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Abstract:

In our previous paper "Can Trust Explain Social Capital Effect on Property Rights and Growth?" (Hall & Ahmad, 2013) we show that generalized trust data by the World Value Survey (WVS) are unable to yield sufficiently robust results in panel estimation due to missing observations problem. In this paper, we propose a number of trust-alternative variables to proxy for social capital and re-estimate its effect on growth and property rights. The results improve significantly and we are able to show that social capital is a deep determinant of growth and its effect on growth runs via the property rights channel. The findings also give supporting evidence to the primacy of informal rules and constraints as proposed by North (2005) over the political prominence theory by Acemoglu, Johnson, & Robinson (2005). The results partially confirm the findings by Williamson & Kerekes (2011) on the underlying determinants of property rights and provide empirical support to the Clague, Keefer, Knack, & Olson (1999)'s argument of a positive relationship between contract intensive money and property rights.

Keywords: Social capital, growth, property rights, panel data analysis.

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1. Introduction

Ever since the studies by Coleman (1988) and Putnam (1993), the burgeoning literature thereafter has constantly confirmed social capital's significant impacts on economic development[1]. It is interesting to note that majority of studies on social capital are in cross-sectional setting and the most widely used measure of social capital is generalized trust obtained from the World Value Survey (WVS)[2]. However, in our previous paper, Hall & Ahmad (2013) –henceforth "previous paper", we show that the generalized trust dataset provided by the WVS are unable to perform robustly in panel estimation due to a severe missing observations problem. When we assume trust as the underlying unobserved time-invariant heterogeneity factor and omit the trust variable from the panel estimation, the results improve significantly. On the other hand, if we suppose there is sufficient variations in the trust data and include the trust variable in the estimation, the results deteriorate[3].

Extending the scope of analysis of our previous paper, this paper proposes a number of trust-alternative variables to proxy for social capital such as corruption, ethnic tensions, contract intensive money and income inequality. We show that, based on theoretical arguments drawn from previous studies, these alternative variables contain an element of trust. We then re-estimate the impact of social capital, proxied by these trust-alternative variables, on growth and property rights. Our findings show that social capital variables significantly affect economic growth in the countries under study and the impacts essentially run via the property rights channel. In other words, social capital contributes to the existence of a secure property rights environment and that matters for growth[4].

In general, this study extends the existing evidence on significant growth-effect of social capital based on panel analysis. In particular, this study improves our previous paper in two aspects: Firstly, it proposes trust-alternative variables to proxy for social capital and the results improve significantly. Secondly, these trust-alternative variables have greater explanatory power to explain the property rights channel through which they determine growth.

The remainder of this paper is organized as follows: Section 2 summarizes the findings of the previous studies that use the trust-alternative variables. Section 3 outlines the theoretical framework, estimation methodology and data sources. Section 4 discusses the estimation results and Section 5 concludes.

2. Brief literature review

The weakness of generalized trust data obtained from the WVS when they are estimated in a panel is not unexpected due to the nature of the data which come in survey waves. The data are gathered via waves of survey and each wave runs for about 4-5 years. During the period from 1981 to 2008, there are five waves altogether[5]. In other words, the maximum number of observation per country, if the country is covered in all waves, is five. In our sample of 69 countries, only 34 countries are covered in at least one wave of the survey, and there are only two countries surveyed in all waves. Since other

[1] Empirical studies finding robust positive impact of social capital (measured by trust variable obtained from the WVS or other comparable surveys) on economic growth are such as Knack & Keefer (1997); La Porta et al. (1999); Whiteley (2000); Zak & Knack (2001); Beugelsdijk, de Groot, & van Schaik (2004); Bjørnskov (2006); Knowles (2006); Berggren, Elinder, & Jordahl (2008); Neira, Vászquez, & Portela (2009); Tabellini (2010); and Dincer & Uslaner (2010). See Hall & Ahmad (2013) for more discussion on link between trust and growth.

[2] According to a meta-analysis study of 65 studies on social capital by Westlund & Adam (2010).

[3] Although trust is commonly assumed constant over times (see Putnam, 1993; Knowles, 2005; and Tabellini, 2007), our simple calculation of overall change in trust for all countries under study shows that there are notable variations in the trust dataset. See Table 1 in the subsequent section.

[4] As previously shown in the literature, social capital is found to cause economic growth as it creates a vibrant economic environment by reducing transaction and monitoring costs, facilitates information flows and creates confidence in the regulatory capacity of public institutions. However we contend these are arguably the characteristics of a secure property rights environment.

[5]The five waves of survey are for the period 1981-1984, 1989-1993, 1994-1999, 1999-2004, and 2005-2008. Number of countries in the first Wave is only 21 and it gradually increases to 69 in fourth Wave but drops to 57 in latest Wave.

data used in our previous study are annual observation for 25 years, it is therefore not unexpected that the trust data would have a very severe problem of missing observations.

This study extends the analysis in our previous paper by proposing a number of alternative measures of social capital namely corruption, ethnic tensions, contract intensive money and income inequality. These variables are previously shown by some studies to be a good proxy for trust-based social capital. For example, Baliamoune-Lutz (2009a) argues that corruption can be an alternative measure of trust as she investigates the effect of social capital (measured by level of corruption and ethnic tensions) on human well-being in the African countries. Although her study does not focus on the frequently-used measure of development i.e. economic growth, it is nonetheless able to show that corruption can be a good measure of (the lack of) trust.

This is based on the following three reasons: First, when corruption is present, people tend to trust public institutions less and they may also trust other people less and therefore less overall level of generalised trust[6]. Second, when generalised trust is strong, individuals are more willing to enter into economic transactions with individuals they do not necessarily know, and this creates competition for corrupt practices. In other words, an individual having high degree of belief that there are strong contract enforcements and proper rules and regulations governing the transactions in place will definitely avoid any bribery activities since they believe that the transactions will be completed in due course and those who abuse one's confidence will definitely be punished. Therefore, this situation will significantly lower the returns from corruption (see also Bjørnskov & Svendsen, 2003). Third, many studies have documented strong links between corruption and generalised trust and most of the studies find corruption causes (the lack of) trust, see for example Chang & Chu (2006), Morris & Klesner (2010), and Rothstein & Uslaner (2005).

Ethnic tensions, which is a proxy for social cohesion, is also proposed as an essential ingredient in generating trust by Baliamoune-Lutz (2009a, 2009b); Easterly, Ritzen, & Woolcock (2006); Ritzen, Easterly, & Woolcock (2000). Ritzen et al. define social cohesion as "a state of affairs in which a group of people have an aptitude for collaboration that produces a climate for change." The arguments supporting the use of the ethnic tensions variable are that the degree of social cohesion often shapes the constraints towards policy reforms and determines the quality of institutions in developing countries. These in turn impact on whether and how pro-growth policies are devised and implemented. Government implementing reform needs confidence and patience from the public i.e. citizens have to trust the government that short term losses inevitably arising from reforms will be more than offset by long term gains. On the other hand, countries strongly divided along class and ethnic lines will place severe constraints on the attempts by politicians and interest groups to bring about policy reforms. Ethnic fractionalization could lead to civil war, promote high level of rent seeking activities, or cause social exclusion of specific ethnic groups, and these might give impacts to economic performance. In other words, ethnic fractionalization will cause a lack of social cohesiveness and increase the probability of negative actions and the risk of conflict or tensions (see Baliamoune-Lutz, 2009a, 2009b, and Easterly et al., 2006).

Contract intensive money (CIM) was originally proposed by Clague et al. (1999) as a measure of contract enforceability and secure property rights[7]. However, Baliamoune-Lutz (2011) argues that CIM can be a good measure of trust since it shares similar characteristics with generalised trust. According to Baliamoune-Lutz, CIM reflects the extent of generalized trust when an individual

[6] This is possible since the presence of corruption implies that people who gives bribes may receive more than what they would if their society is corruption-free. Corrupted people could be taking advantage over those who oppose it by receiving the services they are not entitled to and thus harm those who do not participate in the practice yet deservedly require the services.

[7] Clague et al. (1999) come to the conclusion that CIM is reflecting contract enforcement and secure property rights by using case studies investigating CIM fluctuations on the back of countries' drastic changes economically and politically, and by looking at its high and positive correlation with measures of governance (or institutional) quality such as political rights and institutional indicators from International Risk Country Guide (ICRG) and Business Environmental Risk Intelligence (BERI).

entering a transaction (i.e. holding money inside banks and the money will be used by the banks for various economic transactions like loan, investment, etc.) by trusting a large number of individuals not necessarily known to him, as well as trusting the capability of repayment since the individual enters the transaction in the present and receive income or collect payoffs in the future. Therefore, Baliamoune-Lutz argues that transactions involving CIM are trust-sensitive transactions.

She also shows CIM is actually a trust-sensitive transaction by looking at the variations in CIM data and its correlations with trust and other measures of social capital. To do this, she extracts a table showing data on trust and other measures of social capital from Knack & Keefer (1997)[8] and augments the table with CIM data for three arbitrary periods[9]. She finds that CIM shares a similar characteristic with trust; they are both slow-changing. She also shows that CIM has statistically significant positive correlations with at least two measures of social capital from WVS i.e. trust and civic norms. She however acknowledges that the correlation between CIM and trust is much weaker in developing countries.

We have replicated a similar exercise in our sample of 34 developing countries that have trust data. On the contrary, we find some variations in the trust data (albeit only 18 out of 34 countries in our sample have trust data for at least two waves to enable the computation of change in overall trust level. See Table 1 below). We also find the correlations between CIM and trust are statistically insignificant with mixed signs. Notwithstanding that, we still use CIM as one of the trust-alternative variables in our estimation because the results would therefore verify whether CIM is a suitable indicator for trust as proposed by Baliamoune-Lutz (2011), at least from the effect-wise on growth and property rights, even though we find they are different in term of their characteristic (varying vs. non-varying characteristic).

Table 1: Variations in the level of the generalized trust variable

Country	Wave I (1981-1984)[a]	Wave II (1989-1993)	Wave III (1994-1998)	Wave IV (1999-2004)	Wave V (2005-2008)	Overall change in trust[b]
Algeria	-	-	-	11.2	-	-
Burkina Faso	-	-	-	-	14.7	-
Ethiopia	-	-	-	-	24.4	-
Ghana	-	-	-	-	8.5	-
Mali	-	-	-	-	17.5	-
Nigeria	-	23.2	17.7	25.6	-	2.4
South Africa	-	28.3	18.2	11.8	18.8	-9.5
Uganda	-	-	-	7.6	-	-
Zambia	-	-	-	-	11.5	-
ZimbabI	-	-	-	11.9	-	-
Bangladesh	-	-	20.9	23.5	-	2.6
China	-	60.3	52.3	54.5	52.3	-8
Hong Kong	-	-	-	-	41.1	-
India	-	35.4	37.9	41	23.3	-12.1
Indonesia	-	-	-	51.6	42.5	-9.1
Malaysia	-	-	-	-	8.8	-
Pakistan	-	-	20.6	30.8	-	10.2

[8] The table is in page 1285 in Knack & Keefer (1997) and it shows trust data for only one wave i.e. Wave II 1989-1993. Baliamoune-Lutz (2011) however does not update the table with a more recent data despite her study is more recent.

[9] Since the table from Knack & Keefer (1997) is showing trust data for one wave only, Baliamoune-Lutz (2011) clusters the CIM data arbitrarily into three periods, the first is 11-14 years before the trust data are collected, the second is for the year after the survey, and the last is for the 7-8 years after the survey.

Country	Wave I (1981-1984)[a]	Wave II (1989-1993)	Wave III (1994-1998)	Wave IV (1999-2004)	Wave V (2005-2008)	Overall change in trust[b]
Philippines	-	-	5.5	8.4	-	2.9
Singapore	-	-	-	16.9	-	-
South Korea	38	34.2	30.3	27.3	28.2	-9.8
Thailand	-	-	-	-	41.5	-
Vietnam	-	-	-	41.1	52.1	11
Argentina	27	23.3	17.5	15.4	17.6	-9.4
Brazil	-	6.7	2.8	-	9.4	2.7
Chile	-	22.7	21.9	22.8	12.6	-10.1
Colombia	-	-	10.4	-	14.5	4.1
Dominican Rep.	-	-	26.4	-	-	-
El Salvador	-	-	-	14.6	-	-
Guatemala	-	-	-	-	15.7	-
Mexico	-	33.5	31.2	21.3	15.6	-17.9
Peru	-	-	5	10.7	6.3	1.3
Trinidad and Tobago	-	-	-	-	3.8	-
Uruguay	-	-	22.1	-	28.4	6.3
Venezuela	-	-	13.7	15.9	-	2.2
No. of observations	2	9	17	20	23	-
Average	32.5	29.7	20.8	23.2	22.1	-1.8

[a]No survey was conducted during the period 1985-1988 by WVS hence the unavailability of trust data.

[b]We compute the overall change in trust by taking the difference between value of trust in latest wave and its value in the first available wave. Only 18 out of 34 countries have trust data in at least two waves to allow the computation of gain and loss in the overall level of trust in this countries.

For income inequality, we follow Zak & Knack (2001) and Easterly et al. (2006). According to Zak and Knack, trust falls when there is wage discrimination in a country that is not based on economic factors. On the other hand, trust is higher when citizens in the country enjoy a fair and equitable income distribution. Easterly et al. also use income inequality as an indirect measure of social cohesion, whereas trust and membership variables (obtained from the WVS) as direct measures. They argue that socially cohesive countries will ensure the rich and poor alike share both the costs and benefits of reforms, and these countries will enjoy greater prosperity than more divided countries, where the benefits primarily go to the rich and the costs are borne by the poor. Therefore, a fair country in term of its income distribution often will have socially cohesive citizens with high trust level between the people.

3. Theoretical framework, estimation methodology and data sources

In this study, we employ the identical theoretical framework as in our previous paper to investigate the social capital effect on economic growth and the channel through which the effect runs[10]. We rewrite the equations to test for social capital effects on growth and property rights, drawn from our previous paper, as the following:

[10] Refer page 56-57 in our previous paper for more discussions on the formulation of theoretical framework (that divides institutions into three categories namely formal, informal and political based on the arguments of North, 1990, 2005 and Acemoglu et al., 2005, respectively), the underlying hypotheses outlining the inter-relationship between those categories of institutions, and the subsequent explanation of the hypotheses.

$$g_{it} = \beta_0 + \beta_1 \ln y_{it-1} + \beta_2 pr_{it-1} + \beta_2 sc_{it-1} + \beta_2 pol_{it-1} + \beta_3 X'_{it} + \eta_i + \varepsilon_{it} \quad (1)$$

$$pr_{it} = \beta_0 + \beta_1 sc_{it-1} + \beta_2 pol_{it-1} + \beta_3 X'_{it-1} + \eta_i + \varepsilon_{it} \quad (2)$$

In the above equations, $g_{it} = \Delta \ln gy_{it}$ is real GDP per capita growth rates, β_0 is a constant term, $\ln y_{it-1}$ is lagged income or natural logarithm of real GDP per capita in the previous period, pr_{it-1}, sc_{it-1}, and pol_{it-1} are the index of property rights institutions, social capital variable and the index of political institutions, respectively, and they are one-period lagged. X is a vector of control variables, η_i is time-invariant country-specific effect term, and $\varepsilon_{it} \sim N(0, \sigma^2 I)$ is an i.i.d. error term[11].

As in our previous paper, the identical set of control variables or steady state determinants, *X*, is included in Equation (1) and they are stock of physical capital (*sk*), human capital (*sh*), and the (n+g+δ) term that accounts for the sum of population growth, growth in exogenous technological process, and depreciation rate. Similarly, in Equation (2), the following control variables are used: real GDP per capita growth, education attainment (measured by secondary school attainment for population age 15 and above), government consumption (as a percentage of total GDP) and urban population (as a percentage of total population).[12]

Before we proceed with the estimation strategy, let us revisit the findings of our previous paper especially that of Table 1 (page 60). We find that generalized trust variable (as a proxy for social capital) is not significant in all growth estimations and this is obviously due to the missing observations problem; in all estimations with generalized trust variable the number of observation falls significantly to 59 compared to estimations without it which is around 1400. Both property rights index and political institutions index are significant when they are included individually in growth estimation. However, we argue that political institutions is actually picking up the property rights effect on growth, and this is vindicated when only property rights is significant if we include both property rights and political institutions in an estimation. This exercise therefore confirms the significance of property rights on growth.

Then, with the assumption that generalized trust and political institutions may affect growth indirectly via the property rights channel, we omit property rights index in another estimation and test the significance of both trust and political institutions variables on growth. However, neither political institutions index nor trust is significant, and again this is obviously due to the missing observations problem of the generalized trust data.

The estimation strategy employed in this paper therefore takes up from this point to test for the social capital impact on growth and property rights in our sample of 69 developing countries. We begin with the estimation of a growth model (Equation 1) but now we replace generalized trust variable with the proposed alternative variables and we omit property rights variable for reason stated in the preceding paragraph. We estimate trust-alternative variables' effect on growth without and with the presence of political institutions index, controlling for the usual steady-state growth determinants. Equation (1)

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[11] A closer look at the Equation (1) and (2) reveals that simultaneous equations estimation is not possible even though both equations apparently have the similar explanatory variables. The explanatory variables are included in the equations as lagged variables, i.e. social capital (sc_{it-1}) and political institutions (pol_{it-1}) are lagged by one-period in the Equation (2) to determine the current value of property rights (pr_{it}). When property rights, social capital and political institutions variables appear in Equation (1) as lagged variables, effectively they are different from the variables that appear in Equation (2) due to difference in lags i.e. pr_{it} is different from pr_{it-1} .

[12] These set of control variables are shown by Williamson & Kerekes (2011) to have significant effects on institutional quality measured by property rights. The inclusion of these controls therefore precludes social capital and political institutions from picking up the effects these control variables would have on the property rights. In other words, once these variables are controlled for, the estimated coefficients for social capital and political institutions will truly reflect their effects on property rights.

however reveals a potential endogeneity problem. Firstly, because of the presence of a lagged dependent variable, and secondly institutional variables (trust-alternative or political institutions) could be endogenous since reverse causation from growth to institutions is possible. While an endogenous lagged dependent variable is not much of a worry since the focus of this study is on institutions, endogenous institutional variables are tackled by including them with one-period lag in all models and this could to some extent prevent reverse causation.

In the estimation of property rights model (Equation 2), we seek to confirm the property rights channel through which the indirect effects of social capital towards growth run. In other words, this model would illustrate the channel and the size of social capital's indirect effects on economic growth in the 69 developing countries. Furthermore, the model also enables us to uncover the underlying determinants of property rights institutions that matter for growth[13]. All explanatory variables in the property rights regressions are also lagged by one-period to mitigate any possible endogeneity problem. We acknowledge the possible multicollinearity problem between the control variables in the second model such as GDP per capita growth, education attainment, government consumption but we retain the focus on social capital effect on property rights.

The identical datasets of our previous paper are used in this study, but now without the trust data from the WVS. The dataset are a panel observation of 69 countries from three regions, namely Africa, East Asia and Latin America for 25 years period (1984-2008). The data for trust–alternative variables are obtained from various sources. Both corruption and ethnic tensions indicators are obtained from the International Country Risk Guide (ICRG) provided by the PRS Group (2009). Contract intensive money as defined by Clague et al. (1999) is the ratio of non-currency money to the total money supply, or (M2–C)/M2 where M2 is broad definition of money supply and C is currency held outside banks. Data on M2 and C are obtained from Datastream and World Development Indicator (WDI) of the World Bank (2009). To proxy for income inequality, Gini index, also obtained from WDI, is used, following Easterly et al. (2006) and Rodrik (1999).

Table 2: Spearman rank correlation coefficients

Variables	Real GDP per capita growth	Property rights index	Political institutions index	Genera-lized trust	Corrup-tion	Ethnic tensions	Contract intensive money
Property rights index	0.307*** (1696)						
Political institutions index	0.121*** (1709)	0.286*** (1706)					
Generalized trust	0.386*** (71)	0.033 (71)	-0.336*** (71)				
Corruption	0.044* (1696)	0.285*** (1706)	0.132*** (1706)	0.024 (71)			
Ethnic tensions	0.157*** (1697)	0.377*** (1706)	0.268*** (1707)	-0.06 (71)	0.237*** (1706)		
Contract intensive money	0.230*** (1578)	0.507*** (1571)	0.496*** (1580)	-0.121 (68)	0.231*** (1571)	0.357*** (1571)	
Income inequality	-0.128** (330)	0.056 (330)	0.364*** (330)	-0.197 (17)	0.141** (330)	0.283*** (330)	0.433*** (311)

[13] As explained in our previous paper (page 57), the estimation of Equation 2 would allow us to test the second hypothesis which could be viewed as a strategy to unbundle the property rights institutions into two underlying components namely informal institutions (social capital) and political institutions. More discussions are in our previous paper.

Table 2 above presents the correlation coefficients for the variables used in this study. We also include the original trust dataset to show its correlation to growth, property rights and the trust-alternative variables. The correlation between GDP per capita growth and institutional indicators (property rights, generalized trust and political institutions) are apparently in line with the fundamental. However, insignificant correlations between generalized trust and its alternative measures are observed, but they are thought of as the outcome of the limited trust data that prevents any meaningful correlations.

4. Estimation results and discussion

In this study, we continue to employ fixed effect panel estimation technique as in our previous paper due to its capability to control for omitted variable bias and unobserved heterogeneity issues frequently present in panel data analysis. First, we estimate the growth model (Equation 1) augmented with each of the four trust-alternative variables (models 1-4), and then a general model (model 5) with the presence of all four variables. In the final model (6), we augment the growth estimation with the significant trust-alternative variables only, found in preceding regressions. We repeat these steps in the estimation of model (7) until (12), with the presence of the political institutions index.

The results in Table 3 show that social capital (measured corruption and ethnic tensions) indeed matter for growth. The significance of social capital continues even when we control for political institutions. Corruption is consistently statistically significant at 5-10% level with coefficients ranging from 0.002 to 0.005 in any estimation whenever it is present. The sign of corruption's coefficients, however, turns out to be negative although it is expected to be positive[14]. In hindsight, one would think that a lower level of corruption would lead to efficient business exchanges, less threat to foreign investments and a situation where the general public have more confidence in the government to carry out reform programs. These in turn would translate into higher generalized trust level in the country and eventually better economic performance.

Our results, despite confirming the fact that corruption matters for growth, indicate that higher corruption level in the developing countries under study is actually causing their economic growth. The finding of positive corruption impact on growth especially in developing countries is nevertheless not uncommon[15]. Bardhan (1997) in his review on corruption and development discusses efficiency-improving corruption that is particularly evident in developing countries with pervasive and cumbersome regulations. Aidt (2003) contends that corruption is a multi-faceted phenomenon as he outlines a distinction between four different categories of corruption and the first category is efficient corruption that arises to facilitate beneficial trade between agents that would not otherwise have been possible.

Empirically, Egger & Winner (2005) find evidence of positive relationship of corruption to foreign direct investment. Mironov (2005) shows corruption is good for growth only in countries with poor institutions, and he argues in such countries corruption helps to "grease the wheels", allowing individuals to overcome burdensome red tape and bureaucratic inefficiency. Even though corruption reduces red tape, officials who expect bribes tend to set ex-ante levels of red tape above the socially optimal level. Therefore, one might find a positive effect of corruption by controlling for institution quality, even if the total effect of corruption on economic development is negative. Mironov however highlights another possible explanation to this phenomenon i.e. economic growth might feed corruption by providing additional demand for bureaucrat services[16]. This undoubtedly points to an

[14] Recall corruption data used in this study is based on the corruption ranking given to the countries in the sample. Least corrupted countries will receive higher score in the corruption ranking, hence the expected positive coefficient against growth.

[15] Treisman (2007) mentions that by casually looking at the international experience, some countries seem to have grown rapidly in recent decades despite the perception that their states were highly corrupt, for example, China, South Korea, Thailand, India and Indonesia. Interestingly, all these countries are included in our sample of 69 developing countries.

[16] There are numerous studies that show income as a significant determinant of corruption (income negatively related to corruption). Treisman (2007) argues that the strongest and most consistent finding in the empirical work is that higher

endogeneity problem that could be the underlying reason behind the negative coefficient of corruption. In other words, higher economic growth in the developing countries could have possibly encouraged the corruption practices. It is interesting to note that in spite of this contradicting result about corruption (we find growth-inducing effect of corruption although theoretically it should be growth-deterring), it is not possible to tell whether there is low trust level in the countries, or to say definitively that corruption is not a good measure of trust or trust is not good determinant of growth. We will return to this endogeneity problem in the next sub-section.

The other significant variable is ethnic tensions. It is statistically significantly different from zero at 1-5% level, either when it enters the estimation individually or in the growth model augmented with significant variables (model 6 and 12). The ethnic tensions variable however is insignificant in the general model where all measures of social capital are present (model 5 and 11). Note the drastic drop in number of observations in the regressions that include income inequality, and arguably this is the reason causing these conflicting results, (i.e. on the significance and sign of the ethnic tensions coefficients in the estimation of the general model (model 5 and 11), and estimation with only significant variables (model 6 and 12)). Nevertheless, the ethnic tensions variable has the expected positive sign whenever it is significant[17]. Our results therefore confirm the findings of a positive growth-effect of social cohesion, measured by the ethnic tensions variable, by Baliamoune-Lutz (2009a, 2009b); Easterly et al. (2006); and Ritzen et al. (2000).

It is also interesting to note that contract intensive money (CIM) is insignificant notwithstanding the sufficiently large number of observations in estimations involving the variable (see model 3 and 9). This result is apparently in contrast to Baliamoune-Lutz (2011) who uses CIM to reflect trust, and Clague et al. (1999) to reflect contract enforceability and secure property rights, that matter for growth. And since we mention earlier that this study follows Baliamoune-Lutz (2011) in using CIM as a proxy for trust, it is fair to infer that CIM is indeed not a robust trust-substitute (in term of characteristic and growth-effect). Therefore, as far as this study is concerned, the arguments by Baliamoune-Lutz (2011) about the similar characteristics between trust and CIM can be rejected.

In spite of CIM's insignificance, however, we are not in haste to similarly reject Clague et al.'s proposition that CIM is a good proxy for contract enforceability and secure property rights. We leave this until the property rights estimation is done in the next stage, in which we empirically test their relationship[18].

The political institutions index is consistently statistically different from zero at 5% level in regressions when the included social capital variable is significant too (i.e. when corruption and ethnic tensions enter model (7) and (8), respectively). Similarly, it remains significant in the general regression when both significant social capital variables are present (model 12). The index however becomes insignificant in regressions with CIM and income inequality, and also in regressions where all social capital variables are present.

Recall that North (2005) widens the usual approach to institutions with the concept of subjective mental model (such as belief) which underlies its manifestation. Both the belief (which North called informal rules and constraints like norms and culture) and the manifestation of the belief (into explicit formal rules and constraints) make up an institutional matrix which in turn defines the set of incentives and opportunities in a given society, and shapes economic actors' behaviour and decision making. The findings in model 6 and 12, where social capital (the informal constraints) are significantly able to

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economic development is closely related to lower perceived corruption. However Braun & Di-Tella (2004) and Fréchette (2006) find income increases corruption and these studies employ panel fixed effects method, similar to our estimation technique.

[17] Positive sign is expected for ethnic tensions variable since the ethnic tensions indicator receives higher score in more socially cohesive, less fractionalised countries with less risk of tensions.

[18] Recall Clague et al. (1999) shows CIM is reflecting contract enforcement and secure property rights by using case studies and by looking at its positive high correlations with measures of governance indicators. However, they never test the relationship between CIM and property rights empirically.

predict growth *with* and *without* the presence of political institutions variable, therefore strengthens North (2005)'s argument on the primacy of mental model concept. Such a mental model, whether in those who are in the situation to dictate the rule of the games, or in those who have political power or holding political institutions, will determine the type of political constraints that eventually matter towards growth.

Finally, we investigate the channel through which social capital affects growth. In our previous paper, in the second hypothesis we propose that social capital predicts growth through the property rights environment in the countries under study. In the preceding models, we find corruption and ethnic tensions matter for growth as do political institutions, and their coefficients range from 0.002-0.005. By testing these variables against the property rights index, we hope to find that they are indeed significant predictors of property rights with hopefully greater coefficients which will give empirical support to the proposed hypothesis. Such findings, therefore, would give evidence on the so-called "deep determinants" of growth in developing countries and prove that property rights institutions are only proximate determinant of growth.

The results in Table 4 show that three measures of social capital namely corruption, ethnic tensions and CIM emerge as significant predictors of property rights at a 1% level with the expected positive signs, either in individual or the general model. Interestingly, their coefficients, which are between 0.160 and 6.395, are significantly larger than those in the growth estimations in Table 3. Their significance continues to hold in the presence of the political institutions variable, which is also significant in every model (with coefficients ranging between 0.109 and 0.199). These findings therefore confirm our proposition that social capital proxied by corruption, ethnic tensions and CIM is actually a deep determinant of growth and its effect on growth runs via the property rights channel.

As for the corruption variable, it now has positive sign which means corruption determines property rights in a manner that is documented in the literature where less corrupted nation will have a more secure property rights environment and better contract enforcements. Recall corruption data used in this study is based on the corruption ranking given to the countries in the sample where least corrupted countries will receive higher score in the ranking. Since the corruption's size of coefficient in property rights estimation is much larger than that of the growth estimation, therefore it is fairly appropriate to infer that true effect of corruption is actually growth-deterring instead of growth-inducing. The positive corruption effect in the growth estimation found earlier, albeit smaller, could possibly be due to bad institutional quality in some of the developing countries under study, in line with Mironov (2005) argument that corruption's effect on growth is conditional upon the countries' institutional quality. He argues that corruption is bad for growth in countries with good institutions, whereas in countries with poor institutions, corruption (he calls residual corruption) is positively related to growth.

A comparison is made between the coefficients of social capital and political institutions variables (in model 18-22), and it reveals that social capital variables apparently have greater explanatory power than political institutions variable. This finding further confirms the primacy of North (2005)'s mental model (informal institutions) and rejects the political (institutions) prominence theory by Acemoglu et al. (2005). Although in our previous paper we find supporting evidence to the Acemoglu et al.'s political prominence theory (see Table 3 and discussion in page 61), it is apparently because of the lack of support to North's mental model due to the weakness of the social capital measure used in the analysis (i.e. generalized trust variable) whose effect on property rights is apparently picked up via the political variable.

Furthermore, it is fair to say that the proposition by Clague et al. (1999) that CIM is reflecting contract enforcement and property rights is robust since we find positive significant CIM coefficients in the property rights regressions. Recall Clague et al. use country-based case studies and CIM correlations with measures of governance (or institutional) quality. When they find CIM is a significant predictor of income, growth and investment, and at the same time CIM has a high correlation with the

governance measures and closely fluctuating together with the countries' political and economic uncertainties, they conjecture that CIM is actually measuring the security of property rights and contract enforceability. This paper's empirical testing of the relationship between CIM and property rights could therefore be thought as an extension to Clague et al.'s work since they never tests the variables relationship empirically.

4.1 Endogenous corruption and Instrumental Variable (IV) estimation

In this study, the hypothesis is that social capital determines growth, and the causation runs via formal institutional quality reflected by a secure property rights environment. By using corruption as a measure of social capital, the direction of causation however is undoubtedly plagued by endogeneity problem as numerous studies have previously shown that income is one of the significant determinants of corruption (see for example Seldadyo & Haan, 2006 and Treisman, 2007).

Earlier we acknowledge that the institutional variables are endogenous and to prevent reverse causation, all right-hand-side institutional variables, including social capital measures, are lagged by one-period. Nevertheless, the estimations involving the corruption variable still yield negative coefficients for corruption which is not as expected. This could probably be taken as an indication that endogeneity problem still exists, at least for corruption variable. Therefore, to eliminate endogeneity, we use an instrumental variable (IV) technique. By instrumenting corruption with an exogenous variable that satisfies the requirements of a good instrument, a robust direction of causation could be established.

The previous studies have suggested a number of instruments for corruption including an ethno-linguistic fractionalization index (Mauro, 1995), legal origins (La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 1999), and predicted trade shares (Shaw, Katsaiti, & Jurgilas, 2011)[19]. However, these instruments are apparently not suitable to be used in panel analysis for obvious reason; they are time-invariant.

Although it is plausible to assume that formal institutional quality indicators (like regulatory quality, law and order, bureaucratic efficiency) and political institutions can be robust instruments for corruption[20], to use them as one seems to obscure the growth-impacts of such institutions in the first place. The fact that they determine corruption, and at the same time they are also among the significant predictors of growth is apparently an ominous indication that the endogeneity problem would not be completely eliminated with the use of such variables as instruments.

Therefore, to find a good instrument which is relevant and valid is often difficult[21]. Since this study uses corruption to measure trust-based social capital, an instrument for corruption therefore must be able to reflect some degree of trust too. We find a likely candidate for the corruption instrument is trade openness. Intuitively, the more open an economy is, the more transactions are conducted between people unknown to each other (such as exporters and importers since they transact between people outside their countries), and this situation could not be achieved without some degree of trust among them. Coyne & Williamson (2009) empirically show that trade openness has positive

[19] Predicted trade share is developed by Frankel & Romer (1999) based on gravity model of bilateral trade. Hall & Jones (1999) use predicted trade share to instrument social infrastructure, but their social infrastructure is apparently not the "social capital" in true sense, since they measure it using index of government anti-diversion policies and trade openness. Kogel (2005) meanwhile points out that index of government anti-diversion policies is similar to measure of corruption used in Mauro (1995), hence the use of predicted trade share by Shaw et al. (2011) to instrument corruption looks natural.

[20] Seldadyo & Haan (2006) propose that regulatory capacity is the most robust variable in explaining corruption. In their study, they examine 70 empirical determinants of corruption from economic, political, bureaucratic and regulatory, and geographical/cultural/religious categories. Via factor analysis they reduce these determinants into five new variables namely regulatory capacity, federalism, inequality, trade and political liberty.

[21] An instrument satisfies the relevance and validity requirements if it has reasonably high correlation with the endogenous variable, and at the same time uncorrelated to the idiosyncratic error of the original model.

significant impact on culture variables (including trust)[22] and they argue that the more open a country is to trade, the more likely it is to possess culture (including high level of generalized trust) conducive to increased social and economic interactions. In other words, openness to international trade provides people with an increased number of opportunities for interaction and exchange which can generate trust through the development and cultivation of social relationships. Meanwhile openness is also found to deter corruption, as shown by Larrain & Tavares (2007)[23]. They argue that openness normally encourages competition and competition leaves little room for corruption practices. In imperfect competitive markets where there is possibility of rents to be appropriatized and discretionary power of certain market players exceeds market outcomes, these situations open for the emergence of corruption practices.

In order to use openness as a relevant and valid instrument for corruption in the growth estimation, we must ensure that it is not impacting growth via any other way except through corruption (empirically speaking, it must be correlated with corruption but orthogonal to the error term in the original model). We test this using simple OLS estimation of growth with the openness variable, in addition to the standard steady-state determinants and institutional variables, and the result shows that the openness variable is insignificant[24]. Therefore, the openness variable satisfies the necessary conditions to make it a relevant and valid instrument for corruption and IV estimation for endogenous corruption using openness as its exogenous instrument is then possible. We employ IV-two step feasible GMM estimation which is robust in the presence of arbitrary heterokedasticity[25]. We also include country dummies and a time trend to allow for overidentifying test[26].

To check for an instrument relevance and validity criteria, IV-GMM estimation provide several tests for this purpose[27]. The parameter of interest is corruption in the second stage regression, particularly on the sign of the corruption coefficient. It is hoped that the sign will change to positive to show growth-deterring effect of corruption, in line with the convention.

Firstly we include openness, trend and country dummies as instruments, and the estimation passes all relevance and validity tests and the predicted corruption variable is significant, but its sign remains negative. We also try to include only openness as instrument, and then multiple combinations of the instrument such as openness, trend, trend squared and cubed; only trend, trend squared and cubed; openness and lags of corruption; and multiple lags of corruption themselves. However, all IV-GMM estimations with these combinations of instrument pass the identification and overidentifying restriction tests at random, and the significance of the predicted corruption in the second stage also seems arbitrary.

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[22] They use Tabellini (2007)'s measure of culture which includes trust, respect, self-determination and obedience, and employ instrumental variable analysis for both the panel and cross sectional data to minimize reverse causality and endogeneity concerns.

[23] Larrain & Tavares (2007) use various measures of openness such as FDI share of GDP, export share of GDP, import share of GDP and export plus import share of GDP and they argue the finding is robust to inclusion of various control variables.

[24] The OLS estimation result is available upon request.

[25] Baum, Schaffer, & Stillman (2003) shows that in the presence of heterokedasticity, the standard IV estimates of the standard errors are inconsistent and it prevents a valid inference be made. Furthermore, the usual form of diagnostics test for endogeneity and overidentifying restrictions are also invalid in the presence of heterokedasticity.

[26] If only one instrument is used against one endogenous variable, overidentifying test will not work since the endogenous variable is exactly identified.

[27] To test for an instrument's relevance, F-test of the joint significance of the instruments in the first stage regression is used. This is particular sufficient in model with one endogenous variable, and the rule of thumb (for a single endogenous regressor) is that the F-test statistics must be 10 or larger. The relevance condition is also checked by under- and weak identification tests. Under-identification test is an LM test whether the equation is "identified" (i.e. whether the instruments are relevant) under the null hypothesis that the equation is under identified. Whereas weak identification test is done via Wald statistics under the null of the equation is weakly identified. In both tests, null must be rejected. In the presence of heterokedasticity, LM and Wald version of Kleibergen & Paap (2006) *rk* statistics are used. For instrument validity, Hansen J tests is used to test the null of the instruments are exogenous (orthogonality is fulfilled). Hansen J test is distributed as χ^2 with degrees of freedom equal to the number of overidentifying restrictions (number of instrument – number of endogenous variable) (see Baum et al., 2003, and *xtivreg2* help page in STATA program and also here: http://repec.org/bocode/x/xtivreg2.html).

Only one thing remains i.e. the negative sign for the predicted corruption. Therefore, we take this as an indication that the endogeneity issue is not the reason behind such finding. We also do not take negative sign of corruption in growth estimation as an indicator of its growth-inducing effect since we have already shown that the actual effect of corruption is growth-deterring via property rights channel.

5. Concluding remarks

The primary objective of this study is to explain social capital effect on economic growth in developing countries in East Asia, Africa and Latin America for the period of 25 years, i.e. 1994-2008. In our previous paper, using panel estimation analysis which hitherto has been a rare case in social capital study, we show that the most widely used measure of social capital namely generalized trust variable obtained from the WVS does not produce robust results in panel estimation. This is due to the variable's limited data availability across years.

In this study, we propose four trust-alternative variables namely corruption, ethnic tensions, contract intensive money (CIM) and income inequality to measure social capital. The results of this study provide a clearer picture to illustrate the significance of corruption, ethnic tensions and CIM as deep determinants of growth in the developing countries under study. These variables are found to have little or no direct effects towards growth, but their indirect effects operating via property rights channel are actually much larger. On the other hand, there is no evidence whatsoever on the significance of income inequality towards growth or property rights.

Overall, this study finds supporting evidence to the primacy of informal rules and constraints as proposed by North (2005) over the political prominence theory by Acemoglu et al. (2005). This study also partially confirms Williamson and Kerekes (2011)'s findings on the underlying determinants of property rights. While they find only informal institutions (measured by culture i.e. trust, respect, individual self-determination and obedience) are important to secure property rights, and political constraints are not, this study indicates both categories of institutions are significant determinants of property rights. Furthermore, this study is able to extend the work by Clague et al. (1999) to provide empirical support on the positive relationship between CIM and property rights institutions

To conclude, we believe more effort is needed in social capital literature particularly on the theoretical analysis to explore other possible channels through which social capital could have caused economic performance. Meanwhile, trust and other measures of social capital based on cross-country survey such as the World Value Survey and other similar surveys are apparently not suitable for advance econometric methodologies like panel estimation due to problem of data unavailability.

Table 3: Fixed effect regression of trust-alternative variables to estimate the effect of social capital on growth

Dependent variable: Log real GDP per capita growth												
Estimation model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Lagged income	-0.042***	-0.043***	-0.047***	-0.069***	-0.070**	-0.045***	-0.043***	-0.044***	-0.047***	- 0.066**	- 0.069**	-0.046***
	(0.014)	(0.014)	(0.014)	(0.026)	(0.031)	(0.014)	(0.014)	(0.014)	(0.014)	(0.026)	(0.031)	(0.014)
Physical capital	0.036***	0.034***	0.031***	0.046***	0.047***	0.035***	0.035***	0.033***	0.030***	0.046***	0.048***	0.034***
	(0.006)	(0.006)	(0.006)	(0.014)	(0.014)	(0.006)	(0.006)	(0.006)	(0.006)	(0.014)	(0.014)	(0.006)
Population growth	0.025***	0.024***	0.028***	-0.013	-0.009	0.024***	0.025***	0.024***	0.028***	-0.015	-0.010	0.024***
	(0.007)	(0.007)	(0.007)	(0.011)	(0.012)	(0.007)	(0.007)	(0.007)	(0.007)	(0.011)	(0.012)	(0.007)
Human capital	0.003***	0.003***	0.003***	0.001*	0.001	0.002***	0.002***	0.002***	0.003***	0.001*	0.001	0.002***
	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)
Corruption	**-0.002***				**-0.005****	**-0.003****	**-0.002***				**-0.004***	**-0.003****
	(0.001)				(0.002)	(0.001)	(0.001)				(0.002)	(0.001)
Ethnic tensions		**0.003****			-0.001	**0.003*****		**0.002****			-0.000	**0.003*****
		(0.001)			(0.002)	(0.001)		(0.001)			(0.002)	(0.001)
Contract intensive			0.044		0.015				0.042		0.010	
money			(0.040)		(0.066)				(0.040)		(0.065)	
Income inequality				-0.005	-0.002					-0.005	-0.002	
				(0.006)	(0.006)					(0.006)	(0.006)	
Political							**0.002****	**0.002****	0.002	-0.003	-0.002	**0.002****
institutions index							(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.001)
Constant	-0.020	-0.027	-0.046	0.489**	0.470**	-0.008	-0.018	-0.026	-0.051	0.487**	0.478**	-0.006
	(0.078)	(0.076)	(0.083)	(0.222)	(0.238)	(0.079)	(0.078)	(0.076)	(0.083)	(0.222)	(0.239)	(0.079)
Observations	1,404	1,405	1,302	289	271	1,404	1,404	1,405	1,302	289	271	1,404
No. of country	62	62	62	60	58	62	62	62	62	60	58	62
Adj. R-squared	0.294	0.296	0.307	0.182	0.188	0.298	0.296	0.297	0.308	0.184	0.187	0.300

Note: Robust standard errors in parentheses. ***, **, * indicate the coefficient is significant at 1%, 5% and 10% respectively.

Table 4: Fixed effect regression of trust-alternative variables to estimate the effect of social capital on property rights

Dependent variable: Property rights index										
Estimation model	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
Political						**0.124*** **	**0.129*** **	**0.114*** **	**0.199*** **	**0.109** **
Institutions index						(0.021)	(0.020)	(0.021)	(0.056)	(0.052)
Corruption	**0.205*** **				**0.256*** **	**0.194*** **				**0.235*** **
	(0.021)				(0.053)	(0.020)				(0.054)
Ethnic tensions		**0.258*** **			**0.165*** **		**0.253*** **			**0.160*** **
		(0.019)			(0.048)		(0.019)			(0.047)
Contract intensive			**6.395*** **		**5.303*** **			**6.376*** **		**5.405*** **
money			(0.568)		(1.406)			(0.573)		(1.412)
Income inequality				0.187	0.218				0.160	0.206
				(0.191)	(0.157)				(0.194)	(0.159)
Real GDP	3.562***	3.415***	3.339***	1.676	2.115	3.337***	3.169***	3.121***	1.839	2.192
percapita growth	(0.570)	(0.559)	(0.598)	(1.916)	(1.559)	(0.570)	(0.556)	(0.598)	(1.820)	(1.551)
Education	0.031***	0.009	0.011*	-0.001	0.037***	0.030***	0.009	0.010*	-0.009	0.031**
attainment	(0.007)	(0.006)	(0.006)	(0.016)	(0.013)	(0.006)	(0.006)	(0.006)	(0.015)	(0.013)
Government	-0.012	0.001	-0.014*	-0.049	-0.041	-0.010	0.003	-0.014*	-0.049	-0.043
consumption	(0.008)	(0.007)	(0.008)	(0.032)	(0.026)	(0.008)	(0.007)	(0.008)	(0.034)	(0.027)
Urban population	0.109***	0.095***	0.074***	0.111***	0.048**	0.097***	0.083***	0.066***	0.102***	0.043*
	(0.007)	(0.007)	(0.008)	(0.028)	(0.023)	(0.008)	(0.008)	(0.008)	(0.028)	(0.023)
Constant	-1.536***	-1.129***	-3.588***	-0.756	-5.439***	-1.490***	-1.136***	-3.681***	-1.027	-5.511***
	(0.396)	(0.351)	(0.492)	(1.398)	(1.584)	(0.393)	(0.344)	(0.491)	(1.405)	(1.592)
Observations	1,434	1,435	1,338	299	281	1,434	1,435	1,338	299	281
No. of country	62	62	62	61	60	62	62	62	61	60
Adj. R-squared	0.649	0.672	0.679	0.448	0.603	0.659	0.682	0.687	0.475	0.610

Note: Standard errors in parentheses. ***, **, * indicate the coefficient is significant at 1%, 5% and 10% respectively.

References:

Acemoglu, D., Johnson, S., & Robinson, J. A. (2005). Institutions as the Fundamental Cause of Long-Run Growth. In P. ; Aghion & S. Durlauf (Eds.), *Handbook of Economic Growth* (1st ed., Vol. 1, pp. 385–472). North Holland: Elsevier.

Aidt, T. S. (2003). Economic analysis of corruption: a survey. *Economic Journal Royal Economic Society*, *113*(491), F632–F652.

Baliamoune-Lutz, M. (2009a). Human well-being effects of institutions and social capital. *Contemporary Economic Policy*, *27*(1), 54–66.

Baliamoune-Lutz, M. (2009b). Institutions, trade, and social cohesion in fragile states: implications for policy conditionality and aid allocation. *Journal of Policy Modeling*, *31*(6), 877–890.

Baliamoune-Lutz, M. (2011). Trust-based social capital, institutions, and development. *Journal of Socio-Economics*, *40*(4), 335–346.

Bardhan, P. (1997). Corruption and Development: A Review of Issues. *Journal of Economic Literature*, *XXXV*, 1320–1346.

Baum, C. F., Schaffer, M. E., & Stillman, S. (2003). Instrumental Variables and GMM Estimation and Testing. *The Stata Journal*, *3*(1), 1–31.

Berggren, N., Elinder, M., & Jordahl, H. (2008). Trust and growth: A shaky relationship. *Empirical Economics*, *35*(2), 251–274.

Beugelsdijk, S., de Groot, F. H. L., & van Schaik, A. B. T. M. (2004). Trust and Economic Growth: a robustness test. *Oxford Economic Papers*, *56*, 118–134.

Bjørnskov, C. (2006). *How Does Social Trust Affect Economic Growth?* (No. Working Paper: 06-2). University of Aarhus, Aarhus School of Business.

Bjørnskov, C., & Svendsen, G. T. (2003). *Measuring Social Capital: Is There a Single Underlying Explanation?* (No. Working Paper: 03-5). Department of Economics, Aarhus School of Business.

Braun, M., & Di-Tella, R. (2004). Inflation, Inflation Variability, and Corruption. *Economics and Politics*, *16*, 77–100.

Chang, C. C. E., & Chu, Y. (2006). Corruption and trust: Exceptionalism in Asian Democracies? *The Journal of Politics*, *68*(2), 259–271.

Clague, C., Keefer, P., Knack, S., & Olson, M. (1999). Contract intensive money: contract enforcement, property rights, and economic performance. *Journal of Economic Growth*, *4*(2), 185–211.

Coleman, J. S. (1988). Social Capital in the Creation of Human Capital. *American Journal of Sociology*, *94*, 95–120.

Coyne, C., & Williamson, C. R. (2009). *Trade Openness and Culture* (No. Working Paper:09-05). Department of Economics, West Virginia University.

Dincer, O., & Uslaner, E. (2010). Trust and growth. *Public Choice, Springer*, *142*(1), 59–67.

Easterly, W., Ritzen, J., & Woolcock, M. (2006). Social Cohesion, Institutions, and Growth. *Economics and Politics*, *18*(2), 103–120.

Egger, P., & Winner, H. (2005). Evidence on corruption as an incentive for foreign direct investment. *European Journal of Political Economy*, *21*(4), 932–952.

Frankel, J. A., & Romer, D. (1999). Does Trade Cause Growth? *American Economic Review*, *89*(3), 379–399.

Fréchette, G. R. (2006). *Panel Data Analysis of the Time-Varying Determinants of Corruption* (No. CIRANO Working Paper: 2006-28). CIRANO.

Hall, R. E., & Jones, C. I. (1999). Why Do Some Countries Produce So Much More Output per Worker Than Others? *The Quarterly Journal of Economics*, *114*, 83–116.

Hall, S. G., & Ahmad, M. (2013). Can Trust Explain Social Capital Effect on Property Rights and Growth? *Procedia Economics and Finance*, *7*, 55–64. doi:10.1016/S2212-5671(13)00218-9

Kleibergen, F., & Paap, R. (2006). Generalized reduced rank tests using the singular value decomposition. *Journal of Econometrics*, *133*(1), 97–126.

Knack, S., & Keefer, P. (1997). Does Social Capital Have an Economic Payoff? A Cross-Country Investigation. *Quarterly Journal of Economics*, *112*(4), 1251–1288.

Knowles, S. (2005). The future of social capital in development economics research. *Paper for the WIDER Jubilee Conference: Thinking} Ahead: The Future of Development Economics, Helsinki 17-18 June.*

Knowles, S. (2006). *Is Social Capital Part of the Institutions Continuum} and is it a Deep Determinant of Development?* (No. Working Papers: RP2006/25). World Institute for Development Economic Research (UNU-WIDER).

Kogel, T. (2005). Youth Dependency and Total Factor Productivity. *Journal of Development Economics*, *76*(1), 147–173.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. W. (1999). Trust in Large Organizations. In P. Dasgupta & I. Seregaldin (Eds.), *Social Capital – A Multifaceted Perspective* (pp. 310–324). Washingto DC: The World Bank.

Larrain, B. F., & Tavares, J. (2007). *Can Openness Deter Corruption? The Role of Foreign Direct Investment* (No. CEPR Working Paper: 6488). Centre of Economic Policy and Research.

Mauro, P. (1995). Corruption and Growth. *Quarterly Journal of Economics*, *107*, 407–437.

Mironov, M. (2005). *Bad Corruption, Good Corruption and Growth*. University of Chicago. Mimeo.

Morris, S. D., & Klesner, J. L. (2010). Corruption and Trust: Theoretical Considerations and Evidence from Mexico. *Comparative Political Studies*, *XX*(x), 1–28.

Neira, I., Vászquez, E., & Portela, M. (2009). An empirical analysis of social capital and economic growth in Europe (1980-2000). *Social Indicators Research*, *92*(1), 111–129.

North, D. C. (1990). *Institutions, Institutional Change and Economic Performances*. Cambridge: Cambridge University Press.

North, D. C. (2005). *Understanding the Process of Economic Change*. Princeton: Princeton University Press.

PRS Group, T. (2009). *International Country Risk Guide, Political risk dataset.* (2009th ed.).

Putnam, R. D. (1993). *Making Democracy Work*. (with Robert Leonard and Raffaella Y. Nanetti), Princeton: Princeton University Press.

Ritzen, J., Easterly, W., & Woolcock, M. (2000). *On Good Politicians and Bad Policies: Social Cohesion, Institutions, and Growth.* The World Bank.

Rodrik, D. (1999). Where did all the growth go? External shocks, social conflicts, and growth collapses. *Journal of Economic Growth*, *4*(4), 385–412.

Rothstein, B., & Uslaner, E. M. (2005). *All for all: Equality and Social Trust* (No. LSE Health and Social Care Discussion Paper: 15). London School of Economics and Political Science.

Seldadyo, H., & Haan, J. D. (2006). *The Determinants of Corruption: A Literature Survey and New Evidence*. Paper Prepared for the 2006 EPCS Conference, Turku, Finland, 20-23 April.

Shaw, P., Katsaiti, M.-S., & Jurgilas, M. (2011). Corruption and Growth Under Weak Identification. *Economic Inquiry*, *49*, 264–275.

Tabellini, G. (2007). *Culture and Institutions* (No. CEPR Discussion Papers: 6589). Centre of Economic Policy and Research.

Tabellini, G. (2010). Culture and Institutions: Economic Development in the Regions of Europe. *Journal of the European Economic Association*, *8*(4), 677–716.

Treisman, D. (2007). What Have We Learned about the Causes of Corruption from Ten Years of Cross-National Empirical Research. *Annual Review of Political Science*, *10*, 211–244.

Westlund, H., & Adam, F. (2010). Social capital and Economic Performance: A Meta-analysis of 65 studies. *European Planning Studies*, *18*(6), 893–919.

Whiteley, P. F. (2000). Economic Growth and Social Capital. *Political Studies*, *48*, 443–466.

Williamson, C. R., & Kerekes, C. B. (2011). Securing Private Property: Formal versus Informal Institutions. *Journal of Law and Economics*, *54*(3), 537–572.

World Bank, T. (2009). *World Development Indicators* (Various Ed.). Manchester: ESDS International, University of Manchester.

Zak, J. P., & Knack, S. (2001). Trust and Growth. *Economic Journal*, *111*, 295–321.