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# **How Does Interpersonal Trust Impact a Country's Economic Performance?**

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An Empirical Investigation

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24<sup>th</sup> July, 2019.

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## **Abstract**

Usually the domain of psychology and sociology, social trust has come to become increasingly relevant from an economic perspective. In this dissertation, I study the different channels through which social trust can impact the long run growth rate and economic performance of the economy. I propose that while social trust has a direct impact on GDP, it has an equally significant indirect impact – through quality of institutions, productivity, human capital formation and innovation. I first outline the main theoretical arguments on the association social trust and economic growth and then reviewing the evidence of an empirical association. I use 2SLS regressions to mitigate a problem that plagues most of social capital literature – that of endogeneity. In doing so, I establish clearly that the causal relationship runs from social trust to economic performance, and not vice versa. Finally I end with a commentary on the role of social trust in the context of the 21st century, with certain policy recommendations that are implied by my empirical results.

*JEL classification codes: A12, A13, A14, D72, O11*

*Keywords: Social Trust, Generalized Trust, Social Economics, Social Values*

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## 1. Introduction

The notion that interpersonal trust can impact long-run economic development is far from new. Since decades, it has been a point of deliberation among some of the most influential observers of economic life -- each of whom employ the idea using different definitions and specifications. In 1763, Adam Smith, in a conversation about how human virtues fare in a commercial society noted "Of all the nations in Europe, the Dutch, the most commercial, are the most faithful to their word." He argued that this was not due to some unique national trait or racial distinction, but could rather be attributed to a calculated act of self-interest, for "a dealer is afraid of losing his character, and is scrupulous in observing every engagement. When a person makes perhaps twenty contracts in a day, he cannot gain so much by endeavouring to impose on his neighbours, as the very appearance of a cheat would make him lose."

The essence of Adam Smith's argument is that there is positive feedback from trust to market activity and vice versa. On one hand, losing the confidence or the trust of one's trading partners can result in a social and economic injury to oneself, whose magnitude is far greater than that of everyday commercial misfortunes. On the other, the benefits of commerce and trade are not limited just to material gain, but serve as a method for 'civilizing' men, where civilization implies gaining the respect of society in exchange for an allegiance to honesty, and consistency in making good one's promises. Through this process -- the voluntary exchange of commercial goods in place of the courtesy and thoughtfulness that is required of each economic member working in their self-interest -- the institutionalization of interpersonal trust comes to foster while commercial activity flourishes, and so a marketplace is built.

Over the years, this finding has been corroborated by a series of researchers in varying domains -- from sociology and political science to financial risk management and social media web design. (Valenzuela et al. 2009) But before generalizing the impact of social trust on economic activity, we first need an exact description of trust and what we intend to study in this paper.

Trust represents the "expectations [of an individual] about actions of others that have a bearing on this individual's choice of action, when the action must be chosen before he or she can observe the actions of those others" (Dasgupta 2000). In contrast, social mistrust would imply that such expectations do not exist. This definition highlights two crucial principles of social trust: the conditional probability that motivates the present actions of an individual based on their expectations of the future actions of others, and the uncomfortable ease with which the trust in such a transaction can be exploited.

A growing body of research also documents the prevalence of 'social capital'. Putnam (1993) defined social capital as "features of social organization, such as trust, norms, and networks that can improve the efficiency of society by facilitating coordinated actions". While much is known about the *effects* of social capital and social trust, the work on understanding and identifying the underlying mechanisms that *create* social trust has been limited. Our leading source of knowledge is Putnam's (2000) exhaustive empirical survey investigating the potential causes for the declining social capital in the U.S.

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According to Putnam, interpersonal trust is a multidimensional concept which arises from different sources. Thick or special trust is based on personal experiences embedded in individuals' roots and relationships, and is built through frequent interaction among a network of close kin and friends. Coleman (1988) believed that personal networks were the main source of social capital, stating that the patterns of social organisations and the outcome of networks and norms, both serve as a prerequisite for building trust. Fukuyama (1995) shifted the focus to the cultural dimension of social trust, saying that trust among groups is rooted in shared culture. Building on this perspective, he claims that enforcing such a trust may be essential, not only to have mutual cooperation, but also because shared norms may enhance the chances of social punishment in the event of non-cooperative behaviours. Here thick trust is 'special' because it differs and is unique between people, such that it is hard to generalise on a larger scale.

Conversely, thin, moral trust emerges from reputations and norms, and is created when signals such as appearances, attitudes and behaviour meet a certain standard. Since its not limited to a personal relationship, it can be easily generalised. Hence a broad distinction is that of strategic trust, i.e, trusting someone when you personally know them, versus trusting a stranger. While exploring the concept of trust, the trust most literature actually refers to is of this type, and termed as 'generalised' trust. The difference between generalised and special trust was made clear by Banfield's (1958) study of a Southern Italian village in which individuals were connected by exceedingly strong bonds *within* families, but were strangers *between* families. He then coined the term 'amoral familism' to describe the situation in which no trust exists between people who do not know each other through personal attachments. In other words, generalized trust differs fundamentally from special trust by being extended to people on whom the trusting part has no direct information. In complex and specialized markets, only generalised trust is applicable to deal with the risks associated with incomplete information.

In this paper, when I speak about the evolution of trust, I refer to that which emerges from social context and individual characteristics on a broad level, not that which is created by frequent and intimate interaction. The purpose is to examine the economic role played by generalised, 'thin' trust, placed by random individuals on other random, anonymous individuals.

Now, the theoretical predictions state that countries where the aggregate level of generalised trust are higher, will grow and spur economic development at a rate faster than that shown by countries with low level of trust (La Porta et al. 1996, Knack and Keefer 1997 and Zak and Knack 1998). Trust has been shown to positively affect economic growth directly, by influencing overall efficiency and the scope of exchange, and indirectly, by reducing transaction costs, encouraging innovation, improving the production and accumulation of human and physical capital, and allowing for better diffusion of technologies.

In this paper, I aim to test these theoretical predictions to establish certain channels through which trust has a varied impact on a country's economic performance. Most studies (Knack and Keefer 1997) establish this through simple OLS regression methods which are problematic for two reasons:

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endogeneity between variables and the issue of direction of causality between economic growth and generalised trust levels. I try to overcome both of these by using more sophisticated measures of trust in an instrumental variable approach. Further, I also study the evolving nature of trust in the 21<sup>st</sup> century, and discuss how those channels could have different impacts in different socio-economic settings. Finally, I end with the large scale policy implications that are implied by my results.

From here on, Section 2 is literature review on the various definitions of trust, and how researchers have tried to study it over the years. Section 3 describes the theoretical predictions about generalized trust and establishes the basis for the specific transmission channels linking to trust that I study empirically in Section 4. I end with Section 5 which is centred around the evolution of trust as well as the changes to policy implied by my results in the previous section.

## 2. Literature Review

*“...there are countries in Europe [...] where the most serious impediment to conducting business concerns on a large scale, is the rarity of persons who are supposed fit to be trusted with the receipt and expenditure of large sums of money”*

- John Stuart Mill, 1848

This section establishes the relationship between social trust and economic growth, and then reviews evidence of the associations between social trust and different potential determinants of growth, all of which have been suggested by the social capital literature. The section is in no way exhaustive of the literature but only includes the most relevant studies.

### *Establishing the link between social trust and economic performance*

Until recently, economists have largely been reluctant to employ socio-cultural dimensions like trust as possible determinants of economic phenomena. Much of this reluctance has been historically justified by the nature of these dimensions themselves; they are vague and ubiquitous, and it has been virtually impossible to design testable hypotheses to study the channels through which they can interact with various economic variables. The role of trust, however, for micro- economic decision making and macro- economic performance, has been recognized by academicians for a long time. Arrow remarked “Virtually every commercial transaction has within itself an element of trust, certainly any transaction conducted over a period of time. It can be plausibly argued that much of the economic backwardness in the world can be explained by the lack of mutual confidence” (Arrow 1972). But, it was not until recently that economic literature began to deal with the determinants and consequences of trust rather than treating it as an exogenous variable. This was motivated by the influx of data and sophisticated econometric tools that allowed researchers to identify systemic differences in people's economic behaviour, and relate them to varying levels of trust. Further, in the last few decades, there has also been a resurgence of interest in the social dimensions of economic development (World Bank 1997). These developments pave the way for further discussions on how socio cultural explanations can be tested to enrich our understanding of economic phenomena.

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The impulse for introducing the notion that overall trust could play a vital role in economic development surfaced in the 1980s from two differing thoughts in sociology, represented by Bourdieu (1986) and Coleman (1988). These studies set into motion the development of a series of empirical studies which was driven by the new institutional approach of economics (North 1990 and Williamson 1985). Transaction costs, imperfect information, problems with risk and uncertainty, and socio-cultural restraints were integrated into the neoclassical framework of economics, and henceforth became fundamental determinants of economic performance. Together with developments in game theory and micro-economic analysis, the concept of trust was launched as a significant driver of economic behaviour. For instance, in a trust game designed by Berg et al. (1995), individuals were able to achieve a higher but uncertain payoff by trusting that their anonymous counterpart was willing to cooperate and reciprocate the trust placed. Here, Berg et al. (1995) stated that social norms could play a major role in impacting an individual's decision to trust and to reciprocate the placed trust.

Barro's (1991) seminal work on cross-country differences in economic growth and economic performance renewed the debate about the factors that could help to explain these differences. However, it was Putnam's (1993) ground breaking study of regional governance in Italy which first highlighted the role of social capital, in particular generalised trust, for superior governmental institutions and large scale economic dynamism. Putnam compared the substantial differences in the quality of regional governance in northern and southern Italy by looking at differences in the civic communities, social norms, associational activity, and most importantly, in social trust. He showed that regions with transparent institutions and unobstructed dissemination of information laid the foundations for higher levels of trust, which, in turn, contribute to the efficacy of public institutions and the stability of the region's democratic governance. According to Putnam, societies tend to evolve toward two broad equilibria, a good equilibrium, *a virtuous circle*, with high levels of civic engagement, trust and performance, and a bad equilibrium, *a vicious circle*, with isolation, exploitation, communal tension and stagnation. Fukuyama (1995) reiterated this point by demonstrating a cross-country evaluation of differences in economic performance of institutions, especially firms. Here the need and dependence on cooperation will determine the success of a firm across various indicators – from being quick to adapt evolving technology, to acquiring and retaining qualified personnel, to achieving the firm's long run objectives.

Now, trust can potentially influence economic performance through two channels: micro-economic or macro- political. On an micro, interpersonal level, trust reduces transaction costs and enforces contracts at the level of individual investors (Lyons and Mehta, 1997). On a macro level, social cohesion underlying trust may strengthen democratic governance (Almond and Verba 1963) or improve the quality of economic policies (Easterly and Levine 1997). It was Putnam's (1993) work which launched the resurgence of interest in trust as a macro-economic determinant of growth for several authors in the late 1990s. Although it was agreed on that trust was an important factor (La Porta et al. 1996, Knack and Keefer 1997 and Zak and Knack 1998), the magnitude of its effect was still a point of contention. In 1996, La Porta et al. (1996) carried out a cross-country investigation on the effects of trust on social and found strong evidence of the fact that trust impacts economic performance, with a one- standard-deviation increase of trust increasing growth by 0.3%. Here it is important to note that they used a very limited set of data, and did not take the appropriate precautions

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to address problems of specification and endogeneity. Based off their work, Knack and Keefer (1997) included an aggregate trust variable in their study to find positive and significant relationships between trust, growth and investment, even after controlling for several variables and accounting for reverse causality. According to their regressions, a one- standard-deviation increase in trust raises growth by 1.15% and investment by 2.04% (Knack and Keefer 1997). Here, the measures of physical and human capital used could majorly influence their results, which casts doubt on their findings.

So, although authors have found relevance of trust on growth and economic performance, some issues still stay unresolved. Firstly, in most studies, the robustness of the results derived from cross-country growth regressions are doubtful because not all factors that can impact growth have been sufficiently controlled for. Second, there are several measurement errors associated with studying trust. Third, and most pertinent to this paper, despite Knack and Keefer's (1997) investigation into causality, a significant debate continues to thrive about which (of trust or economic performance) majorly influences the other. Assuming trust is significantly related to growth, a lot more investigation is required into the channels through which it can enter the economic discourse. That is what I set out to do in this paper.

Using specific transmission channels and an instrumental variable analysis, I empirically prove that the direct causal relationship runs from trust to economic performance, which I define as GDP per capita. I individually study the relationship between trust and each of these transmission channels and thus predict the precise extent to which trust can impact macroeconomic performance. Further, based on this relationship, I also investigate the changing role of social trust in recent times and make relevant policy recommendations.

In the next section, I examine (based on past literature), what these channels could be.

### **3. Theoretical Directions**

#### *Transmission channels through which trust can impact economic performance*

Fukuyama (1995) focused on how social trust could reduce transaction costs between individuals by reflecting the strength of the 'moral bonds' that tie individuals together. It is proposed that cross country differences in economic performance are largely a function of the incentives that are faced by wealth – maximising individuals (Knack 2001). In some countries, the structure of these incentives is such that people divert wealth from others, while in others, incentives steer people towards producing new wealth. Knack believes that these relative payoffs – of 'predation' vs 'production' - are then dependant on the legal mechanisms that protect intellectual or property rights.

#### *Contract enforcement*

Efficient exchange relations are facilitated when parties trust each other (Lyons and Mehta 1997). Knack and Keefer (1997) defined trust-sensitive transactions as "those in which goods and services are provided in exchange for future payment, employment contracts in which managers rely on employees to accomplish tasks that are difficult to monitor, and investments and savings decisions that

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rely on assurances by governments or banks that they will not expropriate these assets.” In the real world, the most important contracts are highly trust dependant – where production, cost and payment decisions are sufficiently separated in time to provide strong incentives for opportunistic behaviour. For instance, goods and services are regularly provided in exchange for a promise of a future payment. Similarly, employers hire individuals to accomplish tasks that are difficult to monitor or measure. According to Arrow (1972), “Virtually every commercial transaction has within itself an element of trust, certainly any transaction conducted over a period of time. It can be plausibly argued that much of the economic backwardness in the world can be explained by the lack of mutual confidence.”

When trust is high, contracts are transformed by being enforced inexpensively, by reducing costs of specification and monitoring. Individuals in high-trust societies have to divert fewer resources to protect themselves against every possible contingency which constitutes an unlawful breach of their property rights. Where legal mechanisms for the efficient resolution of market imperfections are weak – such that situations like a prisoner's dilemma or a principal agent problem can arise – the incentives (driven by private returns) to predation increase, while that to production decrease. In terms of the economy, while spot market transactions allow some gains from trade, on a larger scale, long term projects like international trade and the benefits accrued from specialization, which are subject to opportunism to one of the party members will be forgone in the absence of trust dependant trades.

### Transaction costs

As trust increases and firms divert fewer resources to protective purposes, firms tend to economize on transaction costs by writing shorter, cheaper contracts.

Most of the early accounts of transmission mechanisms between social trust and economic growth mostly focused on transaction costs related to capital accumulation or production. Here, transaction costs – an ubiquitous element in every exchange, but which gains special significance in transactions of an intertemporal nature – refer to costs of information acquisition, costs of negotiation and costs of monitoring. A main point in Fukuyama's (1995) account of trust was that while social trust is not particularly important in underdeveloped societies where transactions are personal, the expansion of trade and transactions in modern society, not limited to geographical areas predicate the formation of a generalized level of trust or some formal institutions to maintain a level of trust between trade partners. Thus as societies develop over time and anonymized market transactions become both more prevalent and more profitable, moral bonds become increasingly important.

Due to reduced costs, high trust societies can divert their resources to produce more output than low trust societies. This impacts the risk perception of stakeholders; reduced supplementary costs and uncertainties increase the incentives (and the willingness) to employ economies of scale, thus allowing high trust countries to expand production and trade possibilities, and by extension, growth.

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### Innovation

All other things remaining constant, employing fewer resources on protection provides the firm with a cost advantage, thus allowing it to invest saved resources in investments, and more importantly, in innovation.

Akçomak and ter Weel (2009) developed a formal model of innovative investment in which social norms, network connectivity and social trust play a major role in enhancing economic performance. It built on the idea that strong social norms prevent researchers from cheating each other, giving rise to reciprocity norms which ensure higher levels of coordination in which innovators are encouraged to share information more effectively. As such, due to directly lower transaction costs in the production of knowledge as well as the financial intermediation necessary to put ideas to productive use, trust facilitates the process of innovation and makes economies more productive (Ikeda 2008). In 2017, Wenrui Zhang of Chinese University of Hong Kong (CUHK) Business School broadly investigated the impact of social trust on technological innovation (which they measure in number of patents and citations generated) and a country's economic performance. They proposed that a higher level of trust can provide a greater tolerance for failure by allowing innovators to take strategic actions viewed as 'risky', without fear of the consequences. On analysis, they found an economically and statistically significant relationship between social trust and innovation output: a 15% increase in a country's social trust leads to a 59% increase in the number of patents and a 55% increase in the number of citations.

### Technological Development

Based on innovation, diffusion of technologies also accompanies economic development. Trust allows firms to enter into cooperative exchange under contingent conditions, forming effective and efficient channels for the flow of information and new ideas (Granovetter 1973). At the same time, innovators know that the technologies they develop will be subject to intellectual property rights and are less reluctant to share it than in countries with weaker legal mechanisms. Thus agents in high trust countries therefore hold the belief that their efficient and effective institutions will be able to produce public goods - infrastructure, rights, liabilities and regulations – which will facilitate and secure the diffusion of the new technological style. As a result, they are more prone to supply as well as demand the goods and services of the new technological era.

### Quality of institutions, government and economic policy

Putnam (1993), La Porta (1996) and Knack and Keefer (1997) have all studied the relationship between trust and formal institutions and provided empirical evidence that trust positively affects the performance of institutions and governments.

Social trust not only impacts individual and firm behaviour, but is reflected in the enforcement behaviour of bureaucracies and other formal institutions as well. In trust literature, this has often been exemplified in the form of a principal-agent-client situation in which the agent is a potentially corruptible bureaucrat and the client is a private citizen or firm that needs to engage with the public

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sector. Trust can be modelled as the 'moral cost' of accepting bribes, breaking formal rules or in any way breaching the terms of the agreed upon contract. (Bjørnskov 2010). By raising the cost of offering and accepting bribes, higher levels of trust thus impact the honesty, efficiency and overall quality of most institutions, which has a direct impact on long run economic performance.

At the macro level, social cohesion underlying trust may strengthen democratic governance (Almond and Verba 1963) and improve the quality of economic policies. Higher trust can ensure higher level of political participation – by the citizens as well as the politicians/bureaucrats. While self-interested citizens will rationally decline to vote or to attend meetings or protest rallies, where levels of trust are higher, voters (principals) tend to overcome the collective action problem in monitoring officials (agents).

### Human capital

Alongside physical capital accumulation, human capital is an essential determinant of economic development. On one hand, trust stimulates human capital accumulation by facilitating social interactions. Social interactions play a central role in the process of information acquisition and learning. Coleman (1988) states the access and availability of information is strongly related to the social environment. Here trust facilitates effective knowledge transfers by raising the willingness to absorb this knowledge as well as reducing the cost of the transfer. Coleman also shows that social capital—understanding trust to be an integral part of social capital—affects the creation of human capital in the next generation by influencing school drop-out rates. In fact, many researchers have contributed to literature linking social trust and the state of education across countries. Goldin and Katz (1998) stated that social trust could help explain the rise of secondary education in the United States, while Knack and Keefer (1997) noted that high trust societies have specialized contracts centred around minimal monitoring, which encourages an interest in formal education. Given that performance cannot be precisely monitored, there are transaction costs associated with the decision to employ educated workers. In high trust countries this transaction cost is lower, and hence demand for an educated workforce along with employment opportunities are higher. Given that education and employment makes people more productive and tends to affect long-run growth, such direct mechanisms could theoretically affect the growth rate.

## **4. Data and Measurement**

### 4.1 Measuring Trust: Indicators used

Before the relationship between trust and economic performance can be determined, a good measure for trust needs to be established. This section illustrates the problems that arise when one attempts to establish a reliable measurement of trust.

Trust originates from psychology to describe the expectations of an individual about the behaviour of others (Dasgupta 2000) and therefore is subjective and inseparably linked to specific individuals. In this context, it is best to quantify trust through self-assessment by means of a survey questions or experiments. I rely on the World Value Survey (WVS) to obtain international data on trust. The WVS

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contains survey data on attitudes, values and norms for more than 50 countries that were acquired in four waves from 1981 to 2004. The measure of trust is on a scale of 1 to 5 and is based on 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 answer "most people can be trusted" is associated with trusting individuals whereas the answer "can't be too careful" represents mistrusting individuals. The validity of this measure of generalized trust has been questioned by some researchers, who argue that the question is open to personal interpretation (Nannestad 2008). Here the shortcomings of WVS are that only those countries can be evaluated where a certain level of development allowed a countrywide survey. Further, as the survey is aimed to measure generalised trust, the measure 'most people' can be ambiguous. Respondents in low income countries, who transact mainly with friends and family and view them as 'most people' may be subject to a systematic bias and may view general trust levels as higher compared to people in higher income countries who normally transact with strangers, and therefore view them as 'most people', who they will naturally trust less.

However, so far, the WVS is the only source that enables cross-country comparisons about cultural, social and personal attitudes. Further, trust levels measured by WVS do appear to correlate well with some factors that are logically related to trust. In an experiment done in several cities around the worlds, self-reported trust proved to be a good predictor of the number of deliberately 'lost' wallets returned with their contents intact (Glaeser et al., 2000; Knack and Keefer, 1997). Hence I continue my analysis while using the WVS Survey as a measure of trust.

The other variables will be summarised only briefly (for details see the data appendix). The indicator for economic performance has been defined as GDP per capita for the year 2018.

I use the World Bank national accounts data, and OECD National Accounts data files for this purpose. Further, I use an initial Average Growth Rate (AGR) for the years 2000-2017 as an control variable.

Secondary education has been represented by data from the UNESCO Institute for Statistics which describes the gross enrolment ratio across countries for the year 2018. Gross enrolment ratio for secondary school is calculated by dividing the number of students enrolled in secondary education regardless of age by the population of the age group which officially corresponds to secondary education, and multiplying by 100.

Investment share has been expressed as a ratio of total investment in current local currency and GDP in current local currency. The data is collected from the World Bank's repository of macroeconomic indicators, and is for the year 2018.

Institutional quality has been reflected in the rule of law index, which reflects the extent to which political institutions, the legal system and a provision of an orderly succession of power exist to implement law and settle disputes, and thus depicts the security of property and contract rights indicates the authority and influence of law in society. It is representative of the. My data is a part of World Bank's Worldwide Governance Indicators which are aggregate and individual governance

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indicators for 215 countries and territories over the period 1996- 2014, for six dimensions of governance. I use data for the year 2014.

I use share of Research and Development in a country's GDP as a proxy of the level of innovation in a country. Here domestic spending on R&D is defined as the total expenditure (current and capital) on R&D carried out by all resident companies, research institutes, university and government laboratories, etc., in a country. I use data collected by the OECD for the year 2018.

Another proxy of innovation, the number of patent applications has been measured through the number of worldwide patent applications filed through the Patent Cooperation Treaty procedure or with a national patent office for exclusive rights for an invention. The data has been collected from the World Intellectual Property Organization for the year 2018.

For contract enforcement, which I take as an indicator of the level of productivity in a country, I use the Enforcing Contracts indicator developed by the World Bank's Ease of Doing Business Index. It measures the time and cost for resolving a commercial dispute through a local first-instance court, the quality of judicial processes index, and evaluates whether each economy has adopted a series of good practices that promote quality and efficiency in the court system. I use the most recent round of data from 2018.

Later in the paper, I use some particular Instrumental Variables to analyse the endogeneity problem that rises with studying trust and growth. Here, an indicator I use is ethnic heterogeneity, which measures the degree of ethnic, linguistic and religious heterogeneity in various countries. The dataset covers 215 countries and territories and was compiled by Alberto Alesina et al. in the year 2003, but was last reviewed in the year 2011.

Another instrumental variable I use is the share of legal students as a percentage of total postgraduate students. The data has been collected from UNESCO's dataset on Sustainable Development Goals, which allows a distribution of postgraduate students in a country field of study. The data I use is for the year 2017.

Lastly, I use the temperature in the coldest month of the year as another instrumental variable. The data, denoted in Fahrenheit, is collected as a part of Berkeley Earth's time series data which analyses air temperatures over land for the years 1750 to 2018. I use data for the year 2018.

Hence after defining my variables I continue with my analysis.

#### 4.2 Establishing the direct link between economic performance and trust: cross- country growth regressions

The impact of trust on cross-country differences in per capita GDP growth is analysed by running a regression of growth on trust, while controlling for the additional variables that affect growth. Initially, cross-country growth regressions have been used to demonstrate whether the neoclassical growth model can explain cross-country growth dynamics accurately. Here, according to neoclassical theory,

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investment, education and a few more indicators have been taken as determinants of level of per capita GDP.

Hence, the first hypothesis is [that]:

H1: *There is a positive association between generalized trust and economic performance.*

At this stage, I do not estimate the effects of various transmission channels.

I perform ordinary least squares (OLS) regression analysis on pooled cross-sectional data with the regression equation:

$$G = \beta_0 + \beta_1 \text{trust} + \beta_2 \ln(Y_0) + \beta_3 SS + \beta_4 \text{Inv} + \beta_5 \text{ROL} + \beta_6 \text{tech} + \varepsilon_i \quad (1)$$

Here G is the dependant variable and denotes the per capita GDP (2018). The independent variable of interest is generalized trust, denoted by 'trust', represented by the WVS survey question. I include various control variables:

- $Y_0$ : Initial average growth rate (2000-2017) has been included in its natural logarithmic form as an independent control variable, and we expect according to the conditional convergence hypothesis, that this variable will have a negative coefficient,  $\beta_2 < 0$ , i.e, the growth rate should be negatively associated with the level of income at the beginning of a period
- $SS$ : Average percentage of population enrolled in secondary education is used to describe state of human capital.
- $Inv$ : Investment share (in % of GDP) has widely been used as an explanatory variable for growth, and is used here to describe state of physical capital accumulation
- $ROL$ : Institutional quality has been reflected in the rule of law index, which reflects the extent to which political institutions, the legal system and a provision of an orderly succession of power exist to implement law and settle disputes, and thus depicts the security of property and contract rights
- $tech$ : Based on Solow's work, share of GDP in R&D had been included to demonstrate technological progress.<sup>1</sup>

All variables were standardized for easier interpretation of the results. The results of the regression are demonstrated in Table 1.

#### 4.3 Establishing the direct link between economic performance and trust: Results

Regression (1) in Table 1 presents the results of estimating equation (1) including only the initial trust level as an independent variable. Trust is significant at 1%, and an increase in trust level of one standard deviation increases GDP per capita by approximately 1 per cent per year (obtained by multiplying the coefficient with the standard deviation to make results comparable).  $R^2$  to begin with is high as well, at 0.37.

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<sup>1</sup> Here, other indicators like technological adoption were used as well, and showed similar results.

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Table 1:

	(1)	(2)	(3)	(4)	(5)	(6)
<i>Real GDP per capita (2018)</i>	*	*	*	*	*	*
Trust	0.62***	0.58***	0.63***	0.24***	0.25**	0.33***
(0.162)	(0.08)	(0.07)	(0.09)	(0.06)	(0.05)	(0.07)
Initial avg. GDP growth		-0.26***	-0.11	-0.22***	-0.32***	-0.19*
(2.25)		(0.08)	(0.09)	(0.05)	(0.06)	(0.08)
Secondary Education			0.22*			0.004
(26.10)			(0.09)			(0.07)
Investment Share			-0.04			-0.18
(7.4)			(0.09)			(0.09)
Rule of Law				0.66***	0.53***	0.46***
(.99)				(0.05)	(0.07)	(0.09)
Share in R&D					0.18*	0.24**
(1.02)					(0.07)	(0.07)
Observations	96	96	96	96	96	96
Adj. R-squared	0.37	0.43	0.53	0.79	0.83	0.85

*Standard deviations are in parenthesis under the independent variables, standard errors are in parenthesis under the coefficients.*

*Marginal coefficients* \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

In Regression (2), as per theoretical prediction, the initial average per capita GDP growth is significantly (at 1% significance level) and negatively related to growth. In Regression (3), I add the secondary schooling and investment share variables to the regression, to find that only secondary education or gross enrolment ratio is significant (at 10% level). One standard deviation increase in the enrolment ratio improves per capita GDP by 5.74%. Initial level of GDP growth ceases to become significant in this model, while trust remains highly significant. In Regression (4), I add the rule of law variable which is highly statistically significant (at 1% level) and the share of R&D in GDP, which is significant at 10% level. Increase in rule of law by about 1% point increases GDP per capita by about 0.65 percentage points. In Regression (5), I present the results of regressing growth on all the variables, including trust, initial GDP growth, secondary education, investment share, rule of law and share of R&D. The results are consistent with neoclassical economics growth model and with common findings of the empirical literature. The adjusted  $R^2$  increases marginally to 0.85, while all coefficients except that of trust show a small decrease in value. Still, all coefficients except for schooling and investment share are significant. The coefficient of trust is highly statistically significant at 0.33.

The relation between trust and GDP per capita can be seen in Figure 1.

It can be seen that countries with a high aggregated level of generalised trust observe higher per capita growth than countries with a low aggregated level of generalised trust, controlling for other influences on growth. Thus trust accounts for cross- country differences in growth; the fitted line with the slope 0.62 (the same as the coefficient in the regression) represents the linear positive relationship between

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trust and growth. Therefore countries above the line, e.g. Norway and Singapore) experience higher growth in per capita GDP as predicted by the regression analysis while countries below the line (eg. Saudi Arabia and Argentina) experience unpredictable small growth rates.

Now, different levels of trust could affect growth directly and indirectly via different channels. This argument is supported by the decline of the coefficients of other explanatory variables when trusted is added to the growth regression. Both, the falling coefficient of secondary education and the rule of law indicates that trust affects growth via its influence on education decisions and institutional quality. This is demonstrated in Table 2. The role of trust in impacting investments and innovation through R&D is also shown through a fall in the coefficients for the same.

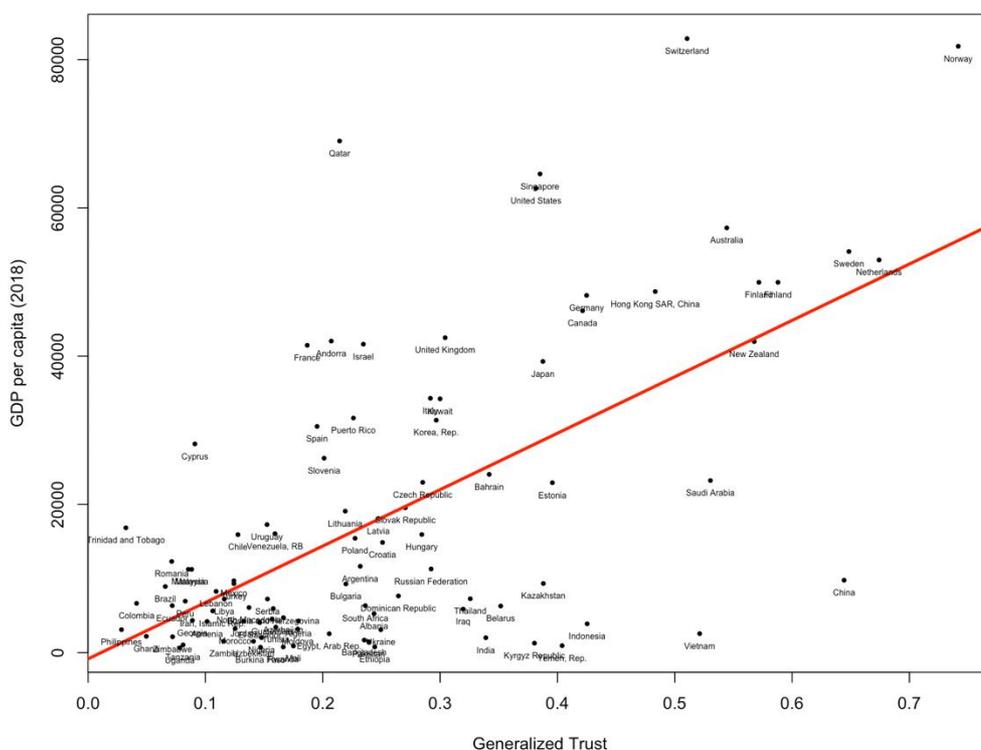


Figure 1: Cross Country – Trust and GDP per capita

In summary, the basic regression analysis strongly confirms that trust affects growth both directly and indirectly through different channels that themselves are growth enhancing. However, we realise that research about generalized trust and economic performance is plagued by endogeneity. To make my findings more robust, I perform additional 2SLS regressions for each of the transmission mechanisms, in the next section.

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Table 2:

	(1)	(2)	(3)	(4)	(5)
<i>Real GDP per capita (2018)</i>	Avg. GDP growth	Secondary Education	Investment Share	Rule of Law	Share in R&D
Without Trust	-0.33*** (0.09)	0.50*** (0.11)	-0.08 (0.10)	0.81*** (0.05)	0.73** (0.08)
With Trust	-0.26*** (0.08)	0.23*** (0.09)	-0.15* (0.07)	0.68*** (0.06)	0.53*** (0.08)

*Standard deviations are in parenthesis under the independent variables, standard errors are in parenthesis under the coefficients.*

*Marginal coefficients: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$*

### 4.4 Establishing the indirect link between economic performance and trust: Transmission channels for Social Trust

Regression (1) only accounted for the direct effects of social trust on growth. In this section, I suggest, in line with the literature, that social trust is a pervasive element in society that positively affects the working of the economy in several ways. I explore the transmission channels through which social trust can affect growth as captured by the other variables: secondary education, innovation capacity, quality of contracts, rule of law and human capital. A first indication of where to search for effects of social trust is provided in Table 3, which reports the simple and partial correlations between trust and variables capturing a number of potential transmission channels. We can see that the correlations for schooling, rule of law and % share of R&D are of substantial size. However, whether these correlations indicate a causal relationship/ the directions in which these influences work need to be subject to further scrutiny. First, we estimate the dependence of these variables as  $Z_i$  on social trust, according to the following equation:

$$Z_i = \beta_0 + \beta_1 \text{trust} + \beta_2 \ln Y_0 + \varepsilon_i \quad (2)$$

Here  $Z_i$  represents each of the transmission variables. We know that these transmission variables play a role in improving macroeconomic performance, so here we try to study the impact social trust has on creating these variables.  $\beta_1$  describes the effect of trust on a vector of these dependant variables  $Z_i$ , while  $\beta_2$  controls for the effect of initial income, represented by AGR (2000-2017) has again been included to indicate initial income.

I present my results of equation 2 in Table 4. When it comes to social trust, researchers have found that the direction of causality between trust and the transmission mechanisms has not been too obvious. Putnam (2000) famously remarked that “the causal arrows among civic involvement, reciprocity, honesty, and social trust are as tangled as well-tossed spaghetti”, referring to the fact that “all round

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good citizens", who are trustworthy and involved in community life generally are more trusting than those who are not. Nannestad (2008) mentions several variables that are associated with trust, but where the direction of a causality is unclear: corruption, the welfare state and a nation's wealth may all both explain trust, as well as be explained by trust. Hence there exists a problem on endogeneity.

Now, in order to reliably perform a test of endogeneity, detailed datasets with long time-series data are required, which are not very common in the case of data regarding generalized trust. Therefore, in this scenario, I choose to run a two stage least squares (2SLS) – or instrumental variable regression – which may actually give valid and consistent outcomes in the presence of endogeneity (Nannestad 2008). Here, by using instruments to estimate the independent variable, correlation of the independent variable with the error term is mitigated. That is because proper instruments are exogenous, and thus not logically correlated with the dependent variable.

Table 3: Simple and partial correlations with social trust

	Simple Correlation	Partial Correlation
<i>Productivity</i>		
Contract Enforcement	0.34	0.30
<i>Human Capital</i>		
Secondary Education	0.43	0.46
<i>Innovation</i>		
Patent applications	0.28	0.44
% share of R&D	0.54	0.52
<i>Institutional Quality</i>		
Rule of Law	0.53	0.44

Table 4: Indirect Transmission Channels as in equation (2)

<i>Dependant Variable</i>	(1) Contract enforcement	(2) Secondary enrolment	(3) Patents (in 1000s)	(4) % allotted to R&D	(5) Rule of Law index
Trust	26.52*** (7.4)	52.47** (18.06)	268.19** (87.17)	2.74*** (0.58)	3.02*** (0.55)
ln (Y <sub>0</sub> )	1.46 (2.01)	-12.56* (5.2)	40.57 (23.8)	-0.64*** (0.18)	-0.23 (0.15)

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This brings me to my second and third hypothesis:

H2: *There is a positive association between generalized trust and economic performance, even after modelling for an endogenous relationship between generalized trust and economic performance.*

H3: *Generalized trust impacts economic performance through four distinct transmission channels, namely productivity growth, innovation, human capital and institutional quality.*

My main objective here is to establish that social trust influences economic growth through four distinct channels:

- 1) Productivity growth: Here I assess 'productivity' through the quality of contracts written in the countries since this indicates lower transaction costs, lower security and monitoring costs and thus more efficient use of a firm's funds.
- 2) Level of innovation: I assess level of innovation as the average number of patents applied for in a country (in 1000s) (henceforth referred to just as 'patents') and the percentage of GDP allotted to Research and Development in a year
- 3) Rate of human capital accumulation: I assess level of human capital with % of population enrolled in secondary schooling.
- 4) Quality of governance and institutions: I assess this level through a Rule of Law index

Now, to mitigate the problem of endogeneity, I use the instrumental variables approach.

#### 4.4.1 Identifying Potential Instrumental Variables

In econometrics, a good instrument is that which is correlated with the possibly endogenous independent variable (trust), for reasons that can be explained and verified. There should exist correlation between the instrument and the dependent variable (our transmission channels), other than the correlation which is explained by the relationship between the instrument and the endogenous regressor (Angrist and Krueger, 2001). The second criterion is that the instrument should not be correlated with the error term, i.e., it should be exogenous. If the instrument is truly exogenous and unrelated to the dependent variable, results can be interpreted as a causal relationship (Antonakis et al., 2010).

Zak and Knack (2001) were one of the first researchers to discuss studies in which causality was gauged by the use of plausibly exogenous instruments. Based off work done by La Porta et al. (1997), they argued that the shares of adherents of Catholicism, Christian Orthodox churches and Islam in each country's population could be sufficiently predetermined to be a fully exogenous component of trust. Horváth (2013) employed the genetic distance from the US, the absolute latitude and a dummy for whether a country is a former colony as an instrumental variable for trust (IV).

On the basis of previous literature research, I identify the following variables as candidates for possible IVs: ethnic heterogeneity, legal students, and the average temperature in the coldest month of the year. To assess if these variables are indeed suitable, I need to:

- Verify if the IVs are correlated with generalized trust (and whether this correlation can be explained)

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- Verify that these IVs are not associated with the various transmission channels
- Verify that the correlation of the IV and the error term of the regression (other variables impacting growth) is unlikely

Here, economic performance continues to be measured as average aggregate growth rate (AGR) from the period 2000 to 2017. (Note, this is not time series data, but a statistical average). For each of the instrumentals, where data is available, I again try to use to the average over the same period.

Table 5: First-Stage OLS regressions of instruments on generalized trust

	(1)	(2)	(3)
	Trust	Trust	Trust
Ethnic Heterogeneity	-0.36** (0.12)		
Temperature		-0.42*** (0.1)	
Legal Students			-0.33** (0.11)
Observations	98	98	98
Adj. R squared	14.1	16.9	12.4

*Clustered standard errors in parentheses \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$   
All variables have been normalized.*

Table 6: OLS regressions of instruments on aggregate growth rate (AGR), to verify if instruments are exogenous

	(1)	(2)	(3)
	AGR	AGR	AGR
Ethnic Heterogeneity	-0.01 (0.11)		
Temperature		-0.01 (0.1)	
Legal Students			-0.65 (0.04)
Initial GDP	-0.44*** (0.12)	-0.44*** (0.12)	-0.45*** (0.08)
Observations	98	98	98
Adj. R squared	14.8	14.9	22.2

*Clustered standard errors in parentheses \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$   
All variables have been normalized.*

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### Ethnic Heterogeneity

Alesina and La Ferrara (2000) verify that the ethnic heterogeneity of a country is a determinant of trust making it a potential instrument. They have provided the dataset I use for this result, which is essentially a new measure of ethnic heterogeneity that relies mainly on the ethnic fractionalisation of a country, which can be defined as “the probability that two randomly selected individuals from a population belonged to different groups”. It tracks the number of ethnic, linguistic and religious heterogeneity in various countries. Therefore, a higher index of ethnic fractionalisation indicates a more fragmented country, and less trusting country.

First, I need to establish a link between my IV and generalized trust. Ethnic heterogeneity and trust levels show have a simple correlation coefficient of -43.4%. Regression (1) of Table 5 shows the statistically significant relationship between them. This can be justified given the fact that impressions matter; observable characteristics like race or language often shape expectations about the behaviour or personality of others before it can be discerned through personal interaction.

Further, I also need to verify that ethnic heterogeneity has no significant impact on the various transmission channels, and by extension, on growth. Of all channels, I judge that it is most appropriate to use ethnic heterogeneity as an IV for the innovation indicator, i.e, number of patents and share of R&D. It shows a low simple correlation coefficient of -14.6% with patents and a similar low correlation coefficient of -26% with share of R&D (in %).

However, the assumption that ethnic heterogeneity is indeed an exogenous variable in terms of impacting economic growth is far from perfect. For example, ethnic heterogeneity can influence political stability and the amount of civil liberties awarded in a country. However, Alesina et al. (2003) note that this violation of exogeneity only becomes a problem in an extremely long-run perspective. I test this in Regression (1) of Table 6. There is no significant relationship between Ethnic heterogeneity and Growth rate, even after controlling for initial GDP. In addition, I perform an Hausman test to find that ethnic heterogeneity is accepted by the Hausman test<sup>2</sup>, for both number of patents and share of R&D. This can interpreted as evidence that ethnic heterogeneity has a limited effect on economic growth that does not go through generalized trust. I proceed to use it as an IV.

### Temperature

Bergh and Bjørnskov (2011) use the temperature in the coldest month as an instrument for generalized trust. Their reasoning comes from the fact that country-level generalized trust has a strong historical context. Durante (2009) used climate data from 1500-2000 to find a clear link between climate and generalized trust. According to him, trust developed in harsh preindustrial times as a result of the cooperation that was necessary in order to survive. In preindustrial times climatic uncertainty had a much larger impact on food production than it has now. In order to survive the effects of climatic uncertainty, people had to cooperate with each other and form so-called mutual insurances. Although

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<sup>2</sup> The Hausman Test is a test for model misspecification that detects endogenous regressors in a regression model.

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the mutual dependence (due to climatic uncertainty) no longer plays any significant role in modernized societies, these social patterns still remain intact over time.

I first try to establish a link between my IV and generalized trust, which here is the temperature in the coldest month (on average from the years 2002-2017). Temperature and trust levels show have a simple correlation coefficient of -41.2%. Further, from regression (2) in Table 5, it is established that they have a highly statistically significant relationship.

From all transmission mechanisms, I judge that temperature would best serve as an IV for three transmission channels: secondary enrolment, quality of contracts (contract enforcement) and quality of institutions (rule of law). For each of them, it shows a correlation coefficient of -18%, -22% and -26% respectively. Here too, the exogeneity of temperature on growth is doubtful given the several ways national temperature can impact growth.

In contemporary data, it is well known that hot countries tend to be poor, with national income falling 8.5% per degree Celsius in the world cross-section (Dell et al. 2009). For instance, it has been proven that countries close to the equator are more prone to natural disaster and disease, which can have a significant impact on productivity and therefore level of growth. (Acemoglu, Johnson and Robinson, 2002). This again necessitates the need for a Hausman test. From regression (2) in Table 6, I find that temperature and my transmission channels show no significant relationship, which I then confirm with the Hausman test.

#### Number of Law Students

Similar to work done by Knack and Keefer (1997), another instrument I use is the number of law students in 2017 as a percentage of all postsecondary students. Putnam (1993) attributes the number of "notaries, lawyers, and judges" in Italian cities to the "unusual confidence in written agreements, in negotiation, and in the law" rather than to "contentiousness." Knack and Keefer (1997) argue that less trusting and more crime-ridden societies will have a higher demand for lawyers, as will more polarized societies in which special interests lobby governments for rent.

In trying to establish a link between my IV and generalized trust, I find that number of law students (henceforth, 'legal') has a correlation coefficient of 31% with trust, and from regression (3) in Table 5, is statistically significant upto 1% level.

I judge that it would best serve as an IV to make more robust the findings for share of R&D. I find that legal and share of R&D show a correlation coefficient of 4%. I do not have many doubts about exogeneity, which the results of the Hausman test confirm. In addition, in regression (3) of Table 6, I find that the IV and AGR do not show a statistically significant relationship, which suggests that the impact of legal on economic performance is only felt through the channel of social trust.

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#### 4.4.2 Solving The Causality Problem: 2SLS Regressions

The final step to solving the endogeneity problems and establishing the causal relationship is to perform the 2SLS regressions. The results of these regressions are given in Table 7.

Table 7: 2SLS regressions

	(1)	(2)	(3)	(4)	(5)	(6)
<i>Instruments</i>	Ethnic heterogeneity	Ethnic heterogeneity	Temperature	Temperature	Temperature	Legal Students
<i>Dependant Variables</i>	Patents	Share of R&D	Secondary enrolment	Enforcing Contracts	Rule of Law	Share of R&D
Trust	1257.56* (756.06)	6.14** (1.59)	17.03** (4.7)	90.84** (26.01)	5.16*** (1.5)	4.66** (3.8)
Initial AGR	-0.01 (0.07)	-0.05 (0.06)	-1.32 (1.64)	0.20 (0.76)	-0.01 (0.04)	-0.1 (0.06)
Observations	98	98	98	98	98	98
Adj. R squared	0.31	0.44	0.29	0.83	0.36	0.41

*Standard deviations are in parenthesis under the independent variables, standard errors are in parenthesis under the coefficients.*

*Marginal coefficients* \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Regression 1 of table 7 shows the result for a 2SLS estimation using Ethnic heterogeneity as an instrument for trust. Trust is positively significant at 10%, which establishes its effect on the Patents applications in a country. The same is true for Share of R&D in GDP, a finding made robust by changing the instrumental variable to number of law students as a percentage of graduates (Regression 2 and 6). A unit increase in the trust score increases number of patents filed by 12,57,000 (patent applications are measured in 1000s), which is a significant amount and a big indicator for the level of innovation in a country. Again, the same is true for the fact that R&D share goes up between 4.66% to 6.14% by increasing the trust score by a unit.

Regression 4 shows a positive and significant relationship between trust and the level of contracts enforced, which I take as a proxy for the productivity in a country. The 2SLS estimation using temperature as an IV tells us that by increasing the trust score by 1 unit, the index for enforcing contracts goes up by 90.84 points. That is a major boost for productivity, and again is proof that trust actually causes growth, correcting for the reverse effect of growth on trust.

Regression 3 in Table 7 shows a positive and highly significant relationship between trust and secondary enrolment. A one unit increase in the trust score increases the % of students enrolled in higher education by 17%. This corroborates the hypothesis that trust has a major impact on human capital development, again confirming the direction of causality.

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Lastly, regression 5 or the rule of law index has been used as a proxy for the level of institutional quality in a country. I see a positive and highly significant relationship, indicating that a unit increase in the trust score can improve the rule of law index by 5.16 points. This confirms that trust has a major impact on the level of institutional quality in a country, and that the relationship, again, runs from trust to the institutions and not vice versa.

Overall, my results are positive, and support my theoretical arguments. Here I do recognize that after controlling for causality using the instrument, more checks for robustness could have been performed, and finally a set of regional dummies could be added to ensure that my results are not driven by geographical factors or by any particular group of countries. Further the analysis can be significantly improved if trust data were available for a larger time period as well.

## 5. Conclusion

In this paper, I have studied the effect of social trust on economic growth, directly and through its impact on productivity, human capital development, innovation and institutional quality. The outcomes confirm a positive impact of trust on growth, a conclusion accepted by most of the literature. While previous research has already provided evidence that generalized trust and growth are indeed associated, much of the research on this topic is plagued by endogeneity. I have used 2-Stage Least Squares (2SLS) regressions to solve the endogeneity problem.

By using specific transmission channels, my research is unique in the way it establishes that causality runs from trust to growth, and not vice versa. Further, the indirect impact of trust is substantial, and my results imply that a major emphasis needs to be put on trust in particular, and the specified channels in general as important determinants of economic development.

In 2017, for the first time in 17 years the Edelman Trust Barometer found a decline in trust across all four of its main institutions: business, media, government, and NGOs. This plummeting level of public trust has been far too common in recent times: the Gallup World Poll shows that for almost 70% of countries polled between 2007 and 2016, the trust in national government has dropped in the aggregate, often by more than 20 percentage points.

This is particularly dangerous because trust is at the heart of today's complex global economy (Lord 2019). In today's advanced economies, manufacturing entails complex supply chains that extend over continents, while globalisation and digitalisation has ensured the participation of varied communities in all kinds of social and economic innovations. Here trust operates through many channels, from saving money that would have been spent on monitoring and security, to improving the political system. Above all, it enables a person to do business with another.

Historically on a firm level, trust based businesses have also been some of the most successful ones. Take the diamond industry, for instance – a *New York Times* reporter, writing about the city's diamond district said, “legal and moral accountability is the foundation for the very survival of the diamond trade... even if 1 percent of the dealers were dishonest, that trust would be destroyed and so would our industry” (Richman 2017). The same is true in the interiors of Surat in Gujarat, India, where 90% of the world's rough diamonds are cut and polished, leading to a business worth about \$13 billion a year (Richman 2017). In both of these communities, a large sum of resources are saved every year by incorporating the element of interpersonal trust into contracts, and thus supplying contracts only to people who have gained an enormous amount of trust. In a country level setting, where it's impossible

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to reward contracts only to those who are known, the key insight from such businesses could be the importance of signalling. In this age of supply chain diversification, frequent collaboration between firms is not just common, but also the norm. On a firm level, trust-based relationships and vertical integration in a supply chain are substitutes for each other, and that vertical integration takes hold when trust breaks down (Richman 2017). But given the modernization of the marketplace, the organizational inefficiencies related with operating such vertical integration would be much higher than a product's profit margin. Hence it is essential to have an indicator for how trustworthy a firm is, which can then be used as a benchmark for collaboration.

Now that a consensus is emerging on the importance of generalized trust, the obvious search is for strategies that can be used to create or improve levels of societal trust. Given the significant role of trust in economic development, we are also led to several questions on how we design economic policy around it.

A clear way to replenish trust levels is to work on the efficacy of a country's institutions. A 2017 Pew Research Centre study of 38 countries suggests that trust in government is alarmingly low, with a global median of only 14 percent of people saying they trust their national government "a lot" to do what is right for the country. Here the most important determinant of social trust in institutions—whether schools, hospitals, libraries, law enforcement agencies, or local governments—is their ability to monitor contracts, and legally enforce promises made between institutions or individuals. Another key factor here is the lack of accountability and transparency which can lead to corruption in a government. The 2017 Corruption Perceptions Index found that most countries are making little or no progress in their quests to eliminate it. But again, here a large number of remedies have been proved effective, like improving financial management, ensuring freedom of press and information access, giving citizens greater abilities to monitor the actions of elected officials and hindering offshore financial institutions from laundering illicit flows of money. So called "sunshine laws" can necessitate a government to make its data, including spending and budget information, public. Hence an open government can reduce corruption by advocating transparency.

However, the most alarming consequence of declining trust so far has been the impact on an individual level, where societies without trust, are now at risk of conflict. Economic and technological change is happening at an unprecedented pace (Edie 2017), such that political and regulatory systems have been unable to cope. This adds to the loss of trust, spurring dissatisfaction among leaders and causing increased polarization in our societies. This could explain forces of growing divisiveness among the public, and populism amongst leaders which forces them to take ill-advised, short term measures without tacking protracted crises at their roots. Individuals disengaged from traditional structures of power are more at risk to engage in new forms of participation, which may not necessarily foster unity in a society. (Edie 2017) This could explain the rise of social media based terrorism, which again brings the cohesion between countries under threat. In recent times of global crisis, with problems like migration and climate change that transcend national borders, it is essential to have a level of cooperation between nations and a consensus on collaborating for the greater good.

Here the impetus is on nations to engage citizens in solving community and societal challenges, to make deliberate action to change public attitudes while allowing the public a greater role to play in society. When people feel they're blocked from opportunities because of their gender, race, age, ethnic or religious group, disability, or other reasons, it's hard to expect them to trust the institutions they feel are marginalizing them. Nations must take active measures to strengthen social inclusion and build more accepting societies. This could include land- distribution measures to give longstanding residents an opportunity to own land; income distribution measures, inclusive employment laws, financial inclusion, and skills training to help people overcome economic barriers.

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On a broad scale, I propose that incorporating the element of trust, and working actively to establish interpersonal trust, could prove to be an extremely effective way of boosting economic growth without a substantial investment in a traditional asset-heavy or a tangible set of resources. But more importantly, given the plethora of global problems we face, I say that is essential that we learn to cooperate beyond borders and national identities.

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## References

- Acemoglu, D., Johnson, S. and Robinson, J.(2002). "Reversal of Fortune: Geography and Institutions in the Making of the Modern World Income Distribution," *Quarterly Journal of Economics* 117, 1231-1294
- Angrist, J., Krueger. (2001). "Instrumental Variables and the Search for Identification: From Supply and Demand to Natural Experiments", National Bureau of Economic Research. (Working Paper No. 8456).
- Antonakis, J., Bendahan, S., Jacquart, P. and Lalive, R. (2010). "On making causal claims: A review and recommendations", *Leadersh. Q.* 21, 1086–1120.
- Akçomak, I.S. and Bas ter Weel. (2009). "Social capital, innovation and growth: Evidence from Europe." *European Economic Review*, Vol. 53, 554–567.
- Alesina, A., Devleeschauwer, A., Easterly, W., Kurlat, S., and Wacziarg, R. (2003). "Fractionalization", NBER Working Paper No. 9411, Cambridge, MA.
- Arrow, K. (1972). "Gifts and Exchange", *Philosophy and Public Affairs*, Vol. 1(4), 343-362.
- Barro, Robert J. (1991). "Economic Growth in a Cross Section of Countries", *Quarterly Journal of Economics*, Vol. 106(2), 407-443.
- Berggren, N. and Bjørnskov, C. (2011). "Is the importance of religion in daily life related to social trust? Cross-country and cross-state comparisons.", *J. Econ. Behav. Organ.* Vol. 80, 459– 480.
- Berg, J., Dickhaut, J. and McCabe, K. (1995). "Trust, Reciprocity, and Social History", *Games and Economic Behavior*, Vol. 10, 122-142.
- Bornschieer, V. (2001). "Generalisiertes Vertrauen und die frühe Verbreitung der Internetnutzung im Gesellschaftsvergleich", *Kölner Zeitschrift für Soziologie und Sozialpsychologie*, Vol. 53(2), 233-257.
- Bourdieu, P. (1986). "The Forms of Capital." in John G. Richardson (ed.), *Handbook of Theory and Research for the Sociology of Education*. New York: Greenwood Press.
- Bjørnskov, C. (2012.) "How Does Social Trust Affect Economic Growth?" *Southern Economic Journal*, Vol. 78, 1346-1368.
- Bjørnskov, C. and Pierre-Guillaume M. (2015). "The productivity of trust." *World Development*, 70, 317-331.
- Coleman, J.S. (1988). "Social Capital in the Creation of Human Capital", *American Journal of Sociology*, Vol. 94(Supplement), S95-S120.
- Dasgupta, P. (2000). "Economic Progress and the Idea of Social Capital", in: Partha Dasgupta, and Ismail Serageldin, eds., "Social Capital: A Multifaceted Perspective", Washington DC: World Bank
- Dell, M., Jones, B.F, and Olken, B. "Temperature and Income: Reconciling New Cross-Sectional and Panel Estimates," *American Economic Review Papers and Proceedings* 99, 198-204, 2009

How does interpersonal trust impact a country's economic performance?

- Easterly, W. and Ross Levine. (1997). "Africa's Growth Tragedy: Policies and Ethnic Divisions", *Quarterly Journal of Economics*, Vol. 111(4), 1203-1250.
- Fukuyama, F. (1995). "Trust: The Social Virtues and the Creation of Prosperity", New York: The Free Press.
- Goldin, C. and Lawrence F. Katz. (1998). "Human Capital and Social Capital: The Rise of Secondary Schooling in America, 1910 to 1940", NBER Working Paper No. 6439, Cambridge, MA.
- Granovetter, M. (1985). "Economic Action and Social Structure: The Problem of Embeddedness" *American Journal of Sociology*, Vol, 91(3): 481-510.
- Helliwell, John F. (1996a). "Economic Growth and Social Capital in Asia", NBER Working Paper No. 5470, Cambridge, MA.
- Helliwell, John F. (1996b). "Do Borders Matter for Social Capital? Economic Growth and Civic Culture in U.S. States and Canadian Provinces", NBER Working Paper No. 5863, Cambridge, MA.
- Horváth, R. (2013). "Does trust promote growth?" *Journal of Comparative Economics*, Vol. 41, 777-788.
- Knack, S. and Zak, P.J. (2003). "Building Trust: Public Policy, Interpersonal Trust, and Economic Development.", *Supreme Court Econ. Rev.* Vol. 10, 91-107
- Knack, S. (2000). "Social Capital and the Quality of Government: Evidence from the US States.", *American Journal of Political Science*, Vol. 46, 772-785.
- Knack, S. and Keefer, P. (1997). "Does Social Capital have an Economic Pay-Off?" *Quarterly Journal of Economics*, Vol. 112, 1251-1288.
- La Porta, R., Lopez-de-Silanes, Florencio, Shleifer, Andrei, Vishny, Robert V. (1997). "Trust in large organizations.", *American Economic Review Papers and Proceedings*, Vol. 87, 333-338.
- Nannestad, P. (2008). "What Have We Learned About Generalized Trust, If Anything", *Annu. Rev. Polit. Sci.* Vol. 11, 413-436. doi:10.1146/annurev.polisci.11.060606.135412
- North, Douglass C. (1990). "Institutions, Institutional Change and Economic Performance.", Cambridge: Cambridge University Press.
- Putnam, R. (1993). "Making Democracy Work Civic Traditions in Modern Italy", Princeton University Press, Princeton, NJ.
- Putnam, R. (2000). "Bowling Alone: America's Declining Social Capital", *Journal of Democracy*, January 1995, pp. 65-78.
- Solow, R. (1995). "But Verify—Trust: The Social Virtues and the Creation of Prosperity", *The New Republic*, Vol. 213(11), 36-39.

How does interpersonal trust impact a country's economic performance?

Volken, T. (2002). "Elements of Trust: The Cultural Dimension of Internet Diffusion Revisited", *Electronic Journal of Sociology*, Vol. 6(4).

Williamson, O. (2000). "The New Institutional Economics: Taking Stock, Looking Ahead.", *Journal of Economic Literature*, Vol. 38, 595-613.

World Bank. (1997). *World Development Report 1997*. New York: Oxford University Press.

Zak, P. and Knack, S. (2001). "Trust and growth.", *Economic Journal* 111, 295-321.