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INSTITUTIONS, SOCIAL CAPITAL, AND ECONOMIC DEVELOPMENT IN AFRICA: AN EMPIRICAL STUDY

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Institutions, Social Capital, and Economic Development in Africa: An Empirical Study

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Abstract.

Using 1975-2000 panel data, this paper examines the effects of institutions and social capital, in the form of generalized trust (proxied by contract-intensive money), on economic development in 39 African countries. The results indicate that there is a robust positive influence of social capital on income. In addition, the interaction between social capital and institutional quality, and the interaction of social capital with human capital also have positive influences on economic development. On the other hand, institutions do not seem to have an independent effect (or may even have a negative impact) on income. Overall, the empirical results suggest that social capital and institutions in Africa may be complements rather than substitutes.

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Introduction

After having been somewhat marginalized in development and growth literature in the 1970s and most of the 1980s, institutions became an important area of focus when examining the process of economic development and the success or failure of policy reforms in the 1990s. Perhaps this was caused by the failure of many countries that had liberalized and privatized their economies to realize the expected benefits. In the 1990s, some transition economies, and several Asian and Latin American countries experienced severe macroeconomic and financial crises in spite of undertaking policy reforms that were presumed by the so-called `Washington Consensus` to be powerful cures for many macroeconomic problems. Recent studies have focused on the role of institutions as a major determinant of development policies and reforms, and as a primary factor of the state of backwardness of certain regions (Acemoglu et al. 2002, 2003; Addison and Baliamoune-Lutz 2003; Rodrik 2000, 2002; Rodrik et al. 2002). In fact, some empirical evidence shows that once institutions are included in the income equation, trade appears to have no effect, and the effect of geography becomes much weaker (Rodrik et al. 2002).

Another recent strand of the literature has focused on the relationship between informal institutions (or social structure) and economic performance (MacKenzie and Millo, 2003; Mouw 2003; Granovetter 2005; Gomez and Jehiel 2005). Some studies have focused in particular on the role of social capital; cooperative behavior, norms and values in a society that serve to enhance trust among individuals and ease transactions by reducing (or even eliminating) costs associated with acquiring information and with monitoring (Coleman 1990; Putnam 1993; Knack and Keefer 1997; Ostrom 2000; Woolcock and Narayan 2000). A third recent line of research is the one focusing on the insufficiency of institutions to cause development in some parts of the world due mainly to the low level or the quality of entrepreneurial activity, and the interaction between institutions and entrepreneurial activity (Colombatto 2004; Iyigun and Rodrik 2004).

The main goal of this paper is to study the role of institutions and social capital in Africa's economic development. We do this by estimating equations using 1975-2000 panel data and examining the influences of institutions and social capital on economic development in 39 African countries. We test whether social capital, in the form of generalized trust, and institutions promote economic development (proxied by the level of

per-capita income), after controlling for human capital and the extent of integration. The empirical results provide strong evidence that social capital has a robust positive effect on income while institutions do not seem to have an independent effect on income. Moreover, the results indicate that the interaction between social capital and institutional quality, and the interaction of social capital with human capital have a positive influence on economic development.

The remainder of the paper proceeds as follows. In the next section we discuss institutions and social capital and briefly review recent research on social capital in Africa. Section 3 presents the variables and the methodology we employ in the empirical work. Section 4 reports the estimation results and comments on the findings. Concluding remarks are included in section 5.

1. Institutions and social capital

1.1 Institutions

Among economists, Douglas North is credited with the revival of interest in institutions and their influence on economic outcomes. North (1990) views institutions as "the rules of the game in a society or, more formally, [they] are the humanly devised constraints that shape human interaction" (North 1990, p.3). North also differentiates between formal and informal rules (informal institutions). Similarly, Aron (2003) defines institutions as the sets of formal and informal constraints imposed on social, economic and political activities. Measures of institutional quality in empirical literature include a host of indicators such as property rights (Knack and Keefer 1995; Zak and Knack 2001), bureaucratic structure (Rauch and Evans 2000), and political rights and civil liberties (Kormendi and Meguire 1985; Scully 1988; Isham et al. 1997).[1]

Recent work on the role of institutions in economic development (income or growth) includes Knack and Keefer (1995), Kaufman et al. (1999), Acemoglu et al. (2001 and 2003), Rodrik (2002), Rodrik et al. (2002), and Dollar and Kraay (2003). Some empirical studies have shown that institutions can be crucial to the success of reforms (see, for example, Addison and Baliamoune-Lutz 2003, and Dollar and Kraay 2003). However, the relationship between institutions and indicators of development may not always be positive. For example, Dasgupta and Weale (1992) report that per-capita income and life expectancy are positively correlated with improvements in political and civil liberties but literacy has a negative association with political and civil liberties. Jungeilges and Kirchgässner (2002) find a negative relationship between suicide rates and civil liberty; i.e.,

[1] There are various sources of data covering diverse measures or indicators of institutional quality. The Heritage Foundation publishes data on several institutional indicators pertaining to five main areas (1) size of government, (2) access to sound money, (3) legal structure and security of property rights, (4) regulation of capital, labor, and business, and (5) exchange with foreigners. Kaufman et al. (1999) include in their governance measures the rule of law, voice and accountability, political instability and violence, government effectiveness, and regulatory burden. The indexes of freedom published by Freedom House include political rights and civil liberties. The indicators by the International Country Risk Guide (ICRG) comprise corruption in government, law and order tradition, and bureaucratic quality. Business Environmental Risk Intelligence (BERI) includes measures of bureaucratic delays, contract enforceability, nationalization risk, and policy stability. Finally, the World Competitiveness Yearbook (WCY) includes measures of bribing and corruption, tax evasion, public service exposed to political interference, and personal security and private property.

more liberty is associated with lower suicide rate. Moreover, at least for policy-making purposes, the direction of causality should be an important area to research. Chong and Calderon (2000) show that there is reverse causality between economic growth and institutional quality and that the poorer the country, the stronger the influence of institutional quality on economic growth. It may be that the relationship and the direction of causality between economic development and institutions depend on the level of development and the level of institutional quality. It is also possible that interactions of institutions with the prevailing social structure affect this relationship.[2]

The role of property rights may be particularly important when countries are implementing reforms, as many African countries have been doing in the late 1980s and throughout the 1990s. As argued by Addison and Baliamoune-Lutz (2003, p. 4), "Property and contract rights are crucial to the investment response that we can expect from any reform that changes relative prices in product markets (trade reform affecting the relative incentives to invest in producing exportables versus importables for example) or which lifts restrictions on the operation of private enterprise (financial reform which reduces entry costs on establishing private banks for example)".

1.2 Social Capital

Coleman (1988) is generally credited for introducing and formulating the concept of social capital. He defines social capital as "obligations and expectations, information channels, and social norms" (Coleman 1988, p.S95). Putnam (1993, p. 167) defines social capital as "those features of social organization, such as networks of individuals or households, and the associated norms and values that create externalities for the community as a whole." Similarly, Coleman (1990, p. 304) defines social capital as "some aspect of social structure that enables the achievement of certain ends that would not be attainable in its absence".

The role of social capital in economic activities is a recent but rapidly growing research area in economics. Indeed, citations of the term 'social capital' in the *EconLit* database was lower than 10 in the first half of the 1990s but expanded to 153 citations in

[2] To explore this question the empirical model in this paper incorporates interactions between social capital and institutions.

2000 (Isham et al. 2002). As of yet, there is no unique definition of 'social capital'. The terms that are usually used in the definition are cooperative norms (Coleman 1988; Putnam 1993; Knack and Keefer 1997; Putnam 2000; Woolcock and Narayan 2000), trust (Putnam 1993; Knack and Keefer 1997), and networks that allow people to act collectively (Putnam 1993 and 2000; Woolcock and Narayan 2000; Sobel 2002). Maybe a good approach to try to settle the issue of defining social capital is the one provided by Knowles (2005) who states that "although everyone has their own favorite definition of social capital, most researchers would not object too strongly to a definition that incorporated the notions of trust, networks (or group memberships) and cooperative norms" (Knowles 2005, p.5).

In a recent paper in the *Journal of Economic Perspectives*, the sociologist Mark Granovetter presents an excellent discussion of the effects of social structure on economic outcomes. Although Granovetter does not focus explicitly on social capital, he does analyze elements that are often associated with the concept of social capital. Granovetter outlined three reasons in which social structure affects economic outcomes. He argues that "social networks affect the flow and the quality of information…[S]ocial networks are an important source of reward and punishment… [T]rust emerges, if it does, in the context of a social network" (Granovetter 2005, p. 33). Granovetter also points out that social networks play a vital role in most labor markets, and that "employers and employees prefer to learn about each other from personal sources whose information they trust". (Granovetter 2005, p. 36).

The empirical literature on social capital emphasizes networks or associational activity (Putnam 1993) and trust (Knack and Keefer 1997) as indicators of social capital. Putnam (1993) uses membership in groups and clubs as a measure of social capital and concludes that the Italian North developed faster than the Italian South because the North had higher social capital. Similarly, Guiso et al. (2004) study the effects of social capital (as defined in Putnam 1993) on financial development in Italy and show that households located in regions where social capital is high (mainly Northern Italy) make less use of informal credit and more use of formal financial markets and tend to invest less in cash and more in stock. Moreover, they show that the effect of social capital is stronger among less educated people and in regions where legal enforcement is weaker. These findings may suggest that social capital could substitute for institutions (and may also substitute for human capital) and underscore the importance of the interaction between social capital and

institutions. Knack and Keefer (1997) find strong association between trust and civic norms, and income but did not find evidence that membership in formal groups, and economic performance and trust are correlated. In addition, the authors show that trust and civic norms are stronger in countries with formal institutions that effectively protect contracts and property rights.

It is important to note that a legal system that ensures contract enforcement enables the transition from personalized exchange to anonymous trade, an essential step in the process of economic development and long-term growth. A historical example of the role of a legal system that had led to significant trade expansion is the Law Merchant in the 12th and 13th century. However, some historical evidence shows that social capital may lead to the same outcome, as illustrated by the networks developed by the Maghribi traders coalition of the 11th century (Greif, 1993).

A major indicator of social capital that has been used in several studies is trust. For example, Knack and Keefer (1997), Whiteley (2000), Zak and Knack (2001), and Calderón et al. (2001) all use the trust variable from World Values Survey[3] (WVS); while Beugelsdijk and van Schaik (2005) use data on trust from the European Values Studies. Knack and Keefer (1997) show that this indicator of trust and income are strongly correlated. Using cross-sectional data (over the period 1980-94) from 48 countries, Calderón et al. (2001) show that trust is correlated with financial depth and efficiency and with stock market development. Zack and Knack (2001) find that social capital in the form of trust promotes economic growth. Similarly, Whiteley (2000) finds that social capital (trust) has a positive influence on growth that is at least as strong as the influence of human capital. Using various OLS estimations and data on social capital from the 1990 European Values Studies, Beugelsdijk and van Schaik (2005) find that growth disparities in 54 European regions are positively related with associational activity, while the measure of trust ('generally speaking, would you say most people can be trusted, or that you cannot be

[3] WVS summarizes answers to the question "generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people?" The two answer categories are "most people can be trusted" and "can't be too careful". This measure of trust has been criticized in several studies (see for example, Glaeser et al. 2000 and Knowles 2005).

too careful in dealing with people?') was not significant. But this could be expected more in developed countries than in developing countries since institutions in most developed countries are already of high quality. In other words, when there are strong laws that protect rights, trusting others may become irrelevant.

Other studies have relied on experiments. Glaeser et al. (2000**)** conduct experiments (using 196 Harvard undergraduates) with monetary rewards, a game based on Berg et al. (1995), where a participant (the sender) is asked to send money to his or her partner (the recipient). The experimenter doubles the amount sent and the recipient may return the money back to the sender. In this game, the amount of the money sent by the first player (the sender) is viewed as a natural measure of trust and the amount returned by the recipient as a measure of trustworthiness. A second experiment consisted of asking the subject to place a value on an envelop (addressed to the subject and containing 10 dollars) that an experimenter will drop in a public area. The subject places a value for each location and condition of the envelop (for example, stamped and sealed). Combining the results of the two games with a 137-question survey, half of which includes attitudinal and self-reported behavioral measures of respondents' trustworthiness and trustfulness, Glaeser et al. identify two attitudinal questions[4] about trusting strangers that predict trust in both experiments. On the other hand, none of the ten variants of broad attitudinal questions used in the model had a significant association with trusting choices. This underscores potential weaknesses with the WVS trust variable as a measure of generalized trust.

Anderson et al. (2004) conduct public-goods experiments using a group of 48 undergraduate students at the College of William and Mary where students had to allocate a certain amount of money (tokens) to a public account. Following the experiment students fill out a 42 question survey based on which (and on the contributions made to the public account) the authors derive relevant relationships. The main finding is that generalized trust (trusting strangers) turn out to be the most significant determinant of contributions to the group account. However, in contrast to the findings in Glaeser et al. (2000), Anderson et al. (2004) show that the most common attitudinal measure of trust used in the literature (see WVS) which is based on the affirmative responses to the question 'do you think most people can be trusted?' is also statistically significant, although its effect is much weaker

[4] These two attitudinal survey questions are (1) 'you can't trust strangers anymore' and (2) 'when dealing with strangers, one is better off using caution before trusting them'.

relative to the effect of generalized trust.

The existing literature reports inconclusive or contradictory results regarding the direction of causality. Most studies maintain that a higher level of social capital contributes positively to economic development and growth (Putnam, 1993). However, some studies show that causality may run from economic growth to social capital and, more importantly, the effect could be negative. For example, at least two studies (Cribb and Brown, 1995 and Miguel et al., 2002) show that economic development had caused social capital in Indonesia to weaken through the effects that development had on (increases in) mobility and urbanization.

1.3 A brief review of work on social capital in Africa

Studies that use macro-level data to explore the effects of social capital in Africa include Baliamoune-Lutz and Lutz (2004), and Addison and Baliamoune-Lutz (2004). In the first study, the authors use corruption as a measure of distrust or lack of trust in African countries and show that the interaction between good institutions and high social capital (low levels of corruption) has a positive influence on human well-being proxied by literacy. This suggests that social capital and institutions in Africa may be complements. Addison and Baliamoune-Lutz (2004) use property rights as an indicator (proxy) for social capital and explore the role of social capital in post-conflict reconstruction in Africa. The authors find that "social capital plays an important role in post-conflict reconstruction… treaties and human misery (measured as the number of dead) have only short-term effects while social capital, economic development, and war type are more significant in the long-run" (Addison and Baliamoune-Lutz 2004, p. 18).

In contrast to the findings in Knack and Keefer (1997), Baliamoune-Lutz and Lutz (2004), and Addison and Baliamoune-Lutz (2004) who show that institutions and social capital could be complements, weak institutions could actually give rise to the creation and strengthening of social capital, so that institutions and social capital could be substitutes. For example, using micro-level data to examine the behavior of grain traders in Ethiopia after the 1990 reform, Gabre-Madhin (2001) reports that "[w]eak public market information, the lack of grain standardization, the oral nature of contracts, and limited legal

enforcement of contracts increase the risk of commitment failure. In response, traders either choose partners they know well or engage a broker. The presence of brokers facilitates anonymous exchange between traders". Gabre-Madhin also finds that grain traders in Ethiopia continue to depend on personalized trade for most of their transactions, including those in distant markets.

Minten and Fafchamps (2002) find that agricultural traders in Madagascar "rank the importance of relationships for success in business higher than input prices, output prices, and access to credit or equipment." Furthermore, the authors show that social capital enables traders to reduce search and information costs, and substitute for weak market institutions. In addition, in another study, Fafchamps and Minten (2001) show that in Benin, Malawi, and Madagascar those individual traders who have more contacts have higher output. This seems to provide empirical support for the role of social capital in economic growth and development.

The presence of high transaction costs in many parts of Africa causes markets to become thin and prevents the development of long-term business commitments and forward contracting. For example, it has been reported that due to high transaction costs, grain traders in Madagascar do not enter (or enter very few) forward contracts (Fafchamps and Minten, 2001). It is quite likely that in situations where these costs are high exchange is prevented from taking place.

Finally, ethnicity-based social capital has also been the subject of study. Fafchamps (2000) finds an ethnic and gender bias in the attribution of supplier credit to manufacturing firms in Kenya and Zimbabwe, and argues that the network effect has a major role in explaining the bias. However, using data from Benin, Madagascar and Malawi, Fafchamps (2003) finds that agricultural "trade is fairly open to all, irrespective of gender, ethnicity, or religion", but he reports that network effects significantly affect trust and information sharing.

2. Variables and methodology

The empirical analysis focuses on two major deep determinants of economic development (Acemoglu et al. 2001 and 2002; Rodrik et al. 2002; Knowles 2005); institutions and social capital in the form of generalized trust. The model also incorporates openness to international trade and human capital in order to explore the effect of interactions between social capital and human capital (Whiteley 2000). Since, the aim is not to try to look at all determinants of income, some commonly used variables such as physical capital and population or labor force are left out. We estimate unbalanced panel equations (fixed and random effects estimations) based on the following general model:

$$income = f(human\_capital, openness, institutions, social\_capital) \quad (1)$$

We test the adequacy of the estimations using Hausman specification tests. The variables included are an indicator of economic development, indicators of institutions, human capital, openness to international trade, and social capital. We also include interactions between social capital and other variables. A description of the variables and data sources appears in Appendix A. The dependent variable is the purchasing-power-parity adjusted value of per-capita income in log form. The indicator of human capital used in this study is adult literacy. We use the ratio of imports and exports to gross domestic product (GDP) as a measure of openness to international trade. Data on these variables are from the World Development Indicators (World Bank 2004).

We use property rights (Gwartney et al. 2004) and civil liberties (Freedom House) as alternate indicators of institutional quality.[5] Property rights have been identified as a major indicator of formal institutions (North 1990, 1991), and used in empirical studies. For example, the pioneering empirical study by Knack and Keefer (1995) finds that property rights have a positive influence on investment and that this impact is larger than that found

[5] The indexes for property rights and civil liberties have been inverted so that higher values mean improved property rights and higher levels of civil liberties.

using civil liberties or similar measures. Similarly, the variable `civil liberties` was used in the study by Kormendi and Meguire (1985), and subsequently by others, as an indicator of institutions.

Finally, we use a variable that reflects generalized trust as an indicator of social capital. We believe trust is a good measure of the stock of social capital and can capture the positive aspects of social capital effects resulting from networks and cooperation**.** Knowles (2005) points out that "[i]t seems likely that trust and cooperation will be built up by repeated interactions with others; hence networks and associational memberships can be seen as a source of trust and cooperation. The more heterogeneous is group membership (e.g. on the basis of kin, ethnicity, income levels, etc), the more generalized the degree of trust the group is likely to build" (Knowles 2005, p. 5).

Granovetter (2005) discusses the effects of thick trust or strong ties on trade and stresses that sellers may offer friends and relatives lower prices than they could get from strangers and that may lead to fragmented markets (Granovetter, 2005, pp. 38-41; see also Granovetter 1973). On the other hand, generalized trust or weak ties may serve to expand markets. Thus, the measure of trust that is of interest to the purpose of this study is one that reflects generalized trust (weak ties, thin, or bridging trust). Such indicator should reflect trust in strangers and not be limited to trusting friends and family members. We view contract-intensive money (CIM) as an indicator that has such characteristics. This variable is used by Clague et al. (1999) as a measure of enforceability of contracts and the security of property rights which are also thought to be trust enhancing. The rationale behind using CIM is that it reflects the extent of generalized trust both with regard to a spatial dimension — trusting a large number of individuals and more importantly trusting those one does not necessarily know—and a dimension of time, since agents enter into a transaction in the present and receive income or collect payoffs in the future.

Table 1 is adapted from Knack and Keefer (1997) where the authors use data from the 1990-93 WVS for the group of countries shown in the table to study the effect of social capital on economic performance. Knack and Keefer find that civic norms and trust are highly and positively correlated with institutional quality (restraint of predatory actions of chief executives), human capital, and ethnic homogeneity; and negatively correlated with income inequality. The numbers in Table 1 indicate that, in general, countries that have

high levels of trust (as measured by WVS) also have high levels of civic cooperation (CIVIC). But this is not necessarily the case in the reverse direction as several countries with high civic cooperation have low levels of trust (for example, Turkey and Italy). In addition, the variable 'GROUPS', which represents the density of associational activity in the country (Knack and Keefer 1997), does not appear to be highly correlated with trust or civic cooperation. Knack and Keefer also distinguish between groups that tend to have redistributive goals (rent-seeking), which they labeled "Olsonian" groups (O-GROUPS) in reference to Olson (1982) and associations that do not act as rent-seeking organizations, which they refer to as "Putnam-esque" groups (P-GROUPS) in reference to Putnam (1993). Knack and Keefer include in the P-groups religious and church organizations, education, arts, and cultural activities, and youth association such as scouts and youth clubs. The O-groups, which may have no effects or even negative effects on economic performance or welfare, consist of trade unions, political parties, and professional association. The numbers associated with these groups indicate that, indeed, P-groups seem to be positively associated with trust and civic cooperation. Knack and Keefer (1997) did not find conclusive evidence on the effect of P-groups and O-groups on growth and investment.

In the last three columns of Table 1 we augment the table by including contract-intensive money (CIM). Three reference dates are used, 1980, 1994, and 2001. Obviously, the choice of these periods is subjective but it is not arbitrary. We included values for CIM from 11-14 years before the WVS data were collected (1990-93), CIM data in 1994 the year after the survey data were collected, and data on CIM 7-8 years after the surveys were done. We should note that if CIM is a good indicator of social capital, then the effect of time should be smaller for shorter periods of time, and larger (though not necessarily very large) for longer periods. If social capital is a deep determinant of income, it should change slowly over time (Glaeser et al. 2000; Knowles 2005). A quick examination of the numbers in the last three columns of Table 1 reveals that large changes in CIM are rather rare. The only two countries with relatively substantial changes are Nigeria and Argentina. In Nigeria CIM fell from 0.78 in 1980 to 0.66 in 1994 (a decline of more than 15% over a period of 14 years), and increased to 0.74 in 2001 (an increase of 12% over 7 years). Argentina had a significant increase in CIM (about 11%) in the period 1994-2001. In general, there seems to be a significant correlation between CIM and at least two WVS indicators of social capital, trust and civic norms.

The correlation coefficients in Table 2 confirm these relationships. Of the three measures of CIM, the one measured in 1980 has the highest association (0.49) with the variable TRUST. Social capital as a potential deep determinant of economic performance (income) should be relatively stable or slow changing over time, barring major shocks such as wars, violent regime changes, or natural disasters that may cause break-up of communities as a result of deaths and sudden shifts in mobility patterns. If that is the case, then we should expect the correlation between levels of social capital measured over different periods of time to fall as the distance between periods increases. This is indeed confirmed in Table 2 where the correlation between CIM 1980 and CIM 1994, and between CIM 1980 and CIM 2001 is 0.69 and 0.58, respectively; while the correlation between CIM 1994 and CIM 2001 (a much shorter period) is very high (0.91). It is important to emphasize that CIM does not necessarily increase with time. As is clear from the numbers in Table 1, of the 19 countries for which values of CIM are reported, 10 countries show CIM values that do not increase with time (some went down and others remained unchanged). Thus, the nature of the correlations between CIM measured at different time periods has an important implication. It confirms that CIM fulfills one major assumption about social capital as a deep determinant of income; it changes very slowly.

CIM seems to have no association with civic cooperation and in one case shows negative but weak correlation. On the other hand, CIM has positive association with the measure of membership in groups (GROUPS) and with ethnic homogeneity. WVS data suggest that countries with high ethnic homogeneity tend to have high levels of trust and civic cooperation. We find the highest correlation (0.67) between CIM and ethnic homogeneity when we use CIM from 2001. This suggests that ethnic homogeneity may cause trust (social capital); i.e., that generalized trust is higher in ethnically homogeneous societies.

Finally, it is very important to emphasize the lack of association between CIM and 'confidence in government' while P-GROUPS, and to a lesser extent TRUST are correlated with confidence in the government. This suggests that CIM may not necessarily be responsive to institutional reforms and governance, and well defined property rights, as it may reflect how individuals interpret those reforms and changes given the norms, social structures and social interaction prevailing in their society, and a host of other factors (such as culture and religion) not just political and economic factors. Thus, CIM fulfills the

second major assumption for a good indicator of social capital based on generalized trust; it does not necessarily represent the effect of institutional quality or property rights, two indicators that would inspire (be correlated with) confidence in government.

3. Panel estimation

Table 3 displays correlations among relevant variables based on data from 39 African countries. These data are also used to empirically study the effects of social capital (in the form of generalized trust) and institutions on development in Africa. Although there is a host of other indicators of development, in this paper we use per-capita income as the main indicator of development for two reasons. First, most development indicators are strongly correlated with income. Second, the availability of data restricts the degree of choice of alternate indicators. The results reported in Table 3 indicate that most variables have statistically significant (and with expected signs) correlation coefficients. One exception is the variable *propr* (property rights) which has a weak correlation (significant at the 10-percent level) with income and a negative correlation or no correlation with all other variables. It is important to point out that there is positive and statistically highly significant correlation between income and the interaction terms of the variable *cim* with institutions (*propr* X *cim*) and with literacy (*literacy* X *cim*). This suggests that social capital in the form of generalized trust may be a complement to institutions and human capital (if not a deep determinant of these two variables).

Table 4 displays panel-estimation results for five different specifications. We use the Hausman test to determine whether the random-effects estimator is valid. In all specification the validity of the random-effects estimator is rejected. Thus, we focus the analysis on the fixed-effects equations. Specification (1) estimates the basic model where the right-hand-side (RHS) includes the variables *cim*, literacy, and openness. There are positive and highly significant coefficients on the indicator of human capital (literacy) and the indicator of social capital (*cim*). On the other hand, the coefficient on openness to international trade is negative and while statistically significant (at the 5-percent level) is rather small in magnitude.

Specification (2) adds property rights (*propr*) to the RHS of the equation. The

results show that the coefficients on the indicators of social capital and human capital remain significant and still have positive signs but their magnitude has diminished. Interestingly, the coefficient on openness is now positive and statistically significant. The coefficient on property rights has a negative sign and is insignificant. In specification (3) we remove the variable *cim* to explore whether the effect of social capital on income reflects the effect of property rights (although the correlation between these two variables is not high) instead of being an independent effect. The results indicate that even after removing *cim*, property rights remain statistically non-significant and with a negative sign.

In specification (4) we drop the variable *propr* and include civil liberties as alternate indicator of institutional quality.[6] The equation also includes interactions between social and human capital (*literacy X cim*) and between institutions and social capital (*civil lib* X *cim*)[7], and the square of CIM to explore the possibility of a non-monotonic relationship between trust (social capital) and income.

The results indicate that there is a U relationship between generalized trust (proxied by CIM) and income per-capita. It seems that at low levels of trust, increases in trust may affect economic performance negatively and hence lower income, while the effects would be positive at high levels of trust. This finding is consistent with the distinction between thick trust and thin trust and their effects on economic performance. It seems that, initially, the existing trust levels may reflect thick trust (bonding social capital) that may lead to rent seeking activities and impact economic performance negatively. As trust increases beyond the boundaries of small units, tribes or clans it becomes generalized trust (bridging social capital) that is expected to have a positive influence on economic performance. Moreover, the results show that interactions between social capital and institutions, and between social capital and human capital, have positive effects on income.

Interestingly, the coefficient on civil liberties has a statistically significant negative coefficient but the coefficient is smaller in magnitude than the one on the term *civil lib X cim.* This may suggest that success of institutional reform may, to a great extent, depend on the prevailing social structure and societal norms (social capital). The coefficient on the interaction of social and human capital is also positive and is larger than the coefficient on

[6] We have also used political rights instead of civil liberties and the results (not shown) are very similar to those reported in Table 4.
[7] We use civil liberties instead of property rights in order to get a larger sample size.

human capital (literacy). This is consistent with the finding in Whiteley (2000) that social capital has an effect that is at least as large as that of human capital.

In the last specification, we substitute a lagged value (5 year lag) of CIM for contemporaneous CIM. This variable now appears in the *cim* row in specification (5) and is also used in the interaction terms. Again, we find that human capital, as well as its interaction with social capital, are positively related to income and *cim* has the same non-monotonic (U) relationship. Given that this is the value of *cim* five years earlier, the problem of endogeneity is significantly reduced (if not eliminated). The indicators of institutional quality and openness seem to have no effect.

In sum, the empirical results provide strong evidence that social capital, in the form of generalized trust, has positive influences on income in Africa. These influences work through direct and indirect channels. Generalized trust affects economic performance directly by lowering transaction (information and monitoring) costs, and indirectly through its interaction with human capital and institutions.

The results reported in Table B1 (Appendix B) suggest that social capital helps to predict property rights. To minimize endogeneity problems we use lagged (5 year lag) values of the indicators of social capital (*cim*), human capital (*literacy*) and income. The coefficients on human capital and openness to trade are both statistically very significant and negative. However, the negative relationship with property rights is not implausible. Given that both education and participation in trade may be reserved for the elite and their families, increases in literacy levels and trade liberalization may be viewed as opportunities for rent seeking, in which case there may be opposition against improving property rights and institutional reform may even regress. We would also expect higher civil liberties to create more demand for institutional reform. However, the results based on African data do not provide support for this view, as the coefficient on civil liberties is statistically non-significant.

4. Concluding comments

The primary aim of this paper is to explore the effects of social capital (using contract-intensive money as an indicator of generalized trust) and institutions (property rights and civil liberties) on economic development in Africa. Several specifications were estimated as a way to check the robustness of the results. Overall, the empirical results indicate that social capital has a robust positive influence on income. Interestingly, institutions do not seem to have an independent positive effect on income. However, the interaction between social capital and institutional quality, and the interaction of social capital with human capital have a positive impact on economic development. This result suggests that social capital and institutions in Africa may be complements, which is consistent with the findings in Knack and Keefer (1997), Baliamoune-Lutz and Lutz (2004) and Addison and Baliamoune-Lutz (2004). This conclusion is not necessarily inconsistent with the findings in micro-based studies such as Gabre-Madhin (2001), and Minten and Fafchamps (2002) who report that, among agricultural traders, social capital may substitute for weak institutions. However, it does underscore differences in the conclusions from macro-level studies based on generalized trust, which is more relevant for anonymous trade, and micro-level studies based on thick or network-based trust (strong ties), which is more relevant in personalized trade. Moreover, it is likely that social capital functions as a substitute for institutions when institutions are weak, but becomes a complement to institutions as institutional quality improves.

Finally, more recently some scholars began to question the relevance of property rights for developing countries where entrepreneurship is weak or discouraged. Colombatto (2004) in particular, provides a very interesting discussion of these issues. According to Colombatto, the origins of success in the fight among competing civilizations are identified by two major notions; the principles of entrepreneurship and of individual responsibility, with geography and ideology having significant impact on these two principles. Thus, the author argues

> Clearly specified and enforced property rights—private property rights in particular—are of course also necessary. But without entrepreneurship and self-responsibility property rights per se do not generate growth. An ideological or cultural environment hostile to individual responsibility

> means that individuals are reluctant both to develop new knowledge and to take advantage of their talents, irrespective of the potential for high monetary rewards. Furthermore, such an environment tends to discourage outsiders, who may indeed be willing to take responsibilities, but are afraid that free riders or rent-seekers would be morally justified in interfering, if not explicitly encouraged to do so. Stagnation and poverty are the obvious results.
>
> Colombatto (2004, pp. 8-9)

The role of social capital in this context is quite important and the results derived in this paper are in support of these arguments. Social structure and networks can play a key role in innovation (Rogers, 2003, MacKenzie and Millo, 2003, Granovetter 2005, pp. 44-47). Social capital in the form of generalized trust, network-generated trust, and cooperative norms may serve to reduce the uncertainties faced by entrepreneurs and thus may promote entrepreneurial activities and spur development and growth in Africa.

Table 1: Social capital indicators for selected countries*

	Trust	Civic	Groups	O-Groups	P-Groups	Confidence in government	Ethnic homogeneity	CIM 1980	CIM 1994	CIM 2001
Norway	61.2	40.75	1.09	0.24	0.63	0.72	98	0.88	0.92	0.95
Finland	57.2	40.64	0.4	0.06	0.29	0.66	90			
Sweden	57.1	41.57	1.08	0.27	0.64	0.65	88	0.87	0.91	0.91
Denmark	56.0	40.34	0.97	0.24	0.61	0.76	95	0.93	0.95	0.94
Canada	49.6	39.74	1.03	0.52	0.29	0.7	70	0.93	0.94	0.95
Australia	47.8	38.27	1.01	0.45	0.35	0.64	98	0.91	0.93	0.94
Netherlands	46.2	38.36	1.11	0.53	0.25	0.63	99			
U.S.	45.4	40.55	1.5	0.83	0.42	0.41	81	0.93	0.91	0.91
U.K.	44.4	40.07	0.92	0.38	0.36	0.54	82	0.86	0.95	0.98
Switzerland	43.2	40.89	0.73	0.22	0.29		72	0.86	0.93	0.92
Iceland	41.6	41.07	1.7	0.63	0.76	0.73	100	0.94	0.97	0.98
Japan	40.8	41.79	0.38	0.14	0.21	0.46	99	0.92	0.92	0.90
Ireland	40.2	37.51	0.85	0.48	0.24	0.73	94			
South Korea	38.0	39.64	0.47	0.31	0.12	0.61	100	0.85	0.90	0.96
Spain	34.5	38.75	0.45	0.23	0.14	0.55	75			
India	34.3	42.65				0.67	72	0.75	0.80	0.83
Austria	31.8	41.45	0.76	0.26	0.37	0.6	99			
South Africa	30.5	36.99	0.84	0.52	0.16	0.7	73	0.95	0.95	0.96
Belgium	30.2	38.08	56	0.26	0.2	0.6	57			
Germany	29.8	39.83	0.74	0.22	0.35	0.54	99			
Argentina	27.0	39.5	0.47	0.19	0.21	0.28	91	0.82	0.79	0.88
Italy	26.3	41.23	0.38	0.12	0.2	0.44	99			
France	24.8	36.26	0.42	0.16	0.18	0.62	94			
Nigeria	22.9	39.19				0.73	32	0.78	0.66	0.74
Chile	22.7	36.8	0.59	0.33	0.14	0.64	78	0.88	0.92	0.93
Portugal	21.4	36.89	0.43	0.21	0.14	0.45	99			
Mexico	17.7	34.55	0.57	0.28	0.14	0.53	58	0.86	0.88	0.88
Turkey	10.0	42.43				0.61	82	0.77	0.92	0.96
Brazil	6.7	37.58	0.68	0.31	0.16	0.55	88	0.86	0.93	0.89

*Adapted from Knack and Keefer (1997, p. 1285).

Table 2: Correlation matrix using data from Table 1

	CIM1980	*CIM1994*	*CIM2001*	*Trust*	*Civic*	Groups	*O-Groups*	P-Groups	*Confidence in government*
CIM1994	0.6863								
CIM2001	0.5803	0.9145							
Trust	0.4899	0.3158	0.3326						
Civic	-0.2348	-0.0069	0.0428	0.3874					
Groups	0.5941	0.4903	0.4816	-0.0929	-0.1101				
O-Groups	0.6273	0.3594	0.3948	0.1655	-0.0665	-0.0471			
P-Groups	0.3562	0.3628	0.3727	0.6638	0.5889	-0.0929	0.2595		
Confidence in government	0.0929	0.1273	0.0992	0.3536	0.0231	0.0311	0.2000	0.4167	
Ethnic homogeneity	0.4104	0.6332	0.6745	0.2718	0.2149	-0.4705	-0.1201	0.3017	-0.1711

Source: Data on CIM are from the *International Financial Statistics* database (IMF, 2005). All other data are from Knack and Keefer (1997, p. 1285).

Table 3: Correlation matrix using 1975-2001 data from Africa (39 countries)

	income	*literacy*	*lagcim*	*literacy X lagcim*	*civil lib*	*civil lib X lagcim*	*Propr*	*propr X cim*	*cim*	*openness*	*civil lib X cim*
literacy	0.5780										
	[0.000]										
lagcim	0.3675	0.4654									
	[0.000]	[0.000]									
literacy X lagcim	0.5922	0.9373	0.7089								
	[0.000]	[0.000]	[0.000]								
civil lib	0.3348	0.2594	0.2438	0.2849							
	[0.000]	[0.000]	[0.000]	[0.000]							
civi lib X lagcim	0.4287	0.3908	0.5953	0.5312	0.9129						
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]						
propr	0.1191	-0.1304	-0.1646	-0.1810	0.0144	-0.0735					
	[0.057]	[0.045]	[0.009]	[0.006]	[0.818]	[0.248]					
propr X cim	0.3123	0.0636	0.2585	0.1373	0.1213	0.1793	0.8277				
	[0.000]	[0.335]	[0.000]	[0.037]	[0.055]	[0.005]	[0.000]				
cim	0.4108	0.5591	0.7392	0.7159	0.2362	0.5008	-0.2549	0.2460			
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.001]			
openness	0.3723	0.3771	0.3312	0.4082	0.2460	0.3340	0.0308	0.1414	0.3964		
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.624]	[0.026]	[0.000]		
civil lib X cim	0.4587	0.4328	0.4908	0.5294	0.9016	0.9547	-0.1046	0.1911	0.6045	0.3572	
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.098]	[0.0020]	[0.000]	[0.000]	
Literacy X cim	0.5935	0.9394	0.6256	0.9715	0.2804	0.4908	-0.2238	0.1374	0.7787	0.4171	0.5622
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.036]	[0.000]	[0.000]	[0.000]

Source and variable definition: See Appendix A.

The number of observations differ from variable to variable due to the lack of data on some variables (particularly, property rights) in some countries. The number of observations in the correlation matrix has a maximum of 1129 (for civil liberties) and a minimum of 257 (for property rights). P-values are in brackets.

Table 4. Income, institutions and social capital. Dependent variable: *income* (log of per-capita income, PPP)

	(1)		(2)		(3)		(4)[b]		(5)[c]	
	FE	RE	FE	RE	FE	RE	FE	RE	FE	RE
constant	4.802***	4.785***	6.345***	6.127***	6.668***	6.454***	6.723***	6.688***	5.691***	5.659***
	(0.081)	(0.128)	(0.271)	(0.255)	(0.232)	(0.226)	(0.187)	(0.213)	(0.147)	(0.175)
cim	1.017***	0.991***	0.410**	0.474***			-3.207***	-0.182***	-1.197***	-1.195***
	(0.109)	(0.108)	(0.183)	(0.178)			(0.482)	(0.483)	(0.420)	(0.421)
literacy	0.0334***	0.033***	0.0096**	0.011***	0.009**	0.012***	0.015***	0.016***	0.033***	0.033***
	(0.0008)	(0.0008)	(0.003)	(0.003)	(0.003)	(0.003)	(0.002)	(0.003)	(0.0009)	(0.0009)
openness	-.0010**	-0.0009*	0.003***	0.003***	0.002***	0.003***	-0.0009*	-0.0008*	-0.0007	-0.0006
	(0.0005)	(0.0005)	(0.0009)	(0.0008)	(0.0008)	(0.0008)	(0.0005)	(0.0004)	(0.0006)	(0.0005)
propr			-0.093	-0.061	-0.093	-0.58				
			(0.072)	(0.071)	(0.073)	(0.072)				
cim_squared							1.942***	1.926***	1.165***	1.159***
							(0.379)	(0.380)	(0.313)	(0.314)
literacy X cim							0.024***	0.023***	0.024***	0.024***
							(0.004)	(0.0038)	(0.004)	(0.004)
civil lib							-2.467***	-2.464***	-0.176	-0.207
							(0.489)	(0.492)	(0.124)	(0.124)
civil lib X cim							3.619***	3.643**		
							(0.640)	(0.644)		
No. of obs.	921	921	231	231	236	236	921	921	898	898
R-Squared										
Within	0.690	0.698	0.134	0.132	0.108	0.108	0.745	0.745	0.642	0.641
Between	0.273	0.273	0.315	0.321	0.281	0.281	0.292	0.293	0.283	0.285
Overall	0.342	0.343	0.309	0.314	0.272	0.272	0.372	0.372	0.340	0.342
Hausman Test[a]	49.08		25.74		17.99		192.53		19.36	
Prob > χ^2 in [ ]	[0.000]		[0.000]		[0.000]		[0.000]		[0.001]	

Standard errors in parentheses; RE: random-effects estimation; FE: Fixed-effects estimation.

** indicates significance at 0.05 and *** indicates significance at 0.01.

[a] Ho: difference in coefficients not systematic

[b] Including the interaction between *pp* and *cim* did not improve the estimation and the coefficient on this term was statistically insignificant.

[c] This specification includes the fifth lag of the variable *cim* instead of *cim,* and the interaction term between institutions and CIM is omitted.

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Appendix A

Source of data and variable description

Data on contract-intensive money are constructed using data on currency in circulation and M2 (money and quasi money from the international financial statistics CD ROM (IMF 2005). Data on income and literacy are from the World Bank World Development Indicators CD ROM, 2004. Data on political rights and civil liberties are from Freedom in the World Tables, Freedom House, 2002. Data on property rights is from the Index of Economic Freedom Tables Gwartney, James and Robert Lawson (2004). The indexes for property rights and civil liberties have been inverted so that higher values mean improved property rights and higher levels of civil liberties. Data on income, literacy, civil liberties and political freedom are from 1975 to 2001. Data on property rights are for 1995 to 2001, with several countries missing data for the early years.

income : per-capita income, ppp (log)

cim: Contract-intensive money, ratio of non-currency components of M2 to M2

literacy: Adult literacy rate is the percentage of people ages 15 and above who can, with understanding, read and write a short simple statement on their everyday life.

lagcim: Five-year lag of *cim*

civil lib: civil liberties

propr: property rights

openness: openness to international trade, ratio of exports and imports to GDP

Appendix B

Table B1: Property rights (*propr*) and social capital (*cim*)
Results are from fixed-effects estimations based on Hausman test.

Dependent variable: *propr*

	Coefficient [p-value]	
	(1)	(2)
Constant	1.008	1.663
	[0.000]	[0.007]
cim (5 year lag)	0.5006	0.5236
	[0.001]	[0.008]
literacy (5 year lag)	-0.0152	-0.0144
	[0.000]	[0.000]
openness	-0.0021	-0.0021
	[0.013]	[0.010]
civil lib	0.2158	0.2144
	[0.489]	[0.491]
income (5 year lag)		-0.0977
		[0.239]
No. of obs.	233	233
R-Squared		
Within	0.1692	0.175
Hausman Test [a]	30.80	33.84
Prob > χ^2 in [ ]	[0.000]	[0.000]