The political economy of linguistic cleavages[☆]

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ABSTRACT

This paper uses a linguistic tree, describing the genealogical relationship between all 6912 world languages, to compute measures of diversity at different levels of linguistic aggregation. By doing so, we let the data inform us on which linguistic cleavages are most relevant for a range of political economy outcomes, rather than making ad hoc choices. We find that deep cleavages, originating thousands of years ago, lead to better predictors of civil conflict and redistribution. The opposite pattern emerges when it comes to the impact of linguistic diversity on growth and public goods provision, where finer distinctions between languages matter.

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1. Introduction

How does ethnolinguistic diversity affect political and economic outcomes? In recent years, a vast literature has argued that such cultural heterogeneity impacts a wide range of outcomes, fostering civil war, undermining growth, hindering redistribution and the provision of public goods. However, evidence on this point remains subject to some disagreement. For instance, there is a vibrant debate on the role of ethnolinguistic divisions as determinants of civil wars.[1] Econometric results on growth, redistribution and public goods provision also vary widely across studies, raising issues of robustness.[2]

These inconclusive results may stem in part from the inability to convincingly define the ethnolinguistic groups used as primitives to construct measures of heterogeneity. When faced with the issue of how to define groups, researchers have either relied on readily available classifications, such as the ones based on the *Atlas Narodov Mira* or the *Encyclopedia Britannica*, or have carefully constructed their own classifications.[3] Both approaches are problematic: the former

[1] Fearon and Laitin (2003) show that ethnic fractionalization is not an important determinant of the onset of civil wars. Montalvo and Reynal-Querol (2005), in contrast, argue that ethnic polarization is a significant determinant of the incidence of civil conflict.

[2] Alesina et al. (2003) argue that while ethnic and linguistic fractionalization are usually negatively related to growth and the quality of government, the significance of these partial correlations is sensitive to the specification.

[3] For an excellent discussion of the difficulties raised by the issue of defining relevant or salient ethnolinguistic groups, see Alesina and La Ferrara (2005), section 5.2.1, page 792.

runs the risk of missing the relevant cleavages, whereas the latter is subject to the criticism that groups are defined based on how important they are expected to be for the problem at hand. In this paper, we propose a methodology that addresses both criticisms, and argue that the degree of coarseness of ethnolinguistic classifications has profound implications for inference on the role of diversity.

The methodology we propose computes diversity measures at different levels of aggregation. We do so by exploiting the information of language trees. We refer to this as a phylogenetic approach, since tree diagrams describe the family structure of world languages. Depending on how finely or coarsely groups are defined, the measure of linguistic diversity will be different. For example, if one takes the different dialects of Italian to constitute different groups, then Italy appears to be very diverse. However, if one considers these different dialects to be only minor variations of Italian, then Italy looks homogeneous. Apart from allowing us to classify languages at different levels of aggregation, this approach has the advantage of giving a historical dimension to our analysis. Coarse linguistic divisions, obtained at high levels of aggregation, describe cleavages that go back thousands of years. In contrast, finer divisions, obtained at low levels of aggregation, are the result of more recent cleavages. Since we rely on data that cover the entire set of 6912 world languages, and examine effects of heterogeneity measures computed at all possible levels of aggregation, we are able to capture a wide range of linguistic classifications. Rather than choosing the "correct" classification ourselves, we let the data inform us as to which linguistic cleavages are most relevant for different outcomes of interest.[4]

Our empirical analysis reveals drastically different effects of linguistic diversity at different levels of aggregation. We also find that the relevant cleavages vary greatly across political economy outcomes. Starting from the data, specifications and estimation methods from major contributions to the literature on the political economy of ethnolinguistic diversity, we substitute our new measures of diversity for those commonly used. For civil conflict and the extent of redistribution, issues that inherently involve conflicts of interest, coarse divisions seem to matter most. While we find only weak evidence that diversity (whether measured by fractionalization or polarization) affects the onset of civil wars at any level of linguistic aggregation, the estimated effects do tend to be larger and more significant when considering a coarse classification. This finding is consistent with existing conflicts in African countries, such as Chad and Sudan, on the border between the Afro-Asiatic family and the Nilo-Saharan family. It may also help explain conflict in certain Latin American countries, such as Mexico and Bolivia, where the Indo-European family coexists with different Amerindian languages. For redistribution, the results are more robust, and suggest once again that measures based on a high level of aggregation matter most. In contrast, for economic growth, where coordination between individuals or groups is essential and market integration is important, we find that finer divisions lead to heterogeneity measures that matter more. The same pattern holds across a wide array of measures of public goods provision.

Thus, when the main issue involves conflicts of interest (as for the onset of civil wars and the extent of redistribution), deep differences originating thousands of years ago matter most: different groups' interests differ more when cleavages are more deeply rooted. In contrast, more superficial and recent divisions are negatively related

to growth, an outcome related to the ease of coordination. For instance, to the extent that clusters of economic activity form around language lines, linguistic divisions may limit the integration of markets, and prevent economic growth. Even though Hindi and Gujarati are not so different, this linguistic cleavage may hinder the integration of the corresponding regions of India. What matters here is whether two individuals or groups can interact effectively. In fact, finer linguistic classifications deliver heterogeneity measures that matter more for outcomes such as economic growth, which is hindered by lack of coordination and integration. As for public goods, they fall somewhere in between both cases: although they have a redistributive aspect, their effective provision also requires coordination between groups or individuals. Empirically, we find that fine linguistic divisions, based on more superficial cleavages, are correlated with lower public goods provision across a wide array of indicators.

This paper is related to a vast literature in political economy. Various authors have studied how ethnolinguistic diversity affects redistribution, growth and civil conflict (Alesina and La Ferrara, 2005; Alesina et al., 1999, 2003; Easterly and Levine, 1997; Fearon and Laitin, 2003; La Porta et al., 1999, among many others). Measurement issues are central to recent research on these topics. One issue is that standard indices of diversity do not take into account the distance between groups (Desmet et al., 2009; Fearon, 2003; Spolaore and Wacziarg, 2009). Another possibility is that for certain issues, such as civil conflict, polarization may be more relevant than fractionalization (Esteban and Ray, 1994; Montalvo and Reynal-Querol, 2005), an issue we revisit below. A third problem is the difficulty of determining the right level of aggregation when computing heterogeneity measures, i.e., identifying the relevant ethnolinguistic cleavages. This issue has received little attention, and it is the main focus of the present study.[5]

This paper is organized as follows. Section 2 describes conceptual issues related to the measurement of heterogeneity based on language trees, and describes the data. Section 3 discusses the effects of diversity on civil conflict and redistribution. Section 4 covers the effects on public goods provision and economic growth. Section 5 explores a number of robustness issues, and Section 6 concludes.

2. Aggregation and linguistic diversity

2.1. A tale of two countries

To illustrate our approach, we start with a comparative case study. Over the period 1965–2000, Chad and Zambia experienced some of the lowest growth rates on the globe, their income per capita shrinking by an average of 1 percentage point per year (Table 1). The 2005 Human Development Index ranked Chad 170 and Zambia 165 out of a total of 177 countries. It has long been argued that low growth may be related to high ethnolinguistic diversity. With 135 languages spoken in Chad, and between 40 and 70 in Zambia, these countries certainly are very diverse: taking the commonly used fractionalization index as a measure of diversity, the *Ethnologue* database on languages gives a value of 0.95 for Chad and 0.85 for Zambia, putting both countries in the top decile. As highlighted by Easterly and Levine (1997), data for a broad cross-section of countries point more formally to a general negative relationship between ethnic heterogeneity and economic

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[4] Our approach is related to existing work arguing that people identify with different groups in different contexts (particularly the work of Crawford Young on situational identity — see Young, 1976). For instance, ethnolinguistic cleavages that matter for voting behavior in local elections may differ from those that matter for national elections. For a related point, see Posner's, 2005 book on ethnic politics in Zambia. More generally, cleavages that matter for some outcomes may not matter for others. There is no such thing as a "correct" classification of languages or ethnicities — this depends on the context.

[5] Fearon (2003) does discuss at length the issue of how to define the "right list" of ethnic groups serving as the basis for computing heterogeneity measures, and recognizes explicitly that not all cleavages may be relevant for a given outcome. However, he presents data on ethnic groups based on a single classification. Scarritt and Mozaffar (1999) present data on ethnic groups for Sub-Saharan countries using three different classifications, but do not examine the effects of using these different classifications on political and economic outcomes.