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Does Trust Favor Macroeconomic Stability?

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Does trust favor macroeconomic stability? *

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This paper investigates the relationship between trust and macroeconomic volatility. An illustrative model rationalizes the relationship between trust and volatility. In this model, trust relaxes credit constraints and diminishes investment's procyclicality. I provide empirical evidence for the basic predictions of the model. Then, I show that higher trust is associated with lower macroeconomic volatility in a cross section of countries. This relationship persists when various covariates are taken into account. I use inherited trust of Americans as an instrumental variable for trust in their origin country to overcome reverse causality concerns. Using changes in inherited trust over the 20$^{\text{th}}$ century, I do not find clear evidence that increasing trust is also associated with decreasing volatility across time at the country level.

KEYWORDS: Trust, volatility, macroeconomic stability, social capital.
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1 Introduction

The cost of real macroeconomic volatility in terms of well-being has been shown by Wolfers (2003) to be important. Thus, all its potential sources deserve attention. This paper investigates the relationship between trust and macroeconomic instability. I first present an illustrative model linking trust to economic volatility through the procyclicality of investment and test its main prediction. Then, I show that higher trust is correlated with lower macroeconomic volatility in a cross section of countries. I focus on this relationship and show that it is robust to the introduction of various covariates. I address reverse causality by using inherited trust of Americans immigrants as an instrument for latent trust in their origin country. Then, using changes in inherited trust between 1910 and 1970, I show that there is little evidence that trust also reduces macroeconomic instability across time at the country level.

In figure 1, trust is measured in each country by the share of people who answer "*most people can be trusted*" to the following question of the World Values Survey between 1981 and 2008: "*Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?*". Macroeconomic instability is represented by the standard deviation of real GDP per capita growth rate between 1970 and 2008. The negative relationship between these two variables is highly significant. Differences in trust explain up to a third of differences in volatility across countries.

The fact that cultural traits such as norms of cooperation, civic spirit or beliefs regarding the behavior of others have an impact on macroeconomic performance has been massively explored by the literature.[1] Most papers investigating the relationship between trust and economic performance from an aggregate point of view have focused on growth or economic develop-

[1]See Fernández (2011) for a recent review.

ment, emphasizing the role of investment. See for example Knack and Keefer (1997), La Porta et al. (1997), or Algan and Cahuc (2010) among others. In this paper, I depart from this literature by looking at macroeconomic stability, an unexplored economic outcome that may be partly explained by trust as suggested by the relationship presented above.

Trust is an indicator of social capital. This later concept has been defined by Putnam (2000) as "*the collective values of all social networks and the inclinations that arise from these networks to do things for each others*". Trust represents a set of beliefs that favor inter-personal cooperation within the society. Trust may thus favor economic performance, especially in decisions such as investment's decisions.

Trust may favor macroeconomic stability through three channels. First, since trust implies extended civic behavior, it may be associated with better economic management by the authorities if it reflects greater cohesion of the society. Indeed, it has been shown by Knack and Keefer (1997) that countries with higher trust have also better institutions. According to Acemoglu et al. (2003), countries with better institutions exhibit lower macroeconomic volatility. Hence, if trust deters the discretionary use of public expenditure it can thus implies weaker macroeconomic volatility due to less volatile policies. Second, the cohesion of society can also translate into social stability. As a consequence, civil conflicts, violence, and political instability in general are less frequent in high-trust countries. This may results in lower economic volatility since internal conflicts are a major source of shocks for any economy. Third, following Glaeser et al. (2000), trust, the most general dimension of social capital, is closely linked to trustworthiness.[2] Hence, individual trust can be considered as empathy or as an individual commitment to behave well with other agents. This decreases costs of interactions and allows to build expectations and plans with greater certainty. In line with this reasoning,

[2]This assertion has been discussed by Fehr et al. (2003), Sapienza et al. (2007), and Thöni et al. (2012) among others.

Knack and Keefer (1997) documented a positive relationship between trust and the share of investment in GDP. In this paper, I present an illustrative model *à la* Aghion et al. (2010b, 2012) where credit constraints favor the procyclicality of investment. I then introduces trust as a way to relax credit constraints and thus to reduce investment's procyclicality. I test the main predictions of the model, i.e. that more trust allows deeper financial development, that trust favors long-term investment, and that private investment's procyclicality and volatility are lower in high-trust than in low-trust countries.

Although explaining the deep mechanisms of these channels at the microeconomic level is beyond the scope of this paper, these three explanations are tested throughout the paper. I show that channels running through the quality of institutions or social cohesion do not fully explain the negative relationship between trust and macroeconomic volatility.

The three channels mentioned above from trust, and social capital in general, to macroeconomic stability can be found under alternative and various forms in the literature that investigates the impact of culture and social capital on economic outcomes. In that dimension, this paper is closely related to all researches that document a link from social capital to economic outcomes.

After the seminal work by Putnam (1993), lots of evidence about the impact of social capital on economic performance have been raised by scholars. Knack and Keefer (1997) showed that countries with higher social capital have also better institutions, higher and more equal incomes, and a better educated population. Similar evidence have been provided by Tabellini (2010) in the case of European regions. Guiso et al. (2008b,a) presented some evidence about the way economic experiences from the distant past may shape current economic performance, through transmission of adequate norms. Dincer and Uslaner (2010) have found a positive relationship between trust and growth. More recently, Algan and Cahuc (2010) provide new evidence regarding the impact of trust on economic development. See also

La Porta et al. (1997), Zak and Knack (2001), Knack (2001), and Tabellini (2008) among others for additional developments.

A key aspect of this literature is whether beliefs such as trust are altered by the economic environment. A first approach considers that norms and values of a society are very sticky and slow moving parameters and therefore weakly altered by current events. On the opposite, a second approach emphasizes the changes in beliefs induced by changes in the current economic situation. My view is closer to the former approach. In this paper, I assume that trust is a latent component of a society. Consequently, I consider that latent culture is unaffected by macroeconomic volatility. The first set of results presented in this paper explicitly relies on this assumption.

Indeed, I first measure trust through the widely used question of the World Values Survey, using the share of trusting people as a proxy for generalized trust at the country level during the last quarter of the 20^{th} century. This variable is negatively and significantly correlated with macroeconomic volatility between 1970 and 2008. However, the hypothesis that the current level of trust may be impacted by current macroeconomic outcomes cannot be fully rejected. For example, it has been shown by Giuliano and Spilimbergo (2009) that people who experienced recessions during early adulthood are likely to have lower individual social capital. Hence, a measure of trust that is unaltered by macroeconomic instability is required to rule out reverse causality concerns. Subsequently, I confirm earlier results by using inherited trust of Americans as an instrument for the latent trust in their origin country. This method, inspired by Carroll et al. (1994) and used by Fernández and Fogli (2006, 2009) among others, overcome reverse causality. Using this instrumental variable strategy confirms the negative relationship between trust and volatility. Accordingly, the main result presented in this paper is that trust decreases macroeconomic volatility in space, i.e. across countries.

However, this does not mean that higher trust is associated with higher economic stability at the country level. In order to investigate this question,

I use a time-varying measure of trust. Such a measure does not exist for a long period of time because values surveys have only been conducted and generalized since 1980. Consequently, to overcome data shortage regarding the time variation of trust, I use the methodology developed by Algan and Cahuc (2010) to track changes in trust using changes in inherited trust measured with different waves of Americans immigrants. This method allows to exploit the changes in trust over the 20^{th} century. There seems to be no clear evidence that countries which have experienced an increase in trust also experienced a decrease in macroeconomic volatility.

In regressions presented in this paper, trust is proved to be an important determinant of macroeconomic stability across countries. However, it is not the only one. Following Lucas (1988), a rich literature has examined the key determinants of macroeconomic volatility. One part of this literature focuses on market failure, often credit constraints, as a source of economic fluctuations (see Kiyotaki and Moore (1997), Gertler and Kiyotaki (2010) and followers). Other papers, such as Koren and Tenreyro (2007, 2012) pointed the role of industrial structure to explain how economies react to shocks. The illustrative model *à la* Aghion et al. (2010b, 2012) presented in this paper illustrates how trust may play a role in explaining economic volatility through access to credit. Empirical evidence advocate in favor of trust impacting macroeconomic volatility on top of its traditional determinants, including institutions facilitating financial development such as the protection of property rights or legal origins. Another part of this literature focus on the institutional and political context. For example, Alesina and Drazen (1991) argue that stabilizations are delayed because interest groups fight to know who will bear the economic burden. In the same vain, Rodrik (1999) shows that the greater latent social conflicts in a society and the weaker its institutions of conflict management, the larger the effects of external shocks on growth. In the case of less developed countries, Acemoglu et al. (2003) state that macroeconomic fluctuations arise from turbulence created

by politicians in weakly institutionalized economies. See also Fernández and Rodrik (1991), Francois and Zabojnik (2005), and Acemoglu et al. (2008) for a focus on reforms feasibility. This literature points out the important role of institutions quality in economic management. My results suggest that trust acts on top of formal institutions. This leaves open the possibility of a joint interpretation of institutions and trust, or norms of cooperation in general, these two variables mutually reinforcing, as stressed by Francois (2008).

The remaining of this paper is organized as follows. I present and discuss the illustrative model in section 2. In the same section, I also provide simple evidence on the basic predictions of the model. and briefly discuss how alternative interpretation of the model could be tested. The data used in this paper and the estimation strategy are presented in section 3. In section 4, I present simple cross section estimates. Results using inherited trust as an instrument for trust in cross section and panel estimations are presented in section 5. This allow to overcome reverse causality between economic fluctuations and trust. The within-country relationship between trust and macroeconomic volatility which turns out to be insignificant. Finally, section 6 briefly concludes.

2 Illustrative framework

In this section, I present an illustrative model *à la* Aghion et al. (2010b, 2012) where credit constraints favor the procyclicality of investment. I then introduces trust as a way to relax credit constraints and thus to reduce investment's procyclicality. Finally, I test the main predictions of the model by simple cross country correlations.

2.1 The model

Assume that a representative entrepreneur lives two periods. At the beginning of the first period, she is endowed with one unit of good that cannot

be consumed. The entrepreneur has the choice between two different technologies to transform this good into consumption. The first one produces $a > 1$ units in the first period and nothing in the second period of life. The second one produces δa units, with $\delta > 1$, in second period and nothing in the first period of life. Let us call z the fraction of initial wealth invested in the second technology. The return of the first production technology is certain, whereas the second one is successful only if the entrepreneur manage to survive a cost c that occurs between both periods. As no wealth can be hold as cash, the only way to survive this shock is to borrow. In presence of credit constraints, the entrepreneur uses her first period wealth as collateral and cannot borrow more than $\mu a(1-z)$, with $\mu \geq 1$. This loan must be repaid at exogenous interest rate r.

Assuming that $\mu a\,(1-z) < 1$ and that the cost c is uniformly distributed over $[0,1]$, the probability to survive this shock can be written as $\mu a(1-z)$. Accordingly, the expected value of the cost is $\mu a(1-z)/2$ if it is possible to survive it.[3] Assuming linear utility, taking the interest rate r as given, and neglecting time preference, the entrepreneur chooses z in order to maximize the following expression:

$$a\,(1-z) + \delta a z\,\{\mu a\,(1-z)\} - \frac{\{\mu a\,(1-z)\}^2}{2} r.$$

The optimal investment in the second technology can be written as:

$$z^* = \frac{ar\mu^2 + a\delta\mu - 1}{ar\mu^2 + 2a\delta\mu}.$$

This share is increasing in μ and a as:

$$\frac{\partial z^*}{\partial \mu} = \frac{a\delta r\mu^2 + 2r\mu + 2\delta}{a\mu^2\,(r\mu + 2\delta)^2} > 0,$$

[3]Formally, we get: $\mathbb{E}\,\{c \mid c \leq \mu a\,(1-z)\} = \mu a(1-z)/2$.

and:

$$\frac{\partial z^*}{\partial a} = \frac{1}{a^2\mu\left(r\mu + 2\delta\right)} > 0.$$

The first expression shows that relaxing credit constraints increases investment in the second technology. The second expression means that z^* is procyclical. As productivity increases, investment in the second technology increases too. However, the extent to which this investment is procyclical is decreasing with μ. Indeed:

$$\frac{\partial^2 z^*}{\partial a \partial \mu} = \frac{-2\left(r\mu + \delta\right)}{a^2\mu^2\left(r\mu + 2\delta\right)^2} < 0.$$

In this model, risky investment is procyclical for two reasons. First, expected long term returns increase as productivity increases. Second, increasing productivity foster first period returns and thus relaxes the credit constraint, making entrepreneurs more likely to survive the intermediate shock. Investment is less procyclical as μ increases because the loosing of the credit constraint reduces the importance of first period returns to survive the shock.

2.2 Introducing trust

Let me now introduce trust in this simple framework. In presence of moral hazard, a lender may accept to lend if the borrower offer some collateral. Facing a potential borrower, a risk-neutral lender's expected profit can be written as:

$$E(\pi) = pD(1 + r) + (1 - p) \times C - D,$$

where C is offered as pledgable collateral, D is the issued debt, r is the interest rate, and p denotes the probability that the loan is repaid. This probability takes into account potential misbehavior of the borrower (e.g. insufficient efforts or conscious default on the debt), as well as the exogenous probability of success of the project. The lender will accept to lend if and only if its expected profit is positive, i.e. if $E(\pi) \geq 0$. This condition can be

rewritten as:

$$D \leq \frac{1-p}{1-p-pr}C.$$

Assuming that the maximum amount the borrower can offer as collateral is its current wealth W, issued debt cannot exceed μW, where

$$\mu \equiv \frac{1-p}{1-p-pr}.$$

In a world of imperfect information, the probability p depends positively on the amount of trust t that the lender places in borrower's expected actions, i.e. $\partial p(t)/\partial t > 0$. Since μ is increasing in p, it is also increasing in t. In other words, increasing trust increases the maximum loan for a given borrower's wealth.[4]

Turning back to the illustrative model presented above, trust relaxes credit constraints by its action on μ. As a consequence, comparative static suggests that higher trust reduces the procyclicality of investment in a world with imperfect financial markets. As suggested by the design of the model, the second technology can be interpreted as long-term investment or as R&D investment in the spirit of Aghion et al. (2010b, 2012). All in all, investment is less sensitive to productivity shocks in societies with higher trust.

In the above illustrative model and interpretation, I argued that trust lowers economic fluctuations by relaxing credit constraints. This allow entrepreneurs to engage in more productive activities because lenders have more confidence in their behaviors. Long term investment is thus increasing in trust. This prediction implicitly echoes the idea that in a principal-agent framework where individuals engage in business relations of various length, contracts of longer length will be preferred by high-trust principals. On the opposite, shorter contracts will be privileged by low-trust principals as they

[4]Note that $E(\pi) > 0$ as soon as $p > \frac{1}{1+r}$. In such a situation, the lender will agree on any debt amount whatever the value of the collateral. In other words, the credit constraint disappears when t, and thus p, is sufficiently large.

want to keep control over the business relation by leaving open the possibility of renegotiation during subsequent periods.

2.3 Tests of model's predictions

Let us briefly test the main predictions of the illustrative model presented above. This model predicts that trust increases access to credit and favors long-term investment. In turn, this lower investment's procyclicality and lower macroeconomic volatility. In order to test these simple predictions, I use simple cross section regressions whose estimated coefficients are presented in table 1.[5] The right-hand side variable is generalized trust, measured in each country as the share of people who answer "*most people can be trusted*" to the following question of the World Values Survey between 1981 and 2008: "*Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?*". The alternative answer is "*can't be too careful*".

In column 1 of table 1, the dependent variable is the ratio of credit to private sector to GDP over the period 1970-2008. This variable is positively correlated to trust as predicted by the model. This evidence echoes results presented by Guiso et al. (2004) and Sangnier (2011) who document a positive relationship between social capital or trust and financial development. In the second column, I proxy long-term investment at the country level by the ratio of R&D investment to GDP. When this ratio is used as left-hand side variable, the estimated coefficient of trust is positive and significant. This means that higher trust is associated with more R&D investment across countries.

Finally, the model predicts that trust reduces the procyclicality of investment. I test these prediction using the elasticity of investment with respect to GDP over the period 1970-2008 as dependent variable. As shown by the estimated coefficient of trust presented in column 3 of table 1, the elas-

[5]The sample of countries used in table 1 is identical to the one that will be presented in the next section.

ticity of investment with respect to trust is significantly lower in countries with higher trust. Finally, the coefficient presented in column 4 shows that the correlation between trust and the standard deviation of real investment growth rate is negative and statistically significant as expected. All in all, simple correlations presented in this section confirm the main predictions of the illustrative model.

As stressed above, a way to interpret the illustrative model is that trust lower macroeconomic volatility *via* investment's length. This argument could easily be extended to the duration of business relations in general. In the framework of a standard production with two inputs represented by capital and labor, this hypothesis may be tested by looking at the length of contractual relations in which firms are engaged. An first empirical test of this hypothesis would be to look at the cross-country correlation between trust and the average duration of relations between firms at the country level. I would expect both supply contracts to last longer and joint-venture agreements to run over longer periods of time in high-trust countries. To my best knowledge, such data are not easily available.[6]

3 Data and methodology

In this section, I describe the different estimation strategies and present the main data used in this paper.

To investigate the relationship between trust and macroeconomic volatil-

[6]Another way to test this hypothesis would be to look at differences in average job tenure across countries, assuming that employers engaging in longer relations with workers also set up investments project over a longer time horizon. In such a case, a positive correlation between average job tenure and trust would provide a first validation of this reasoning. However, such a correlation is not straightforward as it can be deduced from insights drawn from Aghion et al. (2010a). Indeed, a way to interpret the work of these authors is that agents tend to secure jobs in low-trust societies more than in high-trust societies as they fear to further interact with other employers if they change job. As a consequence, job tenure would be longer in low-trust societies.

ity across space, I rely on the estimation of the following equation:

$$\text{Volatility}_i = \alpha + \beta \text{Trust}_i + \sum_{j=1}^{n} \gamma_j x_{ji} + \varepsilon_i, \tag{1}$$

where i denotes a country, Volatility_i is a measure of macroeconomic volatility, Trust_i the measure of trust, x_{ji} is a covariate that may explain differences in volatility across countries, ans ε_i is the error term. If the relationship between trust and volatility is negative, then the coefficient β must be negative and significantly different from zero.

I address the question of the relation between trust and volatility across time at the country level by estimating the following expression:

$$\text{Volatility}_{it} = \alpha + \beta \text{Trust}_{it} + \sum_{j=1}^{n} \gamma_j x_{jit} + I_i + \varepsilon_{it}, \tag{2}$$

where notations are the same as in equation (1), except that subscript it denotes country i observed at time t. In addition, this equation includes a country fixed effect I_i. The estimation of equation (2) reveals information about the within country relationship between trust and volatility. If this relation is negative, then the coefficient β will show up negative and significant.

I compute dependent variables using the real GDP per capita for 56 countries over the period 1970-2008 from the Penn World Table. I follow Acemoglu et al. (2003) and simply use the standard deviation of real GDP per capita growth rate to capture macroeconomic volatility. As complementary dependent variables, I use the largest drop in real GDP per capita over the period and the average of peak-to-through ratios to capture fluctuations' severity.[7] Note that these two latter variables do not measure volatility *per se* but the average and extreme values of downturns. When investigating

[7]For the largest drop, I use the opposite of this measure such that a larger value represents a deeper negative performance.

the relationship between trust and volatility over time, I use the Maddison data set and compute these three measures for each country for two periods of equal length. Namely 1910-1940 and 1970-2000.

Following Knack and Keefer (1997), La Porta et al. (1997), Zak and Knack (2001), and Algan and Cahuc (2010) among others, I measure generalized trust in each country as the share of people who answer "*most people can be trusted*" to the following question of the World Values Survey between 1981 and 2008: "*Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?*". The alternative answer is "*can't be too careful*".[8] The implicit hypothesis made in this paper is that trust is a very slow moving parameter at the country level. Therefore, this measure of trust is supposed to be a general indicator of social capital over the whole period of interest. This approach is sustained by evidence presented by Guiso et al. (2006, 2008a), Durante (2009), Tabellini (2010), and Nunn and Wantchekon (2011) who show that trust has deep historical roots. The estimation of inherited trust of Americans relies on the assumption that differences in trust among Americans interviewed in the General Social Survey are linked to their ancestors country of origin. Accordingly, I estimate the following expression using a probit model:

$$\mathbb{1}\left\{\text{Trust}\right\}_{ic} = \alpha + \sum_{j=1}^{n} \beta_j x_{ji} + I_c + \varepsilon_i, \tag{3}$$

where $\mathbb{1}\left\{\text{Trust}\right\}_{ic}$ is the answer of individual i, claiming that its ancestors came from country c, to the trust question of the General Social Survey: "*Generally speaking, would you say that most people can be trusted or that you can't be too careful in life?*". The variable is equal to 1 if the respondent answers "*most people can be trusted*". It is equal to 0 otherwise. The variable I_c is the origin country fixed effect, Norway being the omitted cat-

[8]See Knack (2001) for a discussion of the validity of this question as an indicator of generalized trust at the country level.

egory.[9] Individual characteristics of respondent i are taken into account by variables x_{ji}, and ε_i is the error term. Following Algan and Cahuc (2010), the expression (3) is estimated and using Americans of second, third and fourth generations. Results of this estimation are presented below in section 5 when inherited trust is introduced in the analysis.

Other variables used as covariates in regressions will be described on the fly when I introduce them.

4 Cross section estimates

In this section and in the next one, I investigate whether higher trust translates into lower macroeconomic volatility as suggested by the illustrative framework. Only results of simple cross section regressions are presented in this section. They depict the relationship between trust and macroeconomic volatility across space. The analysis involves 56 countries for which all used data are available.[10] Summary statistics of all variables used in this section are presented in table 9 presented in appendix. Figures 2 and 3 mirror figure 1 presented in the introduction. In figure 2, macroeconomic volatility is measured using the largest drop in real GDP per capita between 1970 and 2008, whereas it is measured as the average peak-to-through ratio over the same period in figure 2. In both cases, differences in trust explain up to a fourth of difference in the amplitude of crises across countries.

In table 2, estimated coefficient of equation (1) are presented. Even-numbered columns reproduce the simple linear fit presented by figures 1, 2,

[9] The choice of Norway as the reference origin country is purely arbitrary and does not drive the results.

[10] Observed countries are: Algeria, Argentina, Australia, Austria, Bangladesh, Belgium, Brazil, Canada, Chile, China, Colombia, Denmark, Dominican Republic, Egypt, El Salvador, Finland, France, Germany, Ghana, Greece, Guatemala, Hungary, India, Indonesia, Ireland, Israel, Italy, Japan, Jordan, South Korea, Malaysia, Mali, Mexico, Netherlands, New Zealand, Norway, Peru, Philippines, Poland, Portugal, Rwanda, Singapore, South Africa, Spain, Sweden, Switzerland, Thailand, Trinidad and Tobago, Turkey, Uganda, United Kingdom, United States, Uruguay, Venezuela, Zambia, and Zimbabwe.

and 3. In odd-numbered columns, I introduce obvious variables that are likely to be correlated with trust and macroeconomic volatility. These variables are the mean of real GDP per capita growth rate over the period, the (log of) initial GDP per capita in the beginning of the period, and a set of continental fixed effects. Growth is correlated both with volatility, according to Ramey and Ramey (1995), and with trust, according to Algan and Cahuc (2010). The introduction of these variables lowers the size and significance level of the coefficient of trust. According to estimated coefficients displayed in column 2, a one standard deviation change in trust is associated with a negative change of macroeconomic volatility that amounts around one fourth of the standard deviation of this variable. The value of the coefficient of trust leads to a similar conclusion. Although not statistically significant, the estimated coefficient displayed in column 6, i.e. when the dependent variable is the peak-to-through ratio, is negative.

In table 3, I expand the set of explanatory variables by introducing the share of public expenditure in GDP, trade openness (measured as (imports + exports)/GDP), and the standard deviation of terms of trade over the period. The first variable is likely to reduce economic volatility by stabilizing some part of the economy. The two others measure exposure to external shocks and external shocks themselves. To limit as much as possible endogeneity of the explanatory variables (what would bias in an non-predictable direction the estimate of the variable of interest), I define the share of public expenditure and trade openness at the beginning of the period, i.e. in 1970. Each new variable is added to growth and initial GDP in a separate regression in order to keep degrees of freedom at a reasonable level.[11] The size and the significance level of the coefficient of trust remains remarkably stable across specifications for the three dependent variables. This confirms the negative relationship between trust and macroeconomic volatility when

[11] Entering all variables simultaneously, as well as adding continental fixed effects does not alter the results presented here.

different economic covariates are taken into account.

It is still possible that the effect of trust on macroeconomic stability is mediated by omitted variables, or that trust is simply a proxy for another key socio-economic determinant of volatility. If this turns out to be true, then the estimated coefficient of trust should be weaker and less significant when introducing such variables. Obvious candidates are the quality of institutions, social fractionalization, education of the population, violence, and inequalities. Tables 4, 5, and 6 display the estimated coefficients of equation (1) when such variables are entered as explanatory variables. For the same reason as above, variables are introduced in separate regressions. In table 4, the dependent variable is the standard deviation of real GDP per capita growth rate. In column 1, differences in the quality of institutions across countries are taken into account by the revised polity score from the Polity IV Project defined in 1970.[12] This variable measure the degree of democracy of societies. The estimated coefficient of this variable is negative but not significantly different from zero. The estimated coefficient of trust is left unchanged with respect to previous specifications, suggesting that trust reduces macroeconomic volatility by itself and not only by allowing to achieve a higher level of democracy. In column 2, I control for the protection of property rights as measured by the Heritage Foundation and reach a similar conclusion. In column 3, I use ethnolinguistic fractionalization from Easterly and Levine (1997) as alternative covariate. This variable is another measure of the cohesion of the society that could also be related to volatility (and trust).[13] Education, measured as the average of schooling years in the total population aged 25 and over from Barro and Lee (2001) is entered in column 4. In column 5, the number of years in civil war according to the UCDP/PRIO Armed Conflict Dataset is introduced as additional explanatory variable. I

[12] A similar candidate from the same data set would be the measure of constraints on the executive. However, this variable does not appear to be significantly related to volatility.

[13] Results are identical if ethnic fractionalization from Alesina et al. (2003) is used instead of ethnolinguistic fractionalization.

use the Gini coefficient from the World Development Indicators in column 6. Finally, I use a set of fixed effects in column 7 to take into account legal origin as defined by La Porta et al. (1999). All these variables leave the size and the significance level of the coefficient of trust virtually unchanged. These results suggest that it may be reasonable to rule out the omitted variables bias hypothesis stated above. Tables 5 and 6 reproduce exactly the same exercise as in table 4 with the two measures of fluctuations' severity. In all cases, the estimated coefficient of trust is virtually unchanged.

This set of simple cross section estimations show that the negative relationship between trust and macroeconomic volatility is robust to the introduction of various alternative determinants of volatility and competitive variables for trust. At this stage of the analysis, no causality statement would be reasonable. However, we can temporarily conclude that there is a strong negative relationship between trust and macroeconomic volatility across space.

5 Instrumental variables estimates

In this section, I use the inherited trust of US immigrants as an instrument for trust in their origin country. I first briefly present the estimation method for inherited trust. Then, I use inherited trust as an instrument for trust in cross section estimations. Finally, I use changes in inherited trust to track changes in trust at the country level over the 20^{th} century.

5.1 Inherited trust

It has been shown by Giuliano and Spilimbergo (2009) that macroeconomic events, in particular macroeconomic shocks, are likely to alter beliefs of agents. As a consequence, aggregate trust could be influenced by past and current macroeconomic volatility. Although this may look totally opposed to the exogeneity assumption for trust made above, their approach is com-

patible with mine. In fact, they argue that beliefs are formed during early adulthood, this is the so called "impressionable years hypothesis", and remain almost unchanged after it. Hence, beliefs are changing slowly over time because only a fraction of the population is likely to change beliefs as a reaction to current macroeconomic fluctuations. Thus, the identification hypothesis used in the former regressions remain plausible despite the potential reverse causality in the medium term. However, to be sure to avoid reverse causality concerns and consistent with the view of deep trust as a indicator of latent social capital, I will now use inherited trust of US immigrant as an alternative measure of latent trust in their origin country.

This strategy has for main advantage to avoid potential reverse causality from macroeconomic instability to trust. This approach relies on the assumption that differences in beliefs among Americans with foreign origins are linked to differences in beliefs between their countries of origin. In order to be sure that observed Americans have not been affected by macroeconomic volatility in their origin country after 1970, I focus on individuals whose forbears have immigrated before 1970. Hence, assuming 25 years between each generation, selected individuals are immigrants of second generation born before 1970, third generation immigrants born before 1995, and fourth generation immigrants.

Having estimated equation (3), marginal effects are reported in table 10 in appendix. Marginal effects of origin countries are also represented in figure 4. This figure should be read as follows: in 1970, an American with Irish ancestors is 8.6 percentages points less likely to answer that "*most people can be trusted*" than an American whose forbears came from Norway. The main drawback of this approach is to shrink the number of available countries from 56 to 24.[14] Most of the least developed countries are lost due to this method.

[14]Observed origin countries are following: Austria, Canada, China, Denmark, United Kingdom, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Japan, Mexico, Netherlands, Norway, Philippines, Poland, Spain, Sweden, Switzerland, India, Portugal and Belgium.

5.2 Cross section instrumental variables estimates

In table 7, I present estimated coefficients of the effect of trust on macroeconomic volatility when trust is instrumented by inherited trust. Summary statistics for the observations used in these estimations are presented in table 11 presented in appendix. In order to preserve degrees of freedom, I restrict the specification to a limited number of explanatory variables: trust (instrumented by inherited trust), (log of) real GDP per capita in 1970, institutional quality (measured using the revised polity score), and a dummy variable that splits the sample between European and non-European countries.

Column 1 of table 7 presents the estimation of the first stage regression. As shown by the estimated coefficient of inherited trust, this variable is strongly correlated with trust in origin country. Columns 2, 4, and 6 present the estimated coefficients of equation (1) for the three measures of macroeconomic volatility when trust is predicted using the first stage regression. As a comparison, columns 3, 5, and 7 presents the standard OLS estimates for the same sample of countries. For the three dependent variables, the estimated coefficient of trust using the instrumental variable approach is negative and significant. Moreover, the estimated coefficients are larger and at least statistically significant at a lower level of confidence than the estimated coefficients using the standard OLS approach. In column 4, when the dependent variable is the absolute value of the largest drop in real GDP per capita, a one standard deviation change in trust is associated with a change in the dependent variable that amounts roughly one standard deviation of this variable. Order of magnitude are similar for other columns. These simple comparisons suggest that the previous strategy was leading to an under-estimation of the effect of trust on macroeconomic volatility.

Using instrumental variables allows to limit endogeneity concerns and to show that trust has a strong and significant effect on the indicators of macroeconomic instability in cross country regressions. Accordingly, evidence offered by this instrumental variable strategy suggest that trust is not only

associated with macroeconomic stability in a cross section of countries, but also that trust decreases macroeconomic volatility.

5.3 Within estimates

In this sub-section, I will now investigate whether the effect of trust on volatility is also valid at the country level. To do so, I use changes in inherited trust of US immigrants as a proxy for trust changes in their origin country. Following Algan and Cahuc (2010), I use different immigration waves to assess changes in inherited trust. Accordingly, inherited trust in year T is estimated using second generation immigrants born before T, third generation immigrants born before $T + 25$ and fourth generation immigrants born before $T + 50$. I estimate inherited trust in 1910 and 1970 with respect to Norwegian immigrants.[15] Due to the limited number of observations available for inherited trust in 1910, the sample is restricted to 22 countries.[16] I use the Maddison database to construct the three indicators of macroeconomic volatility for the periods 1910-1940 and 1970-2000. The choice of this two periods is made essentially because the estimation of inherited trust for different dates requires both a sufficient number of observations for each period and a sufficient gap to avoid overlapping generations. I then estimate equation (2) using a reduced form approach since trust is not directly observable between 1910 and 1940. Hence, inherited trust is used here as a proxy for trust.

Table 8 presents the estimated coefficient of OLS regressions with country fixed effects. Covariates include initial real GDP per capita and average

[15] Inherited trust in 1910 is estimated using second generation immigrants born before 1910, third generation immigrants born before 1935 and fourth generation immigrants born before 1960. Inherited trust in 1970 is estimated using second generation immigrants born between 1910 and 1970, third generation immigrants born between 1935 and 1995 and fourth generation immigrants born after 1960.

[16] Observed countries are following: Austria, Belgium, Canada, Czechoslovakia, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Mexico, Netherlands, Norway, Poland, Portugal, Spain, Sweden, Switzerland, United Kingdom and Yugoslavia.

institutional quality for each period. In addition, I introduce a time dummy to account for systematic convergence or divergence of countries in terms of macroeconomic performance. The estimated coefficient of inherited trust is not significant for any of the dependent variables. However, it is negative when the dependent variable captures the severity of fluctuations. All in all, there seems to be no clear evidence that higher trust reduces macroeconomic volatility across time at the country level.

6 Conclusion

In this paper, trust has been shown to be negatively associated with macroeconomic instability in a cross section of countries. Higher trust weakens the standard deviation of real GDP per capita growth rate, and limit the amplitude of downturns. Using trust of Americans as a latent indicator of trust in their origin country, I provided additional evidence of these effects, avoiding potential reverse causality concerns. Applying the same method to track changes in trust across the 20^{th} century, I do not find any evidence that higher trust is accompanied by lower macroeconomic volatility over time at the country level.

I present an illustrative model that suggests that trust lower macroeconomic volatility by its action on investment's procyclicality. In the last section, I test the basic predictions of this model, i.e. that more trust allows more deeper financial development, that trust favor long-term investment, and that private investment's procyclicality and volatility are lower in high-trust than in low-trust countries. This advocates the idea that trust weakens economic volatility by orienting private investment toward long-term activities.

All in all, evidence presented in this paper suggest that trust is likely to be a key determinant of macroeconomic stability. This set of aggregate results calls for further research to investigates both theoretically and empirically

how trust translate to more stable investment at the individual level.

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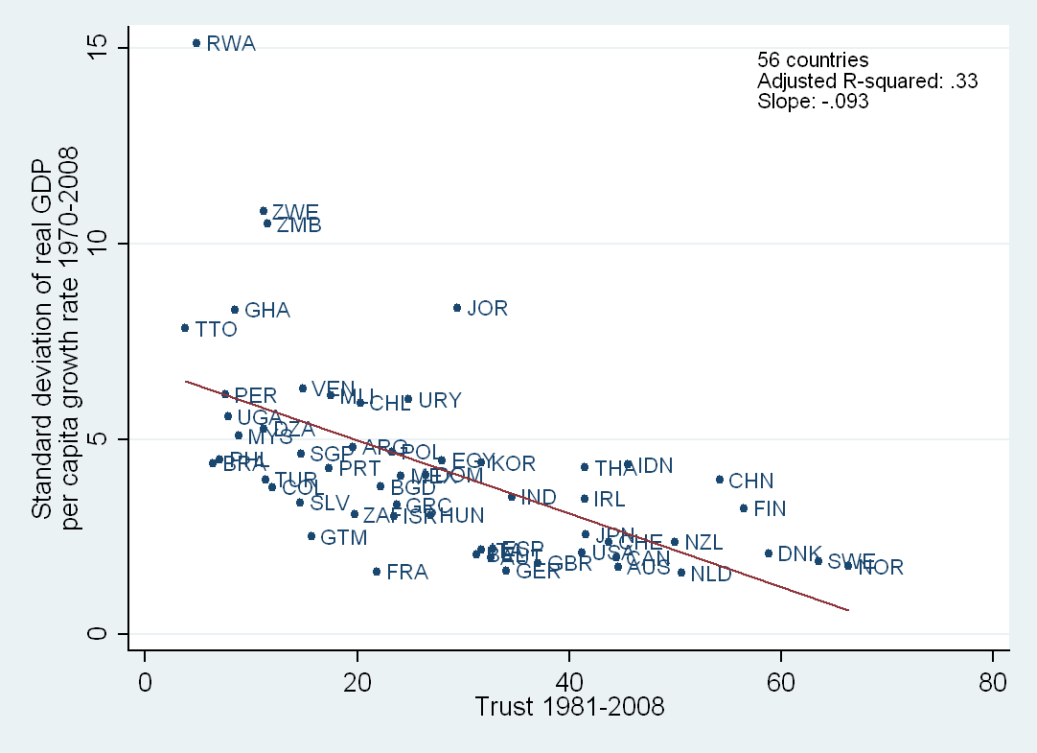
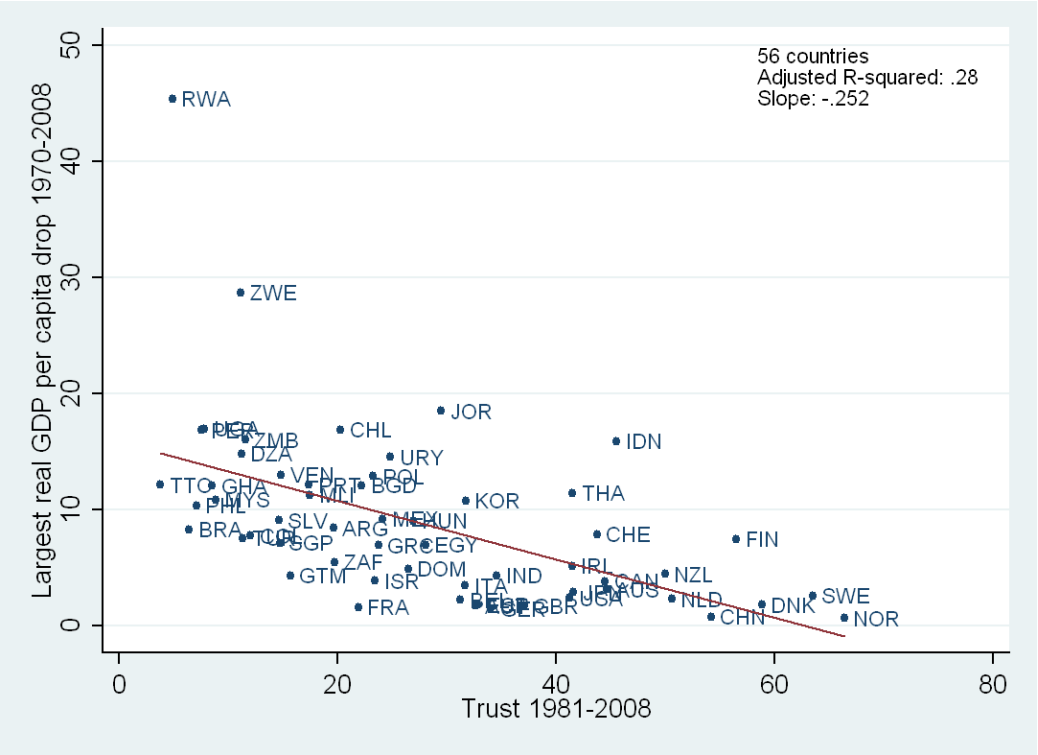
Figure 1: Relationship between the standard deviation of real GDP per capita growth rate (1970-2008) and trust (1981-2008).



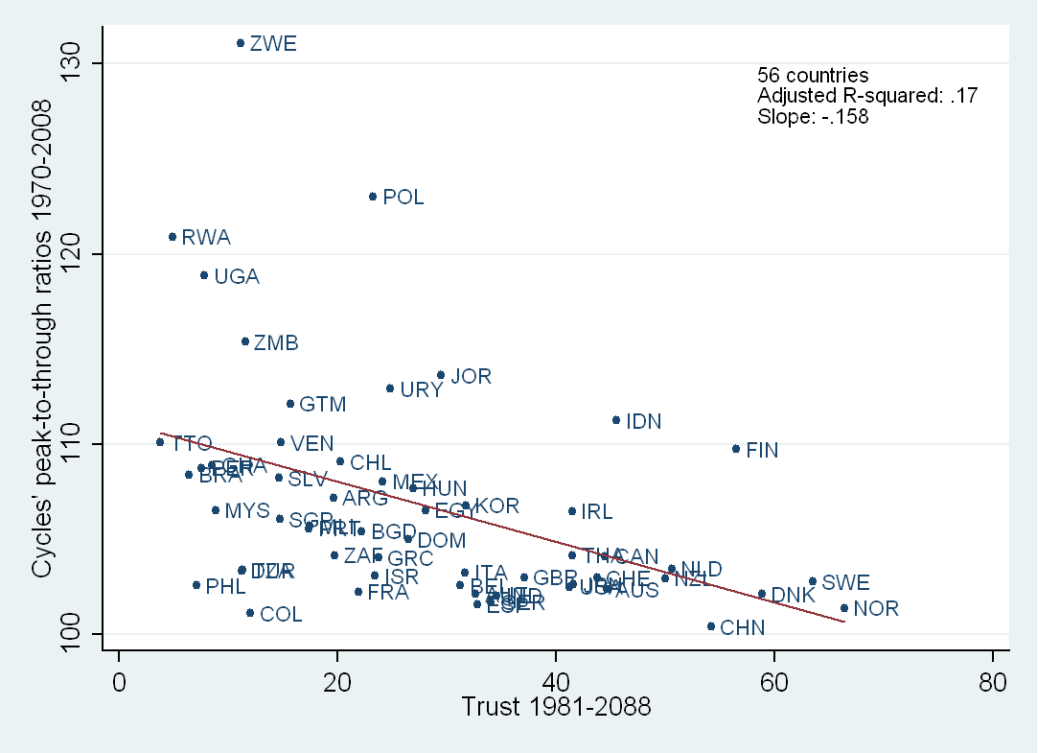
Sources: World Values Survey and Penn World Table. *Trust* is the share of people who answer "*most people can be trusted*" to the following question of the World Values Survey between 1981 and 2008: "*Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?*"

Figure 2: Relationship between the largest real GDP per capita drop (1970-2008) and trust (1981-2008).



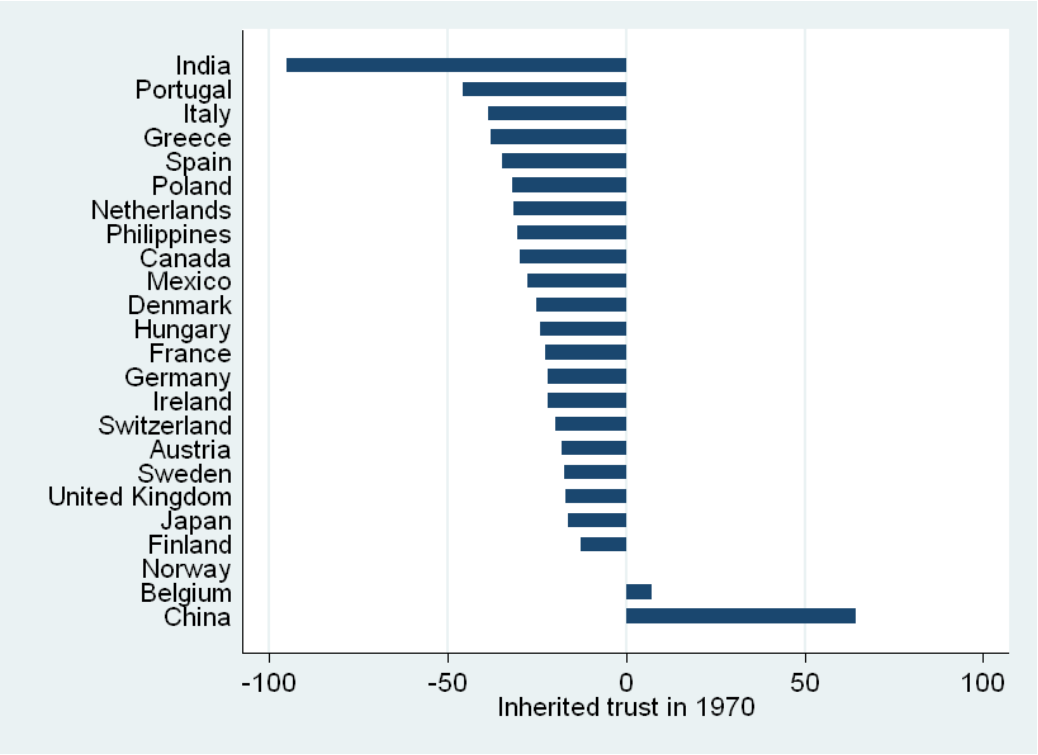
Sources: World Values Survey and Penn World Table. *Trust* is the share of people who answer "*most people can be trusted*" to the following question of the World Values Survey between 1981 and 2008: "*Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?*"

Figure 3: Relationship between average of cycles' peak-to-through ratios (1970-2008) and trust (1981-2008).



Sources: World Values Survey and Penn World Table. *Trust* is the share of people who answer "*most people can be trusted*" to the following question of the World Values Survey between 1981 and 2008: "*Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?*"

Figure 4: Inherited trust of Americans in 1970 by country of origin.



Source: General Social Survey (author's calculation). The figure plots the difference in trust with respect to Americans with Norwegian ancestors for Americans of different origins.

Table 1: Cross country relationships between trust and volatility of investment and public expenditure.

Dependent variables in columns' head.

	(1) Credit/GDP	(2) R&D/GDP	(3) Elasticity of investment	(4) Standard dev. of investment
Trust	1.20***	0.04***	-0.01**	-0.30***
	(0.26)	(0.01)	(0.00)	(0.06)
Adjusted R-squared	0.28	0.33	0.06	0.35

*** p<0.01, ** p<0.05, * p<0.1. Standard errors in parentheses. OLS regressions. All regressions include an constant term. 56 observations in all regressions, except in column 2 (51 observations). *Trust* is the share of people who answer"*most people can be trusted*" to the following question of the World Values Survey between 1981 and 2008: "*Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?*" Dependent variables are defined over the period 1970-2008. *Credit/GDP* is the ratio of credit to the private sector to GDP. *R&D/GDP* is the ratio of research and development expenditure to GDP. *Elasticity of investment* is the elasticity of investment with respect to GDP. *Standard dev. of investment* is the standard deviation of real investment per capita growth rate.

Table 2: Cross country relationship between trust and macroeconomic volatility, controlling for average growth and initial GDP per capita.

Dependent variables in columns' head.

	(1)	(2)	(3)	(4)	(5)	(6)
	Standard dev.		Largest drop		Amplitude	
Trust	-0.09***	-0.04**	-0.25***	-0.11**	-0.16***	-0.05
	(0.02)	(0.02)	(0.06)	(0.05)	(0.04)	(0.05)
Growth		-0.14		-1.09*		-1.41*
		(0.24)		(0.61)		(0.76)
Initial GDP		-0.78**		-2.86***		-2.85**
		(0.32)		(0.90)		(1.16)
Continents		Yes		Yes		Yes
Adjusted R-squared	0.33	0.52	0.28	0.44	0.17	0.35

*** p<0.01, ** p<0.05, * p<0.1. Robust standard errors in parentheses. OLS regressions. All regressions include a constant term. 56 observations. *Trust* is the share of people who answer "*most people can be trusted*" to the following question of the World Values Survey between 1981 and 2008: "*Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?*" *Growth* is the average growth rate between 1970 and 2008. *Initial GDP* is the log of real GDP per capita in 1970. Continental fixed effects are included for Africa, Asia and Oceania, Europe, North America, and South America. Dependent variables are defined over the period 1970-2008. *Standard dev.* is the standard deviation of real GDP per capita growth rate. *Largest drop* is the absolute value of the largest drop in real GDP per capita. *Amplitude* is the average of cycles' peak-to-through ratios.

Table 3: Cross country relationship between trust and macroeconomic volatility, controlling for public expenditure, openness, and changes in terms of trade.

Dependent variables in columns' head.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
		Standard dev.			Largest drop			Amplitude	
Trust	-0.05***	-0.04***	-0.04***	-0.12**	-0.12**	-0.10**	-0.05	-0.04	-0.03
	(0.02)	(0.02)	(0.02)	(0.05)	(0.05)	(0.04)	(0.04)	(0.04)	(0.04)
Growth	-0.39**	-0.43**	-0.33*	-1.43***	-1.40***	-1.30**	-1.63**	-1.65**	-1.51**
	(0.16)	(0.18)	(0.19)	(0.43)	(0.51)	(0.51)	(0.67)	(0.65)	(0.72)
Initial GDP	-1.19***	-1.16***	-1.05***	-3.32***	-3.21***	-2.93***	-2.39**	-2.32***	-2.04*
	(0.23)	(0.27)	(0.29)	(0.82)	(0.87)	(0.91)	(0.94)	(0.85)	(1.03)
Public expenditure	-0.01			-0.02			-0.02		
	(0.02)			(0.05)			(0.05)		
Openness		0.01***			0.00			0.01	
		(0.00)			(0.01)			(0.01)	
Terms of trade volatility			0.02			0.08**			0.08
			(0.02)			(0.04)			(0.06)
Adjusted R-squared	0.51	0.52	0.53	0.45	0.45	0.48	0.36	0.36	0.39

*** p<0.01, ** p<0.05, * p<0.1. Robust standard errors in parentheses. OLS regressions. All regressions include a constant term. 56 observations. *Trust* is the share of people who answer "*most people can be trusted*" to the following question of the World Values Survey between 1981 and 2008: "*Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?*" *Growth* is the average growth rate between 1970 and 2008. *Initial GDP* is the log of real GDP per capita in 1970. Dependent variables are defined over the period 1970-2008. *Standard dev.* is the standard deviation of real GDP per capita growth rate. *Largest drop* is the absolute value of the largest drop in real GDP per capita. *Amplitude* is the average of cycles' peak-to-through ratios. *Public expenditure* is the share of public expenditure in GDP in 1970. *Openness* is the value of (Imports + Exports)/GDP in 1970. *Terms of trade volatility* is the standard deviation of terms of terms of trade between 1970 and 2008.

Table 4: Cross country relationship between trust and macroeconomic volatility, controlling for the level of democracy, protection of property rights, fractionalization, education, civil war, inequalities, and legal origin.

Dependent variable is the standard deviation of real GDP per capita growth rate.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Trust	-0.05**	-0.05***	-0.05***	-0.05**	-0.06***	-0.06**	-0.07***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Polity score	-0.00						
	(0.03)						
Property rights		0.01					
		(0.02)					
Fractionalization			-0.02				
			(0.01)				
Education				-0.00			
				(0.13)			
Civil war					-0.17**		
					(0.07)		
Gini index						-0.03	
						(0.04)	
Legal origin							Yes
Adjusted R-squared	0.51	0.51	0.53	0.51	0.56	0.51	0.50

*** p<0.01, ** p<0.05, * p<0.1. Robust standard errors in parentheses. OLS regressions. All regressions include a constant term, average growth between 1970 and 2008 and real GDP per capita in 1970. 56 observations. *Trust* is the share of people who answer "*most people can be trusted*" to the following question of the World Values Survey between 1981 and 2008: "*Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?*" Dependent variable is defined over the period 1970-2008. *Polity score* is the revised combined polity score in 1970 from the Polity IV project. *Property rights* captures the protection of property rights as measured by the Heritage Foundation. *Fractionalization* is ethnolinguistic fractionalization from Easterly and Levine (1997). *Education* is the average of schooling years in the total population aged 25 and over from Barro and Lee (2001). *Civil war* is the number of years in civil war from the UCDP/PRIO Armed Conflict Dataset. *Gini index* is from the World Development Indicators. *Legal origin* is a set of fixed effects from La Porta et al. (1999).

Table 5: Cross country relationship between trust and macroeconomic volatility, controlling for the level of democracy, protection of property rights, fractionalization, education, civil war, inequalities, and legal origin (continued).

Dependent variable is the absolute value of the largest drop in real GDP per capita.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Trust	-0.11**	-0.13***	-0.12**	-0.12**	-0.13***	-0.16**	-0.16**
	(0.05)	(0.04)	(0.05)	(0.05)	(0.05)	(0.07)	(0.06)
Polity score	-0.11						
	(0.09)						
Property rights		0.04					
		(0.07)					
Fractionalization			-0.07*				
			(0.04)				
Education				-0.04			
				(0.39)			
Civil war					-0.18		
					(0.22)		
Gini index						-0.13	
						(0.14)	
Legal origin							Yes
Adjusted R-squared	0.46	0.46	0.51	0.45	0.46	0.47	0.44

*** p<0.01, ** p<0.05, * p<0.1. Robust standard errors in parentheses. OLS regressions. All regressions include a constant term, average growth between 1970 and 2008 and real GDP per capita in 1970. 56 observations. *Trust* is the share of people who answer "*most people can be trusted*" to the following question of the World Values Survey between 1981 and 2008: "*Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?*" Dependent variable is defined over the period 1970-2008. *Polity score* is the revised combined polity score in 1970 from the Polity IV project. *Property rights* captures the protection of property rights as measured by the Heritage Foundation. *Fractionalization* is ethnolinguistic fractionalization from Easterly and Levine (1997). *Education* is the average of schooling years in the total population aged 25 and over from Barro and Lee (2001). *Civil war* is the number of years in civil war from the UCDP/PRIO Armed Conflict Dataset. *Gini index* is from the World Development Indicators. *Legal origin* is a set of fixed effects from La Porta et al. (1999).

Table 6: Cross country relationship between trust and macroeconomic volatility, controlling for the level of democracy, protection of property rights, fractionalization, education, civil war, inequalities, and legal origin (continued).

Dependent variable is the amplitude of cycles.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Trust	-0.04	-0.06	-0.05	-0.07	-0.06	-0.06	-0.11*
	(0.04)	(0.04)	(0.04)	(0.06)	(0.04)	(0.06)	(0.06)
Polity score	-0.10						
	(0.12)						
Property rights		0.06					
		(0.04)					
Fractionalization			-0.04				
			(0.03)				
Education				0.39			
				(0.60)			
Civil war					-0.37		
					(0.22)		
Gini index						-0.05	
						(0.10)	
Legal origin							Yes
Adjusted R-squared	0.37	0.37	0.38	0.37	0.40	0.36	0.40

*** p<0.01, ** p<0.05, * p<0.1. Robust standard errors in parentheses. OLS regressions. All regressions include a constant term, average growth between 1970 and 2008 and real GDP per capita in 1970. 56 observations. *Trust* is the share of people who answer "*most people can be trusted*" to the following question of the World Values Survey between 1981 and 2008: "*Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?*" Dependent variable is defined over the period 1970-2008. *Polity score* is the revised combined polity score in 1970 from the Polity IV project. *Property rights* captures the protection of property rights as measured by the Heritage Foundation. *Fractionalization* is ethnolinguistic fractionalization from Easterly and Levine (1997). *Education* is the average of schooling years in the total population aged 25 and over from Barro and Lee (2001). *Civil war* is the number of years in civil war from the UCDP/PRIO Armed Conflict Dataset. *Gini index* is from the World Development Indicators. *Legal origin* is a set of fixed effects from La Porta et al. (1999).

Table 7: Cross country relationship between trust and macroeconomic volatility, instrumenting trust with inherited trust.

Dependent variables in columns' heads.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	First stage	IV	OLS	IV	OLS	IV	OLS
	Trust	Standard dev.		Largest drop		Amplitude	
Inherited trust	0.24**						
	(0.10)						
Trust		-0.03**	-0.01	-0.22***	-0.09*	-0.12*	-0.03
		(0.01)	(0.01)	(0.05)	(0.05)	(0.07)	(0.05)
Initial GDP	-0.00	-0.42***	-0.41**	0.28	0.39	0.39	0.47
	(3.90)	(0.10)	(0.15)	(0.38)	(0.75)	(0.66)	(0.87)
Polity score	0.94**	-0.04**	-0.05**	-0.08	-0.20*	-0.14	-0.22
	(0.40)	(0.02)	(0.02)	(0.06)	(0.11)	(0.10)	(0.16)
Europe	2.23	-0.10	-0.15	0.05	-0.37	1.70	1.38
	(8.14)	(0.27)	(0.30)	(1.03)	(1.06)	(2.13)	(2.21)
Adjusted R-squared	0.27	0.54	0.58	0.07	0.30	-0.08	0.01

*** p<0.01, ** p<0.05, * p<0.1. Robust standard errors in parentheses. All regressions include a constant term. 24 observations. In columns 2, 4, and 6, *trust* is instrumented by *inherited trust*. *Trust* is the share of people who answer"*most people can be trusted*" to the following question of the World Values Survey between 1981 and 2008: "*Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?*" *Inherited trust* is inherited trust of Americans with foreign ancestors in 1970. See the text for the relevant estimation method. Dependent variables are defined over the period 1970-2008. *Standard dev.* is the standard deviation of real GDP per capita growth rate. *Largest drop* is the absolute value of the largest drop in real GDP per capita. *Amplitude* is the average of cycles' peak-to-through ratios. *Initial GDP* is the log of real GDP per capita in 1970. *Initial polity score* is the revised combined polity score in 1970 from the Polity IV project. *Europe* is a dummy variable that splits the sample between European and non-European countries.

Table 8: Within country relationship between trust and macroeconomic volatility.

Dependent variables in columns' head.

	(1) Standard dev.	(2) Largest drop	(3) Amplitude
Inherited trust	0.025	-0.009	-0.001
	(0.054)	(0.105)	(0.001)
Initial GDP	-1.870	-2.569	0.067
	(2.119)	(5.658)	(0.079)
Polity score	-0.078	-0.864**	-0.004
	(0.090)	(0.308)	(0.005)
Time	-0.208	2.533	-0.044
	(0.996)	(2.444)	(0.031)
Adjusted within R-squared	0.0846	0.295	0.377

*** p<0.01, ** p<0.05, * p<0.1. Robust standard errors in parentheses. OLS regressions. 44 observation (22 countries observed twice). All regressions include an constant term and country fixed effects. *Inherited trust* is inherited trust of Americans with foreign ancestors in 1910 and 1970. See the text for the relevant estimation method. Dependent variables are defined over the periods 1910-1940 and 1970-2000. textitStandard dev. is the standard deviation of real GDP per capita growth rate. *Largest drop* is the absolute value of the largest drop in real GDP per capita. *Amplitude* is the average of cycles' peak-to-through ratios. *Initial GDP* is the log of real GDP per capita in 1910 and 1970. *Polity score* is the revised combined polity score from the Polity IV project averaged over periods 1910-1940 and 1970-2000. Within each period, all variables are expressed relatively to Norway.

Appendix

Table 9: Summary statistics for cross section estimates.

	Mean	Standard deviation	Min	Max
Trust	27.69	16.22	3.8	66.35
Standard dev.	4.25	2.59	1.57	15.14
Largest drop	8.84	7.57	0.62	45.38
Amplitude	106.81	5.95	100.41	131.09
Growth	2.37	1.43	-1.28	7.78
Initial GDP	8.54	1.18	5.82	10.16
Public expenditure	70.78	14.09	32.78	102.02
Openness	42.99	40.71	9.16	271.50
Terms of trade volatility	18.77	16.05	2.31	65.62
Polity score	2.36	7.48	-9	10
Property rights	64.15	21.25	20.91	90.00
Fractionalization	26.34	27.92	0	100
Education	6.06	2.79	0.48	11.41
Civil war	1.73	3.62	0	13
Gini index	39.4	9.19	24.7	58.72

Trust is the share of people who answer "*most people can be trusted*" to the following question of the World Values Survey between 1981 and 2008: "*Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?*" *Standard dev.* is the standard deviation of real GDP per capita growth rate between 1970 and 2008. *Largest drop* is the absolute value of the largest drop in real GDP per capita between 1970 and 2008. *Amplitude* is the average of cycles' peak-to-through ratios between 1970 and 2008. *Growth* is the average growth rate of real GDP per capita over the period 1970-2008. *Initial GDP* is the log of real GDP per capita in 1970. *Public expenditure* is the share of public expenditure in GDP in 1970. *Openness* is the value of (Imports + Exports)/GDP in 1970. *Terms of trade volatility* is the standard deviation of terms of terms of trade over the period 1970-2008. *Polity score* is the revised combined polity score in 1970 from the Polity IV project. *Property rights* captures the protection of property rights as measured by the Heritage Foundation. *Fractionalization* is ethnolinguistic fractionalization from Easterly and Levine (1997). *Education* is the average of schooling years in the total population aged 25 and over between 1970 and 2008 from Barro and Lee (2001). *Civil war* is the number of years in civil war over the period 1970-2008 from the UCDP/PRIO Armed Conflict Dataset. *Gini index* is from the World Development Indicators.

Table 10: Estimation of inherited trust of Americans in 1970.

The dependent variable is trust.			
Male	0.013**	Germany	-0.086***
	(0.006)		(0.003)
Age	0.010***	Greece	-0.143***
	(0.002)		(0.004)
Age^2	-0.000***	Hungary	-0.093***
	(0.000)		(0.004)
Married	0.045***	India	-0.308***
	(0.008)		(0.015)
Protestant	0.009	Ireland	-0.086***
	(0.009)		(0.004)
Catholic	0.031	Italy	-0.147***
	(0.021)		(0.010)
Education	0.043***	Japan	-0.063**
	(0.002)		(0.028)
Employed	0.039***	Mexico	-0.106***
	(0.010)		(0.015)
White	0.102***	Netherlands	-0.121***
	(0.039)		(0.002)
Income	0.002	Norway	*Reference*
	(0.002)		
Austria	-0.070***	Philippines	-0.116***
	(0.006)		(0.016)
Belgium	0.029***	Poland	-0.122***
	(0.011)		(0.009)
Canada	-0.114***	Portugal	-0.169***
	(0.007)		(0.007)
China	0.248***	Spain	-0.132***
	(0.031)		(0.008)
Denmark	-0.097***	Sweden	-0.068***
	(0.003)		(0.003)
Finland	-0.050***	Switzerland	-0.077***
	(0.006)		(0.003)
France	-0.088***	United Kingdom	-0.067***
	(0.004)		(0.003)
Observations			13,011
Pseudo R-squared			0.061

*** p<0.01, ** p<0.05, * p<0.1. Robust standard errors in parentheses, clustered by country of origin. Marginal effects of a probit regression. The regression also includes a fixed effect for each year of interview. The dependent variable is equal to 1 if the respondent answers "*most people can be trusted*" to the following question of the General Social Survey: "*Generally speaking, would you say that most people can be trusted or that you can't be too careful in life?*" The sample is made of immigrants of second generation born before 1970, third generation immigrants born before 1995, and fourth generation immigrants.

Table 11: Summary statistics for cross section instrumental variables estimates.

	Mean	Standard deviation	Min	Max
Trust	37.49	15.16	7.07	66.35
Inherited trust	-22.9	26.35	-95.18	64.44
Sd	2.74	1.01	1.57	4.68
Freq	2.67	2.69	0.07	12.89
Min	4.74	3.76	0.62	12.87
Initial GDP	9.16	1.04	5.97	10.16
Initial polity score	4.50	7.91	-9	10
Europe	0.75	0.44	0	1

Trust is the share of people who answer "*most people can be trusted*" to the following question of the World Values Survey between 1981 and 2008: "*Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?*" *Inherited trust* is the difference in 1970 in trust of Americans with ancestors from various origins with respect to Americans with Norwegians ancestors. See the text for the relevant estimation method. *Sd* is the standard deviation of real GDP per capita growth rate over the period 1970-2008. *Freq* is the frequency of real GDP per capita negative growth over the period 1970-2008. *Min* is the the absolute value of the largest drop in real GDP per capita over the period 1970-2008. *Initial GDP* is the log of real GDP per capita in 1970. *Initial polity score* is the revised combined polity score in 1970 from the Polity IV project. *Europe* is a dummy variable that splits the sample between European and non-European countries.