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Divergent effect of social cohesion on economic growth in East Asia and Latin America

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Abstract

In this paper I explore the link between social cohesion and economic growth in Latin America and East Asia. Unlike previous studies, I allow for different slope parameters for the different regions. Using ethno linguistic fractionalization as a proxy, I find that social cohesion has not played an important role in determining growth outcomes in Latin America. While social cohesion has not had a direct effect on growth nor institutions in Latin America, it helps explain a large degree of the growth differentials among Asian countries. Social cohesion mostly impacts growth through its effect on institutional quality. However, these results are contingent on the proxy used for social cohesion. Since there is no appropriate method for distinguishing the best proxy for social cohesion, I estimate social cohesion in a set of structural equations as an unobserved variable with observable causes and indicators. Using the estimated values of social cohesion in the growth regressions does not affect the previous results obtained using ethno linguistic fractionalization as a proxy.

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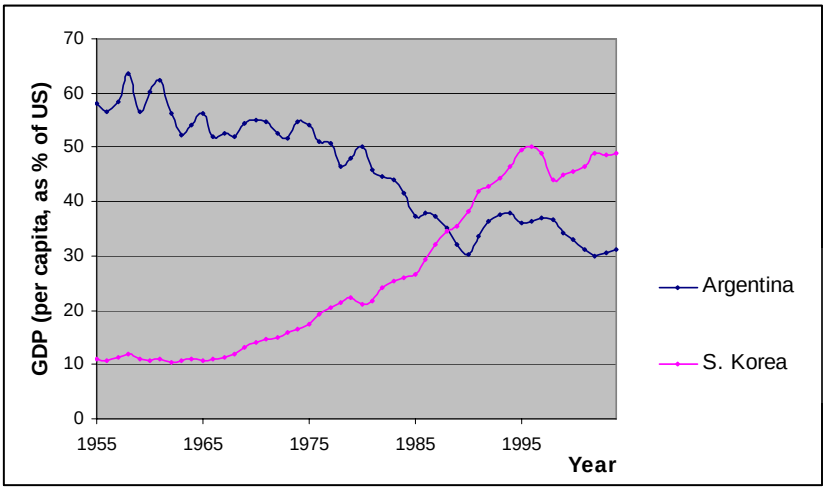
It is of special importance to understand the diverging economic growth experiences in Latin America and (South) East Asia. Compare, for example, the growth path of South Korea and Argentina over the last 50 years. South Korea was among the poorest countries when it came out of war in the 1950s, with a GDP per capita ten percent that of the United States. Since then South Korea has grown at substantial rates averaging two percent between 1950 and 1965, and almost eight percent between 1985 and 1995. By 1996, at the onset of the East Asian financial crisis, its GDP per capita had reached half that of the U.S. After a rapid recovery from the crises, it once again reached that level by 2004. Alternatively, consider Argentina, which fell from being among the richest countries worldwide in 1950 to a country troubled by a myriad of economic maladies (see Figure I).

Figure I



As previously hinted by different scholars, social cohesion might play an important role in determining policy choices and other economic outcomes (Easterly 2006, Rodrik 1999, Alesina et al 2003, Easterly and Levine 1997). Even benevolent politicians fail to enact good policies because they face significant social and political constraints. The degree of 'social cohesion' within society shapes the political constraints

faced by politicians. Furthermore, social cohesion can raise significantly the efficiency of markets by, for instance, lowering information asymmetries. This study will systematically address the effect of social cohesion on economic growth. Previous studies have focused on Africa, and rightly so, but the study of Latin America has been largely forgotten. I hope, in particular, to shed light on the "forgotten" continent.

This study finds that social cohesion, measured by ethno linguistic fractionalization (ELF), neither has a direct effect on economic growth nor shapes the quality of institutions in Latin America. These results are robust to different specifications and controlling for different institutional variables. In Asia, I find that social cohesion has a positive effect on growth and the effect remains significant even after controlling for economic policy outcomes and measures of human capital. However, once institutional quality is considered, the evidence suggests that social cohesion may affect economic growth mostly through institutions. Estimation of seemingly unrelated regressions suggests that social cohesion has a weak direct effect on growth when controlling for institutions. An instrumental variable approach, which controls for endogeneity and measurement error, reveals that social cohesion has a first stage positive impact on institutional quality, but no significant second stage effect on economic growth. However, all of these findings are contingent upon the proxy I use for social cohesion. Once alternative measures are considered, results vary greatly. To that end, I make a novel contribution by using a structural equations model for the estimation of social cohesion, as an unobserved variable, based on its relationship between its causes and indicators. The results from growth regressions using the social cohesion estimates are very similar to those found using ELF as a proxy.

Section 2 reviews the theory relating social cohesion and economic growth and summarizes previous empirical findings. Section 3 describes the empirical strategy used for the cross-country regressions and presents the data. I present the main results from cross-country regressions in Section 4 where I find that traditional measures of social cohesion fail to show any significant relationship with growth for Latin America. Given that existing measures of social cohesion limit further development of the literature, I make a novel contribution by using a MIMIC approach for measuring social cohesion in Section 5. Section 6 concludes by summarizing the main findings and contributions of this study and suggesting areas for further research.

2 Social Cohesion and Economic Growth: The Link

2.1 Theoretical Framework

Social cohesion has many formal definitions. Ritzen and Woolcock (2000) refer to social cohesion as "a state of affairs in which a group of people (delineated by a geographical region, like a country) demonstrate an aptitude for collaboration that produces a climate for change." In the developing world, social cohesion is mostly discussed in relation to social and civic conflict, an effective rule of law, and decreasing pockets of disaffected or marginalized groups from society (Ritzen and Woolcock, 2000).

Social cohesion's effect on economic growth has been studied within the social capital literature. Social capital, as pointed out by Durlauf and Fafchamps (2005), is not a concept but a praxis that federates disparate but interrelated research interests. Defining social capital is beyond the scope of this study, but it is important to mention some of its characteristics.[1] First, social capital generates positive externalities for members of a group, but not necessarily a country. Second, the externalities arise from shared norms

[1] For a detailed discussion on the issue, see Durlauf and Fafchamps (2005).

and values and their implications for expectations and behavior. Third, these values and norms arise from informal forms of organizations based on networks and organizations.

Social capital differs from social cohesion in a few ways. Above all, there is evidence to suggest that social capital may not always lead to positive outcomes. Armony (2004) discusses various examples where civic participation, such as human and civil rights organizations in democratic Argentina, led to negative democratic outcomes. Social cohesion is defined in such a way that more is considered better. In addition, social cohesion tries to refer to social inclusion and responsive political institutions that foster inclusion whereas social capital is neutral in this sense (Ritzen and Woolcock, 2000). Moreover, as Easterly (2006) points out, social capital is increasingly studied at a micro-economic level by analyzing the economic implications of kinships and networks; social cohesion refers to features of society as a whole.

In fact, Dayton-Johnson (2003) proposes that the level of social cohesion equals the discounted past investments in social capital by all members of a society. The study argues that investments in social capital are more remunerative the higher the level of social cohesion; the level of social cohesion therefore enhances the incentive to invest in further social capital. According to this model, once social cohesion starts falling under a certain threshold k, it will continue to decrease indefinitely because there is no incentive to invest in social capital and increase social cohesion. The model is illustrative of the link between social capital and social cohesion. Nonetheless, the model fails to account for societies with two or more highly cohesive groups with members that invest in social capital; the society as a whole is non-cohesive because of divergences across groups.

Durlauf and Fafchamps (2005) present a broad overview of the different 'channels' through which social capital may lead to positive economic outcomes, one of which is economic growth. These 'channels' can be extended to build a more formal link between social cohesion and economic growth. Social cohesion can play an important role by ameliorating potential inefficiencies caused by imperfect information. Information asymmetries are an inherent feature of all societies. In societies with low levels of social cohesion, exchange is hindered because either agents who could benefit from trade fail to find each other or once they have found each other they do not trust each other enough to trade.

As an example, the same study brings to light the importance that social cohesion plays in the efficiency of labor markets, in particular the U.S. labor market. A large proportion of the information regarding jobs and job applicants used to be channeled on a personal basis and word-of-mouth. A society that offers high levels of social cohesion is better able to match the appropriate applicants to the appropriate jobs. In this particular market, social cohesion plays an important role raising the efficiency of the market. However, this is neither the only nor the best possible solution. In fact, modern technological solutions such as online jobs databases or well-defined contracts with appropriate incentive schemes might be regarded as superior solutions.

Furthermore, cohesive societies may grow faster because its citizens act more cooperatively. Several economic experiments suggest that agents exhibit more altruism and play more cooperatively when players have been induced to identify with a group. This is true even if group members are unknown and they have not seen each other. Such results suggest that group identification may lead to more altruistic players whose

preferences are more aligned with the common good. A cohesive society whose members identify with the same group may lead to positive economic outcomes (Duarluf and Fafchamps 2005). Similarly, Alesina et al (1999) develop a model in which polarized preferences lead to low provision of public goods. A public good, such as a school, brings less satisfaction to everyone in an ethnically diverse context because of, for instance, diverging preferences for language of instruction, curriculum, etc. Hence, less of the public good is provided in a heterogeneous society, which has a detrimental effect on growth.

In addition, the degree of social cohesion is thought to affect the development of institutions. It has been shown that the enforcement of property rights for a broad cross-section of society is essential for long-run sustained growth so that all individuals have an incentive to invest, innovate, and take part in economic activity. Economic institutions, however, are mostly endogenous and determined by the *de jure* and *de facto* political power, which is largely determined by the distribution of resources (Acemoglu et al, 2004). In fractured societies, the distribution of *de facto* political power is usually asymmetric and/or skewed –one group is larger and/or has more resources available. In such circumstances, good economic institutions, such as appropriately enforced property rights for a broad sector of the population, is not the optimal outcome for the politically more powerful group.[2] This relationship between social cohesion, institutions, and growth that Acemoglu et al (2004) bring to our attention is one that expresses itself in the very long run. Engerman and Sokoloff (2002) highlight the importance of differences in the degree of inequality and homogeneity of societies in accounting for the evolution of economic institutions over time in Latin America.

[2] See Acemoglu et al (2005) for more on this discussion.

The relationship between social cohesion and institutions is not unidirectional. Public education has been, since its inception, an important socializing force. Public education has played a key role in forging national identities by building common norms and facilitating interactions between members of a society who differ in their cultural, ethnic, or religious backgrounds. Gradstein and Justman (2002) find that decentralized education, where each social group operates uncoordinated schools, leads to lower growth rates by creating too much polarization in society. A centralized school system with reciprocal convergence towards the middle ground enhances the level of social cohesion and economic growth.

The relationship between social cohesion and economic growth is a complex one. Social cohesion is both an *end* and a *means*. It is an end insofar as public policy, such as education, should aim at including all individuals into society and making them active participants. It is a means because cohesive societies have better and more stable institutional frameworks and negotiate more effectively through these frameworks for a more efficient policy-making.

2.2 Social cohesion in Asia and Latin America

Social cohesion expresses itself differently in Latin America and East Asia. The cleavages in both societies have dissimilar origins and have contrasting complexions. In East and South East Asia, the social fractures arise from the presence of different ethnic groups within the same states. These ethnic groups are numerically marginal, usually hill tribes, that have lived in relative isolation until modern times. In South East Asia, it is also common for ethnic groups from neighboring countries to live in the border region, such as the Khmer living in the northeast of Thailand near the Cambodia border. The

only group of clear foreign origin is the Chinese Diaspora throughout South East Asia, one that has faced considerable problems due to its significant economic power. However, the common feature among East Asia is that political power lies in the hands of elites ethnically and culturally bound to the majority of the population.

In Latin America, on the other hand, the situation is starkly different. For the most part, the fault lines existing in modern Latin American society arose during and after colonization. During this period, large numbers of migrants, from both Europe and Africa, settled in the Americas. As argued by Engerman and Sokoloff (2002), different settlement strategies were used by the colonial powers depending on the factor endowments prevalent in each region. The settlement strategies, combined with the colonial institutions, led to a largely heterogeneous and unequal society composed of European elites, which possessed the vast majority of the economic and political power, and Native or Afro-American masses. This situation is not as prevalent in regions of the southern cone because conditions were not appropriate for planting cash crops; they also had relatively smaller native populations. Over the long run, European migration overturned the Elite status of "old" families in the southern cone leading to a more homogenous and equal society as compared to Guatemala or Bolivia where deep divisions remain.

2.3 Previous Empirical Findings

For measurement purposes, the vast majority of the literature on social cohesion focuses on social fractionalization along ethno-linguistic lines. Social fractionalization, in this case, refers to divisions along ethnic or linguistic barriers that can eventually lead to fault lines within society. Fractionalization and cohesion can be seen as two faces of the

same coin. Rodrik (1999) claims that social conflicts rise from a coordination failure among different social groups. In particular, when an economy faces an external shock, he argues, groups have two different options: cooperate and reduce their demands to compensate for the economic downturn, or 'fight' for their previous share. If both groups choose the latter option – especially true where institutions are weak and hence expected gains from opportunistic grabs are high – the demands exceed the available resources. The ensuing political debate on how to share the resources will retard political decisions on how to deal effectively with the external shocks.

Rodrik finds that the countries that experienced the sharpest drops in GDP after the 1970 shocks were those with divided societies and weaker institutions. Furthermore, he finds that the severity of shocks themselves were secondary in explaining the growth collapses. Social conflict, as he terms it, played a role by inducing macroeconomic mismanagement, suggesting that social conflict affects the way policy making institutions work. Rodrik finds that, even when controlling for the quality of institutions, ethnic fractionalization reduces the ability to manage shocks. Moreover, he finds that his measures for social conflict and institutions are constant over time, making it difficult to explain why they account for the growth differences after the shocks, but not before the shocks (Rodrik 1999).

Easterly (2006), on the other hand, shows that social cohesion affects the quality of institutions, which in turn has an important impact on growth outcomes by affecting policy making. He argues that more socially cohesive societies produce better institutions that in turn lead to better economic performance. Easterly (2006) uses ethno linguistic fractionalization and inequality – his proxies for social cohesion – as instruments for

institutions to corroborate his hypothesis for a vast cross-sectional sample. He argues that where formal institutions are developed, social fractionalization becomes unimportant. As an example, he cites the European Union, where a very strong set of institutions compensates for an extremely fractionalized Europe. On this issue, though not explored empirically, Easterly seems to concur with Rodrik's (1999) thesis that social fractionalization may have an effect other than through institutions. Unlike Rodrik, however, Easterly argues that good institutions will mitigate the problems caused by lack of social cohesion.

Alesina et al (2003) revisit the question of the impact of ethno-linguistic and religious fractionalization on institutions and growth. They find that as they control their growth regressions for variables regarding schooling and levels of infrastructure, such as telephone lines, the effect of social fractionalization tends to vanish. They explain the vanishing effect of social cohesion by arguing that fractionalization has a negative effect on infrastructure and productive public goods which in turn negatively affect growth. Furthermore, they provide supporting evidence regarding Rodrik's (1999) thesis that social fractionalization induces macroeconomic mismanagement. After controlling their growth regressions for levels of financial depth, black market premium and fiscal surplus, ethnic fractionalization is no longer significant. They do not, however, control for quality of institutions as Rodrik does.

Africa has been the focus of the cross-country studies on social cohesion. In a sweeping and pioneering survey of ethnic fractionalization, Easterly and Levine (1997) dwell on the underlying reasons for Africa's growth tragedy. Latin America was largely ignored by the study – East Asia was used for comparative purposes with Africa. They

find that Africa's greater ethnic diversity has led to lower growth and alone accounts for between one fourth and one fifth of the growth differential between East Asia and Africa. They also find that ethno linguistic fractionalization helps explain the growth-retarding policies of Africa such as underinvestment in productive public goods (i.e., infrastructure, education, health).

3 Empirical Strategy

3.1 Empirical Models

Empirical growth studies focus on answering two related questions. First, growth econometrics has tried to determine whether differences in level of economic output are persistent over long periods. The second theme revolves around the identification of growth determinants, trying to find factors that explain the observed differences in growth patterns. This study falls within the last part of the spectrum. Well aware of the limitations of the field of growth econometrics, I will use pooled cross-sectional data to determine the diverging effect of social cohesion on the growth experiences in Latin American and (South) East-Asian countries.[3] As noted above, the aim of this empirical exercise is not to uncover whether social cohesion is they key factor explaining growth differences, but to try to unearth evidence that would allow us to claim legitimately that it is *one of* the factors.

The studies reviewed in the previous section are not overly concerned with the theoretical underpinnings of their empirical strategy. Easterly (2006) regresses growth on institutions and uses inequality and social fractionalization as an instrument for institutions. He does not specify a theoretical growth model in which his regressions are

[3] See Durlauf et al (2005) for a discussion on the weaknesses of cross-country growth regressions.

based. Similarly, Alesina et al (2003), though including other variables in their regressions, neither mention nor specify a theoretical model. One reason for this might be that economic growth theories are open-ended, and hence different growth theories are typically compatible with one another (Durlauf et al, 2005).

Most of the literature on growth-econometrics makes use of neo-classical growth models. Throughout this study, I use the canonical cross-country regression known as the 'Barro regression' which is the most widely used model:

(1) $$\eta_i = \beta \log y_{i,0} + \psi X_i + \pi Z_i + \varepsilon_i$$

where η_i is the growth rate of country i, $y_{i,0}$ (variables controlling for convergence factors) and X_i encompass those growth determinants suggested by the Solow growth model whilst Z_i are determinants appended on to Solow's original theory – in this particular study Z_i includes variables of social fractionalization and institutions. However, I use more than one particular model specification because inferences made based on one model are conditional upon the accuracy of that particular model. When working with pooled cross sections the model changes slightly:

(2) $$\eta_{it} = \beta \log y_{i,t-1} + \psi X_{it} + \pi Z_{it} + \sigma_i + \mu_t + \varepsilon_{it}$$

Furthermore, the study, while not being about the impact of institutions on economic growth, attempts to analyze whether social fractionalization affects growth both through its effect on institutions and directly – by, for instance, increasing macroeconomic mismanagement – or only through institutions. In this case, I have a two-stage hypothesis and use two-stage least squares methodology.

(3) $$Ins_{it} = \beta_0 + \beta_1 IV_i + \kappa W_{it} + \nu_{it}$$

(4) $$\eta_{it} = \beta \log y_{i,t-1} + \psi X_{it} + \pi W_{it} + \omega \hat{Ins}_{it} + \sigma_i + \mu_t + \varepsilon_{it}$$

where *Ins* are institutional quality variables, $W_{i,t}$ are measures of social cohesion that can affect growth both directly and through institutions. As an Instrumental Variable for institutions, I will use settler mortality rates during the 17th, 18th and 19th centuries as used in Acemoglu et al (2001). This study argues that mortality rates were a key determinant of settlements because the public in Europe was fully aware of their magnitude and variations within regions. Where Europeans settled in areas with low mortality rates, they established institutions like those in Europe. On the other hand, where mortality rates were too high, colonizers established extractive institutions. Furthermore, for a variety of reasons, these institutions persisted after independence. Hence, settler mortality, a century or more ago, makes a perfect instrument for institutions because it has no effect on current economic growth, but for that effect through institutions. In other words, settler mortality is exogenous.

Even when using panel data, I was unable to use the methodology of fixed effects. This methodology is extremely useful because it eliminates country specific effects before estimation in order to avoid biased estimates. Unfortunately, because of this characteristic it is impossible to use fixed effects estimators for a variable that is stable over time since it is swept away. Identification of the slope parameters relies on variation over time 'within' each country. Given the low level of 'within' variance of the data, it is impossible to use fixed effects. Furthermore, given the very low number of time periods in our sample, the use of fixed-effects would lead to a very imprecise set of parameters. Moreover, many of the explanatory variables used in this growth study tend "naturally"

to move with time – education being a clear example, but also telephone lines – and using country fixed effects approach would be problematic in this situation. It seems more theoretically sound to use time-specific effects. For all practical purposes of this paper, I assume $\sigma_i = 0$, and use time specific effects.

As already mentioned, Alesina et al (2003) and Easterly and Levine (1997) used seemingly unrelated regression (SUR) estimators allowing for country random effects. I have also used SUR estimators having observations for each decade weight a fraction of the system. Using the SUR methodology has an efficiency advantage over ordinary least squares (OLS), but both methodologies are consistent. In fact, I draw the same overall conclusions from using SUR or OLS. Using SUR estimators raises minor econometric issues but takes advantage of the correlation in the error terms over subsequent decades. The country specific effects are no longer fixed and are assumed random over time. Furthermore, we assume that economic growth is equally sensitive to all economic indicators over time.

3.2 Data

I have used new data on ethno linguistic fractionalization (ELF), my main proxy for social cohesion, developed by Alesina et al (2003) and Roeder (2001). [4] These indices of ethno linguistic fractionalization represent the probability that two randomly chosen individuals in a country do not belong to the same ethnic or linguistic group. A value of one indicates that everyone belongs to a different ethnic group, whereas zero would be the opposite. By combining both data sets, I have a different value of ELF for each time-period and I am able to relax the assumption that ELF, and thus social cohesion, is

[4] In Mexico and Philippines, where the data from Alesina (2003) and Roeder (2001) differed greatly, the highest value was considered and it was assumed constant over time.

constant over time. By combining both data sets, however, I am introducing an extra layer of measurement error into the data because the computations in Roeder (2001) are not as exhaustive as in Alesina et al (2003). ELF is still highly persistent over time. Yet, the results benefit from the extra identification gained from the limited time variance of ELF; the results would have not been the same had I assumed ELF constant over time. In fact, ELF would have been an insignificant predictor of economic growth both for East Asia and Latin America.

In the cross-country growth regressions, I also include two variables to control for initial income, and consequently control for convergence effects. Like previous studies on the literature, I assume the convergence effect to be non-linear and consequently I add the logarithm of GDP per capita at the start of the decade and its square. As in previous studies, I include a regional dummy. Unlike previous studies, I also add an interaction term between the dummy and my main variable of interest: ELF. Thus, I will be able to assess whether social cohesion affects growth differently in the two regions.

It is important to mention that the ELF index captures very well differences between groups which speak the same language but do not share a common identity – such as *mestizos* and whites in Latin America. The correlation between linguistic and ethno linguistic fractionalization in Latin America is close to zero, whereas it is close to one for Asian countries.

For a detailed discussion on the variables used in the study, see Appendix A, and for summary statistics, please refer to Appendix B.

4 Results

4.1 Social Cohesion and Economic Growth

Table I presents my main results. ELF has no significant effect on growth for Latin American countries and has a negative and significant effect on growth for South-East Asia.[5] In Latin America, if Bolivia were as cohesive as Chile, Bolivia's annual growth rate would increase by 0.152 percentage points. This is hardly significant in economic terms since Chile has grown at an average of 4 percent in the last 20 years, whereas Bolivia has grown at a meager 0.7 percent yearly. Clearly, social cohesion accounts for a very small share of the growth differential. In Asia, on the other hand, if Malaysia were as cohesive as Japan is, its annual growth rate would increase by 2.12 percentage points.

Asian countries grow on average 5.07 percentage points faster than Latin American countries. The Asia dummy variable remains significant throughout the study, indicating that the variables used as controls in Table III do not explain the difference in growth between Asian and Latin American countries. Economic growth is a very complex process and it is not easily explained by a few indicators or a theoretical model. However, as we will encounter later, once economic institutions are controlled for, the Asia dummy fades away. This points out that our model does indeed have significant explanatory power.

Previous studies have not explored the idea that social cohesion may affect growth differently in separate regions. I find that ELF has no significant impact on growth in Latin America, but this evidence should not be considered conclusive. There

[5] For Regression 1 (Table I) the 90 percent confidence interval for ELF is -1.54 to 1.98. Even if we consider the most negative value suggested by the confidence interval (ELF can theoretically only take a negative value), it has very limited economic significance.

are two main reasons why ELF, our proxy for social cohesion, does not have a significant explanatory power in a growth regression. First, ELF may not be a good proxy for social cohesion in this region. For example, ELF may be a very poor proxy for social cohesion in countries like Honduras, Paraguay, and El Salvador. In these countries, the mestizo population is predominant (and hence there is a low ELF) but the tension between the large mestizo population and the small white oligarchy is very large. Measures of polarization may be more appropriate to capture the magnitude of the social fractures in such circumstances. Polarization measures consider both the 'distance' between social groups as well as the relative sizes of groups. However, it is very difficult to construct such a measure because of the complexity involved in measuring the 'distance' between groups. Creation of such an index becomes even more intricate after considering whether a country is more stable with many small groups or two groups of similar sizes.

Secondly, Durlauf and Fafchamps (2005) point to an important issue on the measurement of the effect of social capital on economic outcomes such as growth. They argue that since nothing prevents economies from achieving a high equilibrium without social capital, it is difficult to test its effect. If we extend this argument to social cohesion, we might find the paradoxical situation where a country with lower social cohesion has higher growth.[6] If social cohesion is to have a positive effect on growth, lack of social cohesion must be the reason why a country is in a low-level equilibrium, which is not necessarily the case.

[6] A country with low social cohesion may develop a set of institutions to resolve conflict among the different groups that might solve issues of coordination failure or under-consumption of public goods, thus leading to high growth.

Table I: Economic Growth and Social Cohesion.
Dependent Variable: Growth of per capita GDP

Independent Variable	1	2
ELF	0.261	1.021
	1.071	0.955
ELF*Asia	-3.942	-4.110
	1.446	1.305
Log of Initial Income	13.800	11.477
	5.484	6.044
Log of Initial Income, Squared	-0.841	-0.742
	0.322	0.350
Life Expectancy		0.177
		0.042
Secondary Education		-0.020
		0.011
Liquid Liabilities		-0.038
		0.014
Domestic Credit		0.031
		0.012
Asia	5.072	5.270
	0.775	0.878
Observations	100	92
R2	0.67, 0.56, 0.46, 0.17	0.65, 0.67, 0.47, 0.35

Standard Errors are included.

Estimated using Seemingly Unrelated Regressions: a separate regression for each decade.

See Data Appendix for definitions and sources.

Table II presents results using alternative measures of social cohesion. Fractionalization along linguistic and economic lines – Language, and the Gini coefficient respectively – has a negative impact on growth in Asian Countries. For Asia, Language and ELF are highly correlated – indicating that most ethno linguistic fractionalization stems from language diversity. The impact of economic inequality (Gini) vanishes once we control for measures of human capital, concurring with the theoretical evidence that proposes inequality is pervasive because it has a negative impact on human capital investments. Anti-Government Demonstrations is the only indicator that has a negative impact on economic growth for Latin America; this impact appears

only once we control for measures of human capital and financial depth. For Asia, it has no impact on growth. Nevertheless, the Social Conflict Index, an overarching variable including various kinds of societal conflict, has no significant impact on growth in either Latin America or East Asia. Similarly, Ethnic Tensions has an insignificant effect on growth in both regions. This extra evidence suggests the link between economic growth and social cohesion is ambiguous, and depends on the variables used for its measurement.

Table II: Economic Growth and Social Cohesion: Alternative Measures. Dependent Variable: Growth of per capita GDP.

Social Cohesion Explanatory variable	Additional Control variables	Coefficient (SE) on Cohesion Variable	Coefficient (SE) on Cohesion*Asia	R^2	Observations
Gini	no*	0.0138 0.0274	-0.1029 0.0505	0.581, 0.620, 0.533, -0.004	88
Gini	yes**	-0.0093 0.0283	-0.0398 0.0600	0.521, 0.671, 0.540, 0.23	80
Language	no*	0.0027 1.3051	-3.4581 1.6787	0.644, 0.545, 0.444, 0.161	96
Language	yes**	0.9898 1.0022	-4.2979 1.3417	0.611, 0.664, 0.484, 0.460	88
Anti-government demonstrations	no*	-0.6146 0.6986	0.9735 0.7991	0.530, 0.562, 0.451, 0.304	100
Anti-government demonstration	yes**	-0.4056 0.2262	0.4906 0.3103	0.483, 0.639, 0.457, 0.478	92
Social Conflict Index	no*	-0.0001 0.0001	0.0000 0.0001	0.514, 0.546, 0.417, 0.180	100
Social Conflict Index	yes**	0.0000 0.0001	0.0001 0.0001	0.488, 0.626, 0.461, 0.450	92
Ethnic Tensions	no*	0.3552 0.2341	-0.0833 0.3863	0.491, 0.495, 0.170	72
Ethnic Tensions	yes**	0.0808 0.1963	0.1374 0.3231	0.630, 0.476, 0.474	69

Standard Errors are included.

Estimated using Seemingly Unrelated Regressions: a separate regression for each decade.

All regressions include Log of Initial Income and Log of Initial Income, squared as controls.

* These regressions use the same additional control variables as Regression 1, Table 1

** These regressions use the same additional control variables as Regression 2, Table 1

See Data Appendix for definitions and sources.

As measures of human capital and financial depth are added to the main regression, I find that the results are not greatly affected (Table I). ELF has a positive and

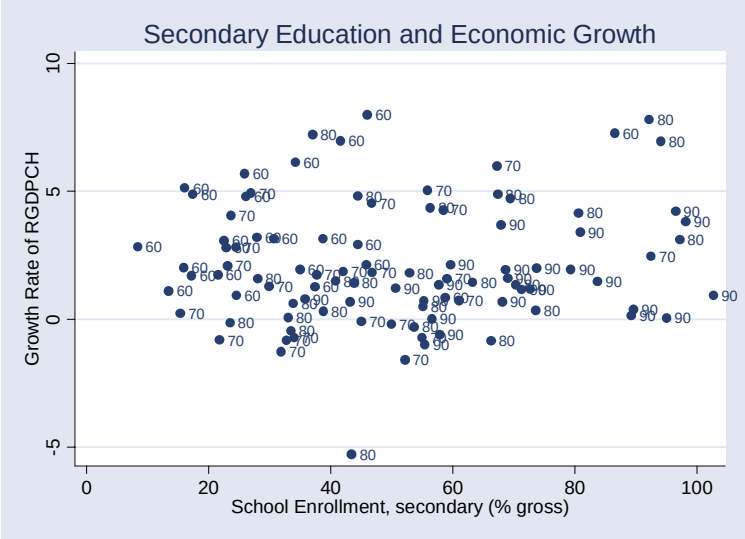
non-significant coefficient for Latin America whereas it remains negative and significant for Asia.[7] This is consistent with findings in previous studies where ELF remained significant even after controlling for measures of human capital (Alesina et al 2003 and Easterly and Levine 1997). Unexpectedly, the measure of educational attainment has a negative coefficient. A one standard deviation increase in school enrollment (23.53 percent) decreases growth rates by 0.462 percentage points. Hence, it is statistically significant and has some economic significance.

The relationship between education and growth is beyond the scope of this paper. Nonetheless, Figure II hints that educational attainment entered the regression with a negative sign because most countries had very low rates of secondary education enrollments in the 60s, but enjoyed large growth rates. When actually checking for this hypothesis by allowing for different slope coefficients for each decade, the coefficients for the 60s and 70s have a negative sign, whereas the other ones are positive but extremely insignificant. This may imply that as economies become more mature, secondary education becomes an important factor of production, therefore having a positive impact on economic growth (results not shown). Barro (1991) contends that the use of enrollment ratios as measures of human capital may in fact be inappropriate because they can be highly endogenous. Enrollment ratios are a flow measure, and a fast growing country may be able to afford higher investments in human capital without necessarily possessing a high stock of human capital. Thus, he suggests the use of literacy rates and finds, surprisingly, that for the period 1960-1985 literacy rates were negatively related with growth.

[7]For Regression 2 (Table 1) the 90 percent confidence interval for ELF is -0.338 to 3.13. Even if we consider the most negative value suggested by the confidence interval (ELF can theoretically only take a negative value), it has very limited economic significance.

The results regarding measures of financial depth are consistent with the findings of Easterly and Levine (1997). On the other hand, Alesina et al (2003) find that when controlling for financial and fiscal policy measures, the coefficient on ELF becomes insignificant. They interpret these results by arguing that ELF affects growth through those economic indicators, thus ELF's independent link with growth vanishes once the economic indicators are used as controls. The results are tentative evidence to suggest that ELF has an effect on growth other than through financial and fiscal policies. I argue that there is no spurious correlation or confounding between ELF and growth. I further controlled for government spending, black market premium, and openness of the economy; the coefficients on ELF remained both economically and statistically significant for Asia (Table III).

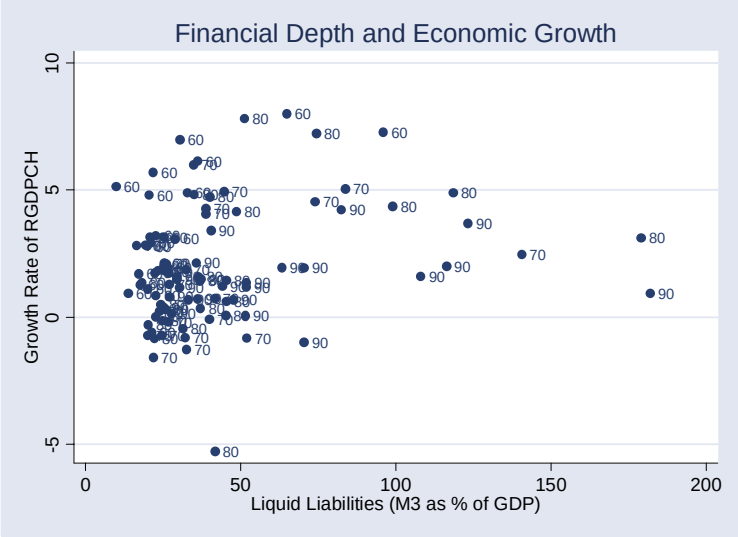
Figure II



It is noteworthy to mention that I also find an unexpected and significant sign on Liquid Liabilities. A one standard deviation increase in Liquid Liabilities retards annual growth by 1.54 percent. Figure III seems to indicate that these results are driven by the few observations that have very large liquid liabilities – mostly Japan and other East

Asian countries during the 90s – but did not have extremely large growth rates, as they did before – probably, because of the East Asian financial crises. However, once we exclude these observations from the sample, liquid liabilities still has a negative, but non-significant coefficient (results not shown).

Figure III



Controlling for telephones lines per capita, as a measure of infrastructure, changes the results significantly (Table III). Both the coefficient of the Asia dummy and the interaction term with ELF decrease notably. This result coincides with findings in previous studies, which claim that social cohesion affects growth through public policy outcomes – such as investment on infrastructure – that have a positive effect on growth. Thus, social cohesion loses its independent association with growth once these public policy outcomes are introduced as control variables. I do not find significant evidence that would lead me to believe so. Telephones Lines per capita is the only public policy measure that drives the effect of social cohesion to zero.[8] For example, when we include Electric Power Losses, another important measure of the quality of infrastructure in a

[8] Multicollinearity between ELF and Log of Telephone Lines in the Asia sample is extremely large and is at the root of ELF low significance in this regression.

country, the coefficients on ELF and ELF*ASIA do not change significantly from those found in the main regression. Furthermore, when other indicators of sound economic policy are included (Government Expenditures and the Black Market Premium) the results remain stable.

Table III: Social Cohesion and Economic Growth. Dependent Variable: Growth of per capita GDP.

Independent Variable	1	2	3	4	5	6
ELF	-1.017	1.317	0.345	0.882	0.482	0.108
	0.938	0.979	0.884	0.953	0.828	0.797
ELF*Asia	0.329	-4.048	-2.792	-3.566	-4.512	-3.627
	1.464	1.286	1.249	1.294	1.139	1.068
Log of Initial Income	-2.263	9.674	11.825	11.018	16.950	19.116
	6.660	5.815	5.112	5.946	6.020	6.897
Log of Initial Income, Squared	-0.037	-0.645	-0.787	-0.728	-1.074	-1.220
	0.376	0.336	0.296	0.343	0.350	0.408
Life Expectancy	0.171	0.189	0.149	0.178	0.148	0.159
	0.052	0.044	0.037	0.043	0.039	0.037
Secondary Education	-0.022	-0.016	-0.019	-0.013	-0.007	-0.011
	0.011	0.011	0.011	0.011	0.011	0.010
Liquid Liabilities	-0.051	-0.046	-0.027	-0.044	-0.033	-0.041
	0.013	0.014	0.013	0.013	0.012	0.012
Domestic Credit	0.039	0.036	0.020	0.038	0.025	0.039
	0.011	0.012	0.011	0.012	0.011	0.010
Log of Telephone Lines	1.377					
	0.387					
Electric Power		-0.061				
		0.032				
Investment			0.099			
			0.021			
Government Expenditures				-0.060		
				0.030		
Openness					0.008	
					0.003	
Black Market Premium						-0.001
						0.000
Asia	3.313	4.794	3.547	4.651	5.113	4.660
	0.905	0.857	0.907	0.886	0.748	0.731
Observations	73	88	88	88	88	84
R2	0.701, 0.606, 0.474	0.638, 0.654, 0.509, 0.519	0.749, 0.751, 0.529, 0.320	0.593, 0.678, 0.547, 0.441	0.625, 0.714, 0.487, 0.435	0.559, 0.656, 0.711, 0.416

Standard Errors are included.

Estimated using Seemingly Unrelated Regressions: a separate regression for each decade.

See Data Appendix for definitions and sources.

Furthermore, when I rerun the main regression on the limited sample of Regression 1 (Table III), ELF and ELF*Asia are insignificant on statistical terms. Consequently, there seems to be evidence to suggest that my results are conditional on the sample. Alesina et al (2003) face a similar situation: when they include their measure of telephones per workers, the sample size decreases dramatically. On the other hand, they do not explore whether their results change because of their reduction in sample size or the addition of the extra variable**.**

4.2 Public Policy, Social Cohesion, and Economic Growth

As previously mentioned, socially fragmented societies may under-consume productive public goods and find it difficult to agree on policy choices. However, in the previous section I do not find sufficient evidence supporting this claim. Hence, I systematically test this hypothesis for Latin America and Asia; the results are presented in Table IV. ELF has a significant explanatory power for some public policy outcomes in Asia; however, there is no systematic evidence indicating that ELF is a significant predictor of public policy outcomes in both regions. In addition, ELF is not a significant predictor of Government Spending, Liquid Liabilities, Life Expectancy, Electric Power, Openness of the Economy, and Black Market Premium for either region. The finding that social cohesion is not a predictor of public policy outcomes is inconsistent with theoretical models that predict under-consumption of productive public goods and the choice of growth retarding policies in socially fragmented societies.

Overall, there is no preliminary evidence to suggest that social cohesion may affect public policy outcomes that in turn affect growth. Statistically, the high degree of correlation between some of these variables and ELF may explain why ELF becomes

insignificant when both are included together in Table I and III**.** The evidence presented here combined with the findings from Section 4.1 hint that social cohesion affects growth directly.

Table IV: Public Policy and Social Cohesion

Independent Variable	Government Expenditures	Secondary Education	Liquid Liabilities	Domestic Credit	Life Expectancy
Asia	-1.701	27.519	48.162	55.647	-0.312
	2.611	8.290	12.437	13.404	1.841
ELF	3.370	10.818	9.584	11.821	-3.502
	3.232	10.453	15.385	16.587	2.008
ELF*ASIA	-2.405	-36.501	-35.705	-48.382	0.062
	4.780	15.636	23.044	24.942	3.274
R2	0.136, 0.190, 0.404	0.520, 0.427, 0.367	0.687, 0.683, 0.624	0.667, 0.673, 0.620	0.442, 0.666, 0.768
Observations	75	73	73	73	75

Independent Variable	Electric Power	Telephone Lines (Log)	Openness	Black Market Premium	Investment
Asia	-4.620	0.893	15.739	12.897	17.053
	2.019	0.288	27.644	118.345	3.884
ELF	3.656	0.283	5.293	63.981	1.801
	2.732	0.335	13.993	165.069	4.606
ELF*ASIA	-1.765	-1.827	35.607	-81.454	-14.259
	3.854	0.525	43.270	223.967	7.114
R2	0.664, 0.413, 0.470	0.718, 0.818, 0.864	0.044, 0.230, 0.266	0.006, 0.002, -27.7	0.500, 0.665, 0.651
Observations	69	75	75	69	75

Standard Errors are included.

Estimated using Seemingly Unrelated Regressions: a separate regression for each decade.

See Data Appendix for definitions and sources.

4.3 Institutions, Social Cohesion, and Growth

As previously mentioned, Easterly (2006) has argued that social cohesion affects economic growth through institutions. Hence, it is important to study this link since it may shed extra light on the relationship between social cohesion and economic growth. To commence the study of this link I have added measures of institutional quality as independent variables in the cross-country regressions (Table V). Political Institutions, Political Rights, and Civil Liberties in particular, have coefficients with unexpected sign

and non-significant t-statistics. 'Better' institutions lead to lower growth. In both cases, ELF remains a significant predictor of economic growth for Asian countries. Variables such as Corruption, the Rule of Law, and Bureaucratic Quality have no significant effect on economic growth.

Economic Institutions, on the other hand, have an important impact on economic growth. Both available variables, Risk of Repudiation of Contracts and Risk of Expropriation have a significant effect on economic growth. A one-standard deviation improvement in the Risk of Repudiation of Contracts, increases growth by 1.31 percentage-points, whereas a one-standard deviation improvement in the Risk of Expropriation increases growth by 1.75 percentage points. Controlling for institutional quality alters the direct effect of social cohesion on economic growth. ELF has a negative effect on economic growth both in East Asia and Latin America (of larger magnitude in East Asia) but in both cases it is statistically insignificant. This evidence suggests that at a constant level of institutions, social cohesion has as a limited impact on growth.

Nevertheless, it is well known that institutions and growth are highly endogenous (Acemoglu et al, 2001, 2004). For this reason, I use an alternative specification with instrumental variables; I find no evidence that any measure of institutional quality has a statistically significant effect on economic growth (Table VI). The point estimates are in fact larger in magnitude that those found in SURs; however, the standard errors are also significantly larger showing the efficiency benefit of SUR. The results, though not statistically significant, shed important light on the link between growth, institutions, and social cohesion. First, the institutional variables have the expected coefficient indicating that worse institutions lead to lower growth – this contrasts some of the finding using

SUR estimators. Second, the evidence suggests that in Asia social cohesion affects economic growth through its effect on institutions. In the first stage regression, ELF*Asia enters the regressions with a negative sign indicating that more cohesive societies have better institutions. This is consistent with the evidence from the second stage regressions where social cohesion loses its independent link with economic growth. Likewise, social cohesion does not show a direct and significant effect on economic growth in the SUR estimations.

For Latin America, there is no concrete evidence, either from the first or second stage regressions, that social cohesion has an impact in growth or institutions. Nonetheless, the magnitude of the coefficient on ELF in the second stage is rather large (for Latin America), even if insignificant. This, together with the evidence from SUR regressions, may imply that, once institutional quality is taken into consideration, social cohesion might have an independent positive effect on growth. In the first-stage of the IV procedure, ELF has a negative – though insignificant – effect on institutions which could also potentially indicate that socially cohesive societies have worse institutions. This finding is truly perplexing but there is no concrete evidence; the different pieces of evidence are merely indicative of this. This evidence concurs, nonetheless, with the idea that social cohesion and institutional quality may be seen as alternative sources of efficiencies in markets. Further empirical research is needed to gain better understanding of the effect of social cohesion on institutions in Latin America. Finally, the Asia dummy variable looses its significance once economic institutions are introduced as a control variable. This seems to show that economic institutions play an important and significant role in explaining the growth differential between Asian and Latin American countries.

Table V: Social Cohesion, Instiutions and Economic Growth. Dependent Variable: Growth of per capita GDP

Institutional Explanatory Variable	Other Control variables	ELF	ELF*Asia	Coefficient (SE) on Institutional Variable	R2	Observations
Political Rights	yes**	-0.146	-2.451	-0.087	0.68, 0.49, 0.48	73
		1.042	1.440	0.135		
Political Rights	no*	-0.799	-2.557	-0.082	0.56, 0.48, 0.23	75
		1.148	1.627	0.157		
Civil Liberties	yes**	-0.211	-2.514	-0.224	0.69, 0.48, 0.46	73
		1.016	1.397	0.174		
Civil Liberties	no*	-0.866	-2.523	-0.092	0.56, 0.47, 0.23	75
		1.164	1.634	0.197		
Government Stability	yes**	-0.759	-1.605	0.038	0.68, 0.49, 0.65	73
		1.049	1.453	0.013		
Government Stability	no*	-0.949	-2.010	0.041	0.58, 0.48, 0.35	75
		1.200	1.698	0.016		
Corruption	yes**	-0.297	-2.109	0.078	0.68, 0.47, 0.49	69
		1.133	1.611	0.183		
Corruption	no*	-0.844	-2.329	0.051	0.55, 0.47, 0.23	73
		1.236	1.774	0.210		
Law	yes**	-0.198	-2.318	-0.012	0.67, 0.49, 0.47	69
		1.099	1.506	0.189		
Law	no*	-0.874	-2.407	0.077	0.56, 0.48, 0.20	73
		1.221	1.690	0.215		
Bureaucratic Quality	yes**	-0.255	-2.234	0.020	0.67, 0.49, 0.47	69
		1.128	1.603	0.193		
Bureaucratic Quality	no*	-0.854	-2.416	0.001	0.55, 0.48, 0.22	73
		1.249	1.834	0.231		
Repudiation of Contracts	yes**	-0.638	-0.816	0.705	0.71, 0.62, 0.50	69
		0.953	1.351	0.170		
Repudiation of Contracts	no*	-0.856	-1.099	0.652	0.67, 0.58, 0.12	73
		1.219	1.721	0.204		
Risk of Expropiation	yes**	-1.548	-0.394	0.675	0.69, 0.59, 0.67	69
		0.951	1.321	0.152		
Risk of Expropiation	no*	-1.558	-0.631	0.673	0.62, 0.58, 0.36	73
		1.142	1.638	0.183		
Property Rights	yes**	-0.773	-1.361	0.056	0.68, 0.50, 0.52	69
		1.095	1.549	0.035		
Property Rights	no*	-1.131	-1.608	0.054	0.58, 0.49, 0.22	73
		1.206	1.752	0.040		

Standard Errors are included.

Estimated using Seemingly Unrelated Regressions: a separate regression for each decade.

All regressions include Log of Initial Income and Log of Initial Income, squared as controls.

* These regressions use the same additional control variables as Regression 1, Table 1

** These regressions use the same additional control variables as Regression 2, Table 1

See Data Appendix for definitions and sources.

Table VI: Social Cohesion, Instiutions and Economic Growth. Dependent Variable: Growth of per capita GDP.

Independent Variable	1	2	3	4	5
ELF	-0.515	-0.239	-0.799	-2.778	-2.104
	1.348	1.358	1.357	1.930	1.622
ELF*Asia	-0.412	-0.497	0.941	2.358	1.028
	2.254	2.247	2.425	3.378	2.633
Log of Initial Income	16.674	20.874	12.912	8.648	17.285
	8.104	8.091	11.925	15.137	10.713
Log of Initial Income, Squared	-1.029	-1.289	-0.818	-0.567	-1.079
	0.470	0.485	0.670	0.853	0.603
Political Rights	0.802				
	0.746				
Civil Liberties		1.134			
		1.070			
Repudiation of Contracts			1.180		
			0.899		
Risk of Expropiation				1.424	
				1.150	
Property Rights					0.154
					0.125
Asia	4.823	5.327	1.483	0.492	2.349
	0.983	1.019	2.628	3.536	2.172
R2	0.411	0.393	0.555	0.501	0.492
F-statistic	10.320	10.010	9.090	8.100	7.970

First Stage	Political Rights	Civil Liberties	Repudiation of Contracts	Risk of Expropiation	Property Rights
ELF	-0.039	-0.357	-0.691	0.718	3.624
	1.004	0.748	1.147	1.357	4.843
ELF*Asia	-1.306	-1.077	-1.305	-1.884	-12.175
	1.492	1.111	1.706	2.019	7.204
Settler Mortality	-0.009	-0.006	-0.008	-0.007	-0.062
	0.004	0.003	0.005	0.006	0.021
Asia	-0.349	-0.446	2.133	2.284	12.374
	0.800	0.596	0.907	1.073	3.829
R2	0.107	0.154	0.364	0.235	0.492
F-statistic	2.720	4.130	9.170	4.900	15.460
Observations	96	96	69	69	69

Standard Errors are included.

Estimated using Two-Stage Least Squares.

See Data Appendix for definitions and sources.

Any conclusion drawn from the available data should be considered as tentative. Institutional variables tend to have large degree of measurement error since countries are subjectively graded ex-post. The inclusion of institutional variables that are produced by

different agencies with different aims should provide as a robustness check for the possibility that results are mainly the consequence of measurement error. Furthermore, the use of IVs provides an important correction for measurement error.

5 Multiple Indicators, Multiple Causes (MIMIC)

5.1 Social Cohesion: An Unobserved Variable

Throughout the study, I have found that the relationship between social cohesion, institutions, and economic growth in the empirical realm is very ambiguous. For Latin America, the evidence seems to indicate that social cohesion has no effect on growth nor institutional quality. On the other hand, for Asia the evidence reveals that social cohesion may affect growth mostly through institutions. However, the results are contingent on the variable used as a proxy for social cohesion – alternative indicators of social cohesion yield different results.

The methods used in the previous section consider only one indicator or manifestation of social cohesion – social fractures along ethnic or ethno-linguistic lines, economic and religious divisions, or different measures of societal conflict. However, social cohesion may arise because of different reasons, and its consequences are expressed differently at different times and countries. The Multiple Indicators, Multiple Causes (MIMIC) model approach explicitly considers multiple causes of, as well as multiple consequences of social cohesion – or lack thereof – to estimate levels of social cohesion. Thus, this empirical model allows us to narrow the gap between the theoretical and empirical reality by treating social cohesion as an unobserved, latent variable that has observable causes and consequences. MIMIC, based on the statistical theory of

unobserved variables, uses the associations between the observable causes and effects of the unobserved variable to estimate the unobserved factor itself.

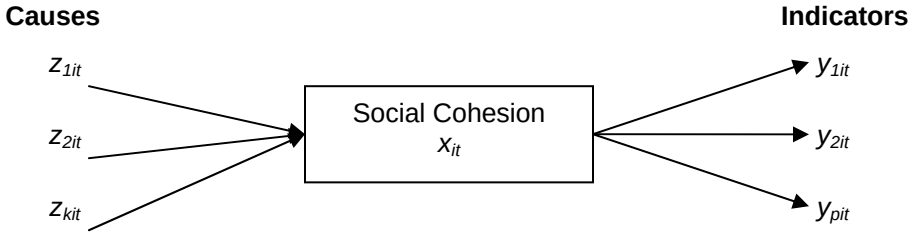
This empirical model has not been used previously to estimate levels of social cohesion, thus it represents a novel contribution to the social cohesion literature. In the economics literature, MIMIC has been used to estimate levels of the informal economy (Schneider and Enste 2000); it has also been widely used in the field of psychology and social psychology. The methodology is appropriate for the measurement of social cohesion, which is an unobserved latent variable, because it enables us to address simultaneously the many different aspects of social cohesion – such as ethnic diversity, economic inequality, societal conflict, interpersonal trust, and participation in social networks. Using this methodology for the measurement of social cohesion takes the literature in a different path. Rather than focusing on the use of and search for proxies that would yield positive results, this methodology calls for a better understanding of the causes and consequences of social cohesion.

A recent report by the Economic Commission for Latin America and the Caribbean (ECLAC) on social cohesion in Latin America provides an overview of many different indicators and causes of social cohesion (ECLAC 2007). The study is unable to quantify their aggregated impact on economic performance or other economic outcomes because of the lack of a systematic and intellectually sound mechanism to measure social cohesion. In fact, the study claims that the measurement of social cohesion in Latin America is a pending, though extremely important, activity. This empirical method takes an important step in that direction; not only does it enable us to systematically measure

social cohesion, but it also allows us to find the most important causes of social cohesion for a certain country at a certain time.

A factor-analytic approach measures social cohesion as an unobserved variable over time and across countries by estimating unknown coefficients in a set of structural equations. The structural equations model specifies a causal relationship between a set of causes, social cohesion, and its indicators. Thus the interaction between the causes z_{jit} (j = 1, 2, …, k), Social Cohesion x_{it} (a latent unobserved variable) and the indicators y_{lit} (l = 1, 2, ..., p) captures the structural dependence of social cohesion on variables that are useful in predicting its magnitude.

Figure IV



The model for the estimation of one latent variable (Social Cohesion) can be described as follows:

(5) $$Y = \lambda x + \varepsilon$$

(6) $$x = \gamma Z + v$$

(7) $$Y = \pi Z + \mu$$

where $Y' = (y_1, y_2, ..., y_p)$ is a vector of indicators of x, $Z' = (z_1, z_2, ..., z_k)$ is a vector of causes of x. Equation (5) links Social Cohesion with its indicators or symptoms, while (6) associates the informal economy with its causes. A reduced form equation (7) can be obtained where $\pi = \lambda\gamma'$(for detailed methodology, see Joreskog and Goldberger 1975).

Since both x and y are observable data vectors, equation (7) can be estimated to obtain estimates of π, and hence of λ and γ. Using the standardized estimates of γ, and once the error term ν is standardized, the ordinal values of Social Cohesion can be obtained using equation (6).

5.2 Data

The ECLAC report on Social Cohesion in Latin America (ECLAC 2007) suggests a plethora of different indicators that could be used for the measurement of social cohesion. First, they present 21 different traditional indicators related to income, employment, health, and education referring to both levels and variation – for example, income inequality. The study also emphasizes the importance of other less explored measures of social cohesion such as inter-personal trust, attitudes towards institutions and social norms, and political participation. For the evaluation of the latter measures, the report highlights the importance of new and widespread public opinion surveys such as the World Values Surveys or the Latinobarometro.[9]

For the purposes of this study, I use ELF, the Gini coefficient, and the extent of Government Crisis as causes of social cohesion. Many studies use ELF as a proxy for social cohesion arguing that fractures along ethno-linguistic lines are important to the societal fabric. Many conflicts arise because of inter-group frictions, which also are a constant source of divisions in political and economic life. In addition, a large ELF tends to be a source of low inter-personal trust because of existing prejudices that separate and segregate social groups. Similarly, income inequality and polarization can be viewed as an important cause of social cohesion – or lack thereof. Many of the social fractures

[9] For a review of the limitations of using public opinion surveys results for the study of social cohesion, please see ECLAC 2007.

existing in modern societies are evidently represented across income differences, especially in urban areas where they are more obvious. The constant tension between the *piqueteros* (poor urban dwellers who blockade key areas of the city) and city dwellers in Buenos Aires is a clear example.

Finally, the last cause of social cohesion considered in this paper is the extent of Government Crisis. More accommodating, democratic governments face fewer crises and challenges from civil society. Thus, the government acts as a catalytic force to undermine the latent fractures in the social fabric that could potentially become an important source of conflict or differences in society. On the other hand, governments that do not attend the needs of certain sectors of the population increase social tension – by opposing different groups of society – and face more crises.

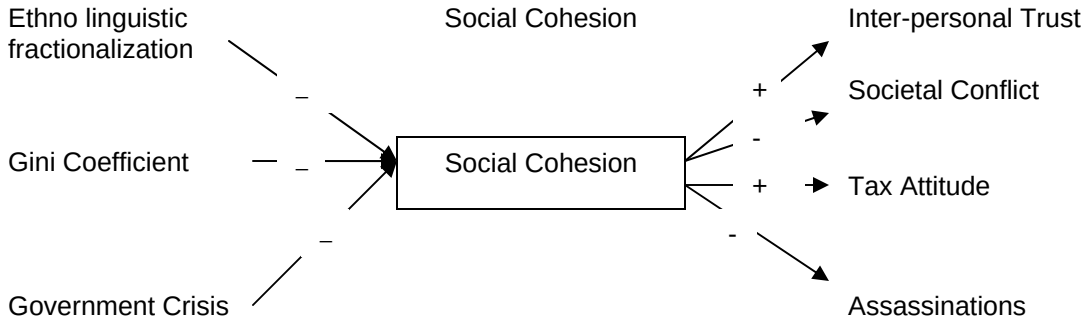
More cohesive societies show higher-levels of interpersonal trust. In addition, they show a higher degree of respect for social norms and institutions. As such, I have chosen to use a variable for Tax Attitudes because it shows both the attitudes towards social norms and values, but also attitudes towards democratic institutions. In addition, cohesive societies experience lower levels of social conflicts. Hence, I have also included in the MIMIC model the Social Conflict Index and a measure for Assassinations as indicators of social cohesion.

Before proceeding, it is noteworthy to mention that the choice of both causes and indicators was highly constrained by data availability. For example, Dayton-Johnson (2003) suggests that higher social cohesion leads to higher investments in social capital, through participation in social networks. The study also argues that investments in social capital have a positive feedback effect in social cohesion. Even if MIMIC can handle

multiple causality, this variable was not included in the model because of limited data. Due to the limitations in data availability, the focus of this section is the presentation of MIMIC as an appropriate alternative to bridge the gap between the theoretical conceptualization of social cohesion and its empirical measurement.

Figure V shows the expected relationship between the causes, social cohesion, and its consequences. For a detailed discussion of the variables, please see Appendix A and for Summary Statistics see Appendix B**.**

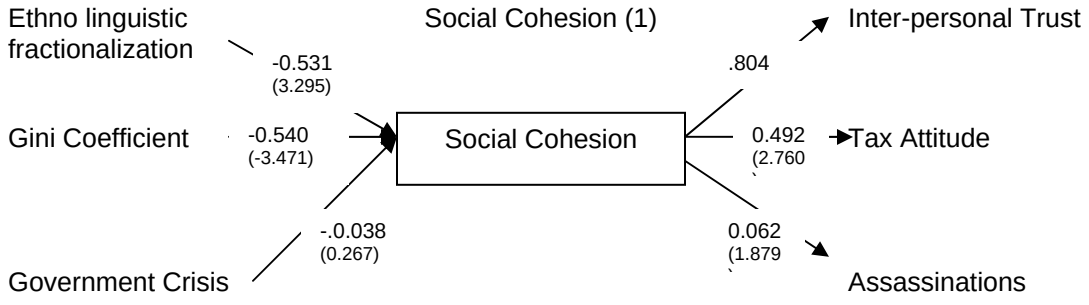
Figure V



5.3 MIMIC Estimation Results

Figure VI and VII present the results for the two alternative MIMIC specifications. In both cases, all the coefficients have the expected signs. Nevertheless, some of the coefficients are not statistically significant at the 10 percent level. In both models Government Crisis has a non-significant coefficient as a cause of Social Cohesion; and Social Cohesion is a non-significant predictor of Social Conflict Index in model (2). This should not be extremely surprising because, due to data constraints, the MIMIC model was estimated using only 33 observations.

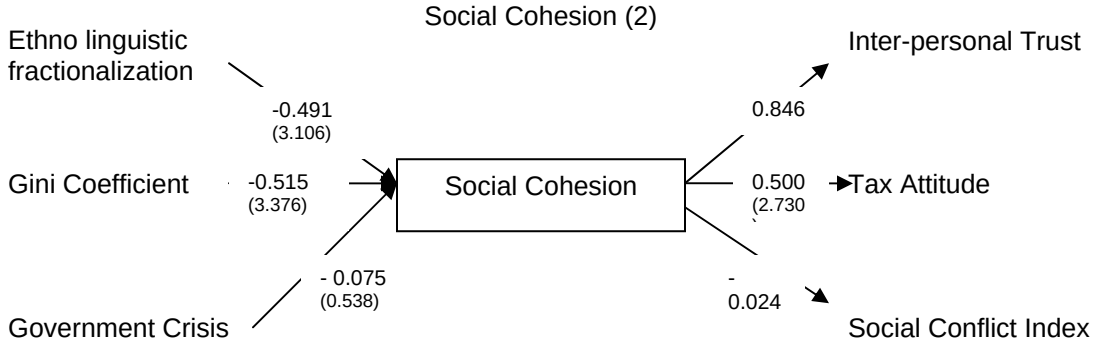
Figure VI



Chi-square= 6.064 C-Min= 0.416 RMSEA=0.018 GFI = 0.947 AGFI = 0.8147

Standardized coefficients and t-statistics (in parentheses) are included in the arrows.

Figure VII



Chi-square= 11.232 C-Min= 0.081 RMSEA=0.165 GFI = 0.8998 AGFI = 0.6492

Standardized coefficients and t-statistics (in parentheses) are included in the arrows.

Specifically, the results show that ELF and the Gini coefficient have the biggest impact on social cohesion. A one-standard deviation increase in ELF causes a 0.531 standard deviation (or 0.491, depending on the specification) decrease in social cohesion. The link between economic inequality (Gini) and social cohesion is equally unambiguous. A one-standard deviation increase in inequality decreases social cohesion by 0.540 and 0.515 standard deviations depending on the specification, in both cases, the coefficients are highly significant in statistical terms. As already mentioned, this is strong evidence to claim that economic inequality, as measured by the Gini coefficient, plays an important role in determining levels of social cohesion. Furthermore, it would be

interesting to experiment with other measures of economic divisions because it could be the case that social cohesion is not affected as much by the degree of inequality, but rather by the degree of economic exclusion of certain members of society. In that case, poverty measures would be more appropriate.

Government Crisis, the variable for political instability, has the expected sign but is neither economically significant (in both cases a one-standard deviation increase in Government Crisis decreases social cohesion by less than 0.1 standard deviations) nor statistically significant. Alternative measures of political stability or democratic institutions that foster a cohesive social fabric could be used. The years a democratic regime has been established in a country, without serious attacks to its main institutions could be a useful measure. It would suggest that the democratic governments are able to accommodate different sectors of society without increasing tensions among them. If that were not the case, it would be easy to see instances were some of the main institutions of a democratic regime are overturned or attacked, such as it happened with the executive branch in Argentina, Ecuador, or Thailand in the last decade. The outcomes were different in all places, but hint at one common deficiency of these democratic regimes. In Thailand, the military took over the executive branch because the previous democratic government was unable to solve the qualms between different sectors of society. It was in fact, encouraging them. In Argentina, groups of society dissatisfied with the democratic regime enforced an impeachment/resignation of the Head of State by extralegal means.

The ordinal standardized values (mean of zero, standard deviation of one) for each country and time-period are presented in Appendix C**.** λ was obtained from the MIMIC model, in which 33 observations were used. Then it was used in the full sample

of one hundred observations to obtain estimates of Social Cohesion. Model 1 satisfies all the minimum requirements of model-fit and we can reject the null that it does not truly represent the data. Model 2, on the other hand marginally fails some of the model-fit tests, though we can still reject the null that it does not represent the data.

5.4 Growth Regressions

Table VII presents the results from the cross-country regressions using the ordinal standardized values of the social cohesion variables from the previous section. The results do not change significantly from those presented in Section 4.1 when ELF was used as a proxy for social cohesion. Social Cohesion has a positive and significant – both in economic and statistical terms – effect on economic growth for East Asia, but not for Latin America. Both measures of social cohesion have a non-significant effect on growth in Latin America. Once again, the results show unexpected signs for the coefficients of Secondary Education and Liquid Liabilities. Regression (2) and (4) show the results of the growth regressions controlled for measures of human capital and financial depth. In both cases, the magnitude of the coefficient on Social Cohesion (for Asia) decreases substantially. Even when controlled for human capital measures, the coefficients on the social cohesion variables remain significant for East Asia. These results hint that even when measured by a slightly different measure from ELF, social cohesion only affects growth in Asia.

Table VII: Economic Growth and Social Cohesion. Dependent Variable: Growth of per capita GDP

Independent Variable	1	2	3	4
Social Cohesion (1)	0.114	0.011		
	0.270	0.273		
Social Cohesion (1) * Asia	0.907	0.740		
	0.363	0.379		
Social Cohesion (2)			0.159	0.029
			0.265	0.268
Social Cohesion (2) * Asia			0.896	0.745
			0.363	0.380
Log of Initial Income	16.587	14.597	16.378	14.434
	5.883	6.792	5.855	6.766
Log of Initial Income, Squared	-1.005	-0.934	-0.994	-0.926
	0.344	0.387	0.342	0.386
Life Expectancy		0.160		0.160
		0.048		0.048
Secondary Education		-0.017		-0.017
		0.013		0.013
Liquid Liabilities		-0.030		-0.030
		0.017		0.017
Domestic Credit		0.029		0.030
		0.014		0.014
Asia	2.824	2.951	2.758	2.916
	0.465	0.624	0.467	0.621
Observations	88	80	88	80
R2	0.632, 0.645, 0.569, 0.052	0.609, 0.704, 0.565, 0.214	0.630, 0.642, 0.571, 0.072	0.607, 0.702, 0.567, 0.226

Standard Errors are included.

Estimated using Seemingly Unrelated Regressions: a separate regression for each decade.

See Data Appendix for definitions and sources.

It is not surprising to find such striking similarities between the results found here and those of Section 4 given ELF's prime importance in determining social cohesion. The social cohesion variables developed by the MIMIC model are a linear combination of ELF, Gini, and Government Crisis. However, ELF plays a predominant role in determining the value of the social cohesion variable, and hence it determines much of its variance. These results suggest that there is a need for a better understanding of social cohesion and its causes. The inclusion of other causes of social cohesion into the MIMIC

model will be a key step. Thus, the role of ELF in determining the variance of Social Cohesion will decrease.

6 Conclusion

This study finds that social cohesion, using ELF as a proxy, does not have a direct effect on economic growth in Latin America. Neither does social cohesion affect the quality of institutions. These results are robust to different specifications and controlling for different institutional quality variables. In Asia, I find that social cohesion has a positive effect on growth and that effect remains significant even after controlling for economic policy outcomes and measures of human capital. However, once institutional quality is considered, the evidence suggests that social cohesion may affect economic growth mostly through institutions. Estimation of seemingly unrelated regressions suggests that social cohesion has a weak direct effect on growth when controlling for institutions. An instrumental variable approach, which controls for endogeneity and measurement error, reveals that social cohesion has a first stage positive impact on institutional quality, but no significant second stage effect on economic growth. However, all of these findings are contingent upon the proxy I use for social cohesion. Once alternative measures are considered, results vary greatly.

To that end, I make a novel contribution by using a MIMIC model approach for the estimation of social cohesion, as an unobserved variable, based on its relationship between its causes and indicators. The results from growth-regressions using the MIMIC estimates are very similar to those found using ELF as a proxy. Even if the results do not change greatly, I believe the MIMIC model for the estimation of social cohesion levels could have large pay-offs for the literature. First, it narrows the gap between the

theoretical conceptualization of social cohesion and its empirical reality. In addition, it allows us to consider multiple causes and effects simultaneously, and estimate which cause or causes are more important for which country at a certain period.

Furthermore, this paper contributes to the larger social cohesion literature in two different ways. First, it estimates the effect of social cohesion for two different regions allowing for separate slope parameters. The finding that social cohesion does not play an important role in Latin America whilst it explains a large share of the growth differential in East Asia qualifies previous findings. I presume that findings from studies such as Alesina et al (2003) are largely driven by effect of Europe – fast growth, high social cohesion countries – and Africa – slow growth, low social cohesion countries. In addition, this study tries to disentangle the effect of social cohesion on economic growth, whether it is direct or through its effect on institutions.

Further work is needed in the theoretical conceptualization of social cohesion, its causes, and the processes through which it can increase or decrease over time. This would allow us to model in a more complex fashion social cohesion and its relationship to its causes and indicators. Findings that are more conclusive could be obtained from such studies. Furthermore, the development of empirical counterparts to the theoretical causes and indicators of social cohesion is of extreme priority. As in this study, the lack of empirical data could be a serious constraint on the quality of the results.

Appendix 1

Variable Description and Sources	
Growth of per capita GDP	Growth rate of Real GDP per capita (Chain) averaged over ten-year periods (65-74, 75-84, 85-94, 95-04). Penn World Table 6.1
Log of Initial Income	Log of Initial Real GDP per capita (Chain) at the beginning of each ten-year period. Penn World Table 6.1
Log of Initial Income, squared	Square of the log of Initial Real GDP per capita (Chain) at the beginning of each ten-year period. Penn World Table 6.1
Secondary Education	School Enrollments, Secondary (% Gross). 1965-2004, averaged over ten-year periods. World Development Indicators and Taiwan Statistics
Life Expectancy	Life Expectancy at Birth, Total (years). 1965-2004, averaged over ten-year periods. World Development Indicators and Taiwan Statistics
Domestic Credit	Domestic Credit to Private Sector (% of GDP). 1965-2004, averaged over ten-year periods. World Development Indicators.
Liquid Liabilities	Liquid Liabilities (M3) as % of GDP. 1965-2004, averaged over ten-year periods. World Development Indicators.
Asia	Dummy Variable for Asian countries (Asia=1)
ELF	Ethno-linguistic fractionalization. Probability that two randomly selected persons do not speak the same language or belong to the same ethnic group. Alesina et al (2003), Roeder (2001).
Gini	Gini Coefficient. 1960-2004, averaged over ten-year periods (only highest quality available, income). WIDER Inequality Database
Language	Linguistic fractionalization. Probability that two randomly selected persons do not speak the same language, constant for the whole time period . Alesina et al (2003).
Religion	Religious fractionalization. Probability that two randomly selected persons do not belong to the same religious group, constant for the whole time period . Alesina et al (2003).
Anti-Government Demonstrations	Any peaceful public gathering of at least 100 people for the primary purpose of displaying or voicing their opposition to government policies or authority, excluding demonstrations of a distinctly anti-foreign nature. 1965-2004, averaged over ten-year periods. Banks (2007)
Social Conflict Index	Weighted Index of Societal Conflict.1965-2004, averaged over ten-year periods. (Banks 2007)
Ethnic Tensions	This variable “measures the degree of tension within a country attributable to racial, nationality, or language divisions. Lower ratings are given to countries where racial and nationality tensions are high because opposing groups are intolerant and unwilling to compromise. Higher ratings are given to countries where tensions are minimal, even though such differences may still exist.”. 1982-1997, averaged. Knack and Keefer (1997)
Log of Telephone Lines	Log of Telephone Mainlines (per 1,000 people).1965-2004, averaged over ten-year periods. World Development Indicators.
Electric Power	Electric power transmission and distribution losses (% of output). 1965-2004, averaged over ten-year periods. World Development Indicators.
Investment	Investment share of Real GDP (Laspeyrees). 1965-2004, averaged over ten-year periods. Penn World Table 6.2
Government Expenditures	Government share of Real GDP (Laspeyrees). 1965-2004, averaged over ten-year periods. Penn World Table 6.1

Openness	Total trade as a percentage of GDP (Imports plus exports divided by Real GDP Laspeyrees). 1965-2004, averaged over ten-year periods. Penn World Table 6.1
Black Market Premium	Black Market Premium. 1965-2004. Easterly (2007)
Political Rights	Political Rights, 1972-2004. Multiplied by -1, more positive numbers indicate better institutions. Freedom House.
Civil Liberties	Civil Liberties, 1972-2004. Multiplied by -1, more positive numbers indicate better institutions. Freedom House.
Government Stability	Government Stability. High scores indicates that the government is stable, whereas low scores indicate instability. 1982-997. Knack and Keefer (1997)
Corruption	Lower scores indicate "high government officials are likely to demand special payments" and that "illegal payments are generally expected throughout lower levels of government" in the form of "bribes connected with import and export licenses, exchange controls, tax assessment, police protection, or loans." 1982-997. Knack and Keefer (1997)
Law	This variable "reflects the degree to which the citizens of a country are willing to accept the established institutions to make and implement laws and adjudicate disputes." Higher scores indicate: "sound political institutions, a strong court system, and provisions for an orderly succession of power." Lower scores indicate: "a tradition of depending on physical force or illegal means to settle claims." Upon changes in government new leaders "may be less likely to accept the obligations of the previous regime." 1982-997. Knack and Keefer (1997)
Bureaucratic Quality	High scores indicate "an established mechanism for recruitment and training," "autonomy from political pressure," and "strength and expertise to govern without drastic changes in policy or interruptions in government services" when governments change. 1982-997. Knack and Keefer (1997)
Repudiation of Contracts	“This indicator addresses the possibility that foreign businesses, contractors, and consultants face the risk of a modification in a contract taking the form of a repudiation, postponement, or scaling down" due to "an income drop, budget cutbacks, indigenization pressure, a change in government, or a change in government economic and social priorities." Lower scores signify "a greater likelihood that a country will modify or repudiate a contract with a foreign business." 1982-997. Knack and Keefer (1997)
Risk of Expropiation	This variables evaluates the risk "outright confiscation and forced nationalization" of property. Lower ratings "are given to countries where expropriation of private foreign investment is a likely event." 1982-997. Knack and Keefer (1997)
Property Rights	Index contrcuted converting corruption, rule of law and bureaucratic quality to 10-point scales (multiplying them by 5/3) and summing them with contract repudiation and expropriation risk.1982-997. Knack and Keefer (1997)
Settler Mortality Rates	Settler Mortality rates in the 17th, 18th, and 19th century. Acemoglu et al (2001)
Government Crisis	Any rapidly developing situation that threatens to bring the downfall of the present regime - excluding situations of gurrilla warfare aimed at it. 1965-2004, averaged over ten-year periods. Banks (2007).
Inter-personal Trust	Percentage of the population that answered "Most people can be trusted" to the question "Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?" World Values Survey (2007)
Tax-Attitude	Percentage of the population that answered "Never Justifiable" to the statement "Cheating on taxes if you have a chance."World Values Survey (2007)
Assasinations	Any politically motivated murder or attempted murder of a high government official or politician, 1965-2004, averaged over ten-year periods. Banks (2007).

Appendix 2

Variable	Observations	Mean	Std. Deviation	Minimum	Maximum
Growth of per capita GDP	100	2.23	2.45	-5.28	7.99
Log of Initial Income	100	8.44	0.60	6.92	10.16
Log of Initial Income, squared	100	71.59	10.20	47.85	103.21
Secondary Education	98	50.66	23.53	8.41	102.73
Life Expectancy	100	66.56	7.11	45.96	80.88
Domestic Credit	95	41.30	34.70	7.78	185.40
Liquid Liabilities	96	43.47	32.89	9.85	182.03
Asia	100	0.32	0.47	0.00	1.00
ELF	100	0.44	0.24	0.00	0.89
Gini	95	47.26	9.27	28.10	65.79
Language	96	0.28	0.26	0.00	0.84
Religion	100	0.34	0.19	0.10	0.68
Anti-Government Demonstrations	100	1.02	1.14	0.00	7.20
Social Conflict Index	100	4607.36	4327.68	0.00	25455.00
Ethnic Tensions	71	4.66	1.32	1.41	6.00
Log of Telephone Lines	77	4.06	1.17	0.88	6.23
Electric Power	94	12.75	5.70	2.08	28.22
Investment	100	17.53	8.94	6.28	48.14
Government Expenditures	100	18.12	5.64	7.64	42.16
Openness	100	62.75	57.71	7.62	381.06
Black Market Premium	94	126.71	870.17	-1.67	8338.63
Political Rights	100	3.51	1.57	1.00	7.00
Civil Liberties	100	3.55	1.21	1.00	6.00
Government Stability	75	53.54	14.35	22.92	84.72
Corruption	72	3.17	1.16	0.00	6.00
Law	72	3.31	1.38	1.00	6.00
Bureaucratic Quality	72	2.99	1.37	1.00	6.00
Repudiation of Contracts	72	6.86	1.86	3.60	10.00
Risk of Expropiation	72	7.31	2.01	3.17	10.00
Property Rights	72	29.95	8.89	12.29	47.50
Settler Mortality Rates	96	67.83	47.08	0.00	170.00
Government Crisis	100	0.25	0.32	0.00	1.50
Inter-personal Trust	33	22.44	12.50	2.80	51.60
Tax-Attitude	33	67.42	13.39	36.40	89.50
Assaasinations	100	0.58	1.18	0.00	7.20
Social Cohesion (1)	95	0.00	1.00	-1.65	2.33
Social Cohesion (2)	95	0.00	1.00	-1.64	2.25

Appendix 3

Social Cohesion: MIMIC Estimates							
Country	**decade**	**Index 1**	**Index 2**	**Country**	**decade**	**Index 1**	**Index 2**
Argentina	60	0.962097	0.878323	Malaysia	60	-0.421385	-0.601082
Argentina	70	0.715872	0.713906	Malaysia	70	-0.49391	-0.682968
Argentina	80	0.205102	0.329897	Malaysia	80	-0.417015	-0.606975
Argentina	90	-0.220471	-0.103326	Malaysia	90	-0.340798	-0.39719
Bolivia	60	-1.041596	-1.375431	Mexico	60	-0.552699	-0.323206
Bolivia	70	-0.660564	-0.953162	Mexico	70	-0.12779	0.124274
Bolivia	80	-0.771766	-0.939593	Mexico	80	-0.441397	-0.126369
Bolivia	90	-1.500049	-1.610357	Mexico	90	-0.590721	-0.248032
Brazil	60	-1.30548	-1.312062	Nicaragua	80	-0.827898	-0.663292
Brazil	70	-1.196645	-1.154737	Nicaragua	90	-0.721626	-0.631415
Brazil	80	-1.449434	-1.421644	Panama	60	-1.207237	-1.113956
Brazil	90	-1.391139	-1.290632	Panama	70	-0.197388	-0.22143
Chile	60	0.236749	0.044304	Panama	80	-1.008686	-0.985749
Chile	70	-0.510555	-0.282544	Panama	90	-0.649996	-0.634994
Chile	80	-0.893918	-0.812826	Paraguay	70	0.401136	0.648139
Chile	90	-1.088971	-0.679318	Paraguay	90	-1.024982	-0.63655
Colombia	60	-0.439831	-0.615234	Peru	60	0.497999	0.248104
Colombia	70	-0.63276	-0.678015	Peru	70	-1.08489	-1.093067
Colombia	80	-1.052457	-1.061505	Peru	80	0.036035	-0.050212
Colombia	90	-1.145753	-1.17915	Peru	90	-0.546728	-0.826946
Costa Rica	60	0.497634	0.53634	Philippines	60	-0.515333	-0.855684
Costa Rica	70	0.118798	0.222454	Philippines	70	-0.023468	-0.408152
Costa Rica	80	0.142116	0.154355	Philippines	80	0.40613	-0.034118
Costa Rica	90	0.2965	0.505619	Philippines	90	-0.13295	-0.532834
Ecuador	60	-1.732838	-1.714314	S. Korea	60	0.994308	1.317056
Ecuador	70	0.191557	-0.000364	S. Korea	70	1.0445	1.376368
Ecuador	80	-0.890762	-1.008913	S. Korea	80	1.846376	2.08199
Ecuador	90	-1.049955	-1.147049	S. Korea	90	1.785284	2.029206
El Salvador	60	0.643245	0.802756	Singapore	60	-0.224026	-0.130831
El Salvador	70	0.095966	0.333729	Singapore	70	0.293697	0.332538
El Salvador	80	-0.035838	0.288938	Singapore	80	1.751517	1.629
El Salvador	90	-0.171855	0.131462	Singapore	90	0.364757	0.420679
Guatemala	60	1.610844	1.129346	Taiwan	60	1.582188	1.600751
Guatemala	70	0.586735	0.363498	Taiwan	70	2.095915	2.052326
Guatemala	80	-1.279432	-1.449285	Taiwan	80	1.890601	1.872144
Guatemala	90	-0.707215	-0.645808	Taiwan	90	1.984099	1.938884
Honduras	60	-1.331738	-0.869475	Thailand	60	0.64959	0.309435
Honduras	80	-0.566721	-0.155386	Thailand	70	0.600291	0.303597
Honduras	90	-0.710159	-0.331416	Thailand	80	0.130317	-0.088002
Indonesia	60	1.306487	0.835533	Thailand	90	0.25259	0.034934
Indonesia	70	1.027057	0.638001	Uruguay	60	1.05866	0.918936
Indonesia	80	1.409798	0.978694	Uruguay	70	0.443198	0.517116
Indonesia	90	0.596076	0.208251	Uruguay	80	0.312001	0.33924
Japan	60	1.55143	1.810763	Uruguay	90	0.561922	0.725936
Japan	70	1.335541	1.620788	Venezuela	60	0.022271	0.062966
Japan	80	2.091629	2.211367	Venezuela	70	0.467132	0.442306
Japan	90	1.872483	2.076436	Venezuela	80	-1.980676	-1.868769
				Venezuela	90	-1.656731	-1.587316

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