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## Article

# Does trust matter for economic growth and human development? Empirical evidence from a panel of countries

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## **Does Trust Matter for Economic Growth and Human Development? Empirical Evidence from a Panel of Countries**

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### **Abstract**

Trust among individuals of a society is an important dimension of social capital and may have different economic and development implications. The present study is an attempt to investigate the relationship of trust with economic growth and human development. It is unique in at least two different aspects. Firstly, it has used an index for quantifying trust which may be more comprehensive measure as compared with already used measures of trust by different research studies. The index has been constructed by taking into account different variables related with interpersonal safety and trust. Both perception-based as well as actionable indicators have been used in the construction of the index which adds to its reliability and usefulness. Secondly, the study has used panel-data for a large set of countries of the world. Panel-data framework has certain advantages over cross-country regression. Coverage of our data-set for large number of countries of the world also adds to the authenticity of our analysis. Our findings suggest that trust is not significantly associated with economic growth. However, it shows a positive and significant effect on human development. Hence, instead of having direct effect on economic growth, trust may affect economic growth indirectly through its positive effects on human development. The study will be helpful in enhancing the understanding regarding the role of trust in determining economic growth and human development.

**Key Words:** trust, economic growth, human development, social capital, informal institutions.

### **1. Introduction**

Accumulation of Physical and human capital, population growth, technological progress, natural resources endowments and initial level of development are viewed as some important and traditional sources of cross-country differentials of economic development. However, these factors do not fully explain the differences in economic development among countries. In an overview of empirical literature on economic growth, Prescott (1998) describes that physical capital accumulation and investment in human capital can only partially explain the differences of economic growth among countries. The inability

of traditional economic factors in explaining economic development differentials across countries highlights the need to investigate non-economic factors which may be helpful in explaining the development gaps among countries. Today, it has become almost an established wisdom in economic literature that in no way, the role of non-economic factors is lesser important than the role of traditional economic factors in determining economic growth and development of countries. This discourse is not very much new in economic literature (Adelman & Morris, 1967; Hirschman, 1958). However, it gained much importance after the influential work of North (1990, 1994) in which he described that the role of institutions was significant in understanding the nature and causes of economic performance of any country and underdevelopment could mainly be attributed to a large number of non-economic factors.

Institutions are now very well recognized as key to economic development (Acemoglu et al., 2001, 2002; Acemoglu & Robinson, 2000; Acemoglu et al., 2012; Chong & Calderon, 2000; Dollar & Kraay, 2003; Easterly & Levine, 2003; Hall & Jones, 1999; Knack & Keefer, 1995; La Porta et al., 1998; La Porta et al., 1999; Mauro, 1995; Olson, 1996; Rodrik et al., 2004) but the differences of institutional quality across the countries of the world cannot be understood without taking into account a large number of factors such as history, culture, social norms and values. Informal institutions embedded in culture, customs, traditions, history and social values may be useful to improve the quality of formal institutions due to their nature of complementarity to formal institutions (Bowles & Gintis, 2002; Djankov et al., 2003). The strength of informal institution in a society may be judged through the strength of social values of mutual help and norms of reciprocity and trust. A society endowed with such norms and values may have better economic and developmental outcomes due to variety of reasons. Firstly, such societies will have better and well-functioning formal institutions and better quality governance which, in turn, will have positive effects for economic growth and human development. Secondly, strengthened norms of trust in a society may help to reduce transaction costs and can facilitate exchange. Consequently, countries with a higher level of trust have better-functioning firms and more voluntary activity and, therefore, better-performing economies (Fukuyama, 1995). Thirdly, trust reflects the strength of social capital and societies having a high stock of social capital promotes and facilitates coordinated actions among individuals and thus can be helpful in improving the efficiency (Putnam et al., 1993).

Different research studies (Beugelsdijk & Van Schaik, 2005; Bjørnskov, 2012; Bjørnskov & Svendsen, 2013; Helliwell, 1996; Knack & Keefer, 1997; Knack & Zak, 2003; Portes & Landolt, 1996; Serritzlew et al., 2014) have focused on the relationship of trust with economic growth, human development, governance and human well-being. In doing so, they have used community-level, neighborhood-level or region-level data. Though some studies [for instance, (Knack & Keefer, 1997; Portes & Landolt, 1996)] have also relied upon cross-country analysis yet they have done it for a limited number of countries. Moreover the empirical studies in existing literature have generally used data for trust based upon some survey in which people are asked about trustworthiness of other people. For example, World Values Survey (WVS) is considered an important source for data on the variable of trust. This survey generates data on trust with the help of a simple survey question in which respondents are asked “Generally speaking, would you say that most people can be trusted, or that you can’t be too careful in your dealings with people?”.

Percentage of respondents who say that most of the people can be trusted is used as proxy for norms of reciprocity and trust in a society. But this question seems to be largely contextual specific because trustworthiness and trustfulness are very much interlinked with each other. Perhaps it would be difficult for respondents to answer question accurately without knowing about “trust for what” and “trust on whom” (Nooteboom, 2002). The present study is unique in at least two different aspects. Firstly, it has used an index for the measurement of trust which may be more comprehensive measure as compared with already used measures of trust by different research studies. The index has been constructed by taking into account different variables related with interpersonal safety and trust. Both perception-based as well as actionable indicators have been used in the construction of the index which adds to its reliability and usefulness. Secondly, the study has used panel-data for a large set of countries of the world. Panel-data framework has certain advantages over a single cross-country regression. Coverage of our data-set for large number of countries of the world also adds to the authenticity of our analysis. The study will be helpful in enhancing the understanding regarding the role of trust in determining economic growth and human development.

## **2. Theory and Literature**

Trust may affect economic growth and human development through different channels which have been intensively discussed in literature (Fukuyama, 1995; Knack & Keefer, 1997; Staveren, 2003; Staveren & Knorringa, 2008). Trust may help to reduce transaction cost, reinforce collective action, ensure political stability, manage latent conflict, create learning spin-offs and to trigger more investment. Trust among the individuals of a society which is accumulated through norms, values and successful cooperation plays a key role in its prosperity by acting like a “lubricant that makes any group or organization run more efficiently” (Fukuyama, 1995).

Trust may help to reduce transaction cost through the facilitation of exchange, reduction in cost required for negotiation and by economizing time and money required for the preparation and implementation of contracts. In the societies where level of trust is higher, written contracts are less likely to be needed and individuals are likely to divert fewer resources to protecting themselves through tax payments, bribes, or private security services (Knack & Keefer, 1997). Trust may be viewed as a strong predictor of social cohesion. Societies endowed with interpersonal trust may be more cohesive and may have better abilities to manage latent conflict. They may have fewer crimes and better law and order situation. This makes an environment which is more conducive for investment and hence for better economic growth. In a society with high social cohesion fewer resources are needed for enforcing law and order and for implementing property rights. Less potential risk of political instability also enables a cohesive society to attract more investment. An environment of trustfulness and trustworthiness is generated which facilitates exchange and reduces transaction cost. This creates a virtuous cycle, in which transaction costs are further reduced by generating more trust through building of reputation (Staveren & Knorringa, 2008). The higher level of trust provides better environment for economic activities and the result is better functioning economies (Fukuyama, 1995). Trust may also be helpful in the promotion of collective action and cooperation between individuals and organizations which may be useful in creating economies of scale (Staveren & Knorringa, 2008). Promotion of collective action helps in enforcing the supply of public goods by the state and in strengthening informal ways

(outside the state) to provide and manage semi-public goods (Cooke & Morgan, 2000). Supportive social norms of reciprocity and trust and values of mutual help may also be important for educational achievements (Coleman & Hoffer, 1987). Government's performance which is influenced by generalized trust can play important role in human capital formation (Knack, 2002) which can enhance the pace of economic growth and human development.

Supportive social norms and norms of mutual trust can be helpful for people to get out of anxiety or depression which otherwise can have negative effects for their health. Trust may be helpful in making some informal arrangements which may be supportive to minimize the sufferings of vulnerable groups of society such as women and minorities, who suffer disproportionately at the time of some disaster (Durlauf & Fafchamps, 2005; Fafchamps, 2006). Mutual help mechanism may be working well in societies endowed with norms of trust and hence can be helpful in providing assistance to those who are suffering from illness. Trust can also work to increase intergroup cohesiveness. In such situation, societies can be in a better position to settle intergroup disputes which otherwise may have negative effects for economic growth and human development.

Whiteley (2000) suggests that by no means the role of trust is less than the role of human capital in explaining economic growth. La Porta et al. (1997) test the relationship between trust, income and firms' scale by regressing the revenues of the 20 largest firms as a proportion of GDP on per capita income, trust in people, and a measure of trust in family members. They find that the scale measure is unrelated to income, and strongly related to the two trust measures: positively for trust in people, and negatively for trust in family. These results are in line with Fukuyama (1995), who stressed the relationship between social capital and industrial organizations. Tabellini (2006) finds a positive effect of trust on economic growth of 69 regions in eight Western European countries. Bjørnskov (2012) asserts that trust affects economic growth through its effects on schooling and rule of law. Portes and Landolt (1996) find a positive relationship between trust and economic growth in a cross-country regression for 41 countries. Knack and Zak (2003) postulate that effective formal institutions, freedom of expression and education can be helpful to raise trust which can affect economic performance. According to Serritzlew et al. (2014), the level of trust in a society is influenced by the corruption in the society. Reduction in corruption can affect economic growth through its effects on trust which becomes even more important in determining economic growth when formal institutions do not work well (James, 2015). However some studies do not confirm the positive association of trust with economic growth. Helliwell (1996), for example, does not find any evidence that trust and income are positively correlated among regions in Canada and the United States. Similarly Solow (1995) does not view any direct effect of trust on economic growth. According to him trust may work as background characteristic instead of affecting economic growth directly.

### **3. Measurement of Trust**

International Institute of Social Studies (ISS), The Hague has developed a data-set labeled as Indices of Social Development (ISD). Different indices reflecting the social development of society have been constructed by ISD for a large set of countries of the world. Index of interpersonal safety and trust is one of these indices. This index shows that to what extent the norms of reciprocity and trust are strengthened in a society. It is constructed by using data of variety of indicators which comes from various surveys.

These indicators are related to trustworthiness, feelings of personal security, reported levels of crime victimization, incidence of homicide, and risk reports on the likelihood of physical attack, extortion, or robbery. Matching percentile methodology (Lambsdorff, 2007) has been used to combine different indicators to form a composite index. The value of index lies between 0 and 1 and higher value implies higher level of interpersonal safety and trust. This index of trust has a potential advantage over the different measures of trust which have been used in previous literature. Most of the studies have used some perception-based indicator for the measurement of trust. Generally such indicators are derived from some survey in which people are asked about the trustworthiness of other people. But index produced by ISD has been constructed by considering both perception-based as well as actionable indicators related with norms of trust in a society. Thus the comprehensiveness of the index of interpersonal safety and trust produced by ISD (2012) and also its wide coverage for a large number of countries (list of countries is available in appendix) of the world make it an appropriate choice to use as a proxy of trust in the society. For detailed discussion on the construction of the index, see Foa and Tanner (2012).

#### **4. Methodology**

We have used panel-data framework for studying the relationship of trust with economic growth and human development. The use of single cross-country regression is quite common in empirical literature on economic growth. However, Panel-data framework has certain advantages over single cross-country regression. It can be helpful to address the problem of endogeneity which may rise due to omitted variable bias. It allows controlling for omitted variables that may correlate with key regressors. In our case, cross-sectional units may have certain characteristics which may be correlated with predictors. Hence it seems appropriate to use fixed-effects model in panel-data framework. Hausman test (Hausman, 1978) is also used to identify whether the use of fixed effect model or random effect model would be appropriate. It also suggests the use of fixed-effects for our case.

To investigate the relationship of trust with economic growth, growth rate of real GDP per capita has been used as dependent variable in our economic growth model. Initial level of income measured by one period lagged (five years lagged) value of log of GDP per capita, investment as a share of GDP, general government final consumption expenditure as a share of GDP, average years of schooling for the population aged 15 years and above and index of interpersonal safety and trust have been treated as independent variables.

For studying the relationship of trust with human development, we have used Non-income Human Development Index (NIHDI) as dependent variable in our human development model. Because of wide dissatisfaction among economists for GDP as a sole indicator of economic development, use of different indices which may be of more comprehensive nature is suggested by economists as a proxy for economic and human development (Anand & Ravallion, 1993; Anand & Sen, 2000; Haq, 1995). Human development index (HDI) is one of such indices developed by UNDP. It comprises of three dimensions of development which are income, education and health. So it may be regarded as more comprehensive and suitable measure of development as compared with GDP or GDP per capita. We have used non-income component of HDI which comprises of education and health dimension of human development index. Thus it does not take into account income component of HDI and focuses only on education and health

component of HDI. It may tell about the progress or development of any country in education and health; two very important dimensions of human development. Our dependent variable is NIHDI whereas independent variables include GDP per capita in purchasing power parity in US dollars, general government final consumption expenditures and index of trust. GDP per capita in purchasing power parity tells about the purchasing power of the people and more affluent individuals are supposed to spend more on education and health. General government final consumption expenditures tell about the fiscal policy of government which may have an effect on human development. Trust may enhance human development by working as cognitive therapy for individuals of society and by providing them with better education and health facilities through improvement in governance.

## 5. Data

Data for GDP per capita, GDP per capita growth, GDP per capita in purchasing power parity, gross fixed capital formation as a share of GDP, general government final consumption expenditure as a share of GDP and foreign direct investment as a share of GDP is taken from World Development Indicators presented by World Bank (2011). Data on NIHDI is from UNDP (2010). Data for average years of schooling is from Barro and Lee (2010) and data for interpersonal safety and trust is from ISD (2012) developed by International Institute of Social Studies (ISS) of Erasmus University, The Hague, The Netherlands. Data is for the period of 1990-2010 with five year intervals and with some missing observations. This makes our data an unbalanced panel data-set.

## 6. Empirical Results

Empirical results of our Economic Growth Model and Human Development Model have been reported in Table 1 and Table 2 respectively.

**Table 1: Trust and Economic Growth Dependent Variable: Growth Rate of Real GDP per Capita**

Independent Variables	Coefficients	t-Statistics	P-Value
<b>y</b>	-0.619252***	-4.226914	0.0000
<b>Inv</b>	0.158798***	6.456956	0.0000
<b>Sch</b>	0.174329**	2.313148	0.0212
<b>GC</b>	-0.027375	-0.711842	0.4769
<b>Tr</b>	0.442705	0.274697	0.7837
R <sup>2</sup> = 0.284675			N=455

\*\*\* Significance at 1% level      \*\*significance at 5% level

Empirical results reported in table1 show that economic growth (growth rate of real GDP per capita) is negatively related with initial level of income(y) as measured by log of one period lagged (five years lagged) value of GDP per capita. Investment and schooling show positive and significant relationship with economic growth. Government

consumption is negatively and insignificantly and trust is positively but insignificantly related with economic growth.

**Table 2: Trusts and Human Development Dependent Variable: Non-Income Human Development Index (NIHDI)**

Independent Variables	Coefficients	t-Statistics	P-Value
<b>Yp</b>	0.003496***	9.431665	0.000
<b>GC</b>	0.001029*	1.783542	0.0801
<b>Tr</b>	0.110514**	2.484133	0.0421
$R^2 = 0.473157$		N=436	

\*\*\* Significance at 1% level    \*\*significance at 5% level    \*significance at 10% level

Empirical results presented in table 2 show that human development is positively and significantly affected by GDP per capita in purchasing power parity. It implies that with an increase in people's income, they may be able to spend more on education and health and hence human development may be affected positively. Government consumption shows appositve and significant at 10% significance level relationship with human development. Human development is positively and significantly affected by trust.

## 7. Discussion

Our variable of trust shows insignificant, though positive, association with economic growth. The results regarding the variable of trust are in line with the findings of some researchers such as Helliwell (1996), who does not find any evidence of positive relationship between trust and income for the case of United States and Canada, and Paldam (2009), who find no causality running from trust to GDP in his study based upon data from eighty countries. The results are contradictory with some of prominent studies in literature on the relationship between trust and economic growth such as Knack and Keefer (1997), Portes and Landolt (1996). This may be due to two reasons; firstly because of the difference in the construction of the variable of trust and secondly because of the difference in the coverage of the countries. Unlike previous studies in which trust is generally measured by the proportion of survey respondents who say that most people can be trusted or similar like questions, our variable of trust has been constructed by taking into account a large number of variables regarding interpersonal safety and trust. These variables include both actionable and perception-based indicators. This makes our measure of trust more comprehensive as compared with those used in previous studies. Moreover our empirical analysis is for larger set of countries but previous studies are based upon either country-specific or region-specific empirical analysis. The studies which have used cross-country data have done it for a limited number of countries. The work of Knack and Keefer (1997) which was later on extended by Portes and Landolt (1996) considered as seminal work regarding the relationship of trust and growth. In order to study the role of social capital in economic growth, Knack and Keefer (1997) primarily focused on the variable of trust by considering it the most important dimension

of social capital. They used cross country data from World Value Survey for 21 countries. Later on, the work was extended by Portes and Landolt (1996) by using the cross-country data of 41 countries. But the robustness of the results of Knack and Keefer (1997) has been challenged by Beugelsdijk and Van Schaik (2005) by pointing out that the robustness and effect of the variables largely depends upon the underlying sample and conditioning variables controlled for in the regression analysis. Similarly, Solow (1995) does not find any direct effect of trust on economic growth. The underlying sample in our study is different and covers a larger number of countries than the previous studies. We have used panel data analysis in our study which has certain advantages over cross country analysis. Insignificant association of variable of trust with economic growth implies that trust does not have any direct effect on economic growth. However, this does not necessarily undermine the importance of trust due to its intrinsic value as well as the possibility of its indirect effects on economic growth. In spite of having any direct effects, trust may affect economic growth indirectly by affecting the background characteristics (Solow, 1995) and in our case these effects may be through its positive and significant effects on human development. Trust shows a positive and significant relationship with NIHD. The feelings of trust among individuals of society create an environment where people feel that they are safe. Perceived safe environment reduces the risk of stress and anxiety related diseases. People living in such environment may have better access to education facilities. Thus a society with strong social norms of trust and reciprocity may have better education and health outcomes.

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## Appendix

Table A-1: List of Countries

• Albania	• Eritrea	• Madagascar	• Slovak Republic
• Algeria	• Estonia	• Malawi	• Slovenia
• Argentina	• Fiji	• Malaysia	• South Africa
• Armenia	• Finland	• Maldives	• Spain
• Australia	• France	• Mali	• Sri Lanka
• Austria	• Gabon	• Malta	• St. Vincent and the Grenadines
• Bahrain	• Georgia	• Mauritius	• Sudan
• Bangladesh	• Germany	• Mexico	• Swaziland
• Barbados	• Ghana	• Moldova	• Sweden
• Belgium	• Greece	• Mongolia	• Switzerland
• Benin	• Guyana	• Morocco	• Syrian Arab Republic
• Bolivia	• Honduras	• Mozambique	• Tajikistan
• Botswana	• Hong Kong SAR, China	• Namibia	• Tanzania
• Brazil	• Hungary	• Nepal	• Thailand
• Brunei Darussalam	• Iceland	• Netherlands	• Tonga
• Bulgaria	• India	• New Zealand	• Trinidad and Tobago
• Burundi	• Indonesia	• Nicaragua	• Tunisia
• Cambodia	• Iran, Islamic Rep.	• Norway	• Turkey
• Cameroon	• Ireland	• Pakistan	• Uganda
• Canada	• Israel	• Panama	• Ukraine
• Chile	• Italy	• Papua New Guinea	• United Arab Emirates
• China	• Jamaica	• Paraguay	• United Kingdom
• Colombia	• Japan	• Peru	• United States
• Costa Rica	• Jordan	• Philippines	• Uzbekistan
• Cote d'Ivoire	• Kazakhstan	• Poland	• Venezuela, RB
• Croatia	• Kenya	• Portugal	• Vietnam
• Cuba	• Korea, Rep.	• Qatar	• Yemen, Rep.
• Cyprus	• Kuwait	• Romania	• Zambia
• Czech Republic	• Kyrgyz Republic	• Russian Federation	• Zimbabwe
• Denmark	• Latvia	• Rwanda	
• Dominican Republic	• Lebanon	• Saudi Arabia	
• Ecuador	• Lesotho	• Senegal	
• Egypt, Arab Rep.	• Libya	• Serbia	
	• Lithuania		