Poverty, Geography and Institutional Path Dependence

Tebaldi, Edinaldo and Mohan, Ramesh

Bryant University

July 2008

POVERTY, GEOGRAPHY AND INSTITUTIONAL PATH DEPENDENCE

Edinaldo Tebaldi
Department of Economics
Bryant University
1150 Douglas Pike, Suite J-142
Smithfield, RI 02917 USA
Phone: (401) 232-6901 / Fax: (401) 232-6068
E-mail: etebaldi@bryant.edu

and

Ramesh Mohan
Department of Economics
Bryant University
1150 Douglas Pike
Smithfield, RI 02917 USA
Phone: (401) 232-6379
E-mail: rmohan@bryant.edu

Abstract

Using seven alternative measures of the institutions, this study examines the impacts of the quality of institutions on poverty rates in developing countries. The estimates obtained using the instrumental variable method (2SLS) show that the quality of institutions is negatively related with poverty rates and explain a significant portion of the variation in poverty rates across countries. More precisely, the empirical results suggest that an economy with a robust system to control corruption, market-friendly policies, a working judiciary system, and in which people have freedom to exercise their citizenship will create the necessary conditions to promote economic development and reduce poverty. The results suggest that pro-poor policies aimed at reducing poverty should first consider improving the quality of institutions in developing countries as a pre-requisite for economic development and poverty eradication.

JEL Classification: I32, O17, O43

Keywords: Poverty Trap, Institutions, Development

1. INTRODUCTION

A fundamental challenge for the economics profession lies in explaining poverty and economic development. Why do about 2 billion people live on less than $2 per day? Why is average income in the United States 70 times greater than the average income in Tanzania? Differences in human capital, physical capital, and natural resource endowments have traditionally occupied a central role in answering these questions and explaining economic development. Lately, institutions and their impact on the economy have become focal points in the economic growth literature (Barro and Sala-i-Martin, 1995; Knack and Keefer, 1995; Beck et al., 2000; Henisz, 2000; Chong and Calderon, 2000a; Acemoglu, et al., 2001; Easterly and Levine, 2003; Glaeser et al., 2004; Rodrik et al., 2004; Durham, 2004; Tebaldi and Elmslie, 2008). Various studies have shown that institutions do impact economic growth, which is a necessary condition for poverty reduction (Ravallion and Chen, 2003; Kakwani and Pernia, 2000; Klasen, 2008; Dollar and Kraay, 2002; Enders and Hoover, 2003). Institutions also affect the distribution of economic growth benefits across various levels of social and political groups in a society. In fact, studies have shown that despite similar economic growth rates, poverty reduction differ substantially among nations (Lopez, 2004). Therefore, poor institutions will not only hinder economic growth, but also affect poverty incidence across countries. This may lead to institutions driven poverty traps. Thus, poor institutional structure directly or indirectly leads to poverty path dependence.

This article discusses the theoretical links between institutions and poverty and estimates the impacts of the quality of institutions on poverty. This research contributes to the literature on the subject in two respects. First, this paper is the first of its kind to use seven alternative measures of institutions (Worldwide Governance Indicators) to examine the links between

poverty and institutions. Second, we introduce a new instrument (early human capital accumulation) that helps us to circumvent the endogeneity problem that plagues most of the poverty/institutions empirical research. The study attempt to answer questions like the following: i) does the quality of institutions impact poverty rates in developing countries? ii) which set of institutions is more conducive to reduce poverty?, and iii) do geographic-related variables have both a direct and an indirect effect on poverty through current institutions?

The rest of the article is organized as follows: Section 2 discusses the theory and conceptual framework linking poverty to quality of institutions. Section 3 outlines the empirical model and the intrinsic challenges in conducting empirical evaluations on institutions and reviews the difficulties in defining and measuring institutions. Section 4 discusses the empirical results, and section 5 summarizes the paper's findings.

2. LITERATURE REVIEW AND THEORETICAL FRAMEWORK

The availability of quantitative measures of the quality of institutions contributed to the rise of a new front of empirical research. However, empirical studies on poverty and institutions are still very limited. The major findings/studies examining the links between poverty and institutions are discussed below.

Breton (2004), using the Mankiw, Romer and Weil's augmented version of the Solow model, and adding institutional variables (government integrity and government share of national consumption), offer some justification as to why some nations remain poor, while others do not. The author show that lower efficiency in supplying consumer goods and services (government share of national consumption) reduces total factor productivity (TFP), thus lowers national income. However, using British colony's experience as a proxy for government integrity, Breton shows that the causality runs more from government integrity to national income than the other

way around. In order to help the poorest nation, Sachs (2003) argues that institutions and endowment (geography) play an equal role in devising development policies. Grindle (2004) shows that good governance is a pre-requisite for poverty alleviation. The study argues that to achieve good governance it is crucial: (i) institutions that establish sets of laws between political and economic agents, (ii) establishments that administer public services, (iii) human capital that staff government bureaucracies, and (iv) transparency and interface of authorities and the public. Grindle reiterates that in order to achieve good governance, thorough knowledge of the development of institutions and governmental ability or competence is imperative.

Chong and Calderon (2000b) offer empirical support of the link between institutional quality and poverty. They contended that governance structure and operational cost of institutional reform initially impose high cost on the society especially the poor. The authors argue that the transaction cost of the reform would significantly amplify the poverty prior to decreasing it gradually. Using 1960-1990 cross-country data, the study found that efficient institutions reduce the level, rigor, and prevalence of poverty.

Bastiaensen et al. (2005) relates poverty to institutions by using a social-constructivist approach. Here, the authors point out that political process determines citizen's rights. Accordingly, sustainable poverty reduction requires understanding the local agents involved in the institutional landscape. By using two antipoverty programs (Nicaragua and Cameroon) as case points, the authors assert that pro-poor institutional change should come within the local actors of the nation and not from external interventions. Further, they show that inefficient interface between external authorities, internal authorities, and the institutional delivery processes itself are reinforcing the local structures of poverty.

On the theoretical side, there is a large literature examining poverty and institutions. For the sake of simplicity, we focus our discussion on two major ways that institutions can influence poverty. First, poor institutions create market inefficiency, where the market is unable to generate proficient output for the society. Second, the poor structure of the institution itself could be the basis for inefficiencies. Due to its resilience and path dependence, institutional failure could lead to a poverty trap. Probable causes of poverty trap could be attributed to two underpinning institutional related mechanisms: the formal and informal rules arguments.

The formal rule argument relies on the idea that a set of formal institutions govern economic performance and resource allocation among economic agents. McGill (1995) points out that institutions are essential to the development process, and development in turn is perceived as a political process. Rodrik (2000) argues that a participatory democratic political system is the foundation for building good institutions, thus high quality economic growth. Moreover, formal institutional laws might be created not to serve the interest of social optimum, but rather the private optimum. When authorities use their legal but discretionary power for awarding legitimate or illegitimate rewards to their cronies, this might lead to economic inefficiency (North, 1993). Inequality in the allotment of political power to the educated might create inequity in income distribution, resulting in the uneducated being trapped in poverty (Chong and Calderon, 2000b). One notable characteristic of the poor is lack of power and influence created by formal institutions. Thus, institutions which are created to solve the inefficient market outcomes may itself create market failure. Bastiaensen et al. (2005) pointed out that poverty depends on how well people are represented in the political processes that establish, guarantee, and contest people's entitlements.

On the other hand, in many societies, numerous informal institutional customs and ideology form the base of community. Indirectly, this leads to the institutional path dependence, which could be a major reason for poverty incidence. In some cases, the inability to escape from the surrounding societal institutional norms often lock in individuals to flocking behavior. Sindzingre (2005) demonstrates that social institutions and norms have a vital role in affecting poverty because institutions mediate the impacts of economic transformations (e.g. globalization) and the distribution of economic outcomes. Sen (1981, 1999) argues that the effectiveness of institutional arrangements depends primarily upon the "capabilities" and "entitlements" of the social actors. In this case, institutions will determine how efficient and equitably resources are allocated to the poor and how well the needy social actors are able to access their resource's share. Failure of either one of the above could lead to poverty incidence.

There are cases where poverty perseveres in the face of progressive economic growth in some nations. In this case, the rationalization that we might put forward is the role of institutions that indirectly discriminate against the poor. Malicious institutions (fraudulent governments, commercial monopolies, local opportunistic oligarchs, manipulative loan sharks) are the root cause of poverty.

Tebaldi and Mohan (2008) develop an institution augmented Solow model that formalizes the idea that poor institutions (formal or informal) might cause poverty traps. Their theoretical model suggests that poor institutions decrease the efficacy of technology and reduces both labor and capital productivity. In particular, they argue that "poor institutional arrangements (translated into corruption and poor enforcement of laws and contracts) decrease the returns to investments and affect capital accumulation." Figure 1 shows the institutions augmented Solow steady state diagram modified to account for quality of institution considered by Tebaldi and

Mohan (2008). Figure 1 demonstrates that there are two steady states indicated by k_P^* and k_R^*. The lower steady state k_P^* can be interpreted as the poverty trap; a country with poor quality of institutions (T_1) and low levels of capital. This country will grow until reaching k_P^* and stuck at that point. On the other hand, a country with identical initial conditions (economic bequests and saving rate), but endowed with better institutions (T_2) will grow steadily reaching a high steady state k_R^*. Therefore, this simple model suggests that poor institutions may create poverty traps and the only way to escape is through improvements in quality of institutions. This result is consistent with North (1990), which questioned the inability of societies to eradicate an eventual inferior institutional framework that prevents countries to converge as predicted by neoclassical theory.

<<Insert Figure 1 about here >>

3. EMPIRICAL METHODOLOGY

3.1 Empirical Model

We rely on the literature discussed above to develop empirical estimates of the impacts of the quality of institutions on poverty and follow the empirical strategy proposed by Hall and Jones (1999) and Acemoglu et al. (2001) to model the relationship between poverty and institutions as:

$$P_{i,t} = \beta_0 + \beta_1 \hat{T}_{i,t} + \nu_{i,t} \qquad (1)$$

where *t* represents time, *i* indexes countries, P denotes poverty rate, $\hat{T}$ is an index that measures the quality of institutions and *v* is random disturbance.

Because T is measured contemporaneously, it is endogenous. This undermines the reliability of estimates obtained by Ordinary Least Squares (OLS). To circumvent this problem, a

set of instruments for institutions that are correlated with current institutions but uncorrelated with poverty should be used. The empirical literature on institutions suggests that much of the variation in current institutions can be explained by geography-related variables and historically determined factors such as colonial status and origin of the legal system (Hall and Jones, 1999; La Porta et al., 1999; McArthur and Sachs, 2001; Acemoglu et al., 2001; Acemoglu and Johnson, 2005). Figure 2 graphically summarizes these ideas and shows the link between colonization, geography and human capital with current institutions, and the forward-link between the quality of current institutions and poverty incidence.

<<Insert Figure 2 about here >>

Figure 2 suggests that early institutions were influenced by geography because the colonization process endogenously acted in response to certain environmental surroundings, thus creating institutions accustomed to the colony's geography (Acemoglu et al., 2001). Denoon (1983) and Acemoglu et al., (2001) argue that geographically disadvantaged settlement colonies were subject to heavy burden of infectious diseases. This discouraged the creation of institutions aimed at protecting private property. However, colonies with better geographical conditions were able to engage in processes that replicated European-type settlements and social adaptation. This ultimately helped develop better institutions and paved the way to initiate systems that protect private property rights. Denoon (1983) further contended that many settler colonies' early institutions form the basis of the current modern institutions. In addition, Engerman and Sokoloff (2003) strongly believe that unfavorable geography destructively impacts growth-promoting institutional development.

La Porta et al. (1999) suggest that a country's current institutional arrangements have historical ties with the predetermined origin of the legal system. The authors divide the legal

systems into: British common law, French civil law, German civil law, Scandinavian civil law and socialist (Soviet Union) law. The authors found that countries with French or socialist laws show signs of inferior government operation and achievement. In general, countries with socialist law provide less political, economic and social freedom. Comparatively, a majority of the other legal systems have less domineering government and favor economic and social freedom. Thus, the origin of legal systems based on colonial legacy distinguishes the role of the current institutions in establishing regulatory systems, defending property rights, and fostering political freedom.

Furthermore, the initial human capital endowment may have affected early institutions which ultimately formed current institutions. Because current poverty is a function of existing institutions, initial human capital could have an indirect effect on poverty via current institutions. This proposition is motivated by the work of Bernard Mandeville (early 1700), who argues that the development of institutions is an evolutionary process depending on generations of accumulated knowledge (Rosenberg, 1963). In addition, a recent article by Glaeser et al. (2004) also shows that human capital positively impacts institutions, "even over a relatively short horizon of 5 years" (p. 296).

From an empirical standpoint, these conceptual ideas suggest that current institutions should be modeled as follows:

$$\hat{T}_i = \delta_1 + \delta_2 H_{0,i} + \delta_3 G_i + \delta_3 R_i + \eta_i \qquad (2)$$

where $\hat{T}$ denotes institutions, H_0 denotes the initial endowment of human capital, G is a vector of geographical variables (e.g. mean temperature, absolute latitude, and coastal area), R is a vector of "other" exogenous determinants of institutions (e.g., colonial status or legal origin) and η is a vector of random disturbances.

Equation 2 is very similar to the empirical specification for institutions found in La Porta et al. (1999), McArthur and Sachs (2001) and Acemoglu et al. (2001). However, this study proposes to add previously accumulated human capital as a determinant of current institutions. More specifically, this equation states that the initial level of human capital is an important input in the shaping of early institutional arrangements.

Equations 1 and 2 form a system of equations - where T and P are endogenous - which links poverty to institutions. This specification implies that the origin of the legal system, geographically related variables and the initial human capital endowment determine current institutions, but are uncorrelated with current poverty rates. This setup may be contentious because one could argue that these variables are directly correlated with poverty even after controlling for institutions. This would imply that the system is not properly identified. However, it seems to be reasonable to presuppose that the colonial legacy directly influences current institutions, but has no direct effect on current poverty levels, so the colonial legacy variables should not be correlated with the error term of equation 2. In other words, the effect from the colonial legacy is felt through the impact on current institutions rather than directly influencing current poverty. Additionally, as argued previously, the initial human capital endowment may have affected early institutions, which ultimately shaped current institutions. Because current poverty is a function of contemporary institutions this variable could have an indirect effect on poverty via current institutions. Finally, geography-related variables may have a direct effect on current institutions as well as a direct effect on poverty. Because this is an empirical question, it is examined together with the estimation of the model. More specifically, we test if geography has a direct effect on poverty, controlling for institutional quality, by re-specifying equation 1 as follows:

$$P_{i,t} = \beta_0 + \beta_1 \hat{T}_i + \beta_2 G_i + \nu_{i,t} \quad (3)$$

The concerns regarding the identification of the model constitute an empirical issue that can be evaluated by testing if the instruments are correlated with the error term of equation 3 and/or equation 1. Following Acemoglu et al. (2001), this study uses the Hansen's J test to examine whether the variables listed above satisfy the requirements for valid instruments.

3.2 Instrumental Variable and Measurement Error

Almost all economic variables are measured with error and this problem is augmented in this study due to the nature of the variables being studied. If an explanatory variable is measured with error, it is necessarily correlated with the error term. In the presence of measurement error OLS estimates will be biased and inconsistent (Davidson and MacKinnon, 1993). According to Hall and Jones (1999), this problem can be addressed together with the endogeneity issue by using the Instrumental Variable (IV) estimator. Consider that institutions are measured with an error, such that:

$$\hat{\mathrm{T}} = \overline{\mathrm{T}} + \mu \quad (4)$$

where $\hat{\mathrm{T}}$ is unobserved institutions, $\overline{\mathrm{T}}$ is measured institutions and μ is the measurement error. Substituting equation 4 into equation 3 gives:

$$P_{iT} = \beta_0 + \beta_1 \overline{T}_i + \beta_2 G_i + \beta_1 \mu + \nu_{it} \quad (5)$$

The explanatory variables from equation 2 and 3 can be stacked in a matrix X=[H_0 R]. If X is a valid instrument for $\overline{\mathrm{T}}$, then E[X'v] = 0. Assuming that μ is uncorrelated with v and X, thus β_1 is identified by the orthogonality conditions and both the measurement error and the endogeneity concerns are addressed. Therefore, it is crucial for the reliability of estimates to

select variables to instrument institutions that are uncorrelated with the error term of the second-stage regressions.

3.3 Data

This study uses poverty data from the 2007 World Development Indicators (WDI). We utilize a poverty measure that considers the percentage of the population living on less than PPP$2 a day as the dependent variable. For several countries, the poverty statistics are not available for all years, so we utilize the average poverty measures from 2000 to 2004. Table 1 lists the countries included in our analysis, which are mostly developing countries due to restrictions in the poverty dataset. However, the WDI dataset will not report poverty rates (at the PPP $2 threshold) for developed countries, limiting the number of countries that might be included in the empirical analysis. As an alternative to WDI dataset, we also used poverty rates (national poverty threshold) data from the CIA world factbook.

<<Insert Table 1 about here >>

The measures of quality of institutions were taken from McArthur and Sachs (2001) and Kauffman et al. (2007).[1] Expropriation Risk, a measure of risk of confiscation and forced nationalization, is used to conform to other studies in the growth and institutions literature. It is calculated as the average value for each country over the period 1985-1995 and ranges between 0 and 10. Higher scores representing better institutions, thus lower risk of confiscation or forced nationalization. This variable is originally obtained from Political Risk Services, and taken as reported in McArthur and Sachs (2001). Kauffman et al. (2007) provides six other measures of institutions: Control of Corruption, Regulatory Quality, Rule of Law, Government Effectiveness,

[1] Glaeser at al. (2004) argue that these measures of institutions (Risk of Expropriation, Control of Corruption, Rule of Law and Regulatory Quality are actually "*outcome"* measures rather than "*deep"* measures of institutions. Because this is a valid argument, we use instruments to account for the endogeneity of these variables (see Acemoglu *et al.* 2005 for a detailed discussion on this issue).

Voice and Accountability, Political Stability and Absence of Violence. These variables range from -2.5 to 2.5, with higher scores indicating better institutional arrangements. This study utilizes an average index through the time periods of 1996, 1998, 2000, 2002, 2004, and 2005.[2]

The geographic variables are taken from McArthur and Sachs (2001) and La Porta et al. (1999). We use i) mean temperature, which measures the 1987 mean annual temperature in Celsius; ii) coastal land, which quantifies the proportion of land area within 100 km of the coast and iii) latitude, which quantifies the absolute value of the latitude, is scaled to take values between 0 and 1. The colonial legacy is taken from La Porta et al. (1999) and measured by a set of dummy variables that identify the origin of a country's legal system. Specifically, these dummies identify if the origin of the legal system is English, French, German, Scandinavian, or Socialist. We also take Ethnolinguistic fragmentation from La Porta et al. (1999).

The idea that the development of institutions is an evolutionary process depending on previously accumulated knowledge is accounted for in the empirical model by including a variable that measures human capital accumulation in the early 20th century. This variable is calculated as the number of students in school per square kilometer in 1920.

---

[2] Six measures of institution (Worldwide Governance Indicators) based on Kauffman et al. (2007):
i) *Regulatory Quality* "includes measures of the incidence of market-unfriendly policies such as price controls or inadequate bank supervision, as well as perceptions of the burdens imposed by excessive regulation in areas such as foreign trade and business development".
ii) *Rule of Law* includes "several indicators which measure the extent to which agents have confidence in and abide by the rules of society. These include perceptions of the incidence of crime, the effectiveness and predictability of the judiciary and the enforceability of contracts. Together, these indicators measure the success of a society in developing an environment in which fair and predictable rules form the basis for economic and social interactions and importantly, the extent to which property rights are protected"
iii) *Control of Corruption* "measures perceptions of corruption, conventionally defined as the exercise of public power for private gain…. The presence of corruption is often a manifestation of a lack of respect of both the corrupter (typically a private citizen or firm) and the corrupted (typically a public official or politician) for the rules which govern their interactions and hence represents a failure of governance according to our definition"
iv) *Voice and Accountability* measures "the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media."
v) *Political Stability and Absence of Violence* measure "perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including domestic violence and terrorism."
vi) *Government Effectiveness* measures "the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies"

$$H_{0,i} = h_{0,i} / area_i \quad (6)$$

where h_0 denotes the number of students' in school in 1920, *area* denotes the country land area, and *i* indexes countries.

Data on students' enrolled in primary and secondary schools in early 20th century are from Mitchell (2003a, 2003b, 2003c). Mitchell provides these statistics back to the eighteenth century for only a few countries. A representative cross-country sample can be only collected around 1920. Mitchell reports the number of children enrolled in primary and secondary schools for 68 countries in 1920 and statistics for 52 countries around the 1930s. Therefore, combining the actual 1920 data with estimates of the number of students enrolled in 1920 based upon the 1930 numbers allows one to get a sample comprised of 120 countries.[3] The country area, which is needed to calculate the schooling density variable, is from the United Nations and based upon the current geopolitical arrangement. Countries that experienced changes in their boundaries, such as the former USSR republics, Paraguay, Peru, Bolivia, Ivory Coast, Mali, Mauritania, Algeria and Zaire were not included in the regression analysis.[4]

4. EMPIRICAL RESULTS

Figure 3 shows that poverty rate is strongly correlated with the quality of institutions. In looking at the figures, one can see that developing countries with better institutions are also those countries with lower poverty rates. However, the simple correlations shown in these figures do not allow one to infer that better institutions actually reduce poverty rate due to eventual endogeneity. It could be the case that poverty creates economic and social conditions that prevent the development of good institutions, rather than the other way around.

[3] We use the geometric growth rates in the estimations. For instance, if a country has data on enrollment between 1930 and 1940, the geometric growth rate between these periods is utilized to estimate enrollment back to 1920.

[4] Some of the other countries were not included in our analysis either because of missing data or they did not exist in the beginning of the 20th century.

<<Insert Figure 3 about here >>

We address the eventual endogeneity issue by estimating a set of regressions that utilizes the instrumental variable method (2SLS-IV) with robust standard errors. Table 2 reports the first-stage regression (equation 2), Table 3 shows the second-stage estimates of equation 1, and Table 4 reports the second-stage estimates of equation 3.

Our empirical strategy to estimate the first-stage of the model (equation 2) closely follows La Porta et al. (1999), Acemoglu (2001), Rodrik (2000) and Tebaldi and Elmslie (2008). The results reported in Table 2 indicate that historical levels of human capital, geography, and the origin of the legal system are important determinants of current institutions and explain about 60 percent of the variation in the alternative measures of institutions. More precisely, in all regressions, while controlling for geographically related variables and legal origin, human capital density in the early 20th century have a positive and statistically significant influence on all measures of institutions (except Political Stability). This indicates that countries that accumulated relatively more human capital in the early 20^{th} century turns out to have better current institutions. In addition, as expected, socialist legal origin is associated with relatively poor institutions. The regressions also suggest that the Scandinavian legal origin over performs the common legal system (British). Overall, the French, German and British legal systems perform comparably in terms of affects on current institutions. As pointed out earlier in section 3, La Porta et al (1999), however, found that countries with French or socialist laws show signs of inferior institutional structure. Further, controlling for other covariates, we find that the coefficient on ethnolinguistic fragmentation is not significant, which suggests that this variable does not impact the quality of current institutions. This result too contradicts La Porta et al.

(1999); where they found that ethnolinguistically heterogenous countries show signs of mediocre institutional performance.

<<Insert Table 2 about here >>

Table 3 reports the second-stage regressions of institutions on poverty and allows to answer the question: does the quality of institutions impact poverty rates in developing countries? Columns 1 through 7 of Table 3 show that controlling for endogeneity, the quality of institutions is negatively related to poverty rates. More precisely, developing countries with better institutional arrangements - measured by control of corruption, regulatory quality, rule of law, government effectiveness, voice and accountability and political stability – have lower poverty rates. These results are consistent with Chong and Calderon's (2000b) study, which found that efficient institutions reduce the level, rigor, and prevalence of poverty. The results are also consistent with the theoretical literature discussed in section II.

<<Insert Table 3 about here >>

Does geography have a direct effect on poverty? The first set of regressions reported in Table 3 only accounts for the indirect effect of geography on poverty through current institutions, but it might be the case that geography has both indirect and direct effects on poverty. Table 4 addresses this issue and reports a set of regressions that allows one to test if - controlling for institutional quality - geography has a direct effect on poverty. We find mixed results. Columns 1 through 4 of Table 4 show that geography (absolute latitude) has no direct effect on poverty rates when we control for corruption, regulatory quality, rule of law, and government effectiveness. This result suggests that all of the impacts of geography on poverty are passed on through the affects of geography on the quality of current institutions measured by

these variables. However, column 5 of Table 4 suggests that geography might still play a role when we control for voice and accountability.

<<Insert Table 4 about here >>

Columns 6 and 7 of Table 4 show that political stability and expropriation risk are no longer significant when we control for the direct effect of geography on poverty rates. Two possible explanations may support these results: First, political stability may be obtained through political systems that do not promote the set of conditions needed to generate economic growth and/or distribute the benefits of economic growth to all groups in the society. In particular, some stable political systems are designed to protect the elites or their political cronies in detriment to the needy population who might be deprived of basic needs. With respect to the insignificant expropriation risk coefficient, one could argue that protecting property rights only is not sufficient to put in place the forces and conditions needed to eliminate the deep-rooted conditions that create and replicate poverty in developing countries. In addition, regardless of political stability and protection of property rights, it might be the case that geographical conditions of a society determine the yield and productivity of the agricultural sector, which a majority of poor rely on. Overall, this interpretation of the results might actually help us to identify which set of institutions is more conducive to reduce poverty rates because it suggests that Control of Corruption, Regulatory Quality, Rule of Law, Government Effectiveness and Voice and Accountability do impact and reduce poverty rates. Conversely, political stability and expropriation risk seem to not affect poverty in developing countries. A comparison of the coefficients reported in table 4 also suggest that Control of Corruption, Regulatory Quality, Rule of Law and Government Effectiveness have much stronger effects on poverty rates than Voice and Accountability.

A second possible explanation for the results discussed above is that the regressions on risk of expropriation and political stability might violate some of the statistical properties needed to properly estimate the model. For instance, if the model is not properly identified, then the estimates will be biased and inconsistent. To examine the robustness of the estimates and alleviate concerns with the validity of the instruments, this study follows Acemoglu et al. (2005) and Alcala and Ciccone (2004) and utilizes the Hansen's J statistic (Hansen, 1982) to evaluate the overidentifying restrictions in the IV regressions. The overidentification tests suggest that the correlation between the instruments and the error term in models 1 through 5 of Tables 2 and 3 is not significant. This result provides evidence that the regressions for control of corruption, regulatory quality, rule of law, and government effectiveness are robust too. However, the overidentification test does cast some doubt that the models for expropriation risk and political stability (columns 6 and 7 of Tables 3 and 4) are correctly identified; so those results should be interpreted with extra caution.

Further, we perform a set of alternative regression using different dataset. We examine the reliability of the results above by estimating regressions of poverty rates measured using the national poverty thresholds data from CIA world factbook for a larger sample of 89 countries (compare to the PPP$2 a day measure of 53 countries in Table 4). Table 5 reports the results and corroborates much of the findings above. However, one interesting point to note is that expropriation risk and political stability turn out to be significant at the one percent and ten percent levels respectively. The overidentification test for expropriation risk and political stability (columns 6 and 7 of Tables 5) becomes significant too, indicating the models are correctly identified.

In addition, we run regressions of poverty rates using Principal Component Analysis (PCA) to extract the first eigenvalue of six measures of institutions used in this study. PCA entails the calculation of the eigenvalue decomposition of a data covariance matrix after centering the data on average for each attribute of institutions. The result of the first PCA is presented in table 6. The analysis transforms multidimensional data to a new synchronized system (weighted Institutions) such that the greatest variance moves to a point on the first coordinate. The results indicate weighted institutions are highly negatively significant in affecting poverty at the 1% level in both datasets, which substantiates previous results.

5. CONCLUSION

This study makes a systematic effort to provide a theoretical link between the role of institutions and poverty. We further contribute to the extant literature by empirically analyzing the links between poverty and institutions. Using seven alternative measures of institutions, we assess empirically the cross-country impacts of the quality of institutions on poverty. The estimates obtained using instrumental variable method (2SLS) demonstrates that the quality of institutions is negatively related with poverty rates and explains a significant portion of the variation in poverty across countries.

These results provide evidence that some institutions are more conducive to affect poverty than others. More precisely, the empirical results suggest that an economy with a robust system to control corruption, market-friendly policies, working judiciary system and in which people have freedom to exercise their citizenship will create the necessary conditions to promote economic growth and reduce poverty in developing countries.

This article suggests that a broad strategy that includes improvements in the quality of institutions is needed to fight poverty. In particular, transfer and/or aid programs will only have

limited and short term effects on poverty if the fundamental poverty-causing factors; i.e. the quality of institutions, were not addressed as part of the strategy to eradicate poverty. In this sense, it would be helpful if international institutions such as the World Bank, United Nations, and IMF could use their financial and political influences to promote strategies aimed at improving institutions. In summary, in terms of policy implications of the study, this paper suggests that pro-poor policies aimed at reducing poverty should first consider improving the quality of institutions in developing countries as a pre-requisite for economic development and poverty eradication.

BIBLIOGRAPHY

Acemoglu, D., Johnson, S. and Robinson, J. 2001. "The Colonial Origins of Comparative Development: An Empirical Investigation," *American Economic Review*, Vol. 91 (5), pp. 1369-1401.

Acemoglu, D., Johnson, S. and Robinson, J. 2005. "The Rise of Europe: Atlantic Trade, Institutional Change, and Economic Growth," *American Economic Review*, Vol. 95(3), pp. 546-579.

Alcala, F. and Ciccone, A. 2004. "Trade and Productivity", *Quarterly Journal of Economics,* 119 (2), 613-46

Barro, R. and Sala-I-Martin, X. 1995. Economic Growth. The MIT Press.

Bastiaensen, J., De Herdt, T. and D'exelle, B. 2005. "Poverty Reduction as a Local Institutional Process," *World Development* Vol. 33 (6), pp. 979–993

Beck, T., Clarke, G., Groff, A., Keefer, P. and Walsh, P. 2000. "New Tools and New Tests in Comparative Political Economy: The Database of Political Institutions," *World Bank Policy Research Working Paper* No. 2283.

Breton, T.R. 2004. "Can Institutions or Education Explain World Poverty? An Augmented Solow Model Provides Some Insights." Journal of Socio-Economics Vol. 33 pp. 45–69

Chong, A. and Calderón, C 2000a. "On the Causality and Feedback Between Institutional Measures and Economic Growth." *Economics and Politics*, Vol.12 (1) pp.69-81.

Chong, A. and Calderón, C. 2000b. "Institutional Quality and Poverty Measures in a Cross-section of Countries," *Economics of Governance*, Vol. 1 (2), pp. 123-135.

Davidson, R. and MacKinnon, J.G. 1993. Estimation and Inference in Econometrics. Oxford University Press, New York

Denoon, D. 1983. Settler Capitalism: The Dynamics of Dependent Development in the Southern Hemisphere. Oxford, UK: Clarendon Press.

Dollar, D. and Kraay, A. 2002. "Growth is Good for the Poor," *Journal of Economic Growth*, Vol. 7(3), pp. 195-225

Durham, J.B. 2004. "Economic Growth and Institutions: Some Sensitivity Analyses, 1961–2000," *International Organization*, Vol. 58 pp. 485-529.

Easterly, W. and Ross, R. 2003. "Tropics, Germs, and Crops: How Endowments Influence Economic Development," *Journal of Monetary Economics*, Vol. 50 (1), pp. 3-39.

Enders, W and Hoover, G.A. 2003. "The Effect of Robust Growth on Poverty: a Nonlinear Analysis," Applied Economics, Vol. 35(9), pp. 1063-1071.

Engerman, S. L. and Sokoloff, K.L. 2003. "Institutions and Non-Institutional Explanations of Economic Differences." *NBER Working Paper* 9989.

Glaeser, E.L., La Porta, R., Lopez-de-Silane, F. and Shleifer, A. 2004. "Do Institutions Cause Growth?" *NBER Working Papers* 10568.

Grindle, M.S. (2004). "Good Enough Governance: Poverty Reduction and Reform in Developing Countries." Governance Vol.17 (4), pp. 525–548.

Hall, R.E. and Jones, C.I. 1999. "Why Do Some Countries Produce So Much More Output per Worker than Others? *The Quarterly Journal of Economics,* Vol. 114 (1) pp. 83-116

Henisz, W. (2000). "The Institutional Environment for Economic Growth," *Economics and Politics*, Vol.12 (1), pp. 1-31.

Kakwani, N and Pernia, E. 2000. "What is Pro-poor Growth," *Asian Development Review*, Vol.16 (1) pp. 1–22.

Kaufmann, D., Kraay, A., and Mastruzzi, M. 2007. "Governance Matters VI: Governance Indicators for 1996-2006," World Bank Policy Research Working Paper No. 4280.

Klasen, S. 2008. "Economic Growth and Poverty Reduction: Measurement Issues using Income and Non-Income Indicators." *World Development,* Vol. 36 (3) pp. 420-445.

Knack, Stephen and Philip Keefer 1995. "Institutions and Economic Performance: Cross-Country Tests Using Alternative Institutional Measures," *Economics and Politics*, Vol.7, pp. 207-27.

LaPorta, R., Lopez-de-Silanes, F., Shleifer, A. and Vishny, R. 1999. "The Quality of Government," *Journa. of Law, Economics and Organization*, Vol. 15(1) pp. 222-279

Lopez, H. 2004. "Pro-poor-Pro-growth: Is there a Trade Off?" The World Bank, Policy Research Working Paper No. 3378.

McArthur, J.W. and Sachs, J.D. 2001. "Institutions and Geography: Comment on Acemoglu, Johnson, and Robinson (2000)", NBER Working Paper, 8114.

McGill, R. 1995. "Institutional Development a Review of the Concept." International Journal of Public Sector Management, Vol. 8(2) pp. 63-79.

Mitchell, B. R. 2003a. International Historical Statistics: Africa, Asia & Oceania, 1750-2001. New York: Palgrave Macmillan, fourth Edition, p.1144.

Mitchell, B. R. 2003b. International Historical Statistics Europe 1754-2000: Europe, 1750-2000**.** New York: Palgrave Macmillan, fifth Edition, p. 960.

Mitchell, B. R. 2003c. International Historical Statistics: The Americas 1750-2000. New York: Palgrave Macmillan, fifth Edition, p. 856.

North, D.C. 1990. “Institutions, Institutional Change and Economic Performance.” New York, Cambridge University Press, 1990.

North, D.C. 1993. “The New Institutional Economics and Development.” Economic History 9309002, EconWPA

Ravallion, M. and Chen, S. 2003. “Measuring Pro-poor Growth.” Economics Letters Vol.78, pp. 93–99.

Rodrik, D. 2000. “Institutions for High-Quality Growth: What they are and How to Acquire Them.” Studies in Comparative International Development (SCID), Vol. 35 (3), pp. 3-31.

Rodrik, D., Subramanian, A., and Trebbi, F. 2004. “Institutions Rule: The Primacy of Institutions Over Geography and Integration in Economic Development," *Journal of Economic Growth*, Vol. 9 (2), pp. 131-165.

Rosenberg, N. 1963. “Mandeville and Laissez-Faire,” *Journal of the History of Ideas*, 24 (2): 183-196.

Sachs, J. D. 2003. “Institutions Don’t Rule: Direct Effects of Geography on Per Capita Income.” *NBER Working Paper* No. 9490.

Sen, A. K. 1981. Poverty and Famines. An Essay on Entitlement and Deprivation, Oxford University Press, Oxford.

Sindzingre, A. 2005. “Explaining Threshold Effects of Globalization on Poverty An Institutional Perspective, UNU-WIDER Research Paper No. 2005/53 Helsinki, Finland.

Tebaldi, E. and Elmslie, B. 2008. Do Institutions Impact Innovation? MPRA Working paper No. 8757, available at: http://mpra.ub.uni-muenchen.de/8757/.

Tebaldi, E. and Mohan, R. 2008. Institutions Augmented Solow Model with Poverty Trap, MPRA Working paper No.

Table 1: Selected Variables

Country	Code	Pov WDI	Pov CIA	VA	PS	GE	RL	RQ	CC	Country	Code	Pov WDI	Pov CIA	VA	PS	GE	RL	RQ	CC
Afghanistan	AFG	-	53.0	-1.51	-2.26	-1.25	-1.68	-2.12	-1.41	Libya	LBY	-	7.4	-1.75	-0.6	-1.04	-0.89	-1.84	-0.9
Angola	AGO	-	70.0	-1.3	-1.61	-1.34	-1.42	-1.4	-1.2	Sri Lanka	LKA	41.6	22.0	-0.24	-1.43	-0.27	0.01	0.22	-0.23
Argentina	ARG	18.2	23.4	0.37	-0.14	0.01	-0.34	-0.13	-0.43	Morocco	MAR	14.3		-0.58	-0.32	-0.04	0.09	-0.01	0.02
Austria	AUT	-	5.9	1.25	1.08	1.77	1.88	1.43	1.97	Madagascar	MDG	87.7	50.0	0.1	0.05	-0.46	-0.54	-0.21	-0.18
Burundi	BDI	-	68.0	-1.34	-2.09	-1.26	-1.1	-1.24	-0.97	Mexico	MEX	18.5	13.8	0.1	-0.27	0.1	-0.38	0.48	-0.34
Belgium	BEL	-	15.2	1.32	0.79	1.68	1.46	1.17	1.41	Mali	MLI	72.1	36.1	0.31	0.06	-0.49	-0.46	-0.19	-0.36
Benin	BEN	73.7	37.4	0.38	0.32	-0.32	-0.43	-0.35	-0.55	Myanmar	MMR	-	70.0	-2.09	-1.28	-1.45	-1.48	-1.75	-1.4
Burkina Faso	BFA	71.8	46.4	-0.36	-0.23	-0.55	-0.59	-0.29	-0.2	Mozambique	MOZ	74.1	15.0	-0.18	-0.1	-0.46	-0.82	-0.52	-0.7
Bangladesh	BGD	84.0	45.0	-0.48	-0.94	-0.65	-0.8	-0.73	-0.9	Mauritania	MRT	63.1	40.0	-0.91	-0.02	-0.1	-0.54	-0.27	-0.16
Bulgaria	BGR	9.5	14.1	0.46	0.19	-0.23	-0.15	0.42	-0.26	Mauritius	MUS	-	8.0	0.96	0.9	0.62	0.8	0.44	0.39
Bolivia	BOL	43.2	60.0	0.1	-0.5	-0.45	-0.6	0.21	-0.76	Malawi	MWI	62.9	53.0	-0.41	-0.08	-0.68	-0.42	-0.34	-0.76
Brazil	BRA	22.1	31.0	0.37	-0.16	-0.08	-0.3	0.19	-0.07	Malaysia	MYS	-	5.1	-0.3	0.34	0.85	0.55	0.54	0.39
Canada	CAN	-	10.8	1.31	0.97	2.01	1.81	1.41	2.15	Niger	NER	-	63.0	-0.34	-0.34	-0.92	-0.91	-0.61	-0.85
Chile	CHL	7.6	18.2	0.88	0.71	1.26	1.2	1.36	1.36	Nigeria	NGA	92.4	70.0	-0.94	-1.63	-1.06	-1.37	-0.97	-1.24
China	CHN	42.0	8.0	-1.54	-0.13	0.09	-0.41	-0.25	-0.4	Nicaragua	NIC	79.9	48.0	-0.02	-0.25	-0.69	-0.77	-0.12	-0.56
Ivory Coast	CIV	48.8	42.0	-1.14	-1.45	-0.79	-1.07	-0.48	-0.72	Netherlands	NLD	-	10.5	1.48	1.16	2.18	1.84	1.67	2.2
Cameroon	CMR	50.6	48.0	-1.11	-0.7	-0.74	-1.08	-0.61	-1.09	Pakistan	PAK	69.7	24.0	-1.16	-1.42	-0.55	-0.73	-0.66	-0.93
Colombia	COL	20.2	49.2	-0.39	-1.87	-0.13	-0.73	0.11	-0.45	Panama	PAN	17.7	37.0	0.51	0.18	-0.09	-0.06	0.56	-0.31
Costa Rica	CRI	9.2	16.0	1.16	0.87	0.44	0.65	0.71	0.73	Peru	PER	33.5	44.5	-0.21	-0.85	-0.32	-0.59	0.34	-0.28
Germany	DEU	-	11.0	1.34	0.9	1.71	1.78	1.36	1.92	Philippines	PHL	45.2	30.0	0.16	-0.76	0	-0.46	0.16	-0.49
Dominican Republic	DOM	14.1	42.2	0.18	-0.05	-0.45	-0.46	-0.03	-0.48	Poland	POL	2.0	17.0	1.05	0.47	0.62	0.46	0.64	0.35
Algeria	DZA	-	25.0	-1.15	-1.95	-0.62	-0.74	-0.75	-0.59	Portugal	PRT	-	18.0	1.3	1.1	1.14	1.2	1.2	1.31
Ecuador	ECU	-	38.3	-0.05	-0.89	-0.92	-0.68	-0.39	-0.87	Paraguay	PRY	31.1	32.0	-0.41	-0.76	-1.06	-0.96	-0.43	-1.08
Egypt	EGY	43.9	20.0	-0.97	-0.61	-0.19	0.05	-0.28	-0.26	Romania	ROM	16.7	25.0	0.3	0.12	-0.4	-0.28	-0.08	-0.33
Spain	ESP	-	19.8	1.11	0.45	1.62	1.2	1.23	1.38	Rwanda	RWA	87.8	60.0	-1.41	-1.49	-0.75	-0.85	-0.82	-0.44
Ethiopia	ETH	77.8	38.7	-0.98	-1.18	-0.66	-0.52	-0.93	-0.58	Sudan	SDN	-	40.0	-1.8	-2.26	-1.35	-1.43	-1.23	-1.18
France	FRA	-	6.2	1.21	0.58	1.6	1.4	1.02	1.47	Senegal	SEN	56.2	54.0	-0.04	-0.54	-0.12	-0.26	-0.28	-0.38
United Kingdom	GBR	-	14.0	1.32	0.63	2.05	1.81	1.61	2.07	Sierra Leone	SLE	-	70.2	-0.98	-1.46	-1.2	-1.09	-1.08	-0.98
Ghana	GHA	-	28.5	0.01	-0.04	-0.13	-0.2	-0.1	-0.41	El Salvador	SLV	39.9	30.7	0.14	-0.05	-0.3	-0.46	0.5	-0.42
Guinea	GIN	-	47.0	-1.18	-1.15	-0.79	-1.02	-0.53	-0.62	Syria	SYR	-	11.9	-1.67	-0.6	-0.94	-0.44	-0.98	-0.6
Guatemala	GTM	31.1	56.2	-0.44	-0.9	-0.61	-0.91	0.1	-0.81	Chad	TCD	-	80.0	-1.01	-1.31	-0.75	-0.94	-0.67	-1.01
Honduras	HND	39.8	50.7	-0.08	-0.38	-0.65	-0.83	-0.18	-0.79	Togo	TGO	-	32.0	-1.18	-0.63	-1.14	-1.02	-0.52	-0.77
Haiti	HTI	78.0	80.0	-1.06	-1.29	-1.46	-1.53	-1.15	-1.32	Thailand	THA	29.7	10.0	0.14	-0.05	0.3	0.19	0.34	-0.32
Hungary	HUN	2.0	8.6	1.09	0.81	0.72	0.73	1	0.64	Trinidad And Tobago	TTO	-	17.0	0.59	0.19	0.47	0.18	0.66	0.1
Indonesia	IDN	53.9	17.8	-0.69	-1.54	-0.41	-0.86	-0.35	-0.94	Tunisia	TUN	6.6	7.4	-0.92	0.21	0.64	0.21	0.14	0.27
Ireland	IRL	-	7.0	1.36	1.15	1.69	1.65	1.54	1.73	Turkey	TUR	14.5	20.0	-0.44	-0.98	-0.01	-0.02	0.26	-0.17
Israel	ISR	-	21.6	0.74	-1.12	1.11	0.9	0.89	1.08	Tanzania	TZA	89.9	36.0	-0.43	-0.34	-0.55	-0.48	-0.29	-0.9
Jamaica	JAM	15.1	14.8	0.56	-0.11	-0.18	-0.42	0.33	-0.43	Uganda	UGA	-	35.0	-0.72	-1.4	-0.38	-0.69	0.09	-0.8
Jordan	JOR	7.0	14.2	-0.49	-0.19	0.27	0.37	0.27	0.17	Uruguay	URY	4.8	27.4	0.89	0.64	0.56	0.46	0.59	0.64
Kenya	KEN	-	50.0	-0.54	-1.04	-0.74	-1	-0.32	-1.03	United States	USA	-	12.0	1.26	0.47	1.77	1.64	1.43	1.76
Cambodia	KHM	89.8	35.0	-0.76	-0.75	-0.77	-0.98	-0.41	-1.01	Venezuela	VEN	34.0	37.9	-0.27	-1	-0.91	-1.01	-0.68	-0.91
Korea, South	KOR	-	15.0	0.69	0.21	0.8	0.68	0.61	0.31	Vietnam	VNM	-	14.8	-1.54	0.28	-0.31	-0.61	-0.61	-0.73
Laos	LAO	74.1	30.7	-1.53	-0.12	-0.69	-1.14	-1.26	-0.96	South Africa	ZAF	34.1	50.0	0.79	-0.48	0.56	0.17	0.38	0.47
Lebanon	LBN	-	28.0	-0.65	-0.83	-0.27	-0.26	-0.06	-0.42	Zambia	ZMB	90.8	86.0	-0.3	-0.29	-0.75	-0.55	-0.27	-0.84
Liberia	LBR	-	80.0	-1.3	-2.04	-1.7	-1.76	-1.9	-1.31	Zimbabwe	ZWE	-	68.0	-1.25	-1.32	-0.94	-1.05	-1.62	-0.9

Source: World Development Indicators 2007, CIA Fact Book, and Kauffman et al. (2007).

Table 2: The Determinants of Current Institutions

Explanatory Variables	Dependent Variable						
	Control of Corruption	Regulatory Quality	Rule of Law	Government Effectiveness	Voice and Accountability	Political Stability	Expropriation Risk
				Coefficients			
Legal Origin – Socialist	-0.898***	-0.492	-0.785***	-0.709**	-0.613*	0.254	-0.463
	(0.26)	(0.30)	(0.25)	(0.29)	(0.32)	(0.27)	(0.53)
Legal Origin – French	-0.284	-0.0766	-0.276	-0.284	-0.0130	0.0615	-0.286
	(0.20)	(0.20)	(0.19)	(0.20)	(0.16)	(0.20)	(0.36)
Legal Origin – German	0.404	0.224	0.489*	0.381	0.299	0.679**	0.769**
	(0.36)	(0.25)	(0.27)	(0.30)	(0.21)	(0.28)	(0.39)
Legal Origin – Scandinavian	0.741**	0.422	0.452*	0.430	0.496*	0.621**	0.622
	(0.31)	(0.30)	(0.26)	(0.28)	(0.28)	(0.28)	(0.44)
Human Capital Density in the early 20th century	0.0798**	0.124***	0.0969***	0.0912**	0.142***	0.0446	0.282***
	(0.037)	(0.043)	(0.035)	(0.040)	(0.034)	(0.035)	(0.071)
Ethnolinguistic fragmentation.	-0.167	0.0123	-0.000847	0.0435	0.269	0.0653	0.495
	(0.28)	(0.32)	(0.29)	(0.30)	(0.29)	(0.34)	(0.73)
Absolute latitude	2.794***	1.598***	2.762***	2.794***	1.948***	2.225***	3.908***
	(0.62)	(0.61)	(0.52)	(0.61)	(0.56)	(0.51)	(0.99)
Prop. land within 100 km of the sea coast	0.276	0.354	0.303	0.378	0.273	0.568**	-0.293
	(0.26)	(0.25)	(0.24)	(0.25)	(0.24)	(0.26)	(0.52)
Constant	-0.519	-0.298	-0.611**	-0.565*	-0.564*	-1.180***	6.359***
	(0.33)	(0.35)	(0.31)	(0.33)	(0.32)	(0.33)	(0.74)
Observations	107	107	107	107	107	107	97
R-squared	0.65	0.54	0.67	0.63	0.58	0.48	0.56

Notes: ***, **, and * denotes significance at the 1%, 5%, and 10% respectively. Standard errors are given in parentheses.
Common (British) Law is used as an omitted category.

Table 3: IV Regressions of Poverty Rates (PPP $2) on Institutions

COEFFICIENT	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Control of Corruption	61.99***						
	(11.0)						
Regulatory Quality		-63.33***					
		(11.7)					
Rule of Law			-55.38***				
			(10.1)				
Government Effectiveness				-62.06***			
				(10.6)			
Voice and Accountability					-45.70***		
					(9.50)		
Political Stability						-41.46***	
						(11.7)	
Expropriation Risk							-15.68***
							(3.82)
Constant	19.45***	39.03***	21.58***	27.14***	34.76***	27.13***	142.2***
	(6.35)	(3.17)	(4.84)	(4.89)	(4.16)	(5.03)	(25.8)
Observations	53	53	53	53	53	53	48
Uncentered R-squared	0.744	0.823	0.789	0.793	0.696	0.670	0.804
Hansen J-statistic overidentification test	3.561	6.213	7.006	6.867	8.426	8.614	13.69
Hansen J – p-value	0.614	0.286	0.220	0.231	0.134	0.126	0.0177

Notes: ***, **, and * denotes significance at the 1%, 5%, and 10% respectively. Standard errors are given in parentheses.
The dependent variable in models 1-7 is the average poverty rates between 1999-2004; all regressions were ran with standard errors robust to arbitrary heteroskedasticity. All IV first-stage regressions are estimated including the following set of variables: ln human capital density in the early 20th century, dummies for the origin of the legal system, absolute latitude, proportion of land within 100 km of the seacoast, and ethnolinguistic fragmentation.

Table 4: IV Regressions of Poverty Rates (PPP $2) on Institutions and Geography

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Control of Corruption	-66.10***						
	(21.6)						
Regulatory Quality		-54.31***					
		(13.8)					
Rule of Law			-65.05***				
			(23.6)				
Government Effectiveness				-86.29**			
				(37.3)			
Voice and Accountability					-32.83***		
					(8.21)		
Political Stability						-21.41	
						(18.2)	
Expropriation Risk							1.583
							(7.84)
Absolute Latitude	11.45	-29.72	26.35	58.77	-62.32**	-62.72	-106.1***
	(47.4)	(24.1)	(52.3)	(82.2)	(25.4)	(43.2)	(40.8)
Constant	15.31	46.26***	11.88	7.653	51.03***	49.07***	54.48
	(20.0)	(6.61)	(21.5)	(28.8)	(6.66)	(17.3)	(42.8)
Observations	53	53	53	53	53	53	48
Uncentered R-squared	0.720	0.861	0.742	0.651	0.794	0.777	0.742
Hansen J-statistic overidentification test	3.226	5.263	5.904	3.774	6.945	11.22	8.804
Hansen J – p-value	0.521	0.261	0.206	0.437	0.139	0.0243	0.0662

Notes: ***, **, and * denotes significance at the 1%, 5%, and 10% respectively. Standard errors are given in parentheses. The dependent variable in models 1-7 is the average poverty rates between 1999-2004; all regressions were ran with standard errors robust to arbitrary heteroskedasticity. All IV first-stage regressions are estimated including the following set of variables: ln human capital density in the early 20th century, dummies for the origin of the legal system, absolute latitude, proportion of land within 100 km of the seacoast, and ethnolinguistic fragmentation

Table 5: IV Regressions of Poverty Rates (National Poverty Threshold) on Institutions and Geography

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Control of Corruption	-11.22**						
	(4.64)						
Regulatory Quality		-11.72***					
		(4.31)					
Rule of Law			-10.93***				
			(4.18)				
Government Effectiveness				-11.88***			
				(4.46)			
Voice and Accountability					-9.489**		
					(3.90)		
Political Stability						-21.79***	
						(7.69)	
Expropriation Risk							-3.368*
							(1.99)
Absolute Latitude	-27.92	-40.22***	-29.41*	-26.96	-43.52***	-9.041	-45.95***
	(19.0)	(14.1)	(17.0)	(18.3)	(13.6)	(24.0)	(13.7)
Constant	38.41***	43.07***	38.49***	39.04***	42.87***	27.08***	67.32***
	(5.82)	(4.00)	(5.36)	(5.22)	(4.35)	(8.84)	(11.0)
Observations	89	89	89	89	89	89	80
Uncentered R-squared	0.841	0.856	0.858	0.861	0.824	0.811	0.837
Hansen J-statistic overidentification test	6.396	4.118	6.408	6.432	4.442	2.493	8.140
Hansen J – p-value	0.270	0.532	0.269	0.266	0.488	0.778	0.149

Notes: ***, **, and * denotes significance at the 1%, 5%, and 10% respectively. Standard errors are given in parentheses.
The dependent variable in models 1-7 is the average poverty rates between 1999-2004; all regressions were ran with standard errors robust to arbitrary heteroskedasticity. All IV first-stage regressions are estimated including the following set of variables: ln human capital density in the early 20th century, dummies for the origin of the legal system, absolute latitude, proportion of land within 100 km of the seacoast, and ethnolinguistic fragmentation

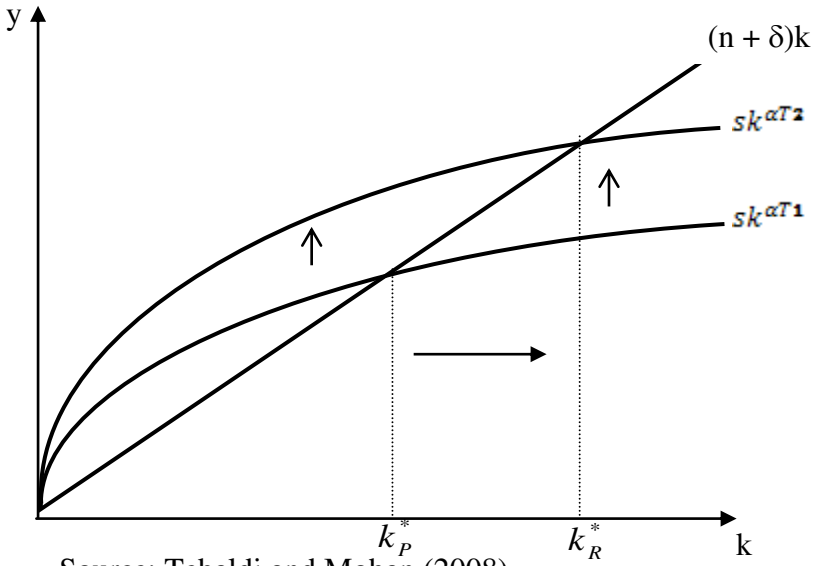
Table 6: IV Regressions of Poverty Rates Using Principal Component-Weighted Institutions

Variables	WDI dataset	CIA dataset
Weighted Institutions	-32.10***	-5.249***
	(10.9)	(1.89)
Absolute Latitude	36.24	-28.95*
	(54.5)	(17.3)
Constant	12.95	38.40***
	(20.2)	(5.25)
Observations	53	89
Uncentered R-squared	0.720	0.856
Hansen J-statistic overidentification test	2.359	5.204
Hansen J – p-value	0.670	0.391

Notes: ***, **, and * denotes significance at the 1%, 5%, and 10% respectively. Standard errors are given in parentheses.

The dependent variable in models 1-7 is the average poverty rates between 1999-2004; all regressions were ran with standard errors robust to arbitrary heteroskedasticity. All IV first-stage regressions are estimated including the following set of variables: ln human capital density in the early 20th century, dummies for the origin of the legal system, absolute latitude, proportion of land within 100 km of the seacoast, and ethnolinguistic fragmentation

Figure 1: Institutions and Poverty Traps



Source: Tebaldi and Mohan (2008).

Note: y denotes output per worker, k is capital per worker,
s is the savings rates, and T is an index denoting quality of institutions.

Figure 2: Institutions and Poverty

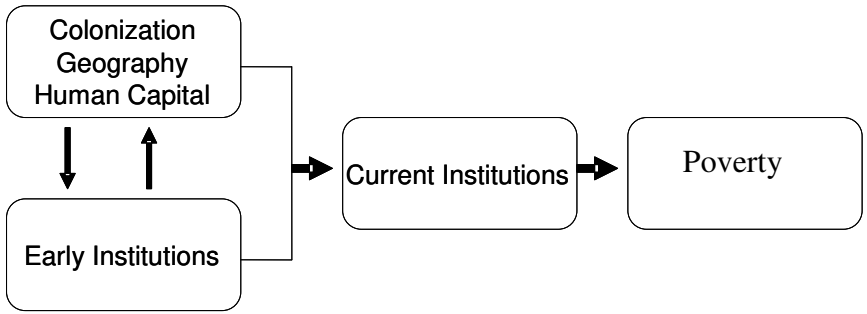
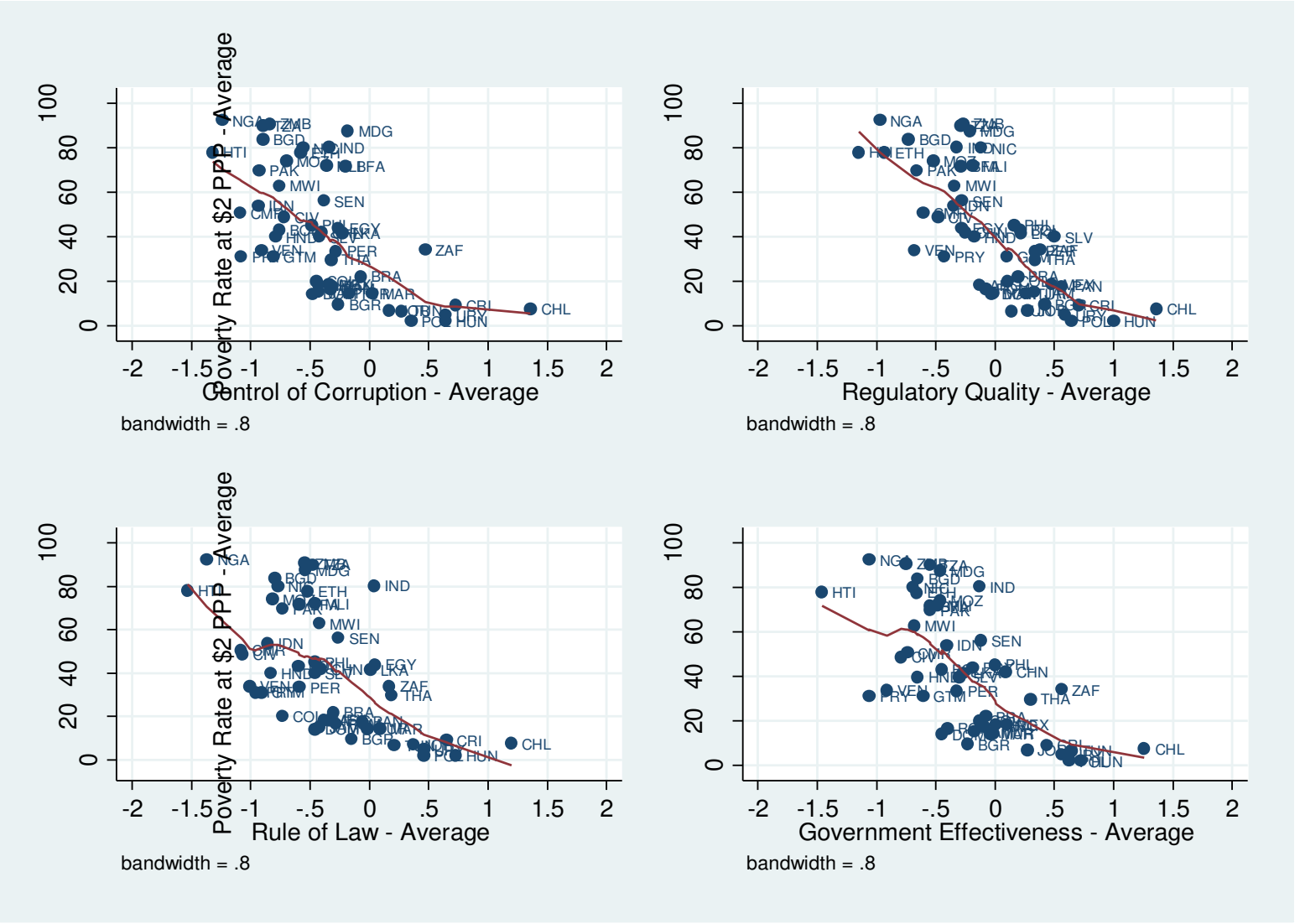
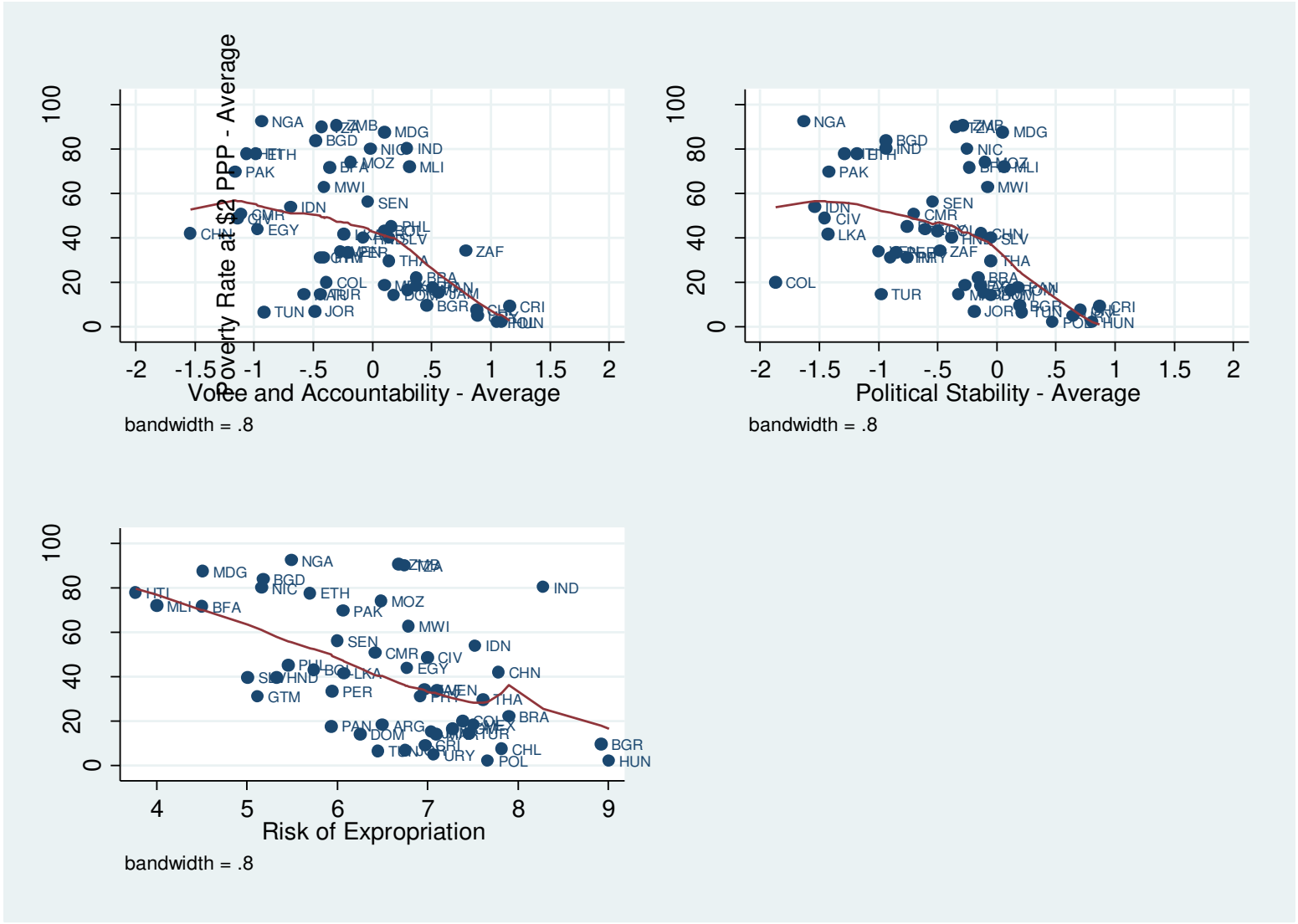


Figure 3: Poverty and Quality of Institutions



Source: Authors' compilation

Figure 3: Poverty and Quality of Institutions (cont)



Source: Authors' compilation