**The Implications of Constructivism for Studying the Relationship
Between Ethnic Diversity and Economic Growth***

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A growing literature addresses the relationship between ethnic diversity and economic growth.[1] Although the precise mechanism through which ethnic diversity is claimed to affect economic growth varies somewhat from study to study,[2] nearly every analysis in this literature demonstrates the connection between diversity and growth by adopting one or another off-the-shelf index of ethnic fractionalization and employing it as an independent variable in a cross-national growth regression. Figure 1, which employs one such measure to illustrate the relationship between these two variables, makes clear why so many scholars find the connection between ethnic fractionalization and economic performance so plausible, and why so many recent analyses of the sources of growth have adopted ethnic diversity as a key control.[3]

Figure 1 Here

Constructivism makes two important claims that are relevant to the enterprise of testing the effect of a country's ethnic diversity on its economic growth rate.[4] First, it teaches that individuals possess multiple ethnic identities whose salience depends on the context in which the individuals find themselves. This insight – and its corollary that societies contain multiple dimensions of ethnic cleavage (or, in Chandra and Boulet's (2003) terms, multiple "ethnic demographies") – has important implications for how ethnic diversity is measured. For if countries have more than one potentially relevant landscape of ethnic division, then we will need to know which one to use to calculate the index of ethnic fractionalization that we put on the right hand side of our growth equation. If a country is divided by race and by religion, which of these cleavage dimensions should we focus on when we attempt to measure the country's ethnic diversity?

Second, the constructivist literature shows that ethnic groups are products of political and historical processes. Once taken as fixed entities with foundations extending back into the mists of time, ethnic groups are now recognized to be social constructions with identifiable origins and histories of expansion and contraction, amalgamation and division. A first implication of this insight is, again, relevant to measurement. If ethnic groups can grow and shrink, emerge and disappear, then the ethnic demographies that they collectively define will be fluid. Assessments of a country's ethnic diversity – even along a single dimension of social cleavage – will thus necessarily shift over time, and our measures of ethnic diversity will need to accommodate such changes.

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[1] For a comprehensive recent review, see Alesina and La Ferrara (2004).

[2] For Annett (2001) and Rodrik (1999), the effects of ethnic diversity on growth effects lie in the instability that diversity generates. For Alesina et al (1999) and La Porta et al (1999), diversity undermines growth by disrupting public goods provision. For Easterly and Levine (1997), it undercuts economic performance by producing multiple macroeconomic policy distortions.

[3] I use Fearon's measure of ethnic diversity (Fearon 2003), but other measures generate similar patterns.

[4] By constructivism, I refer to the broad literature that documents the fluidity, context-dependence, and historicity of ethnic identities and ethnic groups.

In addition, if a country's ethnic demography can change, then we need to be very careful to make sure that the process that generates this change is unrelated to the outcome that we want to use the country's ethnic demography to explain. One of the principal reasons why ethnic diversity is prized as a variable in econometric analyses of growth is because, like a country's topography or climate, it is assumed to be exogenous to the country's rate and level of development (Mauro 1995; Easterly and Levine 1997). Such a position is easy to maintain if we assume that ethnic groups are fixed and unchanging. But once we recognize that ethnic groups and the ethnic demographies they imply are fluid, it becomes critical to investigate whether a country's degree of ethnic diversity might be a product of its rate of economic growth. Similarly, we must entertain the possibility that both a country's ethnic diversity and its economic performance might be simultaneous products of some third variable, in which case the observed relationship between them would be spurious.

This paper is divided into two parts. In Part I, I focus on measurement issues. In particular, I elaborate on the problems raised for testing the relationship between ethnic diversity and economic growth by the fact that societies possess multiple dimensions of ethnic cleavage and that the number and sizes of groups on each cleavage dimension can change over time and across contexts. In Part II, I explore the implications of accepting that ethnic diversity must be viewed as an outcome rather than as a given. First I show why this obliges us to treat a country's ethnic diversity as at least potentially endogenous to its growth rate. Then I show why it forces us to address the possibility that economic growth and diversity might be related indirectly through a third factor that generates simultaneous changes in both. In both cases, I show that the warnings to which the constructivist approach gives rise, while theoretically interesting, seem to matter only at the margin and probably do not imperil empirical estimates of the impact of diversity on growth. The final section of the paper summarizes my findings and sketches an agenda for future research.

MEASUREMENT ISSUES

One of the key insights of the constructivist literature is that the ethnic demography of a country cannot be taken as fixed. Yet, as the foregoing discussion suggests, we need to distinguish between two different kinds of ethnic demographic change. The first kind stems from the fact that societies contain multiple dimensions of ethnic cleavage, each of which can be salient in different settings and historical moments. Take the case of India, whose population can be divided along lines of religion, language, and caste, among other principles of social cleavage. Seen in terms of religion, Indian society contains roughly a half dozen groups, including Hindus, Muslims, Christians, Sikhs, Buddhists, and Jains. Seen in terms of language, it is divided into Hindi-speakers, Bengali-speakers, Telugu-speakers, Marathi-speakers, Tamil-speakers, Urdu-speakers, Gujarati-speakers, and speakers of other languages. Caste memberships define yet a third, quite different, set of social categories. As this enumeration of groups makes clear, India's ethnic landscape looks quite different when it is defined in terms of one of these bases of social division rather than another. Shifting from a world (for example, a

political context or an issue area) in which competition takes place along religious lines to one in which it takes place along language group lines transforms the salient ethnic landscape from one containing one large group (Hindus) and a handful of smaller ones (Muslims, Christians, and so forth) into one containing roughly a dozen groups of much more even size. And this brings substantial changes in the country's measured level of diversity.

If, following standard practice, we were to summarize India's ethnic demography by plugging the sizes of its ethnic groups into a Herfindahl concentration formula,[5] then the resulting index of ethnic fractionalization would vary tremendously depending on whether the groups were enumerated on the basis of religion, language, or caste. Defined by its religious divisions, India's index of ethnic diversity is 0.31; determined by language, it rises to 0.79.[6] The former value suggests a fairly homogeneous social landscape; the latter implies a very heterogeneous one. Clearly, our assessment of the heterogeneity of Indian society depends considerably on which cleavage we decide to focus on. And India is not an isolated example. Alesina et al (2003) have compiled separate measures of religious and linguistic fractionalization for 190 countries. The pairwise correlation between the two measures is just 0.27. This suggests that "getting the cleavage wrong" (i.e., building one's ethnic fractionalization measure from a country's religious divisions when one should have focused on its language divisions) will lead to very large errors in one's accounting of the country's ethnic diversity – and, by extension, flawed estimates of the effects of diversity on growth.

A second, quite different, kind of ethnic demographic change is produced by changes in the number and relative sizes of groups arrayed along a particular cleavage dimension. Thus, for example, even if we were to calculate a country's ethnic diversity by focusing only on its language groups, its degree of ethnic fractionalization would change if members of one language community invested in learning another language and, over time, came to identify themselves and to be accepted as members of that new community. The assimilation of Lapps into the broader category of "Norwegians" in Norway offers an illustration of precisely such a process. There, the amalgamation of the two communities has led to an increasing homogenization of Norway's ethnic demography. Such changes need not always be in the direction of greater homogenization, however. The differentiation of Isaaqs and Hawiyes in Somalia or of Serbs and Croats in the former Yugoslavia provide examples of changes toward increasing diversity. In both cases, groups that once viewed each other as members of the same language community now insist that they speak different languages and consciously adopt vocabularies and speech forms to distinguish themselves from each other (Laitin and Posner 2001). As these processes of linguistic delineation have

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[5] The Herfindahl formula takes the form: $F = 1 - \sum_{i=1}^{n} p_i^2$, where p_i is the population share of the

i^{th} group. The index value conveys the probability that any two members of the society taken at random will be from different groups.

[6] These figures were calculated from data on religious group membership and language use in India reported in Hunter (1997). Alesina et al (2003) provide very similar figures for India's religious and linguistic diversity: 0.33 and 0.81, respectively.

unfolded, the social demographies of these countries have become more complex and their degrees of linguistic diversity have increased.

Apart from internal redefinitions of these sorts, an important exogenous source of ethnic demographic change is migration.[7] Today, nearly one person in ten in the United States has migrated from a foreign country, and the number of migrants grows every year. In Queens County, New York, for example, the number of census tracts that were predominantly white dropped from 243 in 1990 to 116 in 2000 (Mehta 2003). In California, where every fourth resident is foreign-born, the effects of migration on ethnic diversity are particularly striking. At the turn of the millennium, California contained nearly 9 million people who had migrated from other countries, 89 percent of whom speak a language other then English, and the majority of whom are non-white and non-Protestant (Migration Policy Institute 2003). This massive influx of foreign migrants has affected the state's linguistic, racial, and religious demography, making California's ethnic landscape increasingly heterogeneous. Almost irrespective of the dimension of ethnic identity one might use to construct it – language, race, religion, or country of origin – an ethnic fractionalization score for California (or Queens, New York) would be very different today from ten or twenty years ago.

Or take the case of Estonia. In 1934, less than a decade before Estonia's annexation by the Soviet Union, ethnic Estonians made up 87.8% of the country's population and ethnic Russians comprised just 8.2%. Over the next fifty years, the state-encouraged migration of Russians to Estonia resulted in a nearly four-fold increase in the share of Russians in the republic. By 1989, they comprised fully 30.3% of the population, and ethnic Estonians had fallen to just 61.5%. If one were to calculate indexes of ethnic fractionalization for Estonia in 1934 and 1989, they would rise from 0.22 to 0.53 over this period – roughly akin to a country with the ethnic demography of Uruguay becoming as diverse as Brazil.[8] Although Estonia may represent an extreme case in terms of the scale of its in-migration, it illustrates well the danger of relying on outdated ethnic population figures.

These two different kinds of ethnic demographic change – changes in the dimensions of ethnic cleavage that matter and changes in the number and sizes of groups along a single cleavage dimension – are not only conceptually different but also give rise to different sorts of measurement pitfalls. Changes of the second sort are the least troubling since they can be accommodated by simply using up-to-date ethnic demographic data. The linguistic differentiation between Serbs and Croats, the absorption of Lapps into the category of "Norwegians," and the increase in the share of Spanish-speakers or Vietnamese in California can be fairly easily documented by collecting time-series data on ethnic group memberships. Of course, this is only a

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[7] Ethnic demographic change due to migration is not, of course, something one needs constructivism to diagnose or understand. I treat it here simply because it helps underscore the point that a country's ethnic diversity cannot be taken as fixed.

[8] The figures in this paragraph are from Kirch, Kirch, and Tuisk (1993), as cited in Mylonas (2003). In calculating the ethnic fractionalization values for 1920 and 1989, I assume that the residual groups, Ukranians and Byelorussians, each make up half of the balance of the population that are not comprised of Estonians or Russians.

theoretical solution, since such data are often unavailable, particularly in developing nations.[9] So even if we wanted to use censuses of ethnic group sizes and memberships to deal with this aspect of ethnic demographic instability, this may not be possible, particularly if we want to undertake significant cross-national comparisons. In any event, the usual practice is simply to ignore this issue and take off-the-shelf data on ethnic heterogeneity that is often decades out-of-date. For example, the popular Ethnolinguistic Fractionalization (ELF) index used in many contemporary analyses relies on data collected in 1961.[10]

Some researchers defend the use of ethnic fractionalization indexes based on out-of-date ethnographic data on the grounds that it eliminates the possibility of endogeneity. Much like the practice of lagging a variable, the idea is that the diversity of the country was measured too long ago to be affected by present-day growth patterns. The problem is that, while safely exogenous to present-day growth levels, the ethnic demography being measured may bear little resemblance to the contemporary ethnic landscape whose effects on growth are being tested. The challenge – about which I will say more in a moment – is to create a measure of ethnic diversity that is both exogenous to growth and also a valid measure of our variable of interest.

A much stronger defense of using outdated ethnographic data is that, even if one accepts the theoretical possibility that the sizes of ethnic groups in a country can change, this usually happens very slowly and, when it does, it affects a country's degree of diversity only at the margins. Consider Figure 2, which compares ethnic diversity in a cross-section of countries in 1961 and 1985 using panel data compiled by Roeder (2001) from Soviet sources.[11] Although the degree of ethnic fractionalization does change in handful of countries, the overwhelming trend is for levels of diversity to remain more or less fixed over time. The Estonian case, while striking, would appear to be atypical.

Figure 2 Here

Of course, it is possible that the underlying data Roeder employs is simply not sufficiently sensitive to ethnic demographic change to pick up meaningful alterations in countries' ethnic landscapes. Alternatively, it might be that that the 24 years between 1961 and 1985 is too brief a period for changes in group sizes to take place that are large enough to affect countries' ethnic fractionalization values. But the correlation between the ethnic fractionalization values in the two years is so strong ($r = 0.96$) that it is hard to

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[9] Collecting reliable information on ethnic group memberships is both expensive and, in many cases, politically inflammatory, and for this reason such data are simply not collected in many countries. As Horowitz puts it: "Numbers are an indicator of whose country it is" (1995: 194). For this reason, questions about respondents' ethnic backgrounds are simply not asked in the national censuses of most developing nations. On the political sensitivity of censuses, see Hirschman (1987), Diamond (1988), Kertzer and Arel (2002).

[10] Alesina et al (2003), Fearon (2003), and Roeder (2001) have developed new measures of ethnic diversity based on more recent data, but these indexes are only beginning to be adopted by researchers.

[11] For our purposes here, the virtue of Roeder's data is that it was compiled using the same coding procedures in each year and thus holds the relevant dimension of ethnic cleavage constant. Changes between 1961 and 1985 can thus be attributed to alterations in the number and sizes of groups rather than to changes in the kinds of groups that are counted.

escape the conclusion that, as theoretically compelling as constructivist warnings about ethnic fluidity may be, there simply may not be very much to be gained from painstakingly updating existing diversity measures.

While changes in the number and sizes of the ethnic groups in a country thus may not be a major concern for the measurement of ethnic diversity, the other kind of ethnic demographic change described earlier, a shift in the cleavage dimension that matters, is a potentially much more significant source of error. This is because, even if we do have reliable ethnic demographic data for each potentially relevant cleavage dimension – and there has been some recent progress in this area[12] – we would still need a rule to decide which dimension to focus on. If we are interested in testing the effects of South Africa's ethnic diversity on its economic growth rate, should we focus on its racial divisions (which generate a fractionalization index of approximately 0.49) or its tribal divisions (which generate an index value of 0.88)? If we are interested in doing the same in Indonesia, should we calculate the country's ethnic diversity based on the relative sizes of its linguistic groups (in which case the index of fractionalization is 0.76) or the relative sizes of its religious communities (in which case it is 0.23)? All of these measures of ethnic diversity are "correct," in the sense that they faithfully capture the heterogeneity of the country's population on the particular cleavage dimension in question. But the question is: which ones to use? The decision matters considerably for how fractionalized the countries are determined to be – and presumably for the relationship we estimate between diversity and economic performance. The size of the potential error if we consistently choose the wrong cleavage dimensions for the countries in our analyses is indicated by the low correlation between Alesina et al's (2003) measures of linguistic and religious diversity ($r = 0.27$).

In keeping with the way most such data sets are organized – as cross-national measures of social diversity on a single ethnic cleavage dimension (e.g., as indexes of linguistic diversity, religious diversity, and so forth) – most authors apply a "one cleavage dimension fits all" rule and implicitly assume that the same type of social cleavage is relevant in every country they are studying. This is a reasonable approach if we are interested in assessing the effects of a particular kind of social diversity – e.g., religious diversity, linguistic diversity , racial diversity, etc. – on some outcome of interest. But if we are interested in ascertaining the effects of social diversity per se, then the problem with such an approach is that it almost certainly results in the social diversity of some countries being measured in terms of cleavages that are wholly irrelevant to the process under investigation. For example, while language group distinctions may be central to the process by which economic outcomes are determined in Belgium or Canada, they are irrelevant in Rwanda and Northern Ireland. The point is not that ethnic divisions do not matter in these countries – of course they do. But the ethnic differences that divide Rwanda and Northern Ireland have nothing to do with language, so they will be completely hidden if language distinctions are the criterion we use for identifying the

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[12] Scarritt and Mozaffar (1999) offer an accounting of up to three different levels of ethnic diversity for 42 African countries. Alesina et al (2003) provide religious, linguistic and what they term "ethnic" fractionalization measures for 190 countries. Roeder (2001) provides three different measures of ethnic diversity for 150 countries based on slightly different criteria for what constitutes an ethnic group.

conflicting parties. In linguistic terms, both Rwanda and Northern Ireland would be coded as almost entirely homogeneous, and this would belie the presence of a critical ethnic cleavage in their midst: tribe in Rwanda, and religion (or nationality) in Northern Ireland. If we want to assess the general effect of ethnic diversity on economic growth, then what is required is a case-by-case identification of the relevant cleavage line in each country. Only then can the "right" headcount of ethnic groups be undertaken and a meaningful calculation of the country's salient ethnic fractionalization be made.

But how shall we determine which is the "right" cleavage dimension? In Rwanda and Northern Ireland, the lines of conflict are sufficiently deep for the ethnic cleavage most likely affects economic growth to be readily identifiable. But deciding which cleavage dimension is the "right" one is usually much more difficult. Absent a hegemonic line of social division that trumps all others in all settings, a clearly articulated causal mechanism is required that links a country's diversity to its economic performance. That mechanism can then be "process traced" to identify which cleavage is the salient one for the hypothesized causal pathway. Thus, if the mechanism to be tested is that ethnic diversity affects a country's economic performance via the difficulties it creates for agreeing on the allocation of public goods, then we would want to investigate whether the political coalitions doing the bargaining over public goods distribution tend to be formed along lines of language, race, religion, region, or some other dimension of ethnic identification. Then we would identify the groups on that cleavage dimension, plug their relative sizes into our concentration formula, and use the resulting value in our analysis of the effects of diversity on growth. If the hypothesized mechanism is that ethnicity affects growth by generating destabilizing communal violence, then we would want to know the lines along which such conflict was carried out, and then follow the same process to arrive at a diversity index value for the country that is salient for that causal pathway. Simply taking a country's ethnic diversity measure off the shelf risks employing a measure of ethnic diversity that has been built from an enumeration of groups on the wrong cleavage dimension.

Identifying the ethnic groups on a particular cleavage dimension is less straightforward than it might first appear. This is because, while many ethnic groups may exist "as such" in anthropological categorization (and thus find their way onto the lists of linguistic, tribal, or linguistic groups we would consult), not all of them constitute independent political or social actors. In some cases, ethnic groups fold themselves into broader political coalitions when it comes to competing over resources and national-level policy outcomes: Tongas, Lenjes and Toka-Leyas in Zambia become "Tonga-speakers;" Puerto Ricans, Dominicans, and Mexicans in New York become "Latinos;" Low Country Sinhalese and Kandyan Sinhalese in Sri Lanka become simply Sinhalese. Ethnographers might identify these groups as distinct cultural entities, but they behave politically as parts of a single, larger coalition. Other ethnic groups that anthropologists enumerate do not participate in politics as distinct, recognizable units because they are too small or politically peripheral. Whichever the reason, including such groups in the data from which the ethnic fractionalization index is calculated is problematic.

Suppose, for example, that, like Easterly and Levine (1997), we are interested in testing whether Africa's ethnic heterogeneity might be responsible for the region's abysmal economic performance. How would we code Kenya? Like most authors, Easterly and Levine's solution is to take the ELF value for Kenya off the shelf. This leads them to adopt a fractionalization index that was calculated from an enumeration of twenty-one different tribal groups.[13] Yet, by their own account, the distorted macroeconomic policies that explain Kenya's low growth rate are generated by the competition between just three broad ethnic coalitions: the Kalenjin, the Luo and the Kikuyu, each of which is described as containing "a third of Kenya's population." If, as Easterly and Levine claim, it is the competition among these three groups that is affecting Kenya's rate of economic growth, then the appropriate fractionalization index should be calculated from the population shares of these three groups rather than from the relative sizes of the twenty-one. The point is that to capture the contribution that a country's ethnic heterogeneity makes to such a process requires an index of fractionalization that reflects the groups that are actually doing the competing. An important problem with using off-the-shelf fractionalization indexes like ELF is that, more often than not, they do not do this: as in the Kenya example, they include dozens of groups that are irrelevant to the process that they are employed to capture. There is an unacceptable disconnect between the mechanism being tested and the measure of diversity that is employed.

Some may object that the extra groups that are included are usually small, and thus have little effect on the ethnic fractionalization index. Indeed, when I calculate an index of politically relevant ethnic groups (PREG), which both combines ethnic groups that compete as single political coalitions and excludes others that are not direct participants in the process of macroeconomic policymaking, I find that it is fairly strongly correlated with ELF ($r = 0.67$) in a sample of forty-two African countries (Posner forthcoming). However, when I substitute the PREG index for the ELF index and re-estimate Easterly and Levine's regressions on the African sub-sample, I find important differences in the estimated effects of ethnic diversity on growth. The relationship between diversity and growth actually *disappears* when I employ the ELF measure in the restricted sample. But it reappears at a substantively and statistically significant level when I replace ELF with PREG. These results suggest that our estimates of the relationship between ethnic heterogeneity and economic performance *are* affected when we exclude ethnic groups that, from a theoretical standpoint, have no business being included in the fractionalization index.

Even if one agrees with the broad contours of this critique, one might nonetheless object to the practice of "peeking" at the process by which ethnic diversity is hypothesized to affect growth when we decide how to code our key independent variable. Doesn't such a strategy come uncomfortably close to defining the independent variable in terms of the dependent variable? The answer is that it does not. To understand why requires that we distinguish between a measure that is endogenous to the outcome that we are trying to explain and one that simply captures the process through which the outcome

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[13] Strictly speaking, the data used to create the ELF index uses language as its criterion for ethnic difference. But in Africa, the language distinctions used are more or less synonymous with tribal distinctions.

is hypothesized to be reached. What I propose is not defining the independent variable in terms of the *value* of the dependent variable but in terms of the process through which it is hypothesized to affect the dependent variable. So long as the reason why politics revolves around one dimension of ethnic cleavage rather than another (and why, on that salient cleavage dimension, some ethnic groups do and other groups do not become relevant political actors) is unrelated to the country's economic growth rate or policy choices, we are on sound methodological footing in "peeking" at the political process to determine which groups to include when we calculate our fractionalization index. The alternative to doing so is to make do with an index that captures a constellation of ethnic groups that are unrelated to the process whose effects are being investigated.[14]

ETHNIC DEMOGRAPHY AS OUTCOME

Thus far, I have focused exclusively on the consequences of the constructivist insight that ethnic demographies cannot be assumed to be static. Now I turn to the factors that cause them to change. So long as the sources of ethnic demographic change are unrelated to the rate of growth in per capita incomes, our chief concern is properly with the appropriate measurement of the country's ethnic demography for the analyses we seek to undertake. However, a pair of critical methodological problems arise if the factors that shape a country's ethnic demography are in fact associated with its growth rate.

If a country's ethnic diversity could be assumed to be an exogenous variable – like its latitude or its topography – then we could jump from the correlation depicted in Figure 1 to claims about the causal effects of ethnic heterogeneity on growth. But constructivism teaches that ethnic diversity is *not* like latitude or topography. A country's level of ethnic diversity can change. And once we recognize that this is the case, we must consider two possibilities that, if true, would undermine our ability to make causal claims about the effects of diversity on growth from the observed correlation between the two. The first is that diversity may be endogenous to growth: rather than diversity causing growth, growth might cause diversity. The second is that some third factor might simultaneously affect both the country's growth rate and its ethnic cleavage structure. That is, the observed relationship between diversity and growth may be spurious. These two possibilities are illustrated in Figure 3.

Figure 3 Here

Endogeneity

Let us take the endogeneity problem first. How might a country's economic growth rate affect its degree of ethnic fractionalization? One mechanism through which it might is via the migration that growth generates. I have already noted how migration

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[14] Of course, if the reason why politics revolves around one dimension of ethnic cleavage rather than another, or why some groups need to be included in the index and others excluded, *is* related to the country's economic growth rate, then the technique I am advocating may be problematic.

can affect a country's ethnic demography. But what causes migration? Political or economic conditions in the sending country – civil war, political instability, discrimination, poverty – may create incentives for people to emigrate. The proximity of a potential receiving country, the availability of transportation, and the presence of physical or legal barriers to entry will also make migration from one country to another more or less likely. But perhaps the most important determinant of migration is the prospect of economic opportunity in the receiving country. The problem this creates for studies that aim to assess the effects of ethnic diversity on growth is that, if a high rate of economic growth generates (or is perceived to generate) economic opportunity, then this is likely to spur in-migration which, over time, leads to an increase in the ethnic diversity of the receiving country.[15] Contrary to the assumptions underlying most analyses of the effects of diversity on growth (which take for granted that the causal arrows can only point from the former to the latter), economic growth can thus be a cause of increasing diversity.[16]

The possibility that robust economic growth might generate in-migration that, in turn, increases a country's level of ethnic diversity is not merely hypothetical. This is precisely what happened in British Malaya in the late 19th and early 20th centuries when the development of the tin and rubber industries led to the influx of hundreds of thousands of job-seeking Chinese immigrants. To the extent that Chinese workers would not have migrated to Malaya in the absence of the robust economic growth generated by these booming industries – or, at any rate, not in the numbers they did – Malaysia would have been much less ethnically diverse than it is today had the tin and rubber booms been less strong. As calculated by Fearon (2003), Malaysia's index of ethnic fractionalization today is 0.60. If its Chinese population were omitted from the calculation (which it would be if Chinese migrants had never come to Malaysia in the first place), it would drop to 0.32. This is a very significant reduction in heterogeneity, and it is a direct product of the economic growth of the tin and rubber sectors. Similar patterns of growth-induced migration (and thus growth-generated diversity) are observable in other countries. The migration of Burkinabé to Côte d'Ivoire, Turks to Germany, and Mexicans to the United States are just three prominent examples. In all of these cases, the receiving country is considerably more ethnically diverse today than it would have been if its strong economy had not attracted so many migrants.

Migration is not the only mechanism through which the dynamism of a country's economy might lead to changes in its ethnic diversity. Earlier, I gave the example of the linguistic assimilation of Lapps into the broader category of "Norwegians" and the differentiation of Serbo-Croation speakers into "Serb-speakers" and "Croat-speakers." I raised these examples to make a point about the fluidity of ethnic demographies over time, and to suggest that researchers seeking to measure the effects of ethnic diversity on growth needed to be mindful of such changes in devising (or, as is more often the case,

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[15] Of course, this assumes (as is almost always the case) that migrants are from a different ethnic group from the majority of the inhabitants in the receiving country.

[16] Some economists are beginning to recognize this point (e.g., Alesina and La Ferrara 2004), particularly in studies of American cities. Indeed, the link between economic growth and in-migration is sufficiently clear in this sphere that Glaeser, Scheinkman, and Shleifer (1995) use the population growth rates of U.S. cities as proxies for (otherwise unavailable) data on city-level economic growth rates.

borrowing ready-made) measures of ethnic heterogeneity. But what if the reason that Lapps were making the necessary linguistic investments to be able to pass as Norwegians or that Serbs and Croats were endeavoring to distance their languages from one another was precisely *because* of the incentives created by Norway's or the former Yugoslavia's changing economic growth rates?

Ensminger (1992) offers an illustration of precisely such a situation. She shows how the expansion of trade in East Africa led non-Arabs to convert to Islam in order to facilitate commercial interactions with their Arab trading partners. The increase in trade (which went hand-in-hand with an increase in economic growth) created incentives for non-Arabs to acquire the key attribute (religion) that would permit them to claim membership in the category "Muslim" and thereby enter the lucrative trading market. This led over time to a change in the region's ethnic demography. A legacy of this process is that Tanzania and Kenya today are respectively 35 and 10 percent Muslim. To argue that the religious diversity of these countries caused their growth rates would risk having the causal arrows pointing in the wrong direction – or at least overlook the fact that they point both ways.

Two important objections can be raised to the claim that ethnic diversity is sometimes endogenous to growth. The first is that endogenous causation requires that changes in both the (allegedly) independent and dependent variables occur simultaneously. In the examples just provided, the effect of growth on diversity works itself out over decades. Only after many years of sustained in-migration or investment in religious training and language acquisition does the ethnic landscape of the country in question change sufficiently to (potentially) come back and affect growth. The effect of growth on diversity is not sufficiently proximate to the (hypothesized) effect of diversity on growth to bias estimates of the causal relationship between the two.[17]

Second, in all of the examples I have provided thus far, robust economic growth increases diversity. However, the broad finding in the literature regarding the effects of diversity on growth is that greater ethnic fractionalization is associated with *slower* growth. Thus, even if the timing problem were not an issue, the effects of growth on diversity and diversity on growth would appear to operate in opposite directions. This should have the effect of attenuating, rather than inflating, estimates of the relationship between diversity and growth, and this makes the finding of an association between the two (recall Figure 1) all the more compelling. As with the measurement problem posed by changes in the sizes of ethnic groups over time, the endogeneity of diversity to growth would appear to be an interesting theoretical possibility whose effect on analyses of growth are not, in the end, very great.

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[17] If growth in the last period were a good predictor of growth in the current period, then diversity could be thought of as a quasi-parameter (Greif and Laitin forthcoming) which, over time, might undermine the growth equilibrium. But growth rates in one period are a notoriously poor predictor of growth rates in the next (Easterly 2001), so the very idea that a growth equilibrium might exist to be overturned is questionable.

A slightly different problem, which does threaten to bias estimates of the effects of diversity on growth, lies in the predispositions of the researchers who code countries' levels of diversity. Every country, rich and poor, has multiple levels of ethnic cleavage, some comprised of large numbers of highly localized groups, others containing smaller numbers of more broadly encompassing communities. It is possible – indeed, likely – that part of the reason that many poor countries have higher *measured* levels of ethnic fractionalization is because the researchers sent to summarize these countries' ethnic demographies simply chose to focus on a more local set of cleavages than they do when they are sent to richer countries. If one goes to Africa with the presumption that the continent is a Babel of ethnic groups, then this is exactly what one will find. But one could probably find the same thing if one embarked on a coding effort in Italy or France with the same predisposition (aren't Venetians, Milanese, and Sicilians different groups? aren't Bretons and Normans distinct from people from Languedoc?). If this is so, then the often-found correlation between ethnic heterogeneity and economic performance may have its origins in the equation in coders' minds of wealthy, well-performing countries with homogeneous nation-states and of poor, slow-growing countries with heterogeneous agglomerations of tribes and language groups. The pattern in Figure 1 may have as much to do with the effect of economic performance on (coders' perceptions of) ethnic diversity as with the underlying effect of diversity on economic performance.

Spurious Causation

The possibility of endogeneity aside, a potentially more important problem raised by constructivism is that a number of the factors that cause a country's ethnic demography to change also have an independent effect on the country's rate of economic growth. This is the spurious causation problem depicted in the bottom of Figure 3.

For a particularly clear illustration of this problem, consider the case of Côte d'Ivoire. Côte d'Ivoire has, over the years, hosted several million migrants who have come to work on the country's cocoa estates (Handloff 1988). At their height, these migrants may have accounted for as much as 15-20% of the Ivoirian population. Given their very large numbers, their presence has had a significant effect on Côte d'Ivoire's ethnic diversity – an effect bolstered by the fact that, until recently, migrants in the country have been allowed to vote, purchase land, and even run for office.[18]

As suggested earlier, the principal impetus for migration to Côte d'Ivoire has been economic opportunity – specifically the availability of jobs in the Ivoirian cocoa sector. When the cocoa sector has boomed, migrants have poured in. When the cocoa sector has stagnated, the rate of migration has slowed, and even reversed itself. A comparison of the periods 1976-1980 and 1988-1992 makes this clear (see Table 1).

Table 1 Here

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[18] The rights accorded migrants began to be restricted in the early 1990s, as questions of who was a true Ivoirian citizen became a major political issue (Woods 2003).

As one of the major cocoa producing countries in the world, Côte d'Ivoire is particularly affected by world cocoa prices. When cocoa prices soared in the late 1970s, its economy was buoyed. As Table 1 indicates, real per capita GDP in Côte d'Ivoire grew by more than 11% between 1976 and 1980. Enticed by the job opportunities that the thriving cocoa sector provided, this period also witnessed massive in-migration, particularly from Burkina Faso, but also from other neighboring countries. When world cocoa prices crashed in the mid-1980s, the reverse happened. Between 1988 and 1992, real per capita GDP declined by 11.2% and the flood of Burkinabé migrants was reduced by more than half. Indeed in the 1988-1992 period, the number of people emigrating from Côte d'Ivoire actually exceeded the number migrating to it. Given these patterns, a plausible case can be made that world cocoa prices – an exogenous variable – drive both Côte d'Ivoire's economic growth rate and the volume of its in-migration. If this is the case, then what might look in the data like a relationship between diversity and growth is actually an artifact of the effect of a third variable, world commodity prices, on both migration rates and economic performance.

The specific example of Côte d'Ivoire aside, a more general factor that affects both a country's ethnic demography and its growth rate is its level of economic development. Levels of economic development have long been known to affect economic growth rates – hence the *de rigueur* inclusion of initial income in cross-country growth regressions. But the classic contributions of Deutsch (1953), Anderson (1983), and Gellner (1985) strongly suggest that a country's level of development may also affect its degree of diversity. All of these authors emphasize that Europe's ethnic fractionalization diminished precisely when a centralized state and market emerged and when economic growth began to accelerate. The story of the development of the French state is, as Weber (1976) shows, the story of how peasants who identified themselves in terms of dozens of identity categories became Frenchmen – in short, the story of how France went from ethnically heterogeneous to ethnically homogeneous. We might call this the "state-building leads to nation-building hypothesis." A country's level of development, in this account, operates as a proxy the extent to which it has become a nation-state – what might be termed its degree of "stateness." To the extent that this hypothesis holds, serious consideration must be given to the possibility that the observed relationship between diversity and growth is spurious – caused by the independent impact of a country's level of economic development (or "stateness") on both.

Empirical evidence lends initial plausibility to this possibility. As I report in Table 2, the correlation between ethnic diversity and the level of economic development in 1960 (as measured via the log of real GDP in that year) is -0.42.[19] This suggests that, while not proxies for each other, economic wealth and ethnic diversity are certainly related. Another, perhaps superior, way of testing the "state-building leads to nation-building hypothesis" is to use the measure of "state antiquity" developed by Bockstette et al (2002), which measures how long, and to what degree, state-level institutions have

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[19] The ethnic diversity data are from Fearon (2003). Alesina et al (2003) also find ethnic fractionalization to be closely related to per capita GDP.

been in operation in a given country.[20] By this measure, countries such as China and France score high and countries such as Zambia and New Zealand score low. If the "state-building leads to nation-building" hypothesis is right, then we would expect to find more ancient states to be less ethnically diverse, since these would be places where there had been sufficient time for ethnic identities to consolidate and for multiple local ethnicities to be subsumed into a smaller number of regional or national ones.

As Table 2 indicates, the correlation between state antiquity and ethnic diversity is -0.42. The negative sign suggests that countries with early national governments are indeed likely to have more homogeneous ethnic demographies, though this is clearly not the only determinant. Note also that, unlike the measure of initial income, state antiquity is fairly closely correlated with per capita GDP growth between 1960 and 1999 ($r = 0.51$).[21] Thus state antiquity is quite plausibly a cause of both diversity and economic performance.

Table 2 Here

Another possible source of spurious causation between diversity and growth is geography. Using ELF, the standard measure of ethnic diversity in the literature, Sachs and Warner (1996) find that ethnic heterogeneity ceases to be a statistically significant predictor of cross-country growth rates once low population density, low geographical mobility, tropicality, and other geographic variables are controlled for. Alesina et al (2003) find similarly that ethnic diversity is closely correlated with latitude. I find the same in my own analysis ($r = -0.59$). The further a country is from the equator (i.e., the higher the latitude), the lower its ethnic diversity and the higher its average growth rate. These results suggest that, to the extent that low levels of ethnic fractionalization and

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[20] They create the measure as follows: "We began by dividing the period from 1 to 1950 CE into 39 half centuries. For each period of 50 years, we asked three questions (and allocated points) as follows: (1) Is there a government above the tribal level? (1 point if yes, 0 points if no); (2) Is this government foreign or locally based? (1 point if locally based, 0,5 points if foreign [i.e., the country is a colony]; 0.75 if in between [a local government with substantial foreign oversight]; (3) How much of the territory of the modern country was ruled by this government (1 point if over 50 percent, 0.75 points if between 25 percent and 50 percent, 0.5 points if between 10 and 25 percent, 0.3 points if less than 10 percent)…The scores on the three questions were multiplied by one another and by 50, so that for a given 50-year period, what is today a country has a score of 50 if it was an autonomous nation, 0 if it had no government above the tribal level, 25 if the entire territory was ruled by another country, and so on. We then combined the data for the 39 periods. Finally in order to make the series easier to interpret, the resulting sum was divided by the maximum possible value the series could take…Thus the value that the index can take for any given country lies between 0 and 1" (Bockstette et al 2002: 351-52). In the form of the variable I use here, *statehist5*, the weight of each additional half century is discounted by five percent.
[21] Given the received wisdom about the importance of controlling for initial income in cross-country growth regressions, the rather low correlation between initial income and per capita GDP growth is worth commenting on. One possible explanation is that there are two types of poor countries. For some, there are "advantages to backwardness," just as Gerschenkron (1962) and Solow (1956) predict. For these countries, low initial income is associated with higher growth rates. But for others, poverty today is an indication of being stuck in a negative equilibrium characterized by corrupt leaders and bad policies, out of which growth is unlikely. For these countries, low initial income is associated with slow growth. The low correlation between initial income and growth is a product of the presence in the data of these two different country types.

high growth go together, it may be not because the first causes the second but because they are simultaneous products of advantageous geography.[22]

The correlations reported in Table 2 make it clear that a country's level of economic development, degree of "stateness," and tropicality are related to both its ethnic diversity and its growth rate. But what import does this have on our ability to estimate the effect of diversity on economic performance? To find out, I ran a series of regressions of growth on diversity, controlling for each of these variables, first alone and then in combination. The results are reported in Table 3.

Table 3 Here

The clearest finding in Table 3 is that, constructivist intuitions notwithstanding, ethnic diversity maintains its significant negative association with growth in the presence of each of these other predictors of economic performance, entered both individually and together. This suggests that little of the "work" being done by a country's ethnic diversity in affecting its growth rate can be accounted for by its level of development, degree of state antiquity, or latitude. Moreover, and conversely, when controlling for diversity, none of these variables (with the exception of state antiquity in the full specification) have meaningful independent effects on growth. The possibility of spurious causation, while perhaps an important theoretical issue, does not appear to be a particularly great obstacle for arriving at meaningful estimates of the effects of diversity on economic performance – at least with respect to these three variables.

What about civil wars? By destroying infrastructure, disrupting commerce, and diverting resources from more productive ends, civil wars have a devastating effect on economic growth (Collier 1999). But they can also affect countries' ethnic demographies. Usually the effect of civil war is simply to harden the cleavage along whose lines the conflict has arisen. But sometimes civil wars can lead to the displacement of one previously salient axis of social division with another. Somalia's civil war is a case in point. The war simultaneously undermined economic growth and, by generating inter-clan fractionalization, led to a dramatic increase in the country's level of politically relevant ethnic diversity (Laitin and Posner 2001). To ignore the effects of civil war and seize upon Somalia's fractionalization and growth failure as evidence that ethnic diversity causes slow growth would be problematic. What might look in the data like a confirmation of the "ethnic diversity undermines growth" hypothesis is, instead, evidence for the fact that both a country's diversity and its economic performance are affected by civil conflict.

If civil wars caused countries systematically to splinter into tiny groups, as in Somalia, then we would expect to find a relationship cross-nationally between civil wars and ethnic diversity. While the foregoing example suggests that this is a hypothesis worth considering, there is little evidence that civil wars cause increasing ethnic fractionalization. Moreover, if one had cases other than Somalia in mind, one might

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[22] For more on the effects of disadvantageous geography, see Diamond (1997) and Bloom and Sachs (1998). This argument is nicely summarized in Easterly and Levine (2002).

reach the opposite expectation. In Sudan, for example, the civil war between north and south has, if anything, brought greater unity to the otherwise highly fractionalized south. There, the effect of civil war has probably been to reduce diversity rather than increase it. Such incoherent theoretical predictions are reflected in the data. I find the correlation between a country's ethnic diversity and the number of years it has been involved in a civil war to be just 0.14.[23] Thus, while civil wars certainly affect growth, it appears that they do not have an effect on diversity – at least not in a consistent direction and not outside of a handful of cases. Given this, we can treat the effects of conflict on diversity as a measurement issue to be addressed on a case-by-case basis rather than as a systematic source of bias in our estimates.

Institutions and government policies offer a final category of "third factors" that can trigger changes in both growth and diversity. Malaysia's New Economic Policy (NEP) offers a useful illustration. Implemented in 1971 to enhance the economic standing of ethnic Malays, the NEP heralded a period of dramatic economic growth. By establishing preferential access to jobs and other opportunities for Malays over non-Malays, the NEP also created incentives for low income Chinese to convert to Islam to qualify for job benefits that otherwise would be denied them. The conversions to which this gave rise altered the relative numbers of Muslims and non-Muslims and affected the country's level of ethnic diversity (Landa 1994). It also gave rise to an identity project to displace race with religion as the salient distinguishing characteristic in social and economic interactions. Increasing ethnic homogeneity and rising growth thus went together, but not because the former caused the latter. Both were outcomes of the policies implemented by the Malaysian government.

The legalization of Indian gambling by the U.S. Congress in 1988 offers a parallel example. Indian-run casinos net an estimated $15 billion a year (Peterson 2004). Because official recognition as a tribe is a prerequisite for opening a casino, nearly 300 groups have sought recognition as tribes since 1988 (Ibid.), and tens of thousands of individuals who had not previously self-identified as Native American have newly identified themselves as tribe members. While the numbers involved are too small to have altered the broader demography of the United States, the incentives to which the congressional legislation have given rise have certainly changed the official ethnic make-up of a number of local communities, which have experienced simultaneous transformations in their ethnic demography and in their economic fortunes. As with the case of civil wars, researchers must be attuned to the possibility that institutional changes such as these might affect both the outcome they are trying to explain (economic growth) and the variable they are using to explain it (ethnic diversity).

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[23] This finding is consistent with the results reported in Fearon and Laitin (2003) and Easterly and Levine (1997), both of which find no relationship between diversity and civil war. Of course, these authors are interested in the effects of diversity on war rather than the effects of war on diversity. But their negative findings can be interpreted in either direction.

CONCLUSION

Constructivism offers several challenges for researchers whose work addresses the impact of ethnic diversity on economic growth. It raises concerns about how a country's ethnic diversity is measured. It introduces the possibility that a country's diversity may be endogenous to its growth rate. And it suggests the need to be on the lookout for variables that affect both a country's fractionalization and its economic performance. The goal of this paper has been to articulate these potential pitfalls and to assess the extent to which they undermine existing estimates of the effects of diversity on growth.

With the exception of one key issue, the answer is that, by and large, they do not – at least not in multi-country cross-national analyses. Most of the concerns to which constructivist approaches to ethnicity give rise seem to affect estimates of the impact of diversity on growth only at the margins. This may be because many of the factors that affect a country's ethnic demography are inconsistent in the direction of their effects. Some government policies (such as the NEP in Malaysia) lead to increasing ethnic homogenization, whereas others (such as the legalization of Indian gaming) lead to increasing heterogeneity. Some civil wars (such as the one in Somalia) cause ethnic communities to fractionalize, whereas others (such as the one in Sudan) cause them to come together. As long as this is the case, the potentially confounding relationships that arise in one case are likely to be balanced out by the relationships (with the opposite sign) that arise in another. Note that this does not release researchers who are dealing with smaller numbers of cases from taking the constructivist warnings highlighted in this paper seriously. But researchers doing large-N work can probably hide safely behind the law of large numbers.

The one area where all researchers – large-N and small-N – ignore constructivism's insights at their peril is in its admonition that countries possess multiple dimensions of ethnic cleavage whose relevance wax and wane over time and across situations. Figuring out which dimension of ethnic cleavage is the right one from which to calculate one's index of ethnic diversity is a necessary and critical task, and one which, if not attended to, has the potential to render one's measure of diversity invalid and one's estimate of the effect of diversity on growth meaningless.

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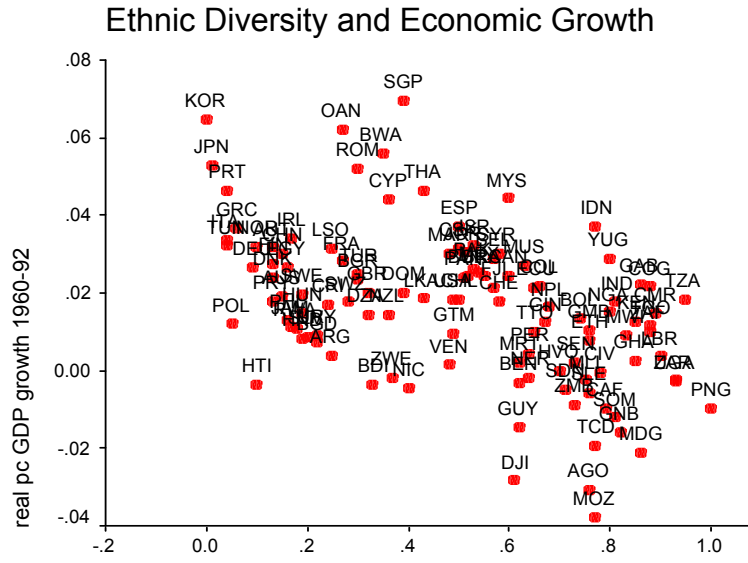World Bank, 2001, "Commodity Prices and Price Projections in Current Dollars."
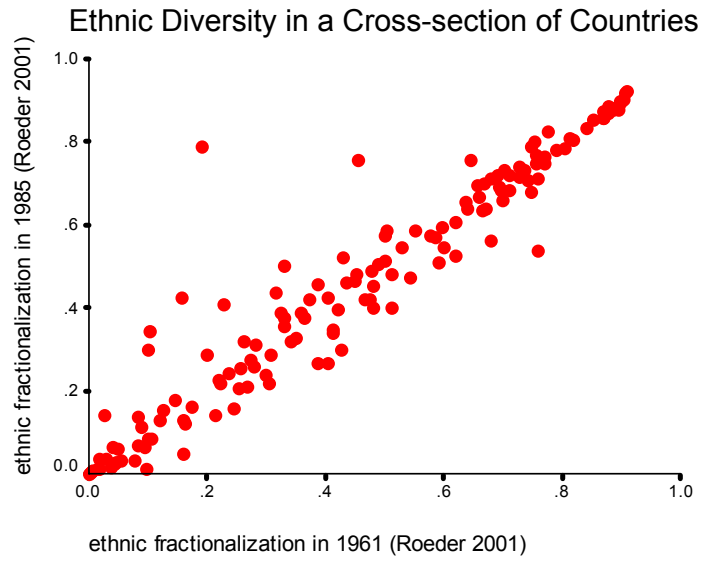
Figure 1

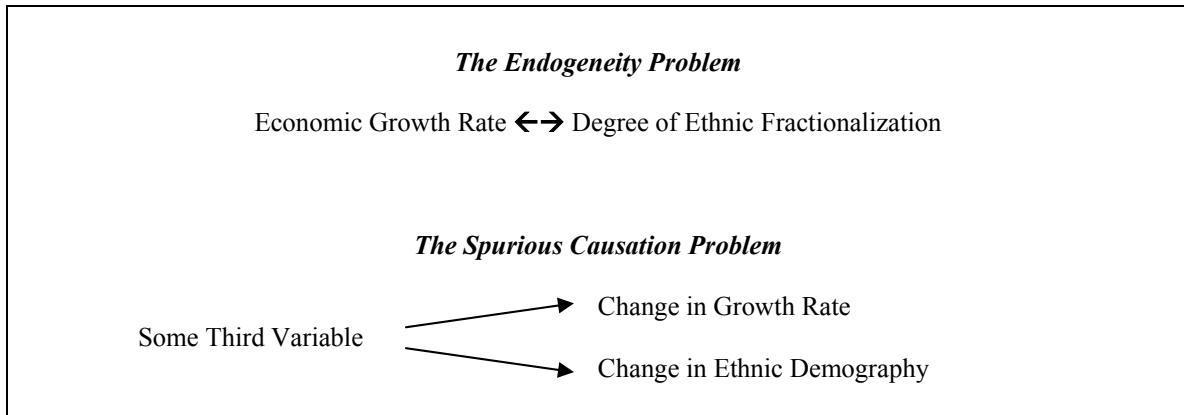**Figure 2**

The Endogeneity Problem

Economic Growth Rate ←→ Degree of Ethnic Fractionalization

The Spurious Causation Problem

Some Third Variable → Change in Growth Rate
→ Change in Ethnic Demography

Figure 3

Table 1:
World Cocoa Prices, Economic Growth, and Immigration in Côte d'Ivoire

	World Cocoa Price ($ per kg)	Growth in Real GDP per capita	Total Immigration to Côte d'Ivoire (x 1000)	Immigration of Burkinabé to Côte d'Ivoire (x 1000)	Immigration to – Emigration from Côte d'Ivoire (x 1000)
1976-80	2.60[a]	11.1%	1424	774	1351
1988-92	1.27[b]	-11.2%	685	383	-57

Sources: World Bank (2001); Club du Sahel (1998).

[a]1980 prices.

[b]1990 prices.

Table 2:
Correlation Matrix: Economic Growth, Ethnic Diversity, and Their Determinants

	Ethnic Diversity	log per capita GDP, 1960	State Antiquity	Latitude
log per capita GDP, 1960	-.42			
State Antiquity	-.42	.29		
Latitude	-.59	.67	.56	
per capita GDP growth, 1960-1992	-.48	.26	.51	.40

Note: all correlations are significant at the 0.01 level in a two-tailed test.

Table 3:
Determinants of Economic Growth

(Dependent Variable is Real Per Capita GDP Growth, 1960-92)

	(1)	(2)	(3)	(4)	(5)	(6)
Constant	.033***	.028***	.039**	.025***	.032***	.019
	(.003)	(.005)	(.020)	(.006)	(.008)	(.022)
Ethnic Diversity	-.034***	-.014**	-.018**	-.018**	-.018**	-.021***
	(.006)	(.006)	(.007)	(.007)	(.007)	(.008)
log per capita GDP, 1960			-.001			.000
			(.002)			(.003)
State Antiquity				.013		.025**
				(.010)		(.011)
Latitude					-.005	-.004
					(.015)	(.016)
Regional Fixed Effects	No	Yes	Yes	Yes	Yes	Yes
R^2	.23	.45	.46	.47	.47	.50
N	113	113	102	96	98	88

Notes: Standard errors are in parentheses. Significantly different than zero at 90% (*), 95% (**), 99% (***) confidence. Regional fixed effects controls are for Africa, Latin America/Caribbean, Europe, and Asia.