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**Working Paper**

## Globalization, institutions, and the ethnic divide: Recent longitudinal evidence

IZA Discussion Papers, No. 6459

**Provided in Cooperation with:**

IZA – Institute of Labor Economics

*Suggested Citation:* Wunnava, Phanindra V.; Mitra, Aniruddha; Prasch, Robert E. (2012) : Globalization, institutions, and the ethnic divide: Recent longitudinal evidence, IZA Discussion Papers, No. 6459, Institute for the Study of Labor (IZA), Bonn, <https://nbn-resolving.de/urn:nbn:de:101:1-201208065410>

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March 2012

# **Globalization, Institutions, and the Ethnic Divide: Recent Longitudinal Evidence**

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## **ABSTRACT**

### **Globalization, Institutions, and the Ethnic Divide: Recent Longitudinal Evidence**

This paper investigates the determinants of economic growth emphasizing the role of institutional quality, social fragmentation, and increasing global integration on recent growth experience. Our longitudinal data consists of 103 countries covering the period 1992-2005. We find that democracies have significantly outperformed autocracies over the sample period and the security of property rights has played a critical role in promoting economic growth. Ethnic heterogeneity has been a significant impediment to growth but religious and linguistic heterogeneity have not. Further, while economic globalization has had a general beneficial impact on economic growth, societies marked by greater ethnic heterogeneity have actually gained more from global integration. This suggests the importance of globalization in redressing the detrimental impact of ethnic cleavages in society (Hegre et al, 2003; Bhagwati, 2004; Mousseau and Mousseau, 2008; Dreher et al, 2008).

JEL Classification: O47, O43, P14

Keywords: growth, democracy, property rights, ethnic heterogeneity, globalization

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## I. Introduction

Three interrelated themes pertaining to the impacts of institutional quality (Knack and Keefer, 1995; Rodrik *et al.*, 2004; Acemoglu *et al.*, 2005; Hall *et al.*, 2010), social fragmentation (Easterly and Levine, 1997; Alesina *et al.*, 2003; Alesina and La Ferrara, 2005; Montalvo and Reynal-Querol, 2005), and globalization (Sachs *et al.*, 1995; Frankel and Romer, 1999; Yanikkaya, 2003; Dreher, 2006; Rodrik, 2008) occupy a central position in the recent discourse on economic growth. This paper constructs a narrative of growth over the period 1992-2005, emphasizing the role and interplay of these factors.

Our analysis reveals the following: First, institutional quality, as captured by democracy and the security of property rights, had a significant positive impact on growth over the period in question. Second, social fragmentation, as captured by various indices of population heterogeneity, had a significant negative impact on growth. However, the impact of fragmentation was found to depend on the precise nature of the social divide: Consistent with prior evidence (Alesina *et al.*, 2003), *ethnic* fragmentation was seen to be a greater impediment to economic growth than cleavages formed along other fault lines in society. Finally, increasing economic integration was found to have a significant positive impact on growth. Significantly, however, the benefits of globalization have not been uniform across nations: In contradiction to the often articulated view that globalization foments ethnic discord (Tilly, 2003; Olzak, 2011), our analysis indicates that societies marked by a *greater* degree of ethnic fragmentation may have gained the most from increasing global integration.

The paper is organized as follows: Section 2 presents the conceptual foundations of our analysis and provides a brief review of the relevant literature; Section 3 introduces the data and the methodology used in our analysis; Section 4 reports our results; and Section 5 concludes.

## II. Conceptual Preliminaries and Related Literature

As previously mentioned, a key objective of our analysis is to investigate how institutional quality and increasing global integration have shaped the growth experience of fragmented societies in the immediate past. In what follows, we provide a brief idea of the relevant literature in each of the three themes of our analysis.

### A. *Social Fragmentation and Economic Performance*

There is an extensive literature that investigates the economic consequences of social fragmentation, primarily as captured by the *Ethnolinguistic Fractionalization Index* (ELF), though more recent contributions (Alesina *et al.*, 2003; Fearon, 2003; Montalvo and Reynal-

Querol, 2005) propose alternative and more disaggregated measures.<sup>1</sup> By and large, available evidence indicates a negative impact of ethnic fragmentation on economic performance.<sup>2</sup> While even the most cursory review of the literature is beyond the scope of this paper, one may loosely distinguish between two alternative conceptions of ethnicity that lie at the heart of the various arguments: The *Primordialist* position is based on the conception of ethnic identity as an immutable tie that derives from the ‘*givens of social existence*’, in the form of contiguities of race, language, location, religion, and social practices (Geertz, 1969).<sup>3</sup> In other words, ethnic identity is ‘*central to one’s conception of the self*’ and interaction with ethnic *others* necessarily involves a transaction cost.<sup>4</sup> By contrast, the core of the *constructivist* argument is that the ascriptive nature of ethnicity provides a relatively observable and stable ordinate of group formation for the purpose of obtaining a greater share of the social surplus than is currently enjoyed by its members. Hence, ethnic groups are essentially coalitions formed in a distributional conflict (Bates, 1974) and evolve in response to the specific economic needs faced by the members of the coalition over time.

In particular, the literature identifies the following mechanisms whereby ethnic heterogeneity impedes economic growth:<sup>5</sup> First, it reduces the *level* of public expenditure as individual contributions to public goods are less in societies marked by a high degree of heterogeneity (Alesina *et al*, 1999; Alesina and La Ferrara, 2000; Miguel and Gugerty, 2005). Second, it reduces the *quality* of public expenditure by increasing types of expenditure that take the form of transfers targeted at different ethnic groups (Alesina *et al*, 1999). Third, it leads to delays in the adoption of needed economic reforms and more generally, leads to the adoption of inherently inefficient policies designed to further rent-seeking objectives of ethnic coalitions rather than foster growth (Mauro, 1995; Easterly and Levine, 1997). Finally, it increases the likelihood of conflict (Easterly and Levine, 1997; Montalvo and Reynal-Querol, 2005), though this has been disputed in the literature (Fearon and Laitin, 2003).

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<sup>1</sup> ELF captures the probability that two individuals chosen at random from the population of a country will belong to different ethnic groups. Formally,  $F = \sum_{i=1}^G n_i(1 - n_i) = 1 - \sum_{i=1}^G n_i^2$ , where  $n_i$  is the share of group  $i$  in the total population and  $i = 1, \dots, G$ .

<sup>2</sup> See Alesina and La Ferrara (2005) for a comprehensive review.

<sup>3</sup> As Geertz (1969: 109) puts it: “*These contiguities of blood, speech, custom, and so on, are seen to have an ineffable, and at times overpowering, coerciveness in and of themselves. One is bound to one’s kinsman, one’s neighbor... as the result not merely of personal affection, tactical necessity, common interest or incurred moral obligation, but at least in great part by virtue of some unaccountable absolute import attached to the very tie itself.*”

<sup>4</sup> See Alesina and La Ferrara (2000) for a study based on this approach.

<sup>5</sup> See Sparber (2009) for a study that uses the American experience to argue for a more nuanced analysis of the economic impact of ethnic heterogeneity.

### ***B. Ethnic Fragmentation and Institutional Quality***

Relevant for our study, there is some evidence that the detrimental impact of ethnic heterogeneity on economic growth depends on the quality of domestic institutions. Collier (2000), for example, finds that the negative impact of ethnic fragmentation on economic growth is more pronounced in societies with limited political rights; and democracies, on the average, suffer less from the adverse influences of ethnic fragmentation than autocracies. In the same vein, Easterly (2001) finds that the negative impact of ethnic heterogeneity on economic growth is significantly mitigated by the presence of high institutional quality in the form of reduced risk of expropriation and repudiation of contracts by the government; more prevalent rule of law; a high quality of the bureaucracy; and a low level of corruption in the government. Reinforcing this insight, Schneider and Weisheimer (2008) find that democratic institutions that facilitate power sharing among ethnic groups significantly reduce the risk of civil war in heterogeneous societies. All these point at the need to control for institutional quality in considering the impact of ethnic fragmentation on economic growth.

### ***C. Institutional Quality and Economic Performance***

Investigation of the origin and consequences of institutional quality has emerged as a distinct field of inquiry in the decades since the pioneering contributions of North (1990) and it would not be wrong to say that the profession has reached a consensus that institutions play a critical role in determining the economic prospects of a nation ‘*by shaping the incentives of key actors in society*’ (Acemoglu *et al*, 2005). Given the amorphous nature of the concept of institutions<sup>6</sup>, the literature has generally focused on the impact of political regimes and the security of private property rights on economic performance.<sup>7</sup>

Theoretically, one may identify the following mechanisms whereby the insecurity of private property rights may impede economic growth (Besley and Ghatak, 2010): First, insecure property rights reduce the ex ante returns to physical and human capital. Second, such insecurity requires individuals to invest in defending their property, reducing the resources available for production. Third, insecure property rights reduce the mobility of productive assets and hence the gains from efficient production. Finally, they prevent the use of assets as collateral and hence reduce access to credit. Indeed, the existing empirical literature (Rodrik *et al*, 2004; Acemoglu *et al*, 2005; Jamali *et al*, 2007; Hall *et al*, 2010) overwhelmingly supports the importance of property rights as a determinant of growth.

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<sup>6</sup> North (1990) defines institutions as the totality of humanly devised constraints that shape the incentives in human exchange, whether political, social, or economic.

<sup>7</sup> See Bang and Mitra (2011) as a study that addresses the inherent multidimensionality of institutional structure. It should also be mentioned that there is a related body of literature that looks at the growth impact of economic freedom which materializes ‘*when economic activity is coordinated by personal choice, voluntary exchange, open markets, and clearly defined and enforced property rights*’ (Gwartney, 2009: 939).

In contrast to the security of property rights, the theoretical literature lacks consensus on the impact of political regimes on economic growth (Kurzman *et al*, 2002): While one school of thought conceptualizes democracy as a key determinant of growth, the other denies any salience to it and even argues for a negative impact of democracy on economic performance. The lack of clarity is reflected in the empirical literature, which has remained inconclusive on the relative performance of democratic and authoritarian regimes.

Following Gerring *et al* (2005), the case for a positive impact of democracy may be stated in terms of its ability to foster four types of capital that have important consequences for economic growth: First, democracies are, in general, promote the accumulation of *physical capital* by ensuring greater security of private property rights relative to more authoritarian regimes. In addition, they are more likely, at least over the long run, to reduce inequality via redistributive policies that include but are not limited to granting access to markets and public goods to hitherto marginalized groups. Second, democratic regimes promote the accumulation of *human capital* by confronting incumbent political elites with relatively greater incentives to improve the quality of life for the underprivileged, in terms of improved nutrition, public health, and education. Third, democratic regimes are associated with higher levels of *social capital* that acts as an important determinant of economic performance. Finally, relative to other types of political regimes, democracies foster *political capital*, as captured by the adoption of needed economic reforms and policies; improved stability of the political environment; prevalence of the rule of law; reduced corruption; and improved efficiency and transparency of the bureaucratic machinery.

Gerring *et al* (2005) identify the following mechanisms whereby democracy promotes the accumulation of political capital: First, relative to authoritarian regimes where the determination of economic policy is monopolized by the leader, his or her coterie, or at best, a small number of political elites; a democratic regime typically involves more actors in the decision process. This, in itself, may improve the quality of policy decisions. Second, the procedural and organizational accountability of decision-making in a democratic regime may prevent the subversion of policy decisions to further elite interests as opposed to that of the population. Third and on a related note, the anticipated reaction of the electorate plays a critical role in the determination of economic policy in a democratic regime. This electoral accountability may enhance the quality of policy decisions. Finally, democratic regimes typically permit greater institutionalization of power relative to autocracies: An authoritarian regime may succeed in imposing a Hobbesian order simply by the threat of coercion. This being denied to a democratically elected government, the latter therefore faces a greater need for creating highly institutionalized procedures for respecting the rights of minorities, addressing grievances, reconciling differences and resolving problems of coordination between groups.

At the other end of the spectrum, the case for democracy as an impediment to growth rests on the following arguments: First, relative to authoritarian regimes that do not care for electoral consequences of policy decisions, a democracy may find it difficult to adopt long run growth- augmenting policies that require a sacrifice of current consumption (Rao, 1984). Second,



democracies are inherently subject to manipulation by special interest groups (Olson, 1982; Rivera Batiz, 2002). Third, while democratic accountability lowers incentives for rebellion, it also constrains government repression of dissent and may even reduce the ability of the government to combat rebellion, if it actually occurs. On the balance, therefore, it is possible that democratic accountability may increase the likelihood of conflict, particularly at low levels of income (Collier and Rohner, 2008). Finally, democracies may be associated with greater uncertainty about the policy environment and this may impede private investment and growth.

#### ***D. Locating our Analysis in the Context of the Institutional Literature***

It is clear from the arguments on both sides of the table that the impact of political regimes on economic growth depends critically on the multiplicity of preferences in society regarding the distribution (and augmentation) of social surplus and how the regime reconciles the problem of these divergent preferences. Since the former may, at least partially, be captured by the level of social fragmentation and the latter by the institutional quality achieved by a regime, the empirical exercise conducted in this paper considers the impact of political regimes in conjunction with those of social fragmentation and institutional quality.

The analysis conducted in this study reveals that democracies have, on the average, experienced a more favorable growth experience over the period in question. Methodological differences aside, the ambiguity of existing empirical evidence on the role of democracy could, at least partially, be due to the fact that most studies do not take adequate note of theoretical arguments that posit a negative impact of democracy on economic growth. By contrast, our analysis takes an important step in addressing these concerns:

In controlling for the level of social fragmentation in an economy, we address the existence of latent social cleavages that generate special interest group activity and, at the limit, may lead to rebellion. Further, given the time period under consideration, it is not unreasonable to think of the magnitude of economic globalization as a measure of the ease with which the government can implement potentially unpopular growth-augmenting policies. Lastly, uncertainty about the continuity of the policy environment is, to a great extent, reflected in the insecurity of private property rights and this again is something we consider in our analysis.

#### ***E. Globalization and Economic Growth***

The debate on the consequences of globalization has been at the forefront of public interest for several decades now. While neoliberal orthodoxy is mostly unanimous in identifying the phenomenon as beneficial, and indeed, necessary for economic progress; there has not been a dearth of dissenting voices (Appadurai, 1996; Stiglitz, 2002; Tilly, 2003; Abouharb and Cingranelli, 2006; Olzak, 2011).

Relevant for our purpose, there is a school of thought that argues for a negative impact of globalization on ethnically fragmented societies on the grounds that it foments ethnic discord.<sup>8</sup> Several arguments have been proposed: First, globalization worsens existing inequalities in the distribution of income and wealth. In particular, workers in more traditional sectors of the economy are worse off than before. If the disadvantaged belong to a different ethnic group than the advantaged, income inequality takes the form of *ethnic inequality* and foments conflict between groups.<sup>9</sup> Second, even if income inequality is not defined on ethnic lines and the disadvantaged do not belong to a different ethnic group than the advantaged, worsening income inequality due to globalization could lead to ethnic conflict as a result of elites manipulating the working class into believing that there exist distinct ethnic interests and that these interests are under threat from another group. The invention of an imaginary enemy serves to divert the attention of the working class from the issue of capitalist exploitation and the conflict takes place on ethnic lines (Simmel, 1955). Third, globalization increases the mobilization capacity of disadvantaged ethnic groups. This may lead to conflict as the marginalized seek to redress historical injustices and the dominant seek to preserve their hegemony. Finally, globalization increases migration both within a country and across borders. Such migration brings hitherto separated groups into contact and increasing ethnic competition foments conflict.

It should be reiterated that in stark contrast to the above arguments, our results indicate that that societies marked by a *greater* degree of ethnic fragmentation have gained more from globalization over the last two decades. The theoretical arguments in support of our empirics are postponed to Section 4.

### III. Methodology and Variables

Our base empirical specification employs a standard neoclassical model of growth (Barro, 1991; Barro and Sala-i-Martin, 1995) augmented with measures of institutional quality, social fragmentation, and economic globalization. Formally,

$$(1) \text{ Growth}_{it} = \beta_0 + \beta_1(\text{Initial Per Capita GDP})_{it} + \beta_2(\text{Human Capital})_{it} \\ + \beta_3(\text{Technology})_{it} + \beta_4(\text{Property Rights})_{it} + \beta_5(\text{Democracy})_{it} \\ + \beta_6(\text{Social Fragmentation})_{it} + \beta_7(\text{Economic Globalization})_{it} + \varepsilon_{it}$$

As noted by Przeworski *et al* (2000), models based on averaging the relevant variables are particularly unsuited to growth regressions including institutional and political variables since averaging may lead to political characteristics at a given instant of time being related to growth experience at a different instant, thereby leading to spurious conclusions on the relevance

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<sup>8</sup> See Olzak (2011) and the references therein.

<sup>9</sup> This is a variant of earlier arguments by Bates (1974) among others that identify the roots of ethnic conflict as lying in the unequal distribution of the fruits of modernization.

of the former. Hence, equation (1) is estimated using an explicit time series methodology in the form of a random effect generalized least squares model. All exercises are conducted on a sample of 103 countries listed in the appendix comprising an unbalanced panel of 1572 observations taken annually over the period 1992-2005.

### *A. Description of Variables*

The dependent variable ( $Growth_{it}$ ) is the annual percentage growth in adjusted per capita Gross Domestic Product (GDP). Data on this variable is taken from the Penn World Table (PWT). The set of independent variables includes the initial level of GDP per capita in 2000 US Dollars, again taken from PWT. As per the neoclassical hypothesis of *convergence* (Solow, 1956; Barro, 1991), developing nations are likely to experience relatively higher rates of growth since they have the opportunity to gain from the experience of developed nations in terms of introducing efficient technologies, modes of organization, and institutional structure, without passing through the process of social learning the latter had to. Hence, this variable is expected to have a negative impact on the annual rate of growth.

The second independent variable, human capital, plays a central role in neoclassical narratives of growth (Romer, 1986, 1990; Barro, 1991). Following dominant convention in the field (Barro, 1991), we measure it by the level of gross secondary school enrolment in an economy, where the qualifier *gross* refers to the fact that the data covers both males and females. A high level of secondary school enrolment thus denotes a high level of human capital and is expected to have a positive impact on the annual rate of growth. Data on the variable comes from the Cross-National Time-Series Data Archive (Banks, 2010).

Also consistent with the neoclassical paradigm which posits a critical role for technology as a determinant of growth, we include a variable capturing the state of technological advancement in an economy. The results presented in the text are based on per capita energy consumption as the measure of technology, the rationale being that a high level of per capita energy consumption indicates a more technologically advanced society that can be expected to achieve a high rate of growth. Data on this variable is taken from the World Development Indicators (WDI).<sup>10</sup>

The first of two institutional characteristics included in the set of regressors is a dummy variable that takes the value 1 if the incumbent regime is democratic and 0 if it is an autocracy. Following Jamali *et al* (2007), a democracy is identified minimally as a polity where the executive and legislative organs of the state are either directly or indirectly elected via free popular elections.<sup>11</sup> Since our analysis covers a longer period than Jamali *et al* (2007), the

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<sup>10</sup> It should be mentioned that our results are robust to other measures of technology, such as the number of personal computers per 1000 people as the measure of technology (Jamali *et al*, 2007). These results are available on request.

<sup>11</sup> This is essentially the Schumpeterian notion of *contestation* (Schumpeter, 1942), whereby a democracy is identified as an “*institutional arrangement for arriving at political decisions in which individuals acquire the power*

variable has been updated using information from the Database of Political Institutions (Beck *et al.*, 2001).

The second institutional variable captures the security of private property rights within a polity. The measurement of property rights constitutes one of the more disputed topics in economics, since operational definitions of the concept vary widely. Consider, for example, one of the most commonly used measures (Rodrik *et al.*, 2004; Acemoglu *et al.*, 2005), namely the *Investment Profile Index* taken from the International Country Risk Guide (ICRG). The index measures the security of property rights based on the magnitude of expropriation risk, enforcement of contractual agreements, and delays in payments receivable. By contrast, the measure constructed by the Fraser Institute is based on judicial independence, the impartiality of courts, protection of intellectual property, the absence of military interference in governance, and the overall integrity of the legal system. The Heritage Foundation, on the other hand, measures the security of property rights using information on the independence and corruption within the judiciary, the enforceability of private contracts, the risk of expropriation, and the degree to which the government enforces laws pertaining to private property rights.

To avoid choosing between the alternative operational definitions, we construct a measure of private property rights by aggregating the ICRG indices called *Investment Profile*, *Corruption*, *Law and Order*, and *Bureaucratic Quality*. Note that these indices cover most aspects considered by the above definitions. The weights assigned to these components are calculated on the basis of Principal Components Analysis (PCA), as per standard practice in the empirical literature (Knack and Keefer, 1995; Perotti, 1996; Dreher, 2006). The aggregate property rights index ranges from 1.41842 to 14.9143 for our sample.

The penultimate explanatory variable is the *KOF Index of Economic Globalization* introduced by Dreher (2006). Economic globalization is defined as the “*long distance flow of goods, capital and services as well as information and perceptions that accompany market exchanges*” (*op. cit.*, p.1092). It is measured by an index that aggregates two components: The first component measures the actual volume of flows in the form of trade, foreign direct investment, portfolio investment, and income paid to foreign nationals. The second measures restrictions on trade and the international mobility of capital in the form of import barriers, mean tariff rates, taxes on international trade, and capital controls. The aggregate index of economic globalization ranges from 0 to 100, where higher values are taken to indicate a greater degree of economic globalization. For our sample, however, the range is 11.38 – 98.89 approximately.

Finally, social fragmentation is captured by the Ethnolinguistic Fractionalization Index (ELF) constructed by Roeder (2001).<sup>12</sup> As previously mentioned, this is essentially a Herfindahl

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*to decide by means of a competitive struggle for the people’s vote.*” Note that constitutional monarchies like Malaysia or Thailand are classified as democracies as per this definition.

<sup>12</sup> The most commonly used measure of ethnolinguistic fractionalization is the index introduced by Easterly and Levine (1997) to the economic literature. Unfortunately, this index suffers from a number of problems: First, it is constructed on the basis of data from the Soviet ethnographical volume *Atlas Narodov Mira* published in 1964. It is

index that measures the probability that two people chosen at random from the total population will belong to different ethnic groups. It ranges between 0.003 and 0.919 for our sample.

### ***B. Relevance of the Sample period***

The time period explored in our analysis has been marked by profound changes in the social and economic fabric of nations induced by the advent of globalization. While the debate on the economic consequences of globalization has long moved beyond the confines of the discipline, there is a distinct lack of studies that focus on the growth experience of nations over the last two decades. In particular, there is a dearth of rigorous empirical analyses of the relative performance of democratic and autocratic regimes in the *new economy* created by technological advancement, institutional change, and the increasing integration of local commodity and asset markets with the global economy. As importantly and given the concern that globalization creates an environment favorable to identity based political action (Appadurai, 1996; Tilly, 2003), the relative impact of global integration on homogenous and fragmented societies has not received the attention it merits in the empirical literature on economic growth. This study is a partial attempt to fill this void.

## **IV. Empirical Analysis**

Model I of Table 1 presents the results of our initial specification. With respect to the standard covariates of growth, the coefficient on initial per capita GDP is negatively significant at the 1% level, consistent with the neoclassical hypothesis of *convergence* (Barro and Sala-i-Martin, 1995). Confirming the role of human capital as a key determinant of growth (Romer 1990), the coefficient on the education variable is positively significant at the 1% level. Finally, technology as captured by per capita energy consumption has a positive impact on the rate of growth at the 5% level of significance. It thus appears that the importance of technological advancement in shaping the growth experience of developing nations over the 1990s (Jamali et al 2007) continued over the first five years of the present century.<sup>13</sup>

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by now well accepted that ethnic boundaries evolve over time in response to the specific political and economic needs faced by a group (Horowitz, 2000). Hence, the index of Easterly and Levine (1997) is outdated. Second, the Soviet data sometimes catalogues distinct groups under the same umbrella category, the most glaring example of which is the classification of Hutus and Tutsis in Rwanda as one ethnic group called *Banyarwanda*. The measure of Roeder (2001) is based on data collected in 1985 and is moreover sensitive to some of the more problematic coding issues that plague the Soviet data. See Posner (2004) on the identification and measurement issues that confront ethnographic research.

<sup>13</sup> It should be noted that the results presented in Table 2 are not directly comparable to Jamali *et al* (2007), who proxy technology with the number of computers per 1000 people. Using this as our measure of technology leaves signs and significances unchanged for virtually all of our variables but alters the magnitude of the coefficients.

With respect to the variables of interest, our analysis confirms the importance of secure property rights as a determinant of growth: On the average, a one standard deviation improvement in the property rights index increases the rate of growth by a factor of 0.14 approximately and the impact is significant at the 1% level.<sup>14</sup> We also find that democracies have significantly outperformed autocratic regimes over the relevant period.<sup>15</sup>

Consistent with recent evidence on the importance of global integration on economic growth (Dreher, 2006), we further see that economic globalization has had a significantly positive impact on the rate of growth over the sample period: On the average, a one standard deviation increase in the *KOF Index of Economic Integration* improves the rate of growth by an approximate factor of 0.6 and the impact is significant at the 1% level.

Finally, in line with existing evidence (Mauro, 1995; Easterly and Levine, 1997; Alesina *et al*, 2003) social fragmentation as captured by ELF has been a significant impediment to growth over the sample period: A standard deviation increase in the index reduces the rate of growth by an approximate factor of 1.8 and the impact is again significant at the 1% level.

#### ***A. Disaggregating Ethnolinguistic Fractionalization***

As previously mentioned, ELF is based on the implicit assumption that various dimensions of group difference have identical consequences for economic growth (Posner, 2004) and this may prove particularly problematic for the type of analysis undertaken in this study. As such, we follow Alesina *et al* (2003) in distinguishing between ethnic, religious, and linguistic cleavages in society. The results of this exercise are reported in Model II of Table 1.

As seen from Model II of Table 1, disaggregating ELF leaves signs and significances virtually unchanged for all of the other variables. Further, the magnitudes of the coefficients remain fairly comparable to the original specification. Of the various dimensions of group difference, we see that ethnic heterogeneity has taken a significant toll on economic growth over the sample period: On the average, a one standard deviation increase in ethnic heterogeneity reduces growth by an approximate factor of 2.67 and the impact is significant at the 5% level. By

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<sup>14</sup> Recall that our measure of property rights has been constructed via principal components analysis from the ICRG indices called *Investment Profile*, *Corruption*, *Law and Order*, and *Bureaucratic Quality*. As robustness checks on the validity of this measure, we first replicated our analysis by using the Investment Profile Index alone as the measure of property rights (Rodrik *et al*, 2004; Acemoglu *et al*, 2005) and then used domestic credit to the private sector as percentage of GDP (Leblang, 1996; Jamali *et al*, 2007) as the relevant measure. Both procedures yielded similar results for each of our variables.

<sup>15</sup> As a robustness check, we followed Jamali *et al* (2007) in distinguishing between democracies, autocracies, and bureaucracies, which are autocratic regimes that codify laws through the presence of a legislature (Przeworski *et al*, 2000). While this confirmed our basic result that democracies have experienced a significantly greater rate of growth than autocracies; we did not find that bureaucracies have significantly outperformed democracies as in Jamali *et al* (2007). In fact, our analysis failed to unearth any evidence that bureaucracies have outperformed autocracies over the period in question.

contrast, the growth impacts of religious and linguistic heterogeneity, though positive, are insignificant at any acceptable level. Note that the relative salience of ethnic diversity over other dimensions of heterogeneity is again in line with existing evidence (Alesina *et al* 2003; Montalvo and Reynal-Querol, 2005).<sup>16</sup>

### ***B. Ethnic Heterogeneity and Globalization***

The last exercise undertaken in this study investigates if the impact of economic globalization on the growth experience of an economy depends on the existing level of ethnic fragmentation. To do so, we introduce an interaction term between the economic globalization index and the index of ethnic fragmentation (Alesina *et al*, 2003) used in the previous specification. Given the statistical insignificance of linguistic and religious fragmentation in all of our previous specifications, we omit these variables from the list of regressors.<sup>17</sup>

As seen from Model III of Table 1, the coefficients on the neoclassical covariates of growth remain comparable in sign, significance, and magnitude to the previous specifications: The initial per capita GDP retains its negative impact on the rate of growth at the 1% level of significance; human capital retains its positive impact at the 1% level; and technology its positive impact at the 5% level. Further, the institutional determinants of economic growth are seen to have the impacts detected earlier: As before, we find that democracies have significantly outperformed autocratic regimes over the sample period and countries that have been able to ensure greater security of private property rights have grown more.

Also as before, we find that economic globalization has had a significant positive impact on the rate of growth over the period under consideration and ethnic heterogeneity has taken a significant toll. Interestingly, once we introduce the interaction term between economic globalization and ethnic fractionalization, the coefficient on the ethnic fractionalization variable is larger than any of the previous specifications and remains so regardless of whether we use the Alesina *et al* (2003) or the Fearon (2003) measures of heterogeneity and whether we include or exclude the nonethnic dimensions of group difference from our model.

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<sup>16</sup> As a first robustness check, we adopt the convention of Fearon (2003), who distinguishes between ethnic and cultural fractionalization, using the structural distance between languages spoken within the polity to approximate the cultural distance between groups. Again, while ethnic fractionalization is seen to have a significant negative impact on growth at the 5% level, the influence of cultural fractionalization is positive but insignificant. Coefficients on all other variables remain closely comparable to the original specification. Interestingly, the detrimental impact of ethnic heterogeneity on growth persists at the 5% level even when we explicitly control for internal violence by introducing variables capturing the average annual number of riots, revolutions and assassinations over the sample period. This suggests the existence of causal mechanisms other than conflict whereby ethnic fragmentation impedes growth. The conflict variables are taken from the Cross-National Time Series Data Archive (CNTS) and the first two are additionally seen to have a negative impact on conflict at the 1% and 5% levels respectively.

<sup>17</sup> Retaining the linguistic and religious fractionalization indices yields nearly identical results as those reported in the text. These results are available on request.

Significantly for our purpose, the coefficient on the interaction term between the ethnic fractionalization index and the index of economic globalization is positive and significant at the 5% level. This suggests that economies characterized by a greater degree of ethnic heterogeneity have gained more from increasing global integration.

### *C. Why Relatively Diverse Societies Gained More from Globalization*

As previously mentioned, ethnically fragmented societies attain relatively low rates of growth due to rent seeking activity on the part of ethnic coalitions that, at the limit and in the absence of good institutions, take the form of ethnic violence. Such societies experience two distinct impacts of globalization: On one hand, increasing global integration of commodity and asset markets enhances economic growth. On the other hand, the economic prosperity induced by globalization reduces the likelihood of conflict, both by increasing the opportunity cost of violence as well as reducing the motives for grievance that induce conflict (Hegre *et al*, 2003). The resultant increase in political stability, in turn, enhances growth.

That globalization may reduce internal violence in heterogeneous societies rather than foment greater discord may be argued on several grounds: First, the economic development brought about by globalization increases popular demand for good governance and resultant institutional reform in the form of democratization in authoritarian societies and reform of the political process in existing democracies both reduces motives for grievance and facilitates the resolution of ethnic grievances via nonviolent means.

Second, the process of globalization is typically accompanied by the diffusion of ideas and norms (Bhagwati, 2004) that may profoundly alter the ethos of ethnic discrimination prevailing in a formerly closed society. In particular, as argued by Mousseau and Mousseau (2008), globalization exposes formerly insulated societies to norms of market culture that prioritize the rights of an individual over the historically dominant rights of a group. If this is true, one may expect to see the reduced salience of group identities and hence, reduced likelihood of group violence. Third, and on a related note, the global diffusion of norms of respect for individual and minority rights may compel individual states to respect these values, if only to avoid costly sanctions that would threaten the economic benefits of globalization (Dreher *et al*, 2008).

Finally, narratives that identify globalization as a destabilizing influence in fragmented societies generally point at its impact in worsening inequality both between and within ethnic groups. However, it is also true that the process of globalization may co-opt incumbent ethnic elites by assuring them greater benefits than they acquired in a pre-globalized society.<sup>18</sup> In this case, it is in the interest of the elites to prevent violence, if necessary via a process of ethnic redistribution. Note that we do not deny that worsening within-group inequality, if it occurs, may

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<sup>18</sup> This is because the elites rather than the ethnic population at large are in a position to take advantage of the changes induced by globalization when it first occurs.



present ethnic elites with a challenge to maintain their hegemony and there could be an incentive to manipulate or manufacture ethnic differences to this end. However, such a strategy and the associated risk of conflict would threaten the rents from globalization and this may encourage the elites to seek other means of appeasing the ethnic population. Note also that the increased availability of funds make nonviolent means of appeasement such as transfers easier to implement relative to the pre-globalization period.

## V. Conclusions and Policy Implications

There is a distinct lack of studies exploring growth experience over the last decade of the twentieth century and the first five years of the current one, despite the profound economic and social changes that marked the world in that period. In undertaking an exploration of growth performance in an extended sample of countries over the period 1992-2005, this study attempts to fill this void. It contributes to the extant literature by underlining the critical importance of institutions as determinants of growth: Nations that have been able to evolve democratic governments and ensure the security of private property rights have prospered more in the *new economy* created by technological advancement, increasing global integration, and the resurgence of local or minority identities in the face of globalization.

We also find that countries marked by a high degree of ethnic fragmentation have, on the average, attained lower rates of growth than more homogenous societies. However, there is no reason to believe that social cleavages formed on the basis of markers other than ethnicity have taken a toll on growth. Interestingly and in stark contrast to received wisdom, the detrimental impact of ethnic fragmentation on economic growth has been partially mitigated by the impact of economic globalization. Our results indicate that controlling for institutional quality, societies marked by a greater degree of ethnic fragmentation have actually gained more from globalization, as predicted by the neoliberal theory (Bhagwati, 2004; Dreher *et al*, 2008). Finally, societies that have invested in the creation of human capital have been able to achieve higher rates of growth and technological advancement has continued to play an important role in shaping the growth experience of developing nations.

All this points at the need to *promote globalization* as a strategy for growth, both because it improves growth directly by linking local commodity and asset markets to the global economy and indirectly by partially mitigating the adverse impact of ethnic fragmentation. As importantly, it suggests the need to *manage globalization* by investing in sound institutions which not only prevent ethnic grievances from manifesting themselves as conflict but have direct consequences for the accumulation and efficiency of productive resources. In particular, the importance of strengthening democratic foundations of the state and preserving the security of property rights can hardly be overstated.

**Acknowledgements:** We would like to thank Arnab Biswas for outstanding work in compiling the data; Sarah King, Christian A. Johnson Summer Intern at Middlebury College for her able research assistance, Nita Mitra and Brenda Ellis for their comments and criticism. The usual caveat applies.

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**Table 1:** Random Effects Generalized Least Squares Estimates*Model I: Initial Specification**Model II: Alesina decomposition of social fragmentation into ethnic, cultural, and religions fractionalization**Model III: Ethnic heterogeneity interacted with globalization*

<i>Dependent variable: growth_rate</i>								
<i>[ Mean: 2.691215; s.d.: 3.955736 ]</i>								
			<i>Model I</i>		<i>Model II</i>		<i>Model III</i>	
<i>Variable name</i>	<i>Mean</i>	<i>s.d.</i>	<i>Est. coefficient</i>	<i>z-value</i>	<i>Est. coefficient</i>	<i>z-value</i>	<i>Est. coefficient</i>	<i>z-value</i>
<i>GDPC92</i>	6852.878	8895.051	-0.0002236	-6.17***	-.000231	-6.26***	-.0002203	-5.98***
<i>HCAP</i>	3725.084	10942.68	0.0000616	3.30***	.0000534	2.84**	.0000543	2.91***
<i>PROPR</i>	9.529481	2.589024	0.1440192	2.52**	.1288724	2.21**	.1630932	2.79***
<i>DEMOC (dummy)</i>	0.8778626	0.3275486	1.494482	3.34***	1.086153	2.33**	1.367191	3.01***
<i>ECONGLOB</i>	59.70394	18.25504	0.0655089	5.36***	.0685227	5.47***	.0340737	1.75*
<i>TECH</i>	2328.919	2367.226	0.0002628	2.06**	.0002331	1.81*	.0002309	1.81*
<i>ELF</i>	0.409834	0.2744061	-1.858279	-2.18**				
<i>ETH</i>	0.4002346	0.2445405			-2.663953	-1.94*	-6.550199	-2.78***
<i>LING</i>	0.3532283	0.2861344			.0423511	0.04		
<i>REL</i>	0.418907	0.2382921			.5515035	0.53		
<i>ECONGLOB * ETH</i>	22.34987	14.3035					.078886	2.07**
			Wald $\chi^2_7 = 118.26***$		Wald $\chi^2_9 = 111.10***$		Wald $\chi^2_8 = 121.91***$	

Effective sample: 1572 observations (103 countries x 16 years, unbalanced)

\*\*\*significant at 0.01.

\*\*significant at 0.05.

\*significant at 0.10.

Variable Definitions: GDPC92: initial per capita GDP in 2000 US \$; HCAP: gross secondary enrolment level; PROPR: constructed index of property rights; DEMOC: dummy variable for democracy; ECONGLOB: KOF index of economic globalization; TECH: technology as captured by per capita energy consumption; ELF: ethnolinguistic fractionalization index (Roeder, 2001); ETH: ethnic fractionalization index (Alesina et al., 2003); LING: linguistic fractionalization index (Alesina et al., 2003); REL: religious fractionalization index (Alesina et al., 2003); ECONGLOB \* ETH: interaction term between economic globalization and ethnic fractionalization.

## **Appendix**

### **List of Countries**

Albania, Algeria, Argentina, Armenia, Australia, Austria, Azerbaijan, Bahrain, Bangladesh, Belarus, Belgium, Bolivia, Botswana, Brazil, Bulgaria, Cameroon, Canada, Chile, China, Colombia, Costa Rica, Cote d'Ivoire, Croatia, Cyprus, Denmark, Dominican Republic, Ecuador, Egypt, El Salvador, Estonia, Ethiopia, Finland, France, Gabon, Germany, Ghana, Greece, Guatemala, Haiti, Honduras, Hungary, Iceland, India, Indonesia, Iran, Ireland, Israel, Italy, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Republic of Korea, Latvia, Lithuania, Luxembourg, Malaysia, Malta, Mexico, Moldova, Mongolia, Morocco, Mozambique, Namibia, Netherlands, New Zealand, Nicaragua, Nigeria, Norway, Oman, Pakistan, Panama, Paraguay, Peru, Philippines, Poland, Portugal, Romania, Russia, Senegal, Singapore, Slovenia, South Africa, Spain, Sri Lanka, Sweden, Switzerland, Syria, Tanzania, Thailand, Togo, Trinidad and Tobago, Tunisia, Turkey, Ukraine, United Kingdom, United States, Uruguay, Venezuela, Vietnam, Zambia, Zimbabwe.