

Galindo, Arturo; Chong, Alberto; Calderón, César

Working Paper

Structure and Development of Financial Institutions and Links with Trust: Cross-Country Evidence

Working Paper, No. 444

Provided in Cooperation with:

Inter-American Development Bank (IDB), Washington, DC

Suggested Citation: Galindo, Arturo; Chong, Alberto; Calderón, César (2001) : Structure and Development of Financial Institutions and Links with Trust: Cross-Country Evidence, Working Paper, No. 444, Inter-American Development Bank, Research Department, Washington, DC

This Version is available at:

<https://hdl.handle.net/10419/88039>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



*Inter-American Development Bank
Banco Interamericano de Desarrollo (BID)
Research department
Departamento de investigación
Working Paper #444*

Structure and Development of Financial Institutions and Links with Trust: Cross-Country Evidence

By

César Calderón*
Alberto Chong**
Arturo Galindo***

***University of Rochester**

****Inter-American Development Bank and Georgetown University**

*****Inter-American Development Bank**

April 2001

**Cataloging-in-Publication data provided by the
Inter-American Development Bank
Felipe Herrera Library**

Calderón, César.

Structure and development of financial institutions and links with trust : cross-country evidence / by César Calderón, Alberto Chong, Arturo Galindo.

p. cm. (Research Network working papers ; R-444)

Includes bibliographical references.

1. Risk--Sociological aspects. 2. Stock exchange. I. Chong, Alberto. II. Galindo, Arturo. III. Inter-American Development Bank. Research Dept. IV. Latin American Research Network. V. Series.

338.5 C878--dc21

82001

Inter-American Development Bank
1300 New York Avenue, N.W.
Washington, D.C. 20577

The views and interpretations in this document are those of the authors and should not be attributed to the Inter-American Development Bank, or to any individual acting on its behalf.

The Research Department (RES) produces the *Latin American Economic Policies Newsletter*, as well as working papers and books, on diverse economic issues.

To obtain a complete list of RES publications and read or download them please visit our web site at: <http://www.iadb.org/res/32.htm>

Abstract*

We explore the links between trust and a broad range of financial structure and development measures. Our base sample is a cross section of 48 countries and the analysis covers the period 1980-1994. We use a new World Bank data set that provides the most comprehensive coverage of financial development and structure to this date. We find that trust is correlated with financial depth and efficiency as well as with stock market development. Results hold when using an instrumental variable approach, and they are robust to changes in specification when using a formal Sala-i-Martin sensitivity analysis.

Word Count: 5872

JEL Classification: O1, O10

Key Words: Trust, Social Capital, Finance, Stock Market, Banks

* We are grateful to Simeon Djankov for suggestions. Acknowledgement is also made to Daniel Lederman for providing data. All errors are ours. Corresponding author: Chong: Research Department, Inter-American Development Bank, 1300 New York Ave, NW, Stop W-0436, Washington, DC 20577, USA; Tel (202) 623-1536; Fax. (202) 623-2481; E-mail: albertoch@iadb.org

1. Introduction

In recent years, researchers have shown great interest in the potential link between trust and economic performance. This interest has been spurred in large part by the work of Putnam (1993), Fukuyama (1995) and others. For instance, Putnam (1993) shows that the degree of “civicness” in a society, as defined by the extent to which individuals freely associate with one another, is a crucial indicator of the different performance of North and South Italy. Fukuyama (1995) argues that the level of trust inherent in a national culture can impact the economic development of a country by lowering transaction costs, which in turn can promote market efficiency and thus can lead to a more prosperous economy. In fact, econometric work that tests Fukuyama’s idea has been provided by Knack and Keefer (1997), La Porta, López de Silanes, Shleifer and Vishny (1997a), and others. In general, they use subjective indicators of trust for a sample of 29 market economies and show that it has a significant impact on aggregate economic activity. Moreover, they argue that the relationship between trust and growth is particularly large in poor countries, which indeed may be attributable to their less well developed financial sectors, insecure property rights, and unreliability of contract enforcement (Knack and Keefer, 1997).

In fact, it has been argued that when trust is low, institutions that provide better formal mechanisms for the reliable enforcement of contracts are more important than in societies where trust is high. Arguably, there is no more relevant sector in which this may be more certain to occur than in the financial sector.

In recent years, some researchers have constructed several measures of specific institutional arrangements surrounding financial markets and have found evidence that an adequate institutional setup has direct effects on the size and performance of financial markets. For instance, Barth, Caprio and Levine (2000) gather information on regulations that restrict the participation of financial institutions in securities, real state or insurance markets and find that countries with more regulatory restrictions are more fragile and are more likely to be hit by a crisis. They also find that countries with higher participation of the public sector in the banking system have weaker systems and are also more fragile. Japelli and Pagano (1999) survey credit bureaus throughout the globe and find that the breadth of credit markets is directly related to several characteristics of these information-sharing mechanisms, such as the type of information

distributed, their coverage and age, among others.¹ La Porta, López de Silanes, Shleifer and Vishny (1997b and 1998) construct indexes summarizing several aspects related with creditor protection and share holders rights, and find that these are important determinants of credit market breadth and stock market sizes in a sample of nearly 50 countries.² They also study the role of law enforcement in the development of the financial sector and find a strong correlation between them. Levine (1998) uses institutional variables such as law enforcement, legal origin and creditor rights measures to isolate the exogenous components of financial development in growth regressions, and finds evidence of causality between them. Using firm-level data for over 20 countries, Love (2000) studies whether the legal origin of regulations, the efficiency of the legal system, the risk of expropriation, and corruption impact the degree to which firms are financially constrained. This researcher finds that financial constraints are tighter where legal systems are faulty. Wurgler (2000) analyzes the role of institutions in the efficiency of creditor allocation and finds that countries with higher creditor and shareholder rights tend to have more efficient credit allocation than those where regulation is weak.

In summary, the impact of institutional variables such as law enforcement, creditor rights, and the regulatory framework, among others, on measures of financial development and performance have been broadly explored. However, as much as such links have been studied, the role of trust, the natural complement of institutions (Knack and Keefer, 1997) has barely been studied. To our knowledge only Guiso, Sapienza and Zingales (2000) have analyzed the role of trust in financial development. Somewhat similar to Putnam's work, their study concentrates on the unique North-South Italian experience. After controlling for specific characteristics, such as education and law enforcement, they find evidence that supports the hypothesis that trust and financial development measures are highly correlated. In particular, they find that in regions with high levels of trust households hold less cash, have higher stock investments, use more checks, have more access to credit, and have less use of informal markets.

The purpose of this paper is to complement and extend this discussion to the cross-country level by exploring the importance of trust in the development of the financial sector in order to contribute to the explanation of past findings regarding its interaction with growth

¹ Galindo and Miller (2001) find that the performance of these information-sharing institutions contributes to reducing financial constraints at the firm level.

² Following their lines of analysis Galindo and Micco (2001) find that creditor rights also play an important role in explaining credit cycles.

dynamics. Using recent data collected by the World Bank, we find evidence that the level of trust is a significant determinant of financial development. After controlling for economy size, human capital, inflation and law enforcement, among other variables, we find that higher levels of trust are associated with deeper financial markets (both from the deposit as well from the credit side), lower interest rate margins and overhead costs and more dynamic stock markets.

2. Can Trust Affect Financial Structure and Development?

As described above, recent empirical studies have shown the existence of a link between trust and economic performance, and some country-specific evidence about the impact over financial development has also been found. The relationship between trust and financial development is straightforward. As noted by Guiso *et al.* (2000) a financial contract is trust intensive in itself. In a financial contract the lender transfers money to the borrower in the present expecting that the borrower will return it in the future. In order to avoid opportunistic behavior, additional clauses such as collateral requirements are added to the contracts. Despite this, in many cases requirements can lose their effectiveness due to the inefficiency of regulations, for example those regarding the repossession of collateral in case of dispute, or due to the lack of enforceability of contracts. In such particular cases, the amount of debt issued by lenders will boil down to how much they trust that borrowers will repay. Even if rules are enforceable, financial contracts are intrinsically incomplete, which implies that no contract can fully guarantee that the creditor will recover his funds. This implies that even in cases where the rule of law holds, trust will also play a role as a determinant of market breadth; however one can expect a greater importance in countries with lower law enforcement or lower creditor protection.

In theory we expect trust to be positively related with measures of size and activity of the financial sector and negatively with measures of its efficiency. In allocating resources both depositors and lenders are exposed to an optimization problem in which several risks appear. Depositors face the risk that the financial intermediary will adopt opportunistic behaviors due to high monitoring costs, and lenders face the risk that borrowers will default. In either case the final outcome is that the initial owner of the funds will not be able to recover her or his control over them. How important these risks are, and how they end up shaping fund holder decisions depends on several aspects, including of course an institutional dimension. Within this dimension, trust plays an important role. Low levels of trust can exacerbate different sorts of

risks. If trust is low, the perceived probability of misbehavior on the borrower's behalf can be higher than where there is high trust. Because of this one can expect countries with lower trust to have smaller financial markets.

Both depositors and creditors can be influenced by their trust in their counterparts in a financial contract. Depositors lose control over their funds when they trust them to the financial institution, and creditors lose partial control over their funds when transferring them to a debtor. If trust is low, that is if depositors doubt that banks will behave properly and creditors doubt that debtors are willing to repay, fewer agents will be willing to extend credit or to deposit their savings in local banks, and hence financial markets will be small.

Regarding efficiency the theoretical implications follow similar lines. Financial intermediaries face higher marginal costs in countries where risks are high. As shown by Angbazo (1997) or Pong Wong (1997), these costs are partially transferred to credit users and deposit suppliers by means of a higher net interest margin. As above, if financial risks are exacerbated by lower trust, it can be expected that efficiency measures such as the interest margin will be negatively correlated with trust quality.

3. Data

In order to analyze the relationship between trust and financial structure and development we use a new data set of financial indicators based on research by Beck, Demirgüç-Kunt, and Levine (1999). The data are comprehensive and cover a broad array of financial indicators of the size, activity, and efficiency of a broad set of financial institutions and market. This results in a unique set of indicators that capture the development and structure of the financial sector across countries and over time along many different dimensions (Beck, Demirgüç-Kunt, and Levine, 1999). The financial indicators used in this paper cover three broad areas of financial structure and development. These areas are: (i) size and activity of the financial intermediaries; (ii) efficiency of commercial banks; and (iii) stock and bond market development. As measures of size and activity of the financial sector we explore the amount of liquid liabilities (mainly deposits) held by the financial sector (as a share of GDP), the size of banks measured by the ratio of their assets to GDP, the ratio of credit from deposit banks to GDP and the ratio of economy-wide credit to GDP. Higher values of trust are expected to be positively related to these measures. Efficiency refers to the extent to which financial intermediaries channel funds from

savers to investors. We use bank's overhead costs and the net interest margins as proxies for this. Likewise, we also include measures of stock and bond market development; in particular those that measure stock market size and activity (stock market capitalization and stock market total value traded). The definition of the specific financial proxies used in this paper is shown in Appendix 1.

With respect to the measures of trust we follow recent work by Lederman, Loayza, and Menéndez (1999) and Knack and Keefer (1997). In particular, we use the measures from the World Value Survey for the periods 1982-84 and 1990-93 and, following Lederman *et al.* (1999), we augment our data set with comparable information from Muller and Seligson (1994). Similarly, we maximize our observations by taking averages of the two waves of available data from the World Value Surveys and assume that such a sample captures trust measures for the period 1980-1994 for the countries under consideration (Lederman, Loayza, and Menéndez, 1999).³ In this paper, trust reflects the response to the following question: generally speaking, would you say that most people could be trusted, or that you can not be too careful in dealing with people? This indicator summarizes the percentage of respondents that state that "most people can be trusted."⁴ Finally, the additional data employed here, such as the gross domestic product, social indicators, macroeconomic proxies, and others, are mainly from the World Development Indicators (World Bank, 1999)⁵ for the periods covered by the trust measure (1980-1994).

³ As explained by La Porta *et al.* (1997a) and Lederman *et al.* (1999), the simple correlation across countries between trust in the 1980s and 1990s is higher than 0.9. There is a third wave of WVS surveys done in 1995 for a somewhat larger sample. These information, however, is not useful to us, since the trust data for the additional countries are not matched with corresponding financial proxies and other controls.

⁴ There are two potential bias problems with our data. As argued by Lederman, Loayza, and Menéndez (1999) there is a possible bias problem with the data as high income countries are over-represented. Also, Knack and Keefer (1997) explain that there can be over-sampling of higher-status groups in some countries which can attenuate the variation in the social capital measures for they tend to be positively correlated with income and thus, financial development. Similar to Knack and Keefer, we try minimize this problem by using weighted variables provided by WVS (Inglehart, 1994). Though not presented in the paper, those weight-adjusted results are similar to our findings here. We would be glad to furnish such regressions upon request to the corresponding author.

⁵ With the exception of law origin variables (Chong and Zanforlin, 2000), ethno-linguistic fractionalization (Mauro, 1995) and schooling (Barro and Lee, 1995) all the control, instruments, and robustness variables are from the World Development Indicators.

4. Simple Correlation

In Table 1 we present simple correlations between our trust indicator and the broad array of financial indicators consistent with the three financial categories described above. The specific variables used are presented in Appendix 1. Overall, this simple exercise shows that trust is positively linked with both financial development and efficient financial structure. In fact, and as expected, trust is positively correlated with the size and activity of the financial markets. Regarding the size of the financial sector we find that deposits and liquid liabilities in general are positively correlated with trust (0.33) as well as the amount of assets that banks hold (0.281). On the other hand, we proxy the activity of the financial system with private credit by the financial institutions (expressed as a percentage of GDP). There, we find that trust and activity of the financial markets are positively correlated. Both private credit by deposit money banks and private credit by the financial system are positively correlated with trust. Note that the broader the definition of financial system, the higher the correlation. Second, trust is negatively correlated with measures of inefficiency. Inefficient financial systems are characterized by high overhead costs and high net interest margins. We find that trust is negatively correlated with these variables. Specifically, the correlation coefficient of trust and overhead costs is -0.532, and the one with net interest margin is -0.529. Third, trust is positively related with the development of stock and bond markets. Higher levels of trust are associated with more dynamic stock markets. How these correlations hold when controlling for different variables is a matter of study of the following sections.

5. Empirical Specification

In this section we empirically assess the relationship between trust and the structure and development of financial markets. In order to perform this analysis we employ the following relationship:

$$F_i = X_i \mathbf{b} + T_i \mathbf{g} + \mathbf{e}_i \quad (1)$$

where F_i is the proxy for the structure of financial markets, X_i represents the set of basic determinants (i.e., initial GDP per capita, human capital, inflation,⁶ rule of law, law origin, and a constant), and T_i is the measures of trust. Our evaluation of this relationship is performed in the

⁶ More specifically the Log of (1 + inflation).

following dimensions: First, we use a broad set of indicators proxying the structure of financial markets (F_i). These proxies can be classified in the three groups mentioned above: (1) size and activity of the financial markets, (2) efficiency, and (3) stock and bond market development. Second, we address the possible existence of reverse causality between trust and finance by estimating equation (1) using instrumental variables, although we also present the ordinary least squares estimates. Third, we test the robustness of the relationship posed in equation (1) by performing a sensitivity analysis on the coefficient of trust (γ) following Sala-i-Martin (1997). Based on previous research, all regressions include a set of key controls. They are the degree of development as proxied by the initial GDP, attainment in primary education, as a proxy for human capital, the rate of inflation, as proxy for macroeconomic stability, rule of law as potential complement of trust, and law origin as may be also associated with quality of formal and informal institutions (Chong and Zanforlin, 2000).

6. Ordinary Least Squares Findings

We run ordinary least squares regressions on equation (1). However, given the possible endogeneity of trust (see Knack and Keefer, 1998), we also perform an instrumental variable (IV) technique. In Table 2 we present the ordinary least squares estimates of equation (1) for the array of dependent variables. As expected from equation (1), we find that in most cases higher rule of law and lower inflation are associated with an improved and efficient financial system.⁷ Now we turn to the analysis of the effect of trust. We find that trust is significantly associated with all measures of size and activity of the financial market (at the 5 and in some cases at the 10 percent level), except for the size of bank's assets (however the sign of the coefficient is appropriate). Higher trust is correlated with a larger and deeper financial system (in the form of higher ratios of liquid liabilities to GDP) and is strongly correlated with a more active financial system (where activity is approximated by the higher ratios of private credit to GDP). Another important finding is the one that links trust with aspects of efficiency of the financial system. We find that trust is inversely associated with both overhead costs and the net margin of interest of the financial firms. Thus, higher trust might generate higher efficiency in the financial system (in

⁷ With respect to the legal origin variables we find that countries that follow the German tradition have deeper credit and stock markets and exhibit higher efficiency as measured by the net interest margin. Notice that unlike studies for other development variables (Chong and Zanforlin, 2000; La Porta *et al.* 1997b) the French law dummy, though not robust, has a positive link with the financial variable.

the form of smaller overhead costs and lower interest margins). Finally, we find that trust is positively correlated with measures of stock market development. Higher trust is positively associated with measures of stock market capitalization and the total value traded in the stock market. Hence, higher trust would be associated with more developed stock markets (that is, markets with higher trade volumes and capitalization, and hence, higher turnover ratio).

What About Reverse Causality?

The ordinary least squares estimates of the relationship between trust and finance might not be interpreted as effects of trust on the financial system development. A more developed financial system may improve the trust of the agents, who may be encouraged to financially intermediate. Also, it might generate higher memberships in organization and increasing participation in social organizations, given the possibility of organizing events, which could be funded by financial contracts. All these arguments might suggest to us that our measure of trust (and rule of law as well) might be an endogenous variable and, therefore, correlated with the error process in equation (1). The endogeneity of trust would render biased ordinary least squares estimates. In order to address this issue we use an instrumental variable (IV) procedure. In order to find the best instruments for trust and rule of law, we follow Lederman, Loayza, and Menéndez (1999). Thus, we use a regional dummy variable for Eastern European countries, an ethnolinguistic fractionalization variable (Mauro, 1995), and the number of telephones per capita (World Bank, 1998). The dummy for transition economies is justified by the notion that countries belonging to this region might share cultural traits that affect the level of trust in those countries quite differently from the rest of the world. As noted by Knack and Keefer (1997), the exogenous components of the institutional, ethnic, and cultural factors are common to the countries in that region, through patterns of shared historical heritage and development experience. In fact, according to the conventional wisdom, ever since the dismantling of the Soviet Union, Eastern Europe is undergoing a complex transition process that has, as a common characteristic, a breakdown of trust in the population.⁸ The second variable, ethno-linguistic fractionalization, captures additional ethnic patterns not accounted for by the regional dummy (Mauro, 1995). Finally, we also include the number of telephones per capita, which might affect trust positively

by reducing the costs of social interaction (Lederman, Loayza, and Menéndez, 1999; Collier, 1998). Our instrumental variables estimates based on equation (1) are presented in Table 3.

As in the ordinary least squares case, we find that trust and rule of law are strongly related to financial system indicators. Similarly, we find that both trust and rule of law have a positive and significant relationship with indicators of size of the financial system. Higher trust appears to increase the propensity of the individuals to perform transactions with financial institutions; that is, open deposit accounts, request credit lines, celebrate contracts, etc. In particular, if a country with the mean value of trust (i.e., 0.36) experiences an increase of five percent, its impact on the size of the financial markets (proxied by liquid liabilities as percentage of GDP) is an increase of 2.7 percent of GDP in the period under study (1980-95). A similar increase in trust will increase the breadth of credit markets by 3.5 percentage points. In our instrumental variables estimation, the trust indicator proved to be negatively associated with overhead costs although it lost statistical significance with respect to net interest margins, even though it kept the correct sign. Higher trust might improve the efficiency of financial systems. In particular, a five percent increase in trust for the representative country appears to reduce overhead costs by nearly 0.2 percent. We find that an increase in trust for the representative country (i.e. a five percent increase) increases the value traded in the stock market by 1.2 percent of GDP over the 1980-95 period.

7. Robustness

We find that trust appears to have an impact on the financial system on several grounds: it may positively affect financial deepening in the economy as well as generate more activity (in the form of credit). Additionally, trust may enhance the competitiveness and efficiency of the system (by reducing overhead costs, interest spreads, and deregulating the system), and may help develop stock and equity markets. In order to provide additional evidence on the above, in this section we test the robustness of the relationship trust and financial system indicators. To do this we perform a sensitivity analysis along the lines of Sala-i-Martin (1997).

Similar to Levine and Renelt (1991) we use a set of 17 ancillary variables, entered in our regressions by groups of three variables, thus rendering 680 regression performed. Among them

⁸ In fact, the widely reported increase in crime, corruption, ethnic clashes and, in general, of social dysfunction is consistent with a decomposition in social capital, in general, and with trust in particular (Bisogno and Chong, 2001;

we used measures of fiscal policy, democracy, institutional efficiency, social development and macroeconomic uncertainty.⁹ Based on the results of the regressions, we construct a weighted average coefficient and standard deviation, as well as the cumulative distribution function along the lines of Sala-i-Martin (1997). This researcher develops a robustness test by looking at the entire distribution of the estimator of the variable of interest by focusing on the fraction of the density function lying on each side of zero. Given that zero divides the area under the density in two, this researcher denotes the larger of the two areas, $cdf(0)$, regardless of whether it is above or below zero.¹⁰

Table 4 presents our results. In general, we find that trust has a positive and robust relationship with indicators of the size and activity of the financial system. According to these estimates, a 5 percent increase in trust might increase the financial deepening of the system, as proxied by the ratio of liquid liabilities to GDP, by 7 percent. In addition, increases in trust of the same order as above will help increase the size of credit markets relative to GDP by nearly 10.5 percent. Trust and the efficiency measures have a robust relationship regardless of the indicator used for the explanatory variable. Trust indicators have a negative and robust relationship with overhead costs. An increase of 5 percent in trust might reduce the overhead by 0.5 percent. On the other hand, an analogous increase in trust should decrease the interest rate margin by 0.45. Finally, the relationship between trust and the measures of stock and equity market development is robust only in the case of total value traded. Specifically, we find that an increase of 5 percent in the trust of the representative country might increase equity trade by 3.85%.

8. Summary and Conclusions

In this paper we explore the links between trust and a broad range of financial development measures for a cross section of countries during the period 1980-1995. To do this we use a new World Bank data set that provides the most comprehensive coverage of financial development and structure to this date. We find that trust is correlated with financial depth, efficiency and

Brainerd, 2001).

⁹ In particular, we use the ratio of public consumption to GDP, the ratio of fiscal deficits to GDP, population (in logs), share of urban population, civil liberties, political rights, rule of law, corruption by the government, standard deviation of inflation, inflation rate, age dependency ratio, growth in GDP per capita, PPP GDP deviations, PPP Investment deviations, regional dummies, ratio of Exports to GDP, and degree of openness.

¹⁰ Among others, Chong and Calderón (2000) provide an application of the method.

stock market development, when taking into account the level of development of the country, human capital, macroeconomic stability and, in particular, the rule of law in a country. With respect to the latter, we show that trust appears to have an additional impact on financial depth and structure on top of that of rule of law. Trust appears to be a key complement of formal institutions when a society has little regard for the latter or, vice-versa, that is, when trust in a society is low, the development of formal institutions to help uphold the rule of law appears to become particularly crucial in a society. Our results hold when using an instrumental variable approach. Moreover, they are robust to changes in specification when using a formal Sala-i-Martin sensitivity analysis.

References

- Angbazo, L. 1997. "Commercial Bank Net Interest Margins, Default Risk, Interest Rate Risk and Off-Balance Sheet Banking." *Journal of Banking and Finance* 21(1): 55-87.
- Barro, R. 1991. "Economic Growth in a Cross-Section of Countries." *Quarterly Journal of Economics* 106: 407-444.
- Barro, R. and J-W. Lee. 1993. "International Comparisons of Educational Attainment." *Journal of Monetary Economics* 32: 363-394.
- Barro, R. and X. Sala-i-Martin. 1995. *Economic Growth*. New York, United States: McGraw-Hill.
- Barth, J., G. Caprio and R. Levine. 2000. "Banking Systems around the Globe: Deregulation and Ownership Affect Performance and Stability?" Milken Institute: Policy Brief No 15. Santa Monica, United States: Milken Institute.
- Barth, J.R., G. Caprio and R. Levine. 1999. "Financial Regulation and Performance: Cross-Country Evidence." World Bank Policy Research Working Paper 2037. Washington, DC, United States: World Bank.
- Beck, T., A. Demirgüç-Kunt and R. Levine. 1999. "A New Database on Financial Development and Structure." World Bank Policy Research Working Paper 2146. Washington, DC, States: World Bank.
- Bisogno, M., and A. Chong. 2001. "Foreign Aid and Poverty in Bosnia and Herzegovina: Targeting Simulations and Policy Implications." *European Economic Review*. Forthcoming.
- Brainerd, E. 2001. "Economic Reform and Mortality in the Former Soviet Union: A Study of the Suicide Epidemic in the 1990s." *European Economic Review*. Forthcoming.
- Chong, A., and C. Calderón. 2000. "Causality and Feedback Between Institutional Measures and Economic Growth." *Economics and Politics* 12(1): 69-81.
- Chong, A., and L. Zanforlin. 2000. "Law Tradition and Institutional Quality: Some Empirical Evidence." *Journal of International Development* 12(8): 1057-1068.
- Coleman, J. 1990. *Foundations of Social Theory*. Cambridge, United States: Harvard University Press.
- Collier, P. 1998. "Social Capital and Poverty." Washington, DC, United States: World Bank, Development Research Group. Manuscript.

- Demirgüç-Kunt, A., and R. Levine. 1999. "Bank-Based and Market-Based Financial Systems: Cross-Country Comparisons." World Bank Policy Research Working Paper 2143. Washington, DC, United States: World Bank.
- Fukuyama, F. 1995. *Trust: The Social Virtues and the Creation of Prosperity*. New York, United States: Free Press.
- Galindo, A., and A. Micco. 2001. "Creditor Rights and the Credit Cycle." Washington, DC, United States: Inter-American Development Bank. Mimeographed document.
- Galindo, A., and M. Miller. 2001. "Can Credit Registries Reduce Credit Constraints: Empirical Evidence on the Role of Credit Registries in Firm Investment Decisions." Washington, DC, United States: Inter-American Development Bank. Mimeographed document.
- Gambetta, D., editor. 1988. *Trust: Making and Breaking Cooperative Relations*. Cambridge, United Kingdom: Basil Blackwell.
- Glaeser, E., D. Laibson, J. Scheinkman *et al.* 1999. "What is Social Capital? The Determinants of Trust and Trustworthiness." NBER Working Paper 7216. Cambridge, United States: National Bureau of Economic Research.
- Goldin, C., and L. Katz. 1999. "Human Capital and Social Capital: The Rise of Secondary Schooling in America, 1910-1940." *Journal of Interdisciplinary History* 29: 683-723.
- Granovetter, M. 1973. "The Strength of Weak Ties." *American Journal of Sociology* 78: 1360-1380.
- Guiso, L., P. Sapienza and L. Zingales. 2000. "The Role of Social Capital in Financial Development." NBER Working Paper 7563. Cambridge, United States: National Bureau of Economic Research.
- Ichino, A., and G. Maggi. 1999. "Work, Environment, and Individual Background: Explaining Regional Shirking Differentials in a Large Italian Firm." NBER Working Paper 7415. Cambridge, United States: National Bureau of Economic Research.
- Inglehart, R. 1994. *Codebook for World Value Surveys*. Ann Arbor, United States: University of Michigan, Institute for Social Research.
- Japelli, T., and M. Pagano. 1999. "Information Sharing in Credit Markets: International Evidence." Research Network Working Paper R-371. Washington, DC, United States: Inter-American Development Bank, Research Department.

- King, R., and R. Levine. 1993. "Finance and Growth: Schumpeter Might be Right." *Quarterly Journal of Economics* 108: 717-737.
- Knack, S., and P. Keefer. 1997. "Does Social Capital Have an Economic Payoff? A Cross-Country Investigation." *Quarterly Journal of Economics* 112(4): 1251-88.
- La Porta, R., F. Lopez de Silanes, A. Shleifer and R. Vishny. 1997a. "Trust in Large Organizations." *American Economic Review Papers and Proceedings* 87(2): 333-338.
- . 1997b. "Legal Determinants of External Finance." *Journal of Finance* 52(3): 1131-1150.
- . 1998. "Law and Finance." *Journal of Political Economy* 106(6): 1113-1155.
- . 1999. "The Quality of Government." *Journal of Law, Economics, and Organization* 15(1): 222-279.
- Lederman, D., N. Loayza and A.M. Menéndez. 1999. "Violent Crime: Does Social Capital Matter?" *Economic Development and Cultural Change*. Forthcoming.
- Levine, R. 1998. "The Legal Environment, Banks, and Long-Run Economic Growth." *Journal of Money, Credit, and Banking* 30(3/Part 2): 596-613.
- Levine, R., N. Loayza and T. Beck. 2000. "Financial Intermediation and Growth: Causality and Causes." *Journal of Monetary Economics* 46: 31-77.
- Levine, R. and D. Renelt. 1991. "A Sensitivity Analysis of Cross-Country Growth Regressions." *American Economic Review* 82: 942-63.
- Levine, R., and S. Zervos. 1999. "Stock Markets, Banks, and Economic Growth." *American Economic Review* 88: 537-58.
- Love, I. 2000. "Financial Development and Financing Constraints: International Evidence from the Structural Investment Model." New York, United States: Columbia University Department of Economics. Mimeographed document.
- Mankiw, N.G. 1995. "The Growth of Nations." NBER Working Paper R1999. Cambridge, United States: National Bureau of Economic Research.
- Mauro, P. 1995. "Corruption and Growth." *Quarterly Journal of Economics* 110: 681-712.
- Muller, E., and M. Seligson. 1994. "Civic Culture and Democracy: The Question of Causal Relationships." *American Political Science Review* 88: 635-652.
- Narayan, D., and L. Pritchett. 1999. "Cents and Sociability: Household Income and Social Capital in Rural Tanzania." *Economic Development and Cultural Change* 47(4): 871-97.

- Pong Wong, K. 1997. "On the Determinants of Bank Interest Margins under Credit and Interest Rate Risks." *Journal of Banking and Finance* 21(2): 251-71.
- Putnam, R. 1993. *Making Democracy Work: Civic Traditions in Modern Italy*. Princeton, United States: Princeton University Press.
- Sala-i-Martin, X. 1997. "I Just Ran Two Million Regressions." *American Economic Review* 87: 178-83.
- Solow, R. 1995. "But Verify." Review of *Trust: The Social Virtues and the Creation of Prosperity*. *The New Republic* 213 (September 11): 36-40.
- Wurgler, J. 2000. "Financial Markets and the Allocation of Capital." *Journal of Financial Economics* 58: 187-214.
- White, H. 1980. "A Heteroskedasticity-Consistent Covariance Matrix Estimator and a Direct Test for Heteroskedasticity." *Econometrica* 48: 817-838.
- Williamson, O. 1993. "Calculativeness, Trust, and Economic Organization." *Journal of Law and Economics* 36: 453-486.
- World Bank. 1999. *World Development Indicators*. Washington, DC, United States: World Bank. CD ROM.
- World Values Study Group. 1994. *World Values Survey, 1994-1997*. ICPSR version. Ann Arbor, United States: University of Michigan, Institute for Social Research.

Appendix 1

List of Countries

Number	Code	Country	Region
1	ARG	Argentina	LAC
2	AUS	Australia	IND
3	AUT	Austria	IND
4	BLR	Belarus	ECA
5	BEL	Belgium	IND
6	BRA	Brazil	LAC
7	BGR	Bulgaria	ECA
8	CAN	Canada	IND
9	CHL	Chile	LAC
10	CHN	China	EAP
11	CRI	Costa Rica	LAC
12	CZE	Czech Republic	ECA
13	DNK	Denmark	IND
14	SLV	El Salvador	LAC
15	EST	Estonia	ECA
16	FIN	Finland	IND
17	FRA	France	IND
18	DEU	Germany	IND
19	GRC	Greece	IND
20	GTM	Guatemala	LAC
21	HND	Honduras	LAC
22	HUN	Hungary	ECA
23	ISL	Iceland	IND
24	IND	India	SA
25	IRL	Ireland	IND
26	ITA	Italy	IND
27	JPN	Japan	IND
28	KOR	Korea, Rep.	EAP
29	LVA	Latvia	ECA
30	LTU	Lithuania	ECA
31	LUX	Luxembourg	IND
32	MEX	Mexico	LAC
33	NLD	Netherlands	IND
34	NIC	Nicaragua	LAC

35	NOR	Norway	IND
36	PAN	Panama	LAC
37	POL	Poland	ECA
38	PRT	Portugal	IND
39	ROM	Romania	ECA
40	RUS	Russian Federation	ECA
41	SVN	Slovenia	ECA
42	ZAF	South Africa	SSA
43	ESP	Spain	IND
44	SWE	Sweden	IND
45	CHE	Switzerland	IND
46	TUR	Turkey	MENA
47	GBR	United Kingdom	IND
48	USA	United States	IND

IND: Industrial; MENA: Middle East and North Africa; SSA: Sub-Saharan Africa; ECA: Europe and Central Asia; LAC: Latin America and the Caribbean; EAP: East Asia; SA: South Asia.

Table 1. Simple Correlation

	Trust
1. Size and Activity (% GDP)	
Liquid Liabilities	0.334
Deposit Money Bank Assets	0.281
Private Credit by Deposit Money Banks to GDP	0.354
Private Credit by the Financial System to GDP	0.455
2. Efficiency	
Overhead Costs	-0.532
Net Interest Margin	-0.529
3. Stock Market Development	
Stock Market Capitalization to GDP	0.113
Stock Market Total Value Traded to GDP	0.270

Table 2. Trust and Financial Development and Structure (Ordinary Least Squares)

	1. Size and Activity (% of GDP)				2. Efficiency		3. Stock of Capital
	Liquid Liabilities	Deposit Money Bank Assets	Private Credit by Deposit Money Banks	Private Credit by the Financial System	Overhead Costs	Net Interest Margin	Stock of Capital
Initial GDP	0.0176 0.0207	0.0131 0.0208	0.0246 0.0230	0.0467 ** 0.0232	0.0019 0.0020	0.0024 0.0018	0.02 0.0
Human Capital	-0.0006 0.0029	-0.0027 0.0028	-0.0024 0.0027	-0.0038 0.0034	-0.0004 0.0002	-0.0001 0.0002	-0.00 0.0
Inflation (a)	-0.0680 0.0468	-0.0739 0.0558	-0.0726 0.0493	-0.0465 0.0507	0.0197 * 0.0075	0.0078 0.0061	-0.06 0.0
Trust	0.7284 * 0.1982	0.3853 0.2751	0.5030 *** 0.3100	1.0880 * 0.3560	-0.0377 *** 0.0230	-0.0825 * 0.0277	-0.08 0.3
Rule of Law	0.0961 * 0.0304	0.1495 * 0.0319	0.0922 * 0.0316	0.1196 * 0.0370	-0.0002 0.0023	-0.0053 ** 0.0023	0.02 0.0
British Origin	0.2601 * 0.0783	0.2070 ** 0.1114	0.1392 0.1087	0.2853 * 0.1364	-0.0114 0.0077	-0.0290 * 0.0095	0.32 0.1
French Origin	0.3659 * 0.0768	0.3429 * 0.1168	0.2058 *** 0.1175	0.2390 0.1836	-0.0024 0.0083	-0.0219 ** 0.0103	-0.06 0.1
Socialist Origin	0.3289 * 0.1087	0.3534 ** 0.1432	0.1065 0.1540	0.0547 0.1694	-0.0023 0.0095	-0.0218 *** 0.0118	-0.13 0.1
German Origin	0.7125 * 0.1727	0.7114 * 0.1391	0.5830 * 0.1632	0.7810 * 0.2091	-0.0074 0.0100	-0.0352 * 0.0104	0.11 0.1
Constant	-0.9163 *** 0.4814	-0.7934 *** 0.4582	-0.8865 *** 0.5046	-1.6862 * 0.5792	0.0115 0.0443	0.0540 0.0401	-0.38 0.5
Obs.	41	42	42	42	41	41	40
R²	0.678	0.723	0.648	0.713	0.683	0.638	0.467

Notes: * Significant at 1%, ** Significant at 5%, *** Significant at 10%

(a) Refers to Log(1 + Inflation)

Table 3. Trust and Financial Development and Structure (Instrumental Variables)

	1. Size and Activity (% of GDP)				2. Efficiency		3. Stock of Financial Capital
	Liquid Liabilities	Deposit Money Bank Assets	Private Credit by Deposit Money Banks	Private Credit by the Financial System	Overhead Costs	Net Interest Margin	Stock of Financial Capital
Initial GDP	0.0152 <i>0.0201</i>	0.0143 <i>0.0207</i>	0.0226 <i>0.0216</i>	0.0356 <i>0.0248</i>	0.0018 <i>0.0016</i>	0.0029 <i>0.0024</i>	0.01 <i>0.0</i>
Human Capital	0.0021 <i>0.0027</i>	0.0000 <i>0.0027</i>	0.0000 <i>0.0025</i>	-0.0013 <i>0.0036</i>	-0.0006 * <i>0.0001</i>	-0.0003 *** <i>0.0002</i>	-0.00 <i>0.0</i>
Inflation (a)	-0.1112 ** <i>0.0493</i>	-0.1172 ** <i>0.0605</i>	-0.1044 ** <i>0.0476</i>	-0.1052 ** <i>0.0518</i>	0.0207 * <i>0.0063</i>	0.0129 *** <i>0.0074</i>	-0.06 <i>0.0</i>
Trust	1.5291 * <i>0.5130</i>	1.2847 *** <i>0.6838</i>	1.4058 ** <i>0.6870</i>	1.9555 * <i>0.7990</i>	-0.1014 * <i>0.0352</i>	-0.0719 <i>0.0591</i>	-0.11 <i>0.6</i>
Rule of Law	0.0541 *** <i>0.0331</i>	0.1075 * <i>0.0387</i>	0.0514 <i>0.0474</i>	0.0951 *** <i>0.0515</i>	0.0050 * <i>0.0017</i>	-0.0029 <i>0.0033</i>	0.06 <i>0.0</i>
British Origin	0.2484 ** <i>0.1103</i>	0.2170 <i>0.1426</i>	0.1493 <i>0.1332</i>	0.2970 <i>0.1883</i>	-0.0081 <i>0.0079</i>	-0.0193 *** <i>0.0104</i>	0.35 <i>0.1</i>
French Origin	0.3578 * <i>0.1076</i>	0.3721 * <i>0.1433</i>	0.2303 *** <i>0.1372</i>	0.2480 <i>0.2185</i>	0.0009 <i>0.0076</i>	-0.0079 <i>0.0096</i>	0.00 <i>0.1</i>
Socialist Origin	0.4237 * <i>0.1628</i>	0.4911 ** <i>0.1910</i>	0.2335 <i>0.1874</i>	0.2240 <i>0.2472</i>	-0.0038 <i>0.0093</i>	-0.0142 <i>0.0170</i>	-0.04 <i>0.1</i>
German Origin	0.6281 * <i>0.1769</i>	0.6746 * <i>0.1443</i>	0.5367 * <i>0.1654</i>	0.6836 * <i>0.2190</i>	-0.0006 <i>0.0086</i>	-0.0195 ** <i>0.0093</i>	0.17 <i>0.1</i>
Constant	-1.0131 ** <i>0.4568</i>	-1.0517 ** <i>0.4750</i>	-1.0619 ** <i>0.4855</i>	-1.6732 * <i>0.6155</i>	0.0157 <i>0.0341</i>	0.0176 ** <i>0.0465</i>	-0.40 <i>0.5</i>
Obs.	41	42	42	42	41	41	40
R²	0.662	0.681	0.647	0.710	0.730	0.520	0.497

Notes: * Significant at 1%, ** Significant at 5%, *** Significant at 10%

(a) Refers to Log(1 + Inflation)

Table 4. Trust and Financial Development and Structure—Sensitivity Analysis (Sala-i-Martin)
Variable of Interest: Trust

Dependent Variable	OLS Estimation			IV Estimation	
	Coefficient	Std. Error	CDF(0)	Coefficient	Std. Error
1. Size and Activity (% of GDP)					
Liquid Liabilities	0.7887	0.1935	0.0000	1.4187	0.1935
Deposit Money Bank Assets	0.3472	0.2227	0.0595	1.1617	0.2227
Private Credit by Deposit Money Banks	0.5410	0.3104	0.0407	1.3378	0.3104
Private Credit by the Financial System	1.0844	0.3190	0.0003	2.1039	0.3190
2. Efficiency					
Overhead Costs	-0.0602	0.0245	0.0071	-0.1037	0.0245
Net Interest Margin	-0.0977	0.0253	0.0001	-0.0876	0.0253
3. Stock and Bond Market Development					
Stock Market Capitalization	-0.0549	0.2929	0.4256	0.2003	0.2929
Stock Market Total Value Traded	0.3238	0.1369	0.0090	0.7711	0.1369