l^C - \beta(\pi)\cdot l^E\right) \tag{4}$$

$$c^E\left(l^E\right) = c\left(l^E - \beta(\pi)\cdot l^C\right), \qquad c' > 0,\ c'' > 0\,. \tag{5}$$

We see that lobbying on behalf of one's class exhibits spillovers by reducing the costs of lobbying on behalf of one's ethnic group—and vice versa—but that the size of the spillovers depends not just on the intensity of lobbying for each cause but also the extent to which class and ethnic lobbying memberships overlap. Therefore, the weighting function $\beta(\cdot)$ is an increasing function of the parameter π: increases in π cause membership in the non-white group to increasingly overlap membership in the poor class, and membership in the white group to increasingly overlap membership in the rich class. In Truman's terminology, increases in π reduce the number of individuals at large who feel "cross-pressured" by their class and ethnic affiliations.

For simplicity, I assume that lobbying efforts map one-to-one to public spending, so that

$$g^C = l^C \qquad C = P,R \tag{6}$$

$$g^E = l^E \qquad E = W,N. \qquad . \tag{7}$$

We can therefore rewrite equation (1) as

$$u^{CE} = v\left(g^C, g^{\sim C}\right) + v\left(g^E, g^{\sim E}\right) \; - \; \left(c\left(g^C\right) + c\left(g^E\right) + \delta\sum_j g^j\right) \qquad j = R,P,W,N\,. \tag{8}$$

B. Solution

An individual belonging to class C and ethnic group E seeks to maximize equation (8) with respect to g^C and g^E, taking $g^{\sim C}$ and $g^{\sim E}$ as given. The first order conditions are given by:

$$\text{FOC}_C: \quad v'\left(g^C + \alpha(\pi)\cdot g^{\sim C}\right) = c'\left(g^C\right) - \beta(\pi)\cdot c'\left(g^E\right) + \delta \tag{9}$$

$$\text{FOC}_E: \quad v'\left(g^E + \alpha(\pi)\cdot g^{\sim E}\right) = c'\left(g^E\right) - \beta(\pi)\cdot c'\left(g^C\right) + \delta\,. \tag{10}$$

Increases in π, our measure of the extent to which non-whites are over-represented among the poor (or equivalently, the extent to which whites are over-represented among the wealthy), are unambiguously associated with higher public spending on all interest groups and higher deficits. This occurs through two mechanisms. First, increases in π act to reduce the extent to which class- and ethnic-based interest groups can benefit from public spending devoted to opposing interest groups. This exacerbates the common pool problem by making the benefits of public spending more highly concentrated while leaving their costs no less diffuse. Second, increases in π act to increase the extent to which individuals are able to economize on lobbying costs due to increasingly overlapping memberships between interest groups based on class and ethnicity.

This model yields two testable predictions: that higher levels of inter-ethnic inequality (corresponding to the parameter π) should be associated with (i) higher levels of spending, and (ii) higher deficits. We now turn to an empirical test of these dual predictions.

IV. Empirical Framework

I employ an empirical framework based on that of Alesina, Baqir, and Easterly (1999), henceforth ABE, who show that social fragmentation—measured in the conventional way—is a statistically significant determinant of fiscal policy outcomes. They employ three cross-sectional samples of U.S. localities: cities, metropolitan areas, and counties. I restrict my attention to the city sample that ABE use to demonstrate their core results.

The primary objective of the empirical exercise is to explore whether and how the results of ABE are affected when one accounts for not only the extent of class and ethnic cleavage in each city but also the extent to which these cleavages overlap or cross-cut. Towards this end, I construct a measure of inter-ethnic inequality and introduce it into the empirical framework as an explanatory variable. Inter-ethnic inequality has a natural interpretation in the context of overlapping or cross-cutting class and ethnic cleavages: more overlapping leads to higher inter-ethnic inequality, while more cross-cutting leads to lower inter-ethnic inequality.

A. Data

Alesina and his co-authors have graciously made their dataset publicly available to interested researchers. I have taken that dataset and supplemented it with additional data relating to inter-ethnic inequality. All variables take on year 1990 values, and are either drawn directly or constructed from various publications of the U.S. Census Bureau. Data on city finances and certain city demographics are drawn from the 1994 release of the *County and City Databook*. Certain data relating to inter-ethnic inequality are drawn from the Census 1990 Summary Tape File 3. The sample includes all incorporated places that had a 1990 population of 25,000 or more, yielding 1,020 observations.

I adopt the two measures of overall economic inequality and ethnic fragmentation employed by ABE. Overall economic inequality is measured by the ratio of mean to median household income. Ethnic fragmentation is measured on a zero to one scale derived from the following equation:

$$1 - \sum_i (s_i)^2, \tag{11}$$

where s_i is the population share of ethnic group i. The 1990 Census accounted for five ethnic categories: 1) White, 2) Black, 3) American Indian, Eskimo, or Aleut, 4) Asian or Pacific Islander, and 5) Other[20]. As ABE point out, these five ethnic classifications are

[20] For practical purposes, the "Other" category is essentially Hispanic.

somewhat arbitrary, but they also reflect which ethnic groupings are politically salient.[21] The measure of ethnic fragmentation derived from equation (11) describes the probability that two people randomly drawn from a city will belong to the same ethnic group. This measure has been used extensively in empirical research from a broad range of fields.

To measure inter-ethnic inequality, I employ city-level data that the U.S. Census Bureau provides on the ethnic composition of each of nine household income brackets.[22] I introduce my core results using a measure of inter-ethnic inequality that accounts for the extent to which non-white households are overrepresented among the relatively poor. In particular, the measure relies on the mathematical difference between the share of non-white households among households earning less than $25,000 and the overall share of non-white households in the total population. This term is then weighted by the overall share of non-white households in the population in order to account for large cross-city variations in the latter.[23] Formally, inter-ethnic inequality is measured through the following equation:[24]

$$\left(\frac{\text{Non - white HH earning \$25K or less}}{\text{All HH earning \$25K or less}} - \frac{\text{Non - white HH}}{\text{All HH}}\right) \times \left(\frac{\text{Non - white HH}}{\text{All HH}}\right). \qquad (12)$$

A number of alternative measurement strategies will later be considered in the sensitivity analysis section.

Table 1 presents summary statistics for all variables, while Table 2 presents a pairwise correlation matrix that includes the three principal measures of social fragmentation and the two principal fiscal variables of interest. We see in Table 1 that an average of 41% of households lie below the $25,000 income threshhold that I have chosen to define the relatively poor. We see in Table 2 that the measure of inter-ethnic inequality is postively correlated with the two standard measures of social

[21] Alesina, Baqir, and Easterly (1999), p. 1255.

[22] These are: less than $5,000, between $5,000 and $10,000, between $10,000 and $15,000, between $15,000 and $25,000, between $25,000 and $35,000, between $35,000 and $50,000, between $50,000 and $75,000, between $75,000 and $100,000, and above $100,000.

[23] The need to weight by the population share of non-whites is simple. For example, a city in which two out of three non-whites are poor and non-whites compose a large minority should be associated with a higher level of inter-ethnic inequality than a city in which two out of three non-whites are poor but non-whites compose only a small minority.

fragmentation—ethnic fragmentation and overall inequality—but that the correlations are far from perfect at 0.46 and 0.40, respectively.

B. Results

Table 3 presents a first set of results on the determinants of per capita government expenditures in U.S. cities. The first three columns report results obtained from regressing expenditure levels on each of the three social fragmentation measures on its own. Expenditure levels are increasing in each measure, and the relationship is highly statistically significant in each case. Columns (4) through (7) report results that are obtained when we attempt to measure social fragmentation with different combinations of the three measures. We see in column (4) that ethnic fragmentation and overall inequality remain highly significant when these two conventional measures of social fragmentation are used in combination. However, columns (5) through (7) reveal a striking trend.

Column (5) shows results obtained by regressing expenditure levels on ethnic fragmentation and inter-ethnic inequality. The point estimate on inter-ethnic inequality is highly significant and falls well within one standard error of the point estimate from column (3), where inter-ethnic inequality was the lone regressor. In contrast, the point estimate on ethnic fragmentation is much smaller than in previous regressions and also carries a larger standard error, leaving ethnic fragmentation barely significant as a predictor of expenditure levels. The predictive value of overall economic inequality is dealt a similar blow when overall inequality is used in conjunction with inter-ethnic inequality in column (6). Again, the size and significance of the point estimate on inter-ethnic inequality remain nearly unchanged while both the size and significance of the point estimate on overall inequality fall notably. Column (7) shows results obtained from introducing all three measures of social fragmentation into the regression. Inter-ethnic inequality is by far the most statistically significant of the bunch, with a t-statistic of 5.90 compared to t-statistics of 1.22 and 1.71 for ethnic fragmentation and overall inequality, respectively.

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[24] I am grateful to David Romer and Ken Chay for helping me select this measure.

Column (8) shows results obtained from using ABE's preferred specification. Here, social fragmentation is measured by the combination of ethnic fragmentation and overall inequality, and four additional controls have been introduced: income per capita, the log of population size, the percentage of adults aged 25 and over who have completed a college or higher degree, and the percentage of the population that is 65 or older. Both ethnic fragmentation and overall inequality are statistically significant predictors of expenditure levels in this specification.

Column (9) shows results obtained by introducing inter-ethnic inequality into ABE's preferred specification. These results repeat the trend observed earlier. Inter-ethnic inequality is by far the most statistically significant of the three indicators of social fragmentation, and its introduction to the set of regressors considerably diminishes the predictive value of the two conventional indicators. The point estimate for ethnic fragmentation actually becomes indistinguishable from zero while the point estimate for overall inequality remains barely significant after one accounts for inter-ethnic inequality.

Table 3 helps to illustrate the two core results that I described in the paper's introduction. First, inter-ethnic inequality is a highly significant determinant of fiscal outcomes that have been previously attributed to only ethnic fragmentation and overall inequality. Second, these two conventional measures of social fragmentation appear to be significant predictors of fiscal outcomes when used either alone or in conjunction with each other, but can appear far less significant when one also accounts for inter-ethnic inequality; the reverse is not true: the significance of inter-ethnic inequality is robust to the inclusion or exclusion of the other measures. Taken together, these two results suggest that inter-ethnic inequality may play a more important role in determining the analytically relevant extent of social fragmentation than either of the two conventional measures.

Table 4 presents results obtained from running the same set of nine regressions with per capita fiscal surplus before inter-governmental transfers as the dependent variable. The results show that greater inter-ethnic inequality is associated with lower surplus levels and higher deficit levels, and that this relationship is highly robust across specifications. In the specifications that do not include inter-ethnic inequality, ethnic fragmentation is significantly and negatively associated with surplus levels, while overall

inequality generally does not appear to be statistically significant. However, as before, the inclusion of inter-ethnic inequality into a specification containing ethnic fragmentation significantly erodes the predictive value of ethnic fragmentation. And as before, ethnic fragmentation becomes statistically insignificant in the ABE-preferred specification once inter-ethnic inequality is added to the set of regressors.

Table 5 presents results from repeating the empirical exercise with per capita revenue from inter-governmental transfers as the dependent variable. ABE offer two arguments to explain why more socially fragmented cities might command larger transfers from higher levels of government. They write:

> One interpretation could be that the higher levels of governments try to compensate ethnically fragmented communities precisely because of the difficulties that the latter have in directing local resources to the supply of public goods. A more cynical explanation is that more ethnically fragmented localities have more pressure groups that can lobby for support from higher levels of government.[25]

Columns (1) through (3) show that each measure of social fragmentation, considered alone, is a good predictor of transfer revenues: increases in each measure of social fragmentation are associated with increases in transfer revenues. But as we saw with the other two fiscal aggregates, transfer revenues can be reliably predicted by ethnic fragmentation levels only when inter-ethnic inequality is omitted as a predictor. In fact, the point estimate on ethnic fragmentation is statistically insignificant in all specifications that include inter-ethnic inequality as a regressor. In contrast, and as before, the predictive value of inter-ethnic inequality is high and robust across specifications.

For the sake of completeness, Table 6 shows results obtained from running the same nine regressions using another dependent variable: the share of public expenditures devoted to roads and highways protection. ABE argue that this variable is a reasonable proxy for investment in public goods, and that more socially fragmented communities should exhibit more divergent preferences over such goods, making investment in them problematic. My results here are weaker than those obtained for the fiscal aggregates considered above. Inter-ethnic inequality moves with the dependent variable in the

[25] Alesina, Baqir, and Easterly (1999), p.1266.

direction expected. However, ethnic fragmentation and overall inequality appear to be more statistically significant, and their significance levels are robust to the inclusion of inter-ethnic inequality as a regressor.

One reason that I do not emphasize this latter set of results has to do with the fact that some goods which exhibit public goods characteristics in homogenous communities may exhibit fewer of those characteristics in ethnically and economically heterogeneous communities, making them unreliable indicators of public goods investment. ABE actually make the same point, although in different language and to support a different argument. They argue that (i) when ethnic groups are segregated within a city, these groups will have different travel patterns within the city, and each group will only want to establish and maintain roads that are convenient to its own travel patterns; and (ii) this creates disagreement over which roads to build and maintain, leading to a shift in policy focus towards alternative goods that benefit specific groups.[26] However, by the logic of the first argument, the roads themselves are goods that benefit specific groups in socially fragmented cities. Thus the "publicness" of investment in roads may itself be a function of social fragmentation, and this is an undesirable trait for a variable used to gauge the responsiveness of public goods investment to social fragmentation. To the extent that the analytically relevant issue is investment in public goods and not simply investment in roads, it is difficult to draw general conclusions from Table 6.

Table 7 demonstrates that the relationship between social fragmentation and investment in these sometimes more public, sometimes more localized types of publicly-provided goods can be ambiguous. The dependent variable here is the combined expenditure share of spending on i) fire protection and ii) sewerage and solid waste management, two other types of "public good" spending that ABE consider in relation to ethnic fragmentation. We see that these expenditure shares are indeed negatively linked to ethnic fragmentation, but that they are in fact positively linked to both overall inequality and inter-ethnic inequality. It is unclear, theoretically, why social fragmentation based on ethnic diversity should impede public goods investment while social fragmentation based on both overall inequality and inter-ethnic inequality should

[26] Alesina, Baqir, and Easterly (1999), p.1252.

facilitate it. My suspicion is that this result is more likely to be indicative of problems in the way public goods investment is being measured.

I should emphasize that I am not questioning the validity of ABE's theoretical prediction that social fragmentation leads to problems for investment in public goods, nor am I making an empirical claim about how the relationship operates in practice. Instead, I hope merely to present some tentative theoretical and empirical evidence of the difficulty of identifying a suitable empirical measure of investment in public goods.

C. Sensitivity Analysis

All of the results from the previous section were derived with a single candidate measure of inter-ethnic inequality. My first task in this section is to consider the robustness of those results to alternative approaches to measuring inter-ethnic inequality. A simple first check is to weight the first component of the measure (the mathematical difference between the share of non-white households among households earning less than $25,000 and the overall share of non-white households in the total population) by the index of ethnic fragmentation instead of the share of non-white households. Table 8 shows results obtained from using this first alternative measure of inter-ethnic inequality. There are no differences worth reporting between these results and the ones obtained with the original measure of inter-ethnic inequality. This is not surprising, given the correlation of 0.82 between the two alternative weights, ethnic fragmentation and the share of non-white households.

The original measure of inter-ethnic inequality seeks to capture the extent to which non-whites are overrepresented among the relatively poor. An conceptually similar but mathematically different approach is to consider the extent to which the relatively poor are overrepresented among the non-white. Table 9 reports the distribution of households earning less than $25,000 according to ethnicity. An average of 41% of all households earn less than $25,000. Among white households, this figure is 39%; among non-white households, 50%. However, there is wide variation in the extent to which the poor are overrepresented among non-white households. A second alternative measure of inter-ethnic inequality that accounts for this variation is given by the following equation:

$$\left(\frac{\text{Poor Non - white HH}}{\text{All Non - white HH}} - \frac{\text{Poor White HH}}{\text{All White HH}}\right) \times \left(\frac{\text{Non - white HH}}{\text{All HH}}\right), \tag{13}$$

where "poor" is still defined as having an income of less than $25,000. From Table 9, we see that poor households are least common among Asian households in the sample, with an average incidence rate of 38% versus 39% for white households. I therefore also consider a third alternative measure of inter-ethnic inequality, measured in the style of equation (), that groups Asian and white households in the same category. Tables 10 and 11 reports results obtained by using the second and third alternative measures of inter-ethnic inequality. Neither measure brings any substantive changes to the core results.

Tables 12 and 13 present a sensitivity check suggested by ABE. Table 12 reports results obtained from performing the core regressions on only the top quintile of cities by population size. This restricted sample is essentially composed essentially of cities with a 1990 population of greater than 100,000 (only nine cities in the top quintile have less than this figure)—the smallest city in the top quintile by size is Lancaster, California, with a population of 97,291. The only noticeable difference between these results and those obtained for the full sample is that, among the largest cities, ethnic fragmentation *and* inter-ethnic inequality appear to be strongly correlated with fiscal surplus levels. Table 13 presents results for cities in the bottom four quintiles by population size. There are no notable differences between these results and the results obtained using the full sample.

Finally, let us test the sensitivity of the core results to the inclusion of crime rates as a control variable. As ABE argue, cities that suffer from higher crime rates may be forced to devote more public resources towards police and other crime-fighting expenses. In addition, crime rates are positively correlated with all three measures of social fragmentation, making the potential omitted variable problem more severe.[27] Table 14 presents results obtained from adding violent crime per capita to the set of regressors. The U.S. Census Bureau defines incidents of violent crime to include murder, forcible rape, robbery, and aggravated assault. Violent crime reveals itself to be a highly

[27] The figures are 0.60, 0.29, and 0.43 for ethnic fragmentation, overall inequality, and inter-ethnic inequality, respectively.

significant predictor of both per capita spending and per capita surplus levels. However, its inclusion as a control variable does not affect our core results pertaining to i) the significance of inter-ethnic inequality, and ii) the significance of inter-ethnic inequality relative to both overall inequality and ethnic fragmentation. The inclusion of the crime indicator actually causes the point estimate on ethnic fragmentation to reverse sign, although not in a statistically meaningful manner. In contrast, the point estimate on inter-ethnic inequality remain highly stable across specifications.

V. Conclusions

I have argued that patterns of social cleavage play a critical role in defining an analytically appropriate concept of social fragmentation. We have considered evidence of the descriptive, formal theoretical, and empirical sorts that all point to a common result: political conflict arising from a *given* set of class and ethnic cleavages is likely to be more severe in cases where the two types of cleavages are mutually reinforcing than in cases where they cut across one another. I feel that this is an intuitively attractive result that should help to inform future research on both existing topics and new topics related to social fragmentation.

One prospective topic would address the sometimes large cross-country differences that we observe in the relationship between conventional measures of social fragmentation and social conflict behavior. Why do countries that exhibit similar aggregate levels of inequality and ethnic fragmentation sometimes exhibit such different tendencies towards social conflict? The few existing studies that have attempted to answer this question have hypothesized that the reason lies in cross-country differences in the quality of institutions.[28] While institutions must certainly play an important role, this paper suggests that part of the answer may also lie in cross-country differences in inter-ethnic inequality, a phenomenon that cannot be captured by aggregate measures of inequality and ethnic fragmentation.

Social cleavage patterns may also be relevant to economic outcomes that do not involve overt conflict. In another paper, I am exploring their significance in the context

[28] See Easterly (2001) for example.

of credit markets. I draw in that paper on arguments from two existing strands of literature. The first argument comes from the theoretical literature on economic growth: societies characterized by high levels of economic inequality are more likely to suffer from credit market inefficiencies arising from limited liability for borrowers.[29] The second argument comes from the economics and sociology literature on ethnic groups: various types of informal enforcement mechanisms (e.g., based on social norms) tend to function more effectively within ethnic groups than between ethnic groups.[30] I combine these two arguments to argue that in unequal societies, cleavage patterns based on class and ethnicity can affect the functioning of credit markets function by determining the extent to which credit transactions can rely on within-group enforcement mechanisms. Overlapping cleavages lend themselves to a situation in which lenders belong primarily to one ethnic group and borrowers to another, forcing the majority of transactions to take place at arm's length, while cross-cutting cleavages make within-group lending more feasible. To the extent that within-group transactions are governed by superior enforcement mechanisms, cross-cutting class and ethnic cleavages may be favorable to credit market efficiency. I am in the process of conducting an empirical test of this theoretical prediction using data on lending and demography in regions of Cote d'Ivoire.

References

Acemoglu, Daron and James Robinson, "Inefficient Redistribution," *American Political Science Review,* 95:3 (2001), pp.649-661.

Aghion, Philippe and Patrik Bolton, "A Trickle-Down Theory of Growth and Development with Debt Overhang," *Review of Economic Studies*, 64:2 (April 1997), pp.151-162.

Aghion, Phillipe, Eve Caroli, and Cecilia Garcia-Penalosa, "Inequality and Economic Growth: The Perspective of the New Growth Theories," *Journal of Economic Literature*, 37:4 (December 1999), pp.1615-1660.

[29] Banerjee and Newman (1993), Aghion and Bolton (1997).
[30] See, among others, Colson (1974), Fearon and Laitin (1996), and Miguel and Gugerty (2002).

Aizenman, Joshua, "Fiscal Discipline in a Union," in Sturzenneger, Federico and Mariano Tommasi (eds.), *The Political Economy of Reform*, Cambridge, MA: *MIT Press*, 1998.

Alesina, Alberto, Reza Baqir, and William Easterly, "Public Goods and Ethnic Divisions," *Quarterly Journal of Economics*, 114:4 (1999), pp.1243-1284.

Alesina, Alberto, and Allan Drazen, ‘‘Why Are Stabilizations Delayed?’’ *American Economic Review,* (1991), 1170–1188.

Alesina, Alberto and Eliana La Ferrara, "Participation in Heterogeneous Communities," *Quarterly Journal of Economics*, 115:3 (August 2000), pp.847-904.

Alesina, Alberto and Roberto Perotti, "Income Distribution, Political Instability, and Investment," *European Economic Review*, 40:6, pp.1203-1228.

Bentley, Arthur F., *The Process of Government: A Study of Social Pressures*, Chicago, IL: University of Chicago Press, 1908.

Banerjee, Abhijit and Andrew F. Newman, "Occupational Choice and the Process of Development," *Journal of Political Economy*, 101:2, pp.274-298.

Banerjee, Abhijit, Dilip Mookherjee, Kaivan Munshi, and Debraj Ray, "Inequality, Control Rights, and Rent-seeking," *Journal of Political Economy*, 109:1 (2001), pp.138-190.

Bardhan, Pranab, *Land, Labor and Rural Poverty*, New York: Columbia University Press, 1984.

Bardhan, Pranab, "Method in the Madness? A Political-Economy Analysis of the Ethnic Conflicts in Less Developed Countries," *World Development*, 25:9 (1997), pp.1381-1398.

Bardhan, Pranab, Maitreesh Ghatak, and Alexander Karaivanov, "Inequality, Market Imperfections, and the Voluntary Provision of Collective Goods," *unpublished manuscript*, 2002.

Baqir, Reza, "Districting and Overspending" *Journal of Political Economy*, 110:6 (2002), pp.1318-1354.

Benabou, Roland, "Inequality and Growth," *NBER Macroeconomics Annual*, 11 (1996), pp.11-74.

Besley, Timothy and Stephen Coate, "Sources of Inefficiency in a Representative Democracy: A Dynamic Analysis," *American Economic Review*, 88:1 (1998), pp.139-156.

Bouton, Marshall, *Agrarian Radicalism in South India*, Princeton, New Jersey: Princeton University Press, 1985.

Colson, Elizabeth, *Tradition and Contract*, Chicago: Aldine, 1974.

Coser, Lewis A., *The Functions of Social Conflict*, Glencoe: The Free Press, 1956.

Dahl, Robert A., *Who Governs? Democracy and Power in an American City*, New Haven, CT: Yale University Press, 1961.

Dahrendorf, Ralf, *Class and Class Conflict in Industrial Society*, Stanford: Stanford University Press, 1959.

Drazen, Allan, *Political Economy in Macroeconomics*, Princeton, New Jersey: Princeton University Press, 2000.

Duflo, Esther, and Abhijit Banerjee, "Inequality and Growth: What Can the Data Say?" *unpublished manuscript*, 2003.

Easterly, William, "Can Institutions Resolve Ethnic Conflict?," *Economic Development and Cultural Change*, 49:4 (2001), pp.687-706.

Fearon, James and David Laitin, "Explaining Interethnic Cooperation," *American Political Science Review*, 90:4 (December 1996), pp.715-735.

Galor, Oded and Joseph Zeira, "Income Distribution and Macroeconomics," *Review of Economic Studies*, 60:1, pp.35-52.

Grossman, Herschel and Minseoung Kim, "Predators, Moral Decay, and Moral Revivals," *European Journal of Political Economy*, 16:2 (June 2000), pp.173-187.

Gusfield, Joseph R., "Mass Society and Extremist Politics," *American Sociological Review* 27:1 (February 1962), pp. 19-30.

Hirshleifer, Jack, "The Technology of Conflict as an Economic Activity," *American Economic Review*, 68:2 (May 1991), pp. 130-134.

Horowitz, D.L., *Ethnic Groups in Conflict*, Berkeley, CA: University of California Press, 1985.

Kornhauser, William, *The Politics of Mass Society*, Glencoe: The Free Press, 1959.

Lijphart, Arend, *The Politics of Accommodation*, Berkeley, CA: University of California Press, 1968.

Lipset, Seymore M., *Political Man: The Social Bases of Politics*, Garden City, NY: Doubleday, 1960.

Luttmer, Erzo F.P., "Group Loyalty and the Taste for Redistribution," *unpublished manuscript*, 1997.

Meltzer, A., and S. Richards, "A Rational Theory of the Size of Government," *Journal of Political Economy,* (1981), 314–327.

Miguel, Edward and Mary Kay Gugerty, "Ethnic Diversity, Social Sanctions, and Public Goods in Kenya," *unpublished manuscript*.

Mondino, Guillermo, Federico Sturzenegger, and Mariano Tommasi, "Recurrent High Inflation and Stabilization: A Dynamic Game," in Sturzenneger, Federico and Mariano Tommasi (eds.), *The Political Economy of Reform*, Cambridge, MA: *MIT Press*, 1998.

Page, Clarence, *Showing My Color: Impolite Essays on Race and Identity*, Harper Collins: 1996.

Persson, Torsten and Guido Tabellini, *Political Economics: Explaining Economic Policy*, Cambridge, MA: *MIT Press*, 2000.

Rajan, Raghuram and Luigi Zingales, "The Tyranny of Inequality," *Journal of Public Economics*, 76:3 (June 2000), pp.521-558.

Rae, Douglas W. and Michael Taylor, *The Analysis of Political Cleavages*, Yale, CT: Yale University Press, 1970.

Robinson, James, "Social Identity, Inequality, and Conflict," *Economics of Governance*, 2 (2001), pp.85-99.

Rodrik, Dani, "Where Did All the Growth Go? External Shocks, Social Conflict, and Growth Collapses," *Journal of Economic Growth*, 4 (1999), pp.385-412.

Skaperdas, Sergios, "Cooperation, Conflict, and Power in the Absence of Property Rights," *American Economic Review*, 82:4 (September 1992), pp.720-729.

Truman, David B., *The Governmental Process: Political Interests and Public Opinion*, New York: Alfred A. Knopf, 1951.

Velasco, Andres, "The Common Property Approach to the Political Economy of Fiscal Policy," in Sturzenneger, Federico and Mariano Tommasi (eds.), *The Political Economy of Reform*, Cambridge, MA: *MIT Press*, 1998.

Velasco, Andres, ‘‘A Model of Fiscal Deficits and Delayed Fiscal Reforms,’’in Poterba, James and Jurgen von Hagen (eds.), *Fiscal Institutions and Fiscal Performance,* Chicago: University of Chicago Press, 1999.

Verba, Sidney, "Organizational Membership and Democratic Consensus," *Journal of Politics* 27:3 (August 1965), pp.467-497.

Weingast, B., K. Shepsle, and C. Johnsen, ‘‘The Political Economy of Benefits and Costs: A Neoclassical Approach to Distributive Politics,’’ *Journal of Political Economy*, (1981), 642–664.

Table 1
Summary Statistics

	Mean	Standard Dev.	Minimim	Maximum
I. Basic demographic variables				
White Share	0.79	0.17	0.07	0.99
Black Share	0.12	0.15	0.00	0.90
American Indian Share	0.01	0.01	0.00	0.14
Asian Share	0.04	0.06	0.00	0.71
Other Share	0.05	0.08	0.00	0.65
Income Per Capita	14,794.48	4,884.06	5,561.00	55,463.00
Log of Population	11.00	0.77	10.13	15.81
Percentage BA Graduates	0.23	0.12	0.02	0.71
Percentage of Pop. Aged 65+	0.13	0.05	0.02	0.49
II. Social Fragmentation Variables				
Ethnic Fragmentation	0.29	0.18	0.01	0.76
Economic Inequality	1.26	0.14	1.03	2.25
Inter-ethnic Inequality	0.08	0.15	-0.74	0.96
Non-White HH as Share of All HH	0.18	0.15	0.00	0.91
Poor Non-White HH as Share of Poor HH	0.20	0.17	0.00	0.90
Poor HH as Share of All HH	0.41	0.14	0.07	0.76
Poor Non-White HH as Share of Non-White HH	0.50	0.20	0.02	0.86
III. Fiscal Variables				
Total Spending Per Capita	876.24	561.08	161.00	7,154.00
Budget Surplus Per Capita	-229.67	285.83	-2,320.51	411.05

Table 2
Pairwise Correlation Matrix for Selected Variables

	Ethnic Fragmentation	Economic Inequality	Inter-ethnic Inequality	Spending Per Capita	Budget Surplus Per Capita
Ethnic Fragmentation	1				
Economic Inequality	0.24	1			
Inter-ethnic Inequality	0.46	0.40	1		
Spending Per Capita	0.15	0.15	0.26	1	
Budget Surplus Per Capita	-0.13	-0.03	-0.19	-0.76	1

Table 3
Dependent variable: Total Government Expenditures Per Capita

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Constant	734.51 (33.63)	91.71 (160.49)	802.38 (19.12)	126.85 (159.64)	766.41 (33.21)	505.02 (167.59)	484.78 (178.38)	-2127.03 (293.59)	-1625.11 (304.84)
Ethnic Fragmentation	485.31 (98.59)			392.86 (100.75)	143.65 (108.44)		131.95 (108.55)	290.56 (112.12)	104.53 (116.08)
Economic Inequality		620.49 (126.19)		501.97 (128.95)		240.63 (134.74)	230.27 (134.97)	408.19 (153.80)	171.12 (158.24)
Inter-ethnic Inequality*			**960.79 (114.07)**		**883.07 (128.24)**	**871.22 (124.49)**	**803.68 (136.30)**		**702.42 (132.59)**
Income Per Capita								0.02 (0.01)	0.02 (0.00)
Log of Population								181.96 (22.88)	161.67 (22.90)
Percentage BA Graduates								-282.81 (238.76)	-281/38 (235.64)
Fraction of Pop. aged 65+								1031.52 (397.93)	1062.74 (392.76)
n	1020	1020	1020	1020	1020	1020	1020	1020	1020
Adj. R^2	0.02	0.02	0.06	0.04	0.06	0.07	0.07	0.12	0.14

* Measured by: (Share of non-white households among households earning less than $25,000 – Overall population share of non-white households) × Population share of non-white households

Table 4
Dependent variable: Budget Surplus Before Inter-governmental Transfers

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Constant	-170.22 (17.20)	-146.14 (82.68)	-202.10 (9.90)	-164.27 (82.24)	-181.58 (17.19)	-335.33 (86.78)	-321.86 (87.14)	559.16 (155.69)	339.17 (162.36)
Ethnic Fragmentation	-203.56 (50.42)			-202.66 (51.91)	-81.96 (56.11)		-87.78 (56.18)	-129.00 (59.45)	-47.47 (61.83)
Economic Inequality		-66.06 (65.01)		-4.92 (66.43)		107.81 (69.76)	114.71 (69.85)	26.05 (81.56)	129.96 (84.28)
Inter-ethnic Inequality			**-358.66 (59.04)**		**-314.31 (66.36)**	**-398.79 (64.46)**	**-353.85 (70.54)**		**-307.87 (70.62)**
Income Per Capita								0.00 (0.00)	0.00 (0.00)
Log of Population								-64.82 (12.13)	-55.93 (12.20)
Percentage BA Graduates								164.42 (126.61)	163.80 (125.50)
Fraction of Pop. aged 65+								-508.31 (211.02)	-521.99 (209.19)
n	1020	1020	1020	1020	1020	1020	1020	1020	1020
Adj. R^2	0.01	0.00	0.03	0.01	0.04	0.04	0.04	0.05	0.07

Table 5
Dependent Variable: Revenue from Inter-governmental Transfers Per Capita

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Constant	160.94 (14.77)	81.43 (70.85)	182.52 (8.45)	95.22 (70.58)	172.54 (14.69)	254.32 (74.17)	247.72 (74.54)	-660.07 (131.97)	-459.34 (137.42)
Ethnic Fragmentation	164.15 (43.29)			154.15 (44.55)	39.86 (47.96)		42.98 (48.05)	53.75 (50.39)	-20.64 (52.33)
Economic Inequality		100.79 (55.71)		54.28 (57.02)		-58.10 (59.63)	-61.48 (59.75)	4.33 (69.13)	-90.48 (71.33)
Inter-ethnic Inequality			342.80 (50.42)		321.23 (56.72)	364.43 (55.09)	342-42 (60.34)		280.91 (59.77)
Income Per Capita								0.00 (0.00)	0.00 (0.00)
Log of Population								73.82 (10.28)	65.71 (10.32)
Percentage BA Graduates								-104.25 (107.32)	-103.67 (106.22)
Fraction of Pop. aged 65+								531.19 (178.86)	543.67 (177.05)
n	1020	1020	1020	1020	1020	1020	1020	1020	1020
Adj. R^2	0.01	0.00	0.04	0.01	0.04	0.04	0.04	0.07	0.09

Table 6
Dependent Variable:Share of Total Expenditures Devoted to Roads and Highways Protection

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Constant	0.14 (0.00)	0.24 (0.02)	0.12 (0.00)	0.23 (0.02)	0.13 (0.00)	0.21 (0.02)	0.22 (0.02)	0.28 (0.03)	0.26 (0.04)
Ethnic Fragmentation	-0.10 (0.01)			-0.08 (0.01)	-0.08 (0.01)		-0.07 (0.01)	-0.08 (0.01)	-0.08 (0.01)
Economic Inequality		-0.10 (0.01)		-0.08 (0.01)		-0.07 (0.02)	-0.07 (0.02)	-0.05 (0.02)	-0.04 (0.02)
Inter-ethnic Inequality			-0.09 (0.01)		-0.05 (0.02)	-0.06 (0.01)	-0.03 (0.02)		-0.02 (0.02)
Income Per Capita								0.00 (0.00)	0.00 (0.00)
Log of Population								-0.01 (0.00)	-0.01 (0.00)
Percentage BA Graduates								0.01 (0.03)	0.01 (0.03)
Fraction of Pop. aged 65+								-0.25 (0.05)	-0.25 (0.05)
n	1020	1020	1020	1020	1020	1020	1020	1020	1020
Adj. R^2	0.06	0.04	0.04	0.09	0.07	0.06	0.09	0.13	0.13

Table 7
Dependent Variable:Share of Total Expenditures Devoted to Fire Protection and Sewerage and Solid Waste Management

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Constant	0.23 (0.01)	0.04 (0.03)	0.21 (0.00)	0.03 (0.03)	0.24 (0.01)	0.05 (0.03)	0.06 (0.03)	0.22 (0.06)	0.27 (0.06)
Ethnic Fragmentation	-0.05 (0.02)			-0.08 (0.02)	-0.10 (0.02)		-0.10 (0.02)	-0.08 (0.02)	-0.10 (0.02)
Economic Inequality		0.14 (0.02)		0.02 (0.02)		0.13 (0.03)	0.14 (0.03)	0.13 (0.03)	0.11 (0.03)
Inter-ethnic Inequality			0.07 (0.02)		0.12 (0.02)	0.02 (0.02)	0.07 (0.03)		0.07 (0.03)
Income Per Capita								0.00 (0.00)	0.00 (0.00)
Log of Population								-0.01 (0.00)	-0.01 (0.00)
Percentage BA Graduates								0.03 (0.05)	0.03 (0.05)
Fraction of Pop. aged 65+								0.25 (0.08)	0.26 (0.08)
n	1020	1020	1020	1020	1020	1020	1020	1020	1020
Adj. R^2	0.01	0.03	0.01	0.05	0.03	0.03	0.05	0.11	0.12

Table 8
Sensitivity Analysis: First Alternative Measure of Inter-ethnic Inequality*

	(3)	(5)	(6)	(7)	(9) *controls added*
Dependent Variable: Total Spending Per Capita					
Constant	791.84 (19.93)	759.084 (33.17)	463.85 (166.55)	444.74 (167.39)	-1,669.19 (305.73)
Inter-ethnic Inequality 1	693.54 (85.08)	635.52 (97.16)	621.78 (92.34)	571.29 (102.67)	481.63 (100.46)
Ethnic Fragmentation		136.35 (110.38)		124.17 (110.42)	100.66 (117.78)
Economic Inequality			266.32 (134.26)	257.62 (134.47)	216.77 (157.31)
n	1020	1020	1020	1020	1020
Adj. R^2	0.06	0.06	0.06	0.06	0.14
Dependent Variable: Surplus Per Capita					
Constant	-199.23 (10.32)	-178.47 (17.16)	-310.40 (86.31)	-296.39 (86.69)	365.91 (162.81)
Inter-ethnic Inequality 1	-250.12 (44.04)	-213.35 (50.28)	-274.44 (27.85)	-237.45 (53.17)	-203.39 (53.49)
Ethnic Fragmentation		-86.41 (57.12)		-90.98 (57.19)	-48.85 (62.72)
Economic Inequality			90.26 (69.58)	96.64 (69.64)	106.85 (83.76)
n	1020	1020	1020	1020	1020
Adj. R^2	0.03	0.03	0.03	0.03	0.06

* Measured by: (Share of non-white households among households earning less than $25,000 – Overall population share of non-white households) × Ethnic Fragmentation

Table 9
Poor Households by Ethnicity as Shares of All Households by Ethnicity

	Mean	Std. Dev.	Minimum	Maximum
Poor HH as Share of All HH	0.41	0.14	0.07	0.76
Poor White HH as Share of White HH	0.39	0.13	0.07	0.76
Poor Black HH as Share of Black HH	0.51	0.21	0.00	1.00
Poor Amer. Ind. HH as Share of Amer. Ind. HH	0.49	0.27	0.00	1.00
Poor Asian HH as Share of Asian HH	0.38	0.22	0.00	1.00
Poor Other HH as Share of Other HH	0.48	0.24	0.00	1.00
Poor Non-White HH as Share of Non-White HH	0.50	0.20	0.02	0.86
Poor Non-White and Non-Asian HH as Share of Non-White and Non-Asian HH	0.51	0.19	0.00	0.89

Table 10
Sensitivity Analysis: Second Alternative Measure of Inter-ethnic Inequality*

	(3)	(5)	(6)	(7)	(9) *controls added*
Dependent Variable: Total Spending Per Capita					
Constant	799.81 (20.34)	748.68 (33.29)	474.30 (174.14)	430.36 (175.44)	-1723.97 (307.60)
Inter-ethnic Inequality 2	372.20 (53.10)	318.02 (59.95)	318.51 (60.22)	266.34 (66.08)	264.29 (64.49)
Ethnic Fragmentation		213.19 (110.00)		209.33 (109.89)	147.21 (166.66)
Economic Inequality			266.17 (141.42)	261.05 (141.27)	174.60 (162.98)
n	1020	1020	1020	1020	1020
Adj. R2	0.05	0.05	0.05	0.05	0.14
Dependent Variable: Surplus Per Capita					
Constant	-200.83 (10.47)	-175.27 (17.15)	-343.01 (89.72)	-320.28 (90.39)	376.54 (163.48)
Inter-ethnic Inequality 2	-140.45 (27.34)	-113.37 (30.87)	-163.90 (31.03)	-136.91 (34.05)	-119.75 (34.38)
Ethnic Fragmentation		-106.56 (56.64)		-108.32 (56.61)	-64.05 (62.00)
Economic Inequality			116.27 (72.86)	118.92 (72.78)	131.89 (86.62)
n	1020	1020	1020	1020	1020
Adj. R2	0.02	0.03	0.03	0.03	0.06

*Measured by (Share of non-white households that are poor – Share of white households that are poor) × Population share of non-white households

Table 11
Sensitivity Analysis: Third Alternative Measure of Inter-ethnic Inequality*

	(3)	(5)	(6)	(7)	(9) *controls added*
Dependent Variable: Total Spending Per Capita					
Constant	797.83	753.23	432.96	391.08	-1,782.29
	(20.65)	(33.45)	(171.61)	(173.26)	(305.66)
Inter-ethnic Inequality 3	380.55	324.13	321.31	265.82	258.16
	(55.56)	(64.73)	(61.98)	(70.17)	(68.40)
Ethnic Fragmentation		192.54		190.62	128.43
		(113.64)		(113.45)	(119.39)
Economic Inequality			298.24	296.38	199.44
			(139.26)	(139.14)	(162.50)
n	1020	1020	1020	1020	1020
Adj. R2	0.04	0.04	0.05	0.05	0.13
Dependent Variable: Surplus Per Capita					
Constant	-199.08	-177.20	-325.68	-304.78	399.41
	(10.62)	(17.20)	(88.36)	(89.22)	(162.36)
Inter-ethnic Inequality 3	-148.49	-120.82	-169.04	-141.36	-119.63
	(28.57)	(33.29)	(31.91)	(36.13)	(36.33)
Ethnic Fragmentation		-94.44		-95.11	-53.87
		(58.45)		(58.42)	(63.41)
Economic Inequality			103.48	104.41	122.78
			(71.70)	(71.65)	(86.32)
n	1020	1020	1020	1020	1020
Adj. R2	0.02	0.03	0.03	0.03	0.06

* Measured by (Share of non-white and non-Asian households that are poor – Share of white and Asian households that are poor) × Population share of non-white and non-Asian households

Table 12
Sensitivity Analysis: Top Quintile of Cities by Population

	(3)	(5)	(6)	(7)	(9) *controls added*
Dependent Variable: Total Spending Per Capita					
Constant	833.02	642.84	298.15	107.71	-2,226.51
	(69.50)	(147.51)	(680.36)	(690.89)	(1,078.49)
Inter-ethnic Inequality	1,812.34	1,557.50	1,663.68	1,408.74	1,350.08
	(291.29)	(338.86)	(346.98)	(387.61)	(380.01)
Ethnic Fragmentation		578.91		578.99	790.44
		(396.38)		(396.75)	(419.50)
Economic Inequality			432.93	433.13	-71.23
			(547.82)	(546.28)	(664.18)
n	204	204	204	204	204
Adj. R^2	0.16	0.16	0.16	0.16	0.22
Dependent Variable: Surplus Per Capita					
Constant	-232.14	-92.53	-418.41	-278.64	-63.77
	(36.46)	(76.98)	(357.21)	(360.89)	(576.58)
Inter-ethnic Inequality	-600.83	-413.76	-652.60	-465.49	-516.90
	(152.80)	(176.85)	(182.17)	(202.47)	(203.16)
Ethnic Fragmentation		-424.97		-424.95	-487.08
		(206.87)		(207.24)	(224.27)
Economic Inequality			150.77	150.63	480.28
			(287.62)	(285.35)	(355.08)
n	204	204	204	204	204
Adj. R^2	0.07	0.08	0.06	0.08	0.10

Table 13
Sensitivity Analysis: All Except Top Quintile of Cities by Population

	(3)	(5)	(6)	(7)	(9) *controls added*
Dependent Variable: Total Spending Per Capita					
Constant	794.67	805.09	479.30	486.74	-1,002.83
	(17.59)	(30.01)	(151.77)	(152.34)	(496.43)
Inter-ethnic Inequality	342.20	363.78	242.14	269.88	349.72
	(121.68)	(131.74)	(130.51)	(138.64)	(136.23)
Ethnic Fragmentation		-43.81		-60.86	21.60
		(102.25)		(102.34)	(109.54)
Economic Inequality			255.18	260.87	251.03
			(121.98)	(122.40)	(147.20)
n	816	816	816	816	816
Adj. R^2	0.01	0.01	0.01	0.01	0.06
Dependent Variable: Surplus Per Capita					
Constant	-196.34	-201.68	-306.74	-308.78	90.18
	(9.26)	(15.80)	(80.04)	(80.36)	(266.66)
Inter-ethnic Inequality	-150.91	-161.96	-185.94	-193.55	-200.84
	(64.07)	(69.38)	(68.83)	(73.13)	(73.18)
Ethnic Fragmentation		22.43		16.70	14.69
		(53.84)		(53.98)	(58.84)
Economic Inequality			89.33	87.77	79.86
			(64.33)	(64.56)	(79.07)
n	816	816	816	816	816
Adj. R^2	0.01	0.00	0.01	0.01	0.02

Table 14
Sensitivity Analysis: Controlling for Violent Crime

	(3)	(5)	(6)	(7)	(9) *controls added*
Dependent Variable: Total Spending Per Capita					
Constant	730.77 (28.12)	759.78 (36.36)	528.84 (181.58)	562.59 (183.59)	-1,388.70 (337.37)
Inter-ethnic Inequality	700.17 (131.26)	741.50 (135.27)	648.52 (139.03)	690.35 (143.08)	642.48 (138.31)
Ethnic Fragmentation		-168.31 (133.79)		-164.75 (133.82)	-109.43 (135.60)
Economic Inequality			165.91 (147.39)	161.51 (147.39)	76.99 (175.69)
Violence Per Capita	12.86 (2.97)	15.11 (3.47)	12.36 (3.01)	14.57 (3.50)	12.58 (3.71)
n	912	912	912	912	912
Adj. R^2	0.08	0.08	0.08	0.08	0.16
Dependent Variable: Surplus Per Capita					
Constant	-162.53 (14.31)	-171.02 (18.51)	-350.77 (92.24)	-361.58 (93.31)	279.17 (177.11)
Inter-ethnic Inequality	-243.26 (66.79)	-255.37 (68.87)	-291.41 (70.63)	-304.80 (72.72)	-285.72 (72.61)
Ethnic Fragmentation		49.31 (68.12)		52.75 (68.01)	28.36 (71.18)
Economic Inequality			154.67 (74.87)	156.08 (74.91)	182.68 (92.23)
Violence Per Capita	-5.80 (1.51)	-6.45 (1.77)	-6.27 (1.53)	-6.98 (1.78)	-4.12 (1.95)
n	912	912	912	912	912
Adj. R^2	0.05	0.05	0.05	0.05	0.08