In People we Trust? An Analysis of Inter-Personal Trust across the World[1]

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ABSTRACT

We analyse the determinants of personal trust using World Values data. To a considerable extent the same factors determine trust in developing countries as richer ones. Thus the state of democracy, health and age impact on interpersonal trust in all countries and in general for different groups within society as does latent trust. However, we find only partial evidence for a systematic impact of religion on trust. The evidence does suggest that Catholic countries are less trusting than non Catholic ones and vice versa for Muslim countries, but the impact of Protestantism appears context specific.

Key words: Latent Trust, Governance, Religion

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1. Introduction

Inter-personal trust has been identified as a an important element of economic success and indeed political 'success' too. Fukuyama (1995), in an influential work, argues that different levels of recipricol trust influenced the degree of economic success of a few industrial democracies. Following on from this there has been a considerable amount of work which has tried to validate this hypothesis empirically, in general with some success. For example in an important early paper Knack and Keefer (1997) using trust data derived from a wave of the World Values Survey find a strong correlation with economic growth. Subsequent to this there has been a substantial literature confirming the importance of trust. Slightly less substantial has been the literature seeking to analyse the determinants of trust. Much of what there is has been at the aggregate, country based, level and there has been relatively little which has sought to analyse the determinants of trust at the individual level and still less of this focused on developing countries. This is the main purpose of this paper.

An important distinction is between localised and generalised trust. The former relates to individuals, within the community, about which the individual has information, the latter extends this to people of whom the individual has no information. Much of the empirical literature which has used survey data is based on a question which asks "Generally speaking would you say that most people can be trusted or that you need to be very careful in dealing with people?" Most researchers have interpreted this as referring to generalised trust and as such analyzed attitudes to strangers. In the polar case no information on the stranger is available, and all strangers should be regarded in equal measure. Even in this case strangers are likely to signal trustworthiness in a number of ways, such as memberships of organisations, dress, etc. However, we question both the relevance of this concept for individuals, as opposed to firms, in their every day life as well as whether the above question in fact relates to this. In many cases for many people considerations of trust arise with people of whom they

have some knowledge and indeed some connection. This is the concept of trust we will favour and in reality corresponds to neither localised nor generalised trust, but some combination with the emphasis on the former. The individual may know all or most people in their geographical community but they will also know others outside that community, i.e. their networks will be restricted to one geographical location. This might be referred to as 'network trust' and can be regarded as the union of all the people in the individual's various communities, work, home, sporting, etc. It will not necessarily encompass all the people in a specific locality, but will also include some outside that locality. However, our analysis encompasses all definitions of inter-personal trust.

Our focus is on the determinants of trust. This first involves an evaluation of whether an individual is trustworthy within a specific context. Apart from an evaluation of whether the individual will keep trust, this includes an element of risk aversion which may be both context and person specific. An individual who is highly risk averse with respect to trust betrayal is likely to require a higher degree of trustworthiness before he/she will trust an individual. We will also be considering the impact of factors such as education, religion, age, gender, settlement size, linguistic characteristics and the quality of governance in the individual's country. All of these are factors which both our theoretical analysis and the literature suggest are relevant. An interesting question is whether the state acts as a substitute for trust, effectively crowding it out of the market place. This has been argued, e.g., by Ullman-Margalit (2004), who suggests that the state's enforcement of legally binding contracts removes the need for trust and is again something we analyse.

Somewhat unusually, the countries covered in our analysis relate to both developed and developing countries, although the emphasis is on the latter. Trust may be even more important in developing countries where the institutional environment is often not as developed as in many advanced market economies and/or is less satisfactory. In such cases where the rule of law and the protection of property rights are weak not only may inter-personal trust be weakened, but such trust as exists may

then become more important. Thus, e.g. in China's emerging market economy firms will often trade with well-trusted associates even if they can find the goods cheaper elsewhere (Keister, 2001)

The questions the paper seeks to answer are whether the empirical results which have so far been reached can be generalised across a wider rang of countries and are also applicable to different groups within countries. In particular we are interested in whether there is any evidence for an impact of governance on trust. We also hope to add to the literature in terms of providing a theoretical framework to analyze trust and also suggest additional variables to explain it. We proceed as follows. In the next section we review the literature. We then present a theoretical analysis of trusting and trustworthiness, one which encompasses both generalised and localised. Section four presents the data and five the regression results. Finally we conclude the paper.

2. Literature Review

According to Coleman (1990) trust is nothing more nor less than the considerations a rational actor applies in deciding to place a bet. As such it is a sub-category of risk and can be calculated using probabilities. Similarly Hardin (1993) argued that the choice between trust and distrust is fully explicable as a product of rational behaviour. There is also a game theoretical aspect to it whereby Hardin argues that "I trust you because it is in your interest to do what I trust you to do". This analysis is explicitly directed at dyadic, interpersonal or social trust, which is the focus of this paper, although it is less relevant for holistic or institutional trust. Much of the empirical analysis on trust has been based on experiments. For example, a general finding is that trust and trustworthiness are higher in repeated games than in one-shot situations, although trustworthiness typically declines as the end of the game is approached (Gachter and Falk, 2002). In this paper we will be analysing trust using survey data. We will also assume that although the individual decides to be trustworthy or a trustbreaker on the basis of qualified self-interest, others then evaluate this probability per se, rather than on the grounds of their

own self interest[2]. That is people make a judgement on whether the individual can be trusted within a specific context.

One of the first empirical studies analysing trust using survey data was by Knack and Keefer (1997). They, as we do, used a wave of the World Values dataset, but unlike us grouped individual responses together according to country[3] rather than base the analysis on individual responses. This country grouping, rather than the analysis of individual responses, is common to much of this literature (e.g. Bjornskov, 2006). The main focus of Knack and Keefer's paper is on establishing the importance of trust and social capital on economic variables such as growth. But they also explore the determinants of trust, which for empirical purposes they define in the same manner as we do. With respect to education the results were slightly unusual in that whilst the proportion of eligible students enrolled in secondary schools in 1960 had a positive impact on trust, the proportion in primary schools had the opposite impact with the coefficients being such that the two variables approximately cancelled each other out. They also analysed the impact of institutional factors on inter-personal trust arguing that where formal institutions enforce private agreements and laws more effectively, trust and adherence to civic norms may be strengthened. In their empirical work they find some evidence for this hypothesis. Apart from institutional factors Knack and Keefer also emphasise the homogeneity of society arguing that in polarised societies individuals are less likely to share common backgrounds and mutual expectations about behaviour and hence self enforcing agreements become more difficult to make.

Many of these factors are emphasised in other studies. Hardin (1992) argues that without a strong government to enforce contracts and punish theft, trust would be irrational. Berggren and Jordahl (2006) conclude that the law and security of property rights increase trust. They suggest this may be because in a market economy, building on voluntary transactions and interactions with both friends and strangers within the predictability provided by the rule of law, entails both incentives and mechanisms for trust to emerge between people. Trust has also been linked to settlement size, with

[2] Although, as we shall see, even here self interest is still relevant.
[3] Specifically 29 developed market economies

trust more likely to evolve in smaller settlements and networks (Zelmer, 2003). Several studies have emphasised religiosity as being a significant determinant of trust with Protestants being associated with trust (Bjornskov, 2006). Catholics and 'members of other denominations' are less trusting than Protestants (Welch, Siddink and Loveland, 2007). Zak and Knack (2001) also find Catholics, as well as Muslims, to be less trusting. Berggren and Jordahl (2006) find strong evidence of the negative impact on trust of hierarchical religions (Catholicism, Orthodox and Islam). La Porta et al (1997) reach similar conclusions. However these results are often country specific and Hong and Bohnet (2007) also find non-Protestants to be less trusting than Protestants in the USA, but this they associate with minority status and link to other minority groups, e.g. women, minorities and young adults. This raises the question as to whether, e.g. Catholics are always less trusting or only in a specific context and in another context could be more trusting. One possible explanation for these findings is that hierarchical religions, such as the Catholic church create vertical bonds of obligation in society that divide people socially (Putnam, 1993).

More generally, minority status and community heterogeneity are frequently associated with a lack of trust. Leigh (2006), using an Australian survey, found localised, but not generalised, trust to be lower in ethnically and linguistically heterogeneous communities, particularly the latter. Messick and Kramer (2001) argue that ethnic and racial differences discourage reliance on neighbours, friends and colleagues hence reducing interpersonal trust. Gustavsson and Jordhal (2008) also find the proportion of people born in a foreign country to be negatively associated with trust in a study of individual attitudes in Sweden. Delhey and Newton (2005) conclude that ethnic fractionalization is negatively associated with social trust; in part this may be based on the difficulty of enforcing actions or sanctioning trustbreakers. Alesina and La Ferrera (2002) also discuss the potential importance of social homogeneity and that trust may be lower in communities which are less homogeneous in terms of racial, ethnic, or religious composition and in communities with more income inequality. Familiarity with the community and its people is also important and hence the more stable and less

transient a community the higher should be trust. Alesina and La Ferrera also link trust to legal institutions for similar reasons as Knack and Keefer (1997) and, at a personal level, recent misfortune. In the empirical work they find trust increases with age and education and is lower for women and blacks, being as this is based on US data they see these as disadvantaged groups. Trust also increases linearly with income. They also conclude that major negative shocks reduce trust. Both settlement size and marital status are insignificant. This is one of a number of studies which link trust to socio-economic characteristics. Helliwell and Putnam (1999) find that an increase in average education increases trust as do a number of other studies including Brehn and Rahn, (1997) and Rothstein and Uslaner (2005). Knack and Zak (2002) argue that education makes individuals more trusting by making them more informed and better at interpreting perceived information.

3. Theory

3.1 Interpersonal Trustworthiness

Alesina and La Ferrara (2002) described the theory of what determines trust as 'sketchy at best'. In this section we attempt to present a formalised theory of interpersonal trust. We begin by analysing whether person j will be trustworthy in terms of an action for person i, i.e. i is the trustor and j the potential trustee. This has similarities to the issue of tax evasion (Allingham and Sandmo, 1972 and Orviska and Hudson, 2003) and more generally whether the individual should obey the law. As with that literature we initially assume the individual is motivated by self-interest and will therefore be 'trustworthy' if the returns to the individual from carrying out an (H_1) action entrusted them by i exceed the returns from not doing so (H_0):

$$H_0 - p_C S - p_C R_{ij} - p_I F < H_1 \qquad (1)$$

where the net benefits from not doing so include the net direct benefits (H_0-H_1) plus the consequence of getting caught as being untrustworthy. The latter include any legal sanction (F) if trustbreaking encompasses law breaking, the personal retribution from i to j (R_{ij}) and also social sanctions which can be imposed by the wider community (S) upon i's initiation. The probability of personal retribution equals the probability of the individual being detected as a trustbreaker (P_C). Some such actions are immediately visible, e.g. stealing money from person i which has been placed in person j's temporary possession, not being at a place at a certain time, not doing a certain action which is visible. Other actions are not necessarily visible, e.g. you trust the car mechanic to service your car properly and when he/she says it needs new break pads, you have to take their word for this. In this case P_C in part depends upon the ability of the trustor to monitor the trustee, an ability which varies with education, ability, knowledge and context. We assume that the probability of personal retribution and social sanctions being imposed are equal, that if individual i is aware that trust has been broken he/she will inform their social network and sanctions will be imposed on the trustbreaker. However the probability of legal sanctions (p_l) different as not all trustbreaking is lawbreaking and not all lawbreaking results in a successful legal prosecution. It is implicit in the above analysis that trust is context specific, for a big enough payoff anybody can be a trustbreaker. It is also clear that the greater is the extent of personal retribution, social and legal sanctions and the greater the probability of them being imposed, then the less likely is individual j to break trust.

As set out thus far the analysis is similar to the standard Allingham and Sandmo analysis of tax evasion, whereby the individual is assumed not to evade taxes as long as it is profitable to do so which depends upon the probability of being caught and the sanctions or penalties of being caught as well as the potential gains from not being caught. We have extended this analysis to take account of social sanctions, nonetheless people are still trustworthy because of self interest and trustworthiness is context specific. Within the context of tax evasion Orviska and Hudson (2003) have argued that the analysis is more complex than simply reference to self-interest and that the individual also responds to

a sense of civic duty and also honesty. The counterpart to honesty in the interpersonal trust context is integrity, an individual is trustworthy not because it is profitable to be so and not because of fear of social sanctions but because of a personal sense of integrity, just as some people do not break the law because they perceive themselves as honest citizens. Civic duty is different to this and represents the loyalty the individual feels to the community, in the interpersonal context this loyalty is more person specific, making it possible that the individual will not break trust with some people but will with others.

Socio economic variables impact on trustbreaking in several ways. Firstly, the threat of social stigma is greatest in cohesive communities where everyone knows everyone else, these tend to be smaller communities rather than large towns or cities. Hence we expect people to be more trustworthy in the former. Moreover, because cohesion may be linked to homogeneity we might expect heterogeneity, whether it is linguistic, ethnic, or religious to reduce trust. Secondly, the social sanction involves loss of social capital and as this tends to increase with age, we expect people to become increasingly trustworthy as they get older and value more their social capital. Married people also have greater social capital and hence might be expected to be more trustworthy. Hence we can expect the probability that an individual j is trustworthy, $P(T_{ji}=1)$ where T_{ji} is a binomial variable, with respect to an action to i has imposed on them to be a function of these socio economic and locational variables ($\mathbf{X_j}$):

$$P(T_{ji}=1) = f(\mathbf{X_j}) \quad (2)$$

3.2 Evaluating Individual trustworthiness

In our empirical analysis we are not so much interested in whether an individual is trustworthy but whether others perceive him/her as being trustworthy. We again place the analysis within a two person

context of whether i can trust j. Again this is context specific, but from now on we assume a 'representative context or action'. It involves an evaluation of the probability in (2). We can again expect this to depend upon the potential trustee j's socio-economic and locational characteristics. Someone living in a small area is likely to be more trusted, other things being equal, than someone in a larger town. An older person, particularly one who has built up a reputation for trustworthiness, can be expected to be more trustworthy than a younger person. At an individual level, people will signal trustworthiness by their manner and also by membership of various clubs or societies[4].

Apart from the socio economic characteristics of j, psychological factors which impact upon i's perceptions of j, and indeed everyone, are relevant. Thus, for example, it may be that i is naturally suspicious and inclined to mistrust most people. We assume that perceived trust is defined as a continuous variable τ_{ij}^* where this is assumed to be a stochastic function of j's socio economic characteristics which signal his/her trustworthiness ($\mathbf{X_j}$) and $\mathbf{S_i}$ which represents a set of variables relating to i which relate to his/her ability to (i) evaluate other people's trustworthiness and (ii) impose sanctions on trustbreakers:

$$\tau_{ij}^* = g(\mathbf{S_i},(f(\mathbf{X_j})) + \varepsilon_{ij} \qquad (3)$$

where $\varepsilon_{ij} \sim G(0,\sigma_\varepsilon^2)$ is an error term and G some cumulative distribution function. Hence the probability individual i trusts j, i.e. $P(\tau_{ij}=1)$, where τ_{ij} is a binomial variable, is:

$$P(\tau_{ij}=1) = Pr(g(\mathbf{S_i},(f(\mathbf{X_j})) + \varepsilon_{ij}) > \tau^C \qquad (4)$$

[4] For example, membership of charitable organizations, may signal being associated wit citizenship and hence trustworthiness. At the aggregate level we do not of course have access to such information in our analysis.

where τ^C is some critical value. It is possible that this varies from individual to individual depending upon psychological characteristics with trusting people having a lower threshold than less trusting people. The concept of aversion to betrayal (Bohnet and Zeckhauser, 2004) discussed in the literature is relevant here. A higher critical value, τ^C, corresponds to a higher level of betrayal aversion. It is possible too that this varies for different trustees, with some (e.g. relatives) requiring a lower threshold value than others. We will assume this not to be the case and that it is fixed across all potential trustees. The analysis has been quite general encompassing both localised and generalised trust. In the case of the latter no specific information is available on the representative individual, f ($\mathbf{X_j}$) is a flat uniform prior and it is not clear what, if any, social sanctions can be imposed on 'a stranger'. In this case trust is really no more than a general attitude to strangers variable and will vary across individuals according to their attitudes to strangers. This is implicit in much of the literature, with education e.g. being identified as developing a more open mind.

3.3 Evaluating Aggregate Trustworthiness

We now make the final analysis to whether the individual believes 'most people can be trusted'. We define individual i's network, to which 'most people' refers to as the set $N_i=\{I_1,.....,I_K\}$[5]. K could refer to the whole of society in the case of generalised trust, or, for localised or network trust, a subset relating to those people i typically comes into contact with. There are two options in deciding whether the individual trusts 'most people'. Firstly we could aggregate across τ_{ik}*, k=1,K. This would allow high levels of trust in some individuals to outweigh lower levels of trust in others. Alternatively we could aggregate across τ_{ik} and simply 'count' the proportion of K whom are trustworthy. Once more this proportion needs to exceed some critical value (τ*), possibly 0.5, and again this can be the same for all individuals in the population or differ with some having lower thresholds than others. We shall assume it is fixed. We will also initially adopt an approach closer to the first of these two options

[5] Although there is no reason why K should not equal the entire population, although this begs the question which population? For someone living in England, is it England, the UK, the EU or the World?

Hence the probability of the individual i trusting most people ($P(\tau_i=1)$) equals

$$P(\tau_i=1) = Pr(\sum Pr(g(\mathbf{S_i}, f(\mathbf{X_j})) + \varepsilon_i > \tau_i^C) > K\tau^*) \quad (5)$$

We will simplify this by combining the two probabilities together so that $\sum \tau_{ij}$* the sum of continuous trust defined in (3) is related to a single critical value τ^{**} which combines together both τ_i^C and τ^*. This is equivalent to linking aggregated continuous trust to a single critical value allowing high trust in some to compensate lower trust in others and vice versa. Thus:

$$P(\tau_i=1) = Pr(\sum(g(\mathbf{S_i}, f(\mathbf{X_j})) + \varepsilon_i) > K\tau^{**}) \quad (6)$$

$$= Pr(\sum (g(\mathbf{S_i}, f(\mathbf{X_j})) - \tau^{**}) > \sum\varepsilon_i) \quad (7)$$

$$= H(\sum(g(\mathbf{S_i}, f(\mathbf{X_j})) - \tau^{**}) \quad (8)$$

where H is the cumulative density function for $\sum\varepsilon_i$ which by the central limit theorem will be approximately [6] normally distributed and hence we can use binomial probit to estimate the relationship. Trust will depend upon both the individual's characteristics, ability to 'read other people' and impose sanctions and the characteristics of all the people in the individual's network. We only have information on the former. If the network is the whole of society, i.e. generalised trust, then the network characteristics are the same for every trustor and trust only depends upon (i) how the trustor

[6] With a large sample size as in our analysis the approximation will be close.

perceives, generally unknown, others and (ii) their level of risk and betrayal aversion which impacts on τ^{**}. In the case of network trust then the network will differ from trustor to trustor but none the less we have some information in the sense that networks tend to be predictable, educated people are more likely to mix with educated people, rich with rich people and the young with the young. In addition areas characterised by small settlement size are likely to be more homogenous than towns, in other words the socio-economic characteristics of the network of potential trustees are likely to reflect those of the trustor. Partially for this reason we include in the analysis age, gender, education, religious background, etc. We will proxy τ^{**} by two variables reflecting adverse shocks and what we term latent trust, both of which are discussed in the next section.

4. The Data and Empirical Formulation

The World Values Survey data has become increasingly well-known in recent years, and, in addition to the research already referred to, have been utilised in hundreds of publications. Recent examples include Guiso et al (2008), Bonini (2008) and Snoep (2008). It is a worldwide investigation of socio-cultural and political change conducted by a network of social scientists at leading universities all around world. Interviews are carried out with nationally representative samples of the publics of more than 80 countries covering 85% of the World's population. Five waves of surveys have been carried out in 1981, 1990-1991, 1995-1996 and 1999-2001 and 2005. Each sample contains at least 1,000 respondents. It grew out of a study launched by the European Values Survey group (EVS). In subsequent years greater emphasis has been given to obtaining better coverage of non-Western societies and analysing the development of a democratic political culture in the emerging Third Wave democracies. The results in this paper are based on the fourth wave, the latest currently available. All variables are defined in a data appendix. The dependent variable relates to a standard question on trust. Because of the discrete nature of the data, binomial probit regressions will be used to estimate the equations. These will be done in STATA. Underlying or latent trust, referred to earlier, will be found

by taking the residuals from regressing trust in specific governance institutions on the individual's satisfaction with the state of democracy in the country and with the way the country is being run. If the residual is positive it implies the individual is more trusting than their evaluation of the country's position on these dimensions would suggest they should be, implying a lower critical trust threshold. We use two measures of institutional trust for this purpose, trust in government and trust in parliament. In both regressions each of the two governance variables was significant at the 1% level. Latent trust is then the sum of these two residuals and potentially impacts upon τ^{**} in (8). In defining latent trust this way we are also assuming that basic attitudes can translate from institutional trust to inter-personal trust. This clearly is a hypothesis we will be testing.

Finally, we also include GDP per capita in the country and two further variables which reflect the state of democracy and law and order in the country. The former are measured by the International Country Risk Guide's (ICRG) values for these two variables. Both variables are defined in the data appendix. ICRG data has been used in previous research by, e.g. Gupta et al study (2001) and Hudson and Jones (2008) in analysing corruption and military spending. Eleswarapu and Venkataraman (2006) have also used ICRG data relating to political stability which significantly impacts on equity trading costs in a cross country analysis. We will also be using GDP per capita measured in US$, which is taken from the World Bank data base.

Table 1 presents summary data on trust across different characteristics. The included countries are as listed in Table 3. The data suggests that in general people do trust more in smaller communities than larger ones and that Catholics are less trusting than others and Muslims more trusting. The results for Protestants are less clear cut; in rich countries they tend to be trusting, in poorer countries less so. This suggests that the impact of Protestantism, and perhaps other religions, is country specific, one possibility being that it depends upon whether it is a majority or a minority religion. In general people trust more in richer countries than in poorer ones across most characteristics. Finally, trust increases with the quality of the law and order.

Insert Table 1 about here.

5. The Empirical Results

The regression results are shown in Table 2. To a considerable extent they are consistent with the theoretical expectations. Firstly trust increases with income reflecting an individual's social capital and the ability to impose sanctions on trust breakers, it may also be indicative of the individual's network who may be of similar income and more to lose by trustbreaking. Age was insignificant at the 5% level of significance, but a dummy variable operative if the individual is under 25 is significant at the 5% level and its negative sign indicates young people are less trusting than others. Trust is greater in small communities and again this is consistent with expectations as small communities tend to be more cohesive than large ones where knowledge of the whole community is greater and sanctions more effectively applied. Married people are more trusting than others, this may be because of the dual sanctions which can be imposed by a married couple on a trustbreaker, alternatively it is possible that trusting people are more likely to marry. However, the results did not change when marital status was omitted from the regression. Of the two shock variables, unemployment is not significant, possibly because it may be short term, but health is. People in a poor state of health are less likely to trust others. There is also evidence for latent trust possibly reflective of betrayal aversion. The coefficient on latent trust, which is significant at the 1% level, in the interpersonal trust regression indicates both that underlying trust in the institutional dimension carries over into the interpersonal dimension and that some people are systematically more or less trusting than others.

The two remaining socio-economic variables are not so simple to interpret. The results suggest that trust is greater amongst those who are part of a strongly dominant majority culture, in our analysis one based on language. The coefficients on the two linguistic variables are such as to indicate that the significant factor is being a member of a dominant culture which accounts for at least two thirds of the

population. This is picking up two effects. Firstly, the existence of a dominant culture, as reflected in a society where at least two thirds of the people have the same first language and secondly being part of that dominant culture. Being an outsider from such a dominant culture, or its absence, results in reduced trust. In this sense trust is a function of the basic characteristics of the society. The coefficients on the education variables suggest trust first declines and then increases with education. If we replace these two variables with dummy variables operative for each level of education we find that those who never completed or perhaps never even went to primary school trusted the most of any education group. Those who completed primary school had virtually the same level of trust as those who went to university. The least trusting are those who went to secondary school of the technical vocation type followed by those who went to secondary school of the university preparation type, but did not go to university. One interpretation of this is that limited education reduces trust but beyond a certain point increases it. However, this may also reflect the kind of employment the individual follows or the characteristics of their community. This possibility receives some support if we add a variable operative if the individual is either a manual worker or a non-supervisory office worker which significantly reduces trust at the 1% level and also reduces the differences between the different forms of education, although not fully.

Insert Table 2 about here

In the second regression we add a variable reflecting satisfaction with democracy. This is significant at the 1% level, indicating that people who are more satisfied with democracy are more trusting. Its inclusion does not change the significance of the other variables. The coefficients relating to the country fixed effects from this regression are shown in Table 3. There is however a potential endogeneity problem in that more trusting people may be more easily satisfied in general and hence more satisfied with democracy in particular. It is difficult to approach this using instrumental variables

due to a lack of suitable instruments. We do however have independent measures of the state of democracy and the law and order in a country and the third column shows the regression with these variables replacing the country fixed effects. Both are positive and strongly significant, particularly law and order, indicating that as this improves so interpersonal trust increases. We also include in this regression GDP per capita. It is positively significant and indicates that in richer countries people trust more. With respect to the other variables, unemployment now reduces trust whilst Muslims are more trustworthy and Catholics and to a lesser extent Protestants less trusting. The religious variables were insignificant in the previous regression and omitted. These results are to an extent consistent with previous research, but our analysis adds a further perspective. The fact that they are significant in this regression which has no country fixed effects suggests that the impact of religion is on the culture of the country as a whole rather than individuals. Hence the results suggest that Catholics are no more or less trusting than others living in the same country, but that a strongly Catholic country, e.g., is a less trusting one. Similarly Islamic countries tend to be more trusting than others, other things being equal. Also included in this regression is income squared. Its negative sign together with the positive one on income indicates that trust increases with income but at a declining rate. This further indicates that countries with greater inequality are less trusting, but the fact that income squared was not significant in the previous regressions suggests that inequality impacts on the culture of the country possibly by reducing homogeneity. Similarly with unemployment, the fact that it was significant in these regressions but not the previous suggests that being unemployed does not impact on an individual's trust, but that large scale unemployment in a country does have a general impact. The linguistic minority variables were significant in this regression but their coefficients had changed. As this was difficult to rationalise they were omitted from the regression. In the absence of the country fixed effects these variables may be reflecting the impact of omitted country characteristics.

Insert Table 3 about here

The remaining columns show the results disaggregated into certain groups. We first note that for all groups, i.e. men and women, rich and poor, rich and poor countries, trust deteriorates with health. The minority variable is also significant across all groups. However there are some differences, both the size of the coefficient and its t statistic suggest that trust increases as women age but not so much for men. Education is significant for all groups apart from the rich and the richer countries. Trust also increases with income for all groups apart from when we divide the sample into rich and poor within countries. This suggests that there is more a discontinuum of differences across income with 'the rich' being more trusting than 'the poor' rather than a continuum where people steadily get more trusting as they become richer. Settlement size tends to be significant for all groups apart from women. Latent trust is significant for all categories other than 'rich countries'.

6. Conclusions and Policy Implications

Our analysis has encompassed the possibility that the measure of trust we are using, and which is standard in the literature, relates in part at least to people who are not entirely strangers. The empirical results provided evidence in support of this in the significantly negative sign on settlement size which we have argued is perhaps more consistent with localised trust than generalised trust. This is not definitive proof as such and it is in fact difficult to determine whether socio-economic variables are reflective of the individual's network of known people or whether they impact on the individual's psychological attitudes to strangers. But at least we feel there is a reasonable possibility the measure of trust we are analysing in part relates to localised and also network trust. Within this context, our results are consistent with the hypothesis that interpersonal trust is motivated by the ability to impose sanctions on trustbreakers. Hence trust is greater in smaller towns and villages, where communities tend to be less fragmented, than in larger towns, increases with income and is greater in linguistically homogenous communities. But trust also responds to the political and institutional environment with

evidence that it increases with the state of democracy and the rule of law. Finally, there are factors unique to the individual impacting on their trust of others. In particular trust declines with ill health and there is evidence that some people, for whatever reason and unlinked to observed characteristics, are systematically more or less trusting per se. The majority of our sample lived in developing countries, although a substantial minority were based in the developed world. Our results indicated that trust in developing countries is to a large extent determined by the same factors that determine trust in richer countries, particular with respect to age, health and democracy, But there are differences, for example in our results men appear more trusting than women and trust declines with settlement size in developing countries but not in richer countries[7]. To a large extent the determinants of trust are also common across men, women, rich and poor, particularly with respect to health, the state of democracy and linguistic characteristics. But again there are differences, differences which also shed light on the process of trust determination. Hence settlement size is a less significant factor for women and the poor judged on the basis of both the coefficient size and its t statistic. Education is also not a significant factor for the rich.

Much of this is consistent with our theoretical analysis and much of the literature. But as with much research there are some results which need explaining or, at least, further analysis. Increased education increases trust, but rich countries apart, only beyond some threshold value. The most trusting people are those with limited or no education. Those who have completed primary school have less trust, than those who have more limited education, although still on a par with those with a University degree. The real quandary here is why should those with limited education be the most trusting? It may be that the impact of education is genuinely non linear, that up to some critical level education makes people more cautious and only beyond this does education increase trust. But perhaps equally plausible is that this reflects other socio economic characteristics and it is these which are linked with trusting communities. The second question to consider is why should settlement size be much less significant

[7] These differences may reflect something about the characteristics of the countries themselves or relate to differences in the nature of networks.

for women in impacting on trust. The essence of our approach is that interpersonal trust depends upon (i) personal factors relating to trusting and the ability to 'read people' and impose sanctions, (ii) the characteristics of the individual's social network and (iii) the potential for social mobility between networks. We would argue that people in large cities are less trustworthy because of the greater potential for social mobility thus reducing the potential impact of sanctions. It seems plausible that, at least in some societies and for some individuals, networks are gender orientated, that is women are more likely to network with women and men with men. This, and accepting too the conclusion that women's trust does not vary with settlement size, suggests that social mobility is greater for men in large urban areas but not for women. This seems potentially plausible at least in some circumstances and countries but perhaps one might have expected the gender focus of networks to be reflected in other differences in inter-personal trust between men and women beyond education and age. Hence this too is an area which requires further research.

Finally our research has confirmed the importance of governance and institutional factors in impacting upon institutional trust. Apart from the least developed of societies characterised by low population density, it is accepted that, e.g., in the enforcement of contracts social sanctions are insufficient and need to be backed up by the law. Our analysis suggests too that trust is impacted upon by the climate of governance in the country. The variables we have used in this context focus on democracy, democratic accountability and law and order. But different aspects of governance tend to be correlated and one should not automatically reach the conclusion that it is these variables per se which matter for inter-personal trust, although the conclusion is by no means unreasonable. But certainly it seems likely that one can conclude that governance in general matters and as trust is seen as an essential building block for economic development this is one route by which governance impacts upon development[8]. Countries can also impact on trust by fostering a climate of honesty or integrity and also by increasing the legal penalties for trust breaking. Organisations and indeed

[8] However, although governance does not drive out trust as discussed in the literature, it may reduce the need for individuals to signal trustworthiness.

communities too can increase trustworthy behaviour by both fostering loyalty to the organisation and by increasing the penalties or sanctions imposed on trustbreakers[9].

[9] The Cosa Nostra and similar organisations provide somewhat extreme examples of both types of behaviour.

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Data Appendix: Variable Definitions

Trust	Coded 1 if the respondent answered that most people can be trusted to the question "Generally speaking would you say that most people can be trusted or that you need to be very careful in dealing with people?", otherwise coded zero.
Male	Takes a 1 (0) if the respondent is a man (woman)
Education	Coded from 1 (no formal education) to 9 (university level education with degree).
Age	Age of the respondent in years
Income	Coded from 1 to 10 reflecting increasing levels of household income - the exact classification varies from country to country.
Unemployed	Takes a 1 if the respondent is unemployed, otherwise 0.
Married	Takes a value of 1 if the respondent is married.
Health	The self-perceived state of the individual's health ranging from very good (coded 1) to poor (coded (4)).
Area	Coded 1 to 8 (large city) reflecting the size of the settlement the individual lives in
Satisfied Country (SC)	Coded 1 if the respondent is very satisfied with the way people in national office are handling the country's affairs to 4 (very dissatisfied).
Satisfied Democracy (SD)	Coded 1 if the respondent is very satisfied with the way democracy is developing in their country to 4 (very dissatisfied).
Trust in Institutions	Coded 1 if the respondent has a great deal of confidence to 4 (none at all) in the two institutions of the national government and parliament.
Religious Group	Coded 1 if the individual identified themselves as members of a religious group. (Catholic, Protestant, Orthodox, Jew, Muslim, respectively).
Linguistic Minority	Relates to the proportion of the population having as their first language the same as the respondent, where first language is defined as the one normally spoken at home. *Linguistic minority* is a dummy variable operative when this is less than a third. *Linguistic non-majority* is a dummy variable operative when this proportion is greater than a third and less than two thirds.
Latent Trust	Minus the sum of the residuals from trust in government and trust in parliament on satisfaction with democracy (SD) and the way the country is run (SC). The trust in government equation was 0.283SD+0.389CR, t statistics were 38.1 and 53.0 respectively and the likelihood ratio statistic was 8994. The trust in parliament equation was 0.247SD+0.334CR, t statistics were 33.2 and 45.5 respectively and the likelihood ratio statistic was 6860. Higher values of latent trust reflect increased basic trustworthiness.
Law and Order	Law and Order is defined on a six point scale. The two components are assessed separately, with each sub-component comprising zero to three points. The Law sub-component is an assessment of the strength and impartiality of the legal system, while the Order sub-component is an assessment of popular observance of the law (Source ICRG).
Democratic Accountability	This is defined on a six point scale. It is a measure of how responsive government is to its people, on the basis that the less responsive it is, the more likely it is that the government will fall, peacefully in a democratic society, but possibly violently in a non-democratic one. The points in this component are awarded on the basis of the type of governance enjoyed by the country in question ad takes into account: (i) whether the government alternates and that there are fair elections, (ii) evidence of restrictions on the activity of non-government political parties (iii) evidence of checks and balances between the executive, legislature, and judiciary, (iv) evidence of an independent judiciary and (v) evidence of the protection of personal liberties (Source ICRG).
GDPPC	The level of GDP per capita in the individual's country in the year 2000 in US$ purchasing power parity. (Source: World Bank data set.)

Table 1. Trusting By Characteristics

	Full sample	Poorer Countries	Richer Countries		Full sample	Poorer Countries	Richer Countries
Small Settlement	28.8%	28.3%	31.8%	Catholic	20.2%	16.4%	28.2%
Large Settlement	26.0%	22.6%	39.7%	Protestant	21.3%	15.8%	39.9%
Women	26.9%	25.4%	32.7%	Orthodox	19.2%	19.0%	34.6%
Men	27.9%	26.8%	33.1%	Jewish	28.3%	23.0%	36.2%
Not finished primary school	31.8%	32.6%	20.1%	Muslim	33.3%	32.5%	40.6%
				Low Rule of Law	22.7%	22.7%	na
Primary School	25.8%	26.0%	24.6%	High Rule of Law	33.3%	33.6%	32.9%
Technical secondary school	22.0%	21.1%	25.6%	Poorer people	25.7%	25.1%	28.5%
				Richer people	32.1%	29.9%	39.1%
Academic secondary school	27.9%	25.0%	37.0%	Good Health	29.9%	28.0%	38.1%
				Poor health	23.8%	23.1%	28.2%
University	30.9%	26.9%	43.8%				

The list of countries is as given in Table 3

Table 2. Regression Results

	All sample	All sample	All sample	Men	Women	Poorer people	Richer people	Poorer countries	Richer countries
Latent Trust	0.0170** (4.01)	0.0247** (5.38)	0.0191** (4.12)	0.0272** (4.10)	0.0226** (3.54)	0.0192** (3.22)	0.0307** (4.24)	0.0298** (5.22)	0.007 (0.74)
Health	-0.1075** (8.34)	-0.1043** (7.91)	-0.0916** (6.96)	-0.1258** (6.90)	-0.0815** (4.23)	-0.0771** (4.49)	-0.1457** (6.99)	-0.1178** (6.96)	-0.0936** (3.72)
Young	-0.0608* (2.13)	-0.0583* (2.02)	0.0015 (0.05)	-0.0075 (0.19)	-0.1196** (2.72)	-0.063 (1.58)	-0.0427 (1.00)	-0.0634 (1.68)	0.0586 (1.10)
Male	0.0255 (1.29)	0.0217 (1.07)	0.0383 (1.83)			0.0354 (1.31)	-0.0008 (0.03)	0.0585** (2.30)	-0.0312 (0.78)
Education	-0.1329** (4.16)	-0.131** (4.01)	-0.0889** (2.63)	-0.1442** (3.21)	-0.123** (2.55)	-0.1631** (3.98)	-0.0764 (1.31)	-0.1363** (3.42)	-0.0695 (0.99)
Education^2	0.0126** (4.90)	0.0123** (4.68)	0.0119** (4.37)	0.0135** (3.75)	0.0116** (2.97)	0.0157** (4.62)	0.0074 (1.62)	0.0105** (3.25)	0.0132* (2.37)
Income	0.018** (3.81)	0.0177** (3.68)	0.0861** (4.55)	0.0196** (2.90)	0.0171* (2.47)	0.0168 (1.52)	0.0144 (1.12)	0.0114 (1.73)	0.0223** (2.72)
Married	0.0713** (3.35)	0.0704** (3.24)	0.0114 (0.53)	0.0736* (2.45)	0.0716* (2.25)	0.0775* (2.67)	0.0528 (1.58)	0.0413 (1.49)	0.0929* (2.23)
Unemployed	-0.0038 (0.11)	-0.008 (0.23)	-0.0990** (2.84)	0.0231 (0.49)	-0.0371 (0.74)	-0.0492 (1.19)	0.0641 (1.03)	0.0145 (0.36)	-0.1143 (1.33)
Settlement size	-0.0161** (3.61)	-0.0142** (3.11)	-0.0278** (6.39)	-0.0217** (3.40)	-0.0068 (1.03)	-0.0106 (1.77)	-0.0171* (2.35)	-0.0176** (2.92)	-0.0094 (1.09)
Linguistic minority	-0.2288** (4.41)	-0.2422** (4.54)		-0.226** (2.94)	-0.2542** (3.41)	-0.0652 (0.95)	-0.4922** (5.69)	0.1156 (1.13)	-0.3562** (5.41)
Linguistic non-majority	-0.3081** (4.34)	-0.3185** (4.35)		-0.1397 (1.37)	-0.5445** (5.08)	-0.1534 (1.64)	-0.5299** (4.41)	0.1379 (1.17)	
Satisfied democracy		-0.1096** (8.07)		-0.0771** (4.19)	-0.1520** (7.50)	-0.1364** (7.51)	-0.0725** (3.46)	-0.075** (4.45)	-0.1542** (5.57)
Income^2			-0.0058** (3.42)						
Log GDP per capita			0.1019** (6.15)						
Muslim			0.3354** (11.32)						
Catholic			-0.2798** (9.70)						
Protestant			-0.0965* (2.56)						
Orthodox			-0.3001** (4.69)						

Jew			-0.121						
			(0.80)						
Rule of Law			0.1426**						
			(14.26)						
Democratic accountability			0.0265**						
			(2.87)						
Constant	-0.1502	0.1782	-2.0430**	-0.0782	0.4612*	0.0411	0.3673	-0.5287**	-0.5628*
	(1.15)	(1.28)	(12.17)	(0.40)	(2.32)	(0.23)	(1.42)	(2.73)	(2.29)
Observations	20536	19931	17928	10372	9559	11781	8130	13382	4546
Log Likeld	-10860	-10486	-9853	-5503	-4954	-5911	-4525	-6615	-2771
X^2	2292	2262	1337	1275	1035	1284	971.2	1634	407.2

Notes: Regressions estimated by binomial probit. Figures in parentheses denote t statistics, */** denotes significance at the 5% and 1% levels respectively. Poor (rich) people are defined as on income scale 1 to 5 (6 to 10) in their country, they are thus relative concepts. Poor (rich) countries are defined as having GDP per capita less (more) than $10,000.

Table 3 Country Fixed Effects from Regression 2.2 in Table 2.

Spain	0.2643	Philippines	-0.3957	Nigeria	0.1486
	(2.70)		(4.71)		(1.64)
USA	0.2557	Moldova	-0.2431	Chile	-0.077
	(2.91)		(2.65)		(0.83)
Canada	0.3933	Bangla-	-0.3309	India	0.5437
	(5.09)	desh	(3.59)		(7.73)
Japan	0.5353	Indonesia	0.936	Peru	-0.4932
	(6.07)		(12.89)		(5.35)
Mexico	-0.2099	Vietnam	0.1314	Egypt	0.0848
	(2.06)		(1.23)		(0.98)
S.Africa	-0.2367	Albania	-0.0598	Morocco	-0.0748
	(3.36)		(0.63)		(0.58)
Argentina	-0.3075	Uganda	-0.5659	Iran	1.32
	(3.17)		(5.53)		(18.84)
Puerto	-0.1423	Monten-	0.2076	Jordan	-0.0527
Rico	(1.40)	egro	(2.24)		(0.56)

Figures in parentheses represent t statistics. The comparison is with Kyrgyzstan