Trust, assocational life, and economic performance

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2001

Trust, Associational Life and Economic Performance

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Conjoint action is possible just in proportion as human beings can rely on each other. There are countries in Europe, of first-rate industrial capabilities, where the most serious impediment to conducting business concerns on a large scale, is the rarity of persons who are supposed fit to be trusted with the receipt and expenditure of large sums of money.

John Stuart Mill, *Principles of Political Economy*, 1848

1. Why Trust Matters

From both historical and recent evidence, a theme repeatedly emerges in studies of development that the difference between long-term economic successes and failures is largely a function of incentives facing wealth-maximizing individuals.[2] In some countries, the structure of incentives steers people primarily toward producing new wealth, while in other countries[,] it is easier to gain wealth by diverting it from others. The relative payoffs of production and predation (or "making" versus "taking") are determined by legal mechanisms for enforcing

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[2] For examples using historical cases and data, see North (1990) and DeLong and Shleifer (1993); examples using

contracts and protecting property rights, but also by social norms and interpersonal trust. These

governmental and social institutions, where they are effective, reduce uncertainty and

transactions costs, enhancing the efficiency of exchange, encouraging specialization, and

encouraging investment in ideas, human capital, and physical capital. Where social and legal

mechanisms for the efficient resolution of prisoners' dilemma and principal-agent games are

weak or absent – i.e., where most potential pairs of economic transactors cannot trust each other

– the private returns to predation increase while the private returns to production fall.

Trust potentially can influence economic performance through either of two major

channels, "micro-economic" and "macro-political." At the micro level, social ties and

interpersonal trust can reduce transactions costs, enforce contracts, and facilitate credit at the

level of individual investors. At the macro level, social cohesion underlying trust may strengthen

democratic governance (Almond and Verba 1963), improve the efficiency and honesty of public

administration (Putnam 1993), and improve the quality of economic policies (Easterly and

Levine 1997).

Douglass North (1990, 54) has argued that "the inability of societies to develop effective,

low-cost enforcement of contracts is the most important source of both historical stagnation and

contemporary underdevelopment in the Third World." Spot market transactions allow some

gains from trade, but most of the potential benefits from specialization will be forgone in the

absence of any trust-dependent trades, i.e. trades that occur over time or across space, and which

are thus subject to opportunism on the part of one or both parties to the transaction. For

example, goods and services may be provided in exchange for a promise of a future payment.

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recent cases and data include Olson (1996) and Knack and Keefer (1995).

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Creditors loan money to debtors on the promise of future repayment. Managers hire employees to accomplish tasks that are difficult to monitor or measure. Investors rely on assurances by firms (and governments) that they will not expropriate these assets. Savers similarly rely on banks (and governments). According to Arrow (1972, 357), "Virtually every commercial transaction has within itself an element of trust, certainly any transaction conducted over a period of time. It can be plausibly argued that much of the economic backwardness in the world can be explained by the lack of mutual confidence."

Individuals in higher-trust societies can spend less to protect themselves from being exploited in economic transactions. Written contracts are less likely to be needed, and they do not have to specify every possible contingency. Individuals in high-trust societies are also likely to divert fewer resources to protecting themselves – through tax payments, bribes, or private security services and equipment – from unlawful (criminal) violations of their property rights. Low trust can also discourage innovation: if entrepreneurs must devote more time to monitoring possible malfeasance by partners, employees, and suppliers, they have less time to devote to innovation in new products or processes. Zak and Knack (1998) develop a formal model in which these micro-level effects of trust influence rates of investment and growth.

Macro-level effects are more speculative, but the basic idea is that trust and the social cohesion that it reflects may improve economic outcomes indirectly, through political channels. It may improve governmental performance and the quality of economic policies by affecting the level and character of political participation. Knowledge of politics and public affairs by large numbers of citizens, coupled with their participation through voting and other modes of citizen voice, are important potential checks on the ability of politicians and bureaucrats to enrich themselves or

narrow interests that they are allied with. But self-interested citizens will rationally decline to vote, to attend meetings or protest rallies, or even to acquire information about the performance of public officials. Where trust is higher, voters (principals) can more easily overcome the collective action problem in monitoring officials (agents). Putnam (1993) has shown that regional governments in the more trusting, more civic-minded northern and central parts of Italy provide public services more effectively than do those in the less trusting, less civic southern regions. Inglehart (1990, 1996) argues that a culture of trust is necessary for governments to be willing to surrender power to the opposition. He finds a strong correlation between trust and stability of democratic institutions, using cross-country data, but acknowledges the potential for reverse causation.

There is some empirical evidence that social cohesion and trust influence the quality of public policies. Easterly and Levine (1997) argue that ethnic divisions often are associated with more polarized preferences over public goods, impeding agreement over their provision, and with increased incentives for the group in power to create rents, through overvalued exchange rates and other means, to be rewarded to their own ethnic group at the expense of others. Using cross-country data, they find that ethnic heterogeneity is correlated with a range of indicators of inefficient policies, including a high black market currency premium, high corruption levels, low schooling rates, a lack of financial development, and poor infrastructure. Using cross-city and cross-county data for the U.S., Alesina, Baqir, and Easterly (1996) find lower levels of public good provision in more ethnically-divided areas.

Keefer and Knack (1995) show that property rights are more uncertain in highly-polarized societies, as measured not only by ethnic tensions and heterogeneity but also by income and land inequality. Berg and Sachs (1988) tested the effects of income inequality on indebtedness,

3

concluding that polarized countries are more likely to default on sovereign debt, as indicated by discounts on country debt in secondary markets.

La Porta et al. (1997) and Knack and Keefer (1997) showed that a survey-based measure of trust is associated with higher ratings on subjective measures of governmental efficiency, corruption, and infrastructure quality.[3] Knack and Keefer also found that trust is significantly associated with measures of confidence in governmental institutions. While the trust measure used in these studies is a more direct measure of social cohesion than income equality or ethnic homogeneity, the potential for reverse causation increases. Cohesive and high-trust societies may be better at keeping their governments honest, but the honesty and efficiency of government officials can affect trust and social cohesion in turn. "If government leaders, judges and bureaucrats are corrupt, market participants can more easily justify and rationalize their own dishonest behavior" (Drobak 1998, 103; also see Gambetta 1988, 158-63).

Assuming that J. S. Mill and others are correct in their belief that trust matters for the economic performance of nations, the determinants of trust become important. Section 2 discusses the sources of trust and briefly summarizes empirical evidence. Section 3 builds on Fukuyama's concept of the "radius of trust" to identify the type of trust which should be advantageous to national economic performance. Section 4 addresses measurement issues. Evidence on trust and economic performance relies heavily on the use of a single survey indicator of trust: in light of the potential for translation problems and other sources of measurement error, can this indicator be trusted? Section 5 presents empirical evidence on trust

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[3]La Porta et al. control for per capita income, include all countries with available data, and use trust values from the early 1990s wave. Knack and Keefer control for income and education, exclude formerly-communist nations, and use the earliest-available observation on trust.

and economic performance, for a 25-nation OECD sample and for a larger 40-country sample.

Section 6 presents evidence on the relationship between associational life and economic

performance, testing the conflicting theoretical perspectives of Putnam (1993) and Olson (1982).

Section 7 briefly concludes.

2. The Sources of Trust

Trust can be defined as the belief or perception by one party (e.g. a principal) that the

other party (e.g. an agent) to a particular transaction will not cheat, where the payoff structure

internal to the transaction can be characterized by a prisoner's dilemma or principal-agent game.[4]

When trust is high, contracts (whether formal or informal) can be enforced without costly

monitoring and investigation of performance by the contractual parties.

Trust can be produced in many ways. The various possible sources of trust can usefully

be categorized as first-party, second-party, or third-party enforcement mechanisms, although

classifications are sometimes ambiguous.[5]

First-party mechanisms are those enforced on oneself by the agent, while second-party

mechanisms are those controlled by the principal. With third-party mechanisms, sanctions are

controlled by actors not party to the contractual agreement.

First-party enforcement mechanisms include ethical or moral codes that impose "internal

sanctions," such as guilt, on cheaters. "Afterlife sanctions" associated with religious beliefs can

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[4] The key distinguishing features of a principal-agent (or "trust" or "one-sided prisoners' dilemma") game compared to the classic prisoners' dilemma are sequential moves (in a single play) and asymmetric payoffs. The principal moves first, for example in deciding whether to hire the agent (or to invest in his/her firm). See, for example, Lichbach (1995). One could also "trust" that others will not "defect" in coordination games, for example by driving on the wrong side of the road. The concept of trust here is narrower, applying only to prisoner's dilemma and principal-agent incentive structures, where, unlike the case with coordination games, opportunism is an issue.

also effectively raise the payoff to cooperating, increasing trust. A principal (even one who is not religious) will place greater trust in agents who believe cheating reduces the likelihood of going to heaven after death.[6] Altruism is another source of trust. Agents who care about the welfare of principals are less likely to cheat them. Knowledge that the agent's utility is positively related to the principal's payoff increases the principal's evaluation of the agent's trustworthiness.

Second-party mechanisms are those in which sanctions available to the principal increase the incentive of the agent to honor contractual agreements. For example, if the principal and agent in one transaction are also party to a second and contemporaneous agreement, but with the roles reversed, they have effectively exchanged hostages, and the incentives of each party, as agent, to cheat the other are reduced. More commonly, the anticipation of continued profitable dealings (repeated play of the game) will help restrain cheating by agents. In smaller or close-knit communities, the strong likelihood of social interaction between agents and principals can enhance trust in their contractual agreements, as cheating may prompt ostracism. If the agent values the principal's respect, shame is another potential cost of cheating, even (or especially) when the principal does not ostracize the cheating agent.[7]

Third-party enforcers that facilitate trust between the two parties to an agreement include social institutions, private organizations, and governments. Cheating by agents may be deterred by the threat of social sanctions (such as shame and ostracism) exercised by third parties, or by

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[5]This classification is based largely on Ellickson (1991).

[6]"In traveling through the United States, Weber observed that many businessmen would introduce themselves as some kind of Christian believer, in order to establish credentials for honesty and trustworthiness" (Fukuyama 1995, 46). For believers in a supreme being, religion-based trust presumably would be classified as third-party enforcement.

[7]Shame differs from guilt in that it is activated only when others learn that one has cheated, hence is classified here as second-party enforcement.

the prospect that other principals will refuse to hire the agent in the future. John Stuart Mill (1848, 135-136, 444) wrote that "…much of the security of person and property in modern nations is the effect of manners and opinion" and of "the fear of exposure" and reputational effects, rather than the product of laws and courts.

Most of these enforcement mechanisms are heavily dependent on kinship, ethnic, or other social ties. Altruism tends to be stronger the closer the kinship ties between two people; there is likely even a genetic basis for this pattern. Ethical or religious beliefs, as well as some altruistic motivations, are the product of socialization processes. Second-party social sanctions are dependent on pre-existing and continuing social ties between the contractual parties. Third-party social sanctions are effective only when both parties are part of a dense social network.

These non-hierarchical sources of trust will be referred to collectively as "informal institutions." The strength of these informal institutions in a society is an inverse function of the average social distance between members of the society. Social distance can be measured along various dimensions, such as blood and ethnic ties; differences in language, culture, education, income, wealth, occupation, social status, or political and economic rights; or geographic distance. According to Zucker (1986, 63):

> Just as ethnicity, sex, or age may be used as an index of job skills by employers, they can be used as an index of trust in a transaction. They serve as indicators of membership in a common cultural system, of shared background expectations. In general, the greater the number of social similarities (dissimilarities), the more interactants assume that common background expectations do (do not) exist, hence trust can (cannot) be relied upon.

In general, the more homogeneous a society, the more trust a (randomly selected)

7

principal will place in a (randomly selected) agent. Consistent with these arguments, Zak and

Knack (1998) find that trust is more prevalent in societies with less income inequality and with

less racial, linguistic and religious polarization.

Third-party enforcement mechanisms controlled by governments and non-governmental

(but formal) organizations can be collectively termed "formal institutions." Most prominently

among these, courts can enforce contracts.[8] Where legal codes and enforcement agencies are

sufficiently developed, the prospect of legal sanctions reduces incentives to cheat, thereby

enhancing trust that agreements will be faithfully executed by both parties. Other formal

institutions include regulatory agencies (such as the Securities and Exchange Commission), stock

exchange memberships, and professional associations, which restrain cheating by instituting

financial disclosure rules or licensing requirements (e.g. CPA, real estate license), or by

promulgating formal ethical codes (e.g. American Bar Association, American Medical

Association). Credit bureaus protect lenders from opportunistic debtors, and protect sellers from

buyers paying on credit.[9] Complaints on file with the Better Business Bureau are viewed as

evidence of the untrustworthiness of firms. Other institutions increasing consumers' trust in

producers are brand names, product endorsements by independent organizations (Good

Housekeeping Seal of Approval, Underwriters' Laboratories, Consumers' Union), and product

warranties.

The United States provides an illustrative case study in which trust grounded in formal

institutions, and in the ability to monitor agents, gradually replaced trust grounded in informal

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[8] In contrast to J.S. Mill, Hobbes in *Leviathan* (1651) viewed government as the sole source of trust between strangers.
[9] In the U.S., employers often use credit bureaus to investigate job applicants. Bad credit is viewed as a predictor of shirking and thievery.

institutions between 1840 and 1920 (Zucker 1986). Informal institutions weakened in part because of increasing cultural heterogeneity of immigrants, and to a lesser degree because of increasing internal migration, which disrupted social ties. Average social distance increased. "In a heterogeneous social system, a proportionately smaller number of transactions occurred between similar others" (Zucker 1986, 78). More impersonal indicators of trust had to be used, for example letters of credit, and later credit ratings (Zucker 1986, 87). Requirements of financial soundness for listing on stock exchanges became more stringent; banks devoted more resources to investigating borrowers, and increased collateral requirements (Zucker 1986, 88-89). The ratio of managers to workers in manufacturing rose, as monitoring worker effort and output became a greater concern (Zucker 1986, 91-92). The proportion of transactions occurring within hierarchies, as opposed to within markets, increased (Zucker 1986, 93).

Trust grounded in more formal institutions also grew in importance over time. Licensing standards (e.g. certification of accountants) emerged and professional associations were created (Zucker1986, 94). Intermediary mechanisms, such as the use of escrow accounts, arose. Legislation (e.g. Securities Act of 1933) mandated disclosure of information to investors, and established regulatory agencies (e.g. the Securities Exchange Act of 1934, which created the SEC).

Knack and Keefer (1997) and Zak and Knack (1998) present cross-country evidence showing that governmental mechanisms for the effective enforcement of contracts and property rights are associated with higher trust. However, causality can easily go in both directions for such relationships (as noted at the end of section 1 above).

Several authors (e.g. Yamagishi and Yamagishi 1994) distinguish between two types of trust, one based on "deterrence" and another based on "benevolence." The former type roughly corresponds to trust produced by formal institutions as well as informal sanctions such as ostracism, while the latter type can be identified with altruism based on kinship or socialization. The very general phrasing of the standard survey question on trust from the U.S. General Social Survey and the World Values Surveys suggests that it will capture, at least in part, deterrence-based as well as benevolence-based trust. The question does not contain any qualifications implying that trust derived from the presence of effective legal sanctions is not really trust. However, it is likely that at least some respondents may interpret the question to apply only to interpersonal transactions beyond the reach of the law.

Trust can facilitate mutually beneficial collective action and reduce transactions costs regardless of whether it is generated by effective deterrence or by benevolence. One might be tempted to try to isolate the effects on economic outcomes of trust that is not based on legal deterrence by including measures of governmental efficiency as control variables. In growth regressions, adding such controls slightly reduces the estimated effect of trust, but trust remains significant (Zak and Knack 1998). However, any attempt to make distinctions empirically between different sources of trust in this way is somewhat arbitrary. Trust based on benevolence or on the deterrent effect of informal sanctions are both dependent on social ties and interaction. If Putnam and others are correct regarding social determinants of governmental efficiency, legal systems will be more effective in creating trust in societies where social ties and social norms have already created more trust, based on benevolence or informal sanctions.

3. The Radius of Trust and Cooperation

In studying the relationship between trust and economic welfare, the choice of units of analysis is crucial. Cooperation that is generated by trust can produce costs as well as benefits. Collective action by members of a group often imposes costs on non-members (Olson 1982). Cooperation within a particular group can generally be expected to enhance the welfare of members of that group, in the sense that the collective gains net of costs to group members is positive. However, the welfare of non-members may also be affected □ sometimes for the better but sometimes for the worse.

Occasionally the *goal* of one group is to reduce the well-being of members of some other group. In such instance, we can hypothesize that successful collective action in the first group (for example, the Nazi Party in 1930s Germany) will entail welfare losses for members of the second group (the Jewish population). More often □ as in the case of sugar producers and consumers in the U.S. □ the first group may not directly value a reduction in the welfare of non-members, but may nonetheless be willing to impose substantial costs on non-members in the pursuit of group goals.

The implication is that without specifying what Fukuyama (1999) calls the "radius" of trust, and the population for which economic welfare is to be measured, we cannot hypothesize that trust improves economic welfare. When the radius of trust does not coincide with the population for which welfare is to be measured, trust has at best ambiguous effects.

For example, if the members of each household in a particular village cooperate in the interests of the household, the village as a whole may be worse off than a neighboring village in which households are less willing or able to impose costs on persons outside the household.

11

As a second example, suppose that trust and cooperation generated by strong social ties within a village raise the rate of return to a public project, making all residents of the village better off. If these same social ties were responsible for the village's success in lobbying for outside funds to finance the project, a second village with weaker social ties losing out in the competition for funds is made worse off. If the funds would have been more productively spent in the second village (e.g. suppose it is much poorer), high intra-village trust in the first village can actually reduce social welfare at the aggregate level.

In perhaps the most relevant example, strong ethnic ties can improve the welfare of members of an ethnic group,[10] but often at the expense of other groups. Depending on how "encompassing" a group is, the costs it is willing to impose on non-members in the pursuit of its members' interests may be an enormous multiple of the group's gains from collective action (Olson 1982).

Table 1 summarizes how few of the possible hypotheses concerning the impact of trust on economic performance can be signed unambiguously. The various rows of the table represent the population whose welfare is at issue, while the various columns represent the radius of trust. Where the two coincide ☐ only on the main diagonal elements in the matrix ☐ we can predict that trust improves economic performance, so hypotheses can be positively signed. All of the other elements in the matrix are represented by question marks, indicating that collective action generated by trust has ambiguous effects on welfare.

Identifying Olson (1982) and Putnam (1993), not without some exaggeration, with either

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[10]However, intra-ethnic collective action (e.g. among the Bosnian Serbs) directed against another ethnic group (e.g. the Bosnian Muslims) often stimulates collective action within the targeted group, reducing or even eliminating any benefits of collective action for the first group.

end of a continuum of views concerning the effects of collective action by groups, an extreme

Olsonian perspective would suggest that the cells of Table 1 not on the main diagonal in general

should be negatively signed. The Putnam perspective calls for positive signs, as cooperation

among members of a group is believed to create habits and attitudes toward serving the greater

good that carry over to members' interactions with non-members. Which effect is larger is an

empirical question, with answers that likely vary with culture and institutions. For example,

religions may differ in their emphasis on the desirability of behaving altruistically toward

strangers. Where civil liberties and property rights are secure under a strong rule of law, fewer

social resources are up for political grabs and groups have less opportunity to benefit via zero-

sum or negative-sum competition against other groups.

Table 1

	Trust and cooperation among members of....						
Welfare of:	Household 1	Household 2	Village 1	Village 2	Ethnic group 1	Ethnic group 2	Nation
Household 1	+	?	?	?	?	?	?
Household 2	?	+	?	?	?	?	?

Village 1	?	?	+	?	?	?	?
Village 2	?	?	?	+	?	?	?
Ethnic group 1	?	?	?	?	+	?	?
Ethnic group 2	?	?	?	?	?	+	?
Nation	?	?	?	?	?	?	+

A rapidly-growing literature tests household- and village-level hypotheses concerning the impact of social ties on economic welfare (e.g. Narayan and Pritchett 1999, Grootaert 1998). This study focuses on tests of the hypothesis located in the lower-right corner of Table 1, that a wide radius of trust and propensity to cooperate has favorable implications for economic performance measured at the national level. This choice does not reflect any belief that macro-level analyses of trust are "better" or more interesting in any sense than micro-level analyses, but rather the belief that there are interesting macro-level (as well as micro-level) hypotheses regarding the impact of trust, and macro-level hypotheses can only be appropriately tested using macro-level data for macro units of analysis. Nation-states are the natural unit of analysis in studies of economic performance, because economic policies are determined by national governments. Even with increasing "globalization," national borders still matter for the location decisions of labor and capital, and for the density of transactions across firms (Helliwell 1998).

The limited availability of appropriate data seriously constrains cross-country analyses. To include the majority of countries at present, it would be necessary to use very crude proxies for trust (e.g. ethnic homogeneity, income inequality, or religious composition) which could easily be related to economic performance through entirely unrelated channels. More direct measures will, therefore, be used here, at the expense of a large reduction in sample size.

Cooperative norms, trust and social ties are most readily measured through conducting surveys of individuals or households. Important issues arise in aggregating survey-based measures to assign values to *nations*. For example, a country populated by individuals with strong intra-family or intra-ethnic trust or ties is not what Fukuyama (1995) and others mean by "high-trust societies."

Conceptually, the type of trust that should be unambiguously beneficial to a nation's economic performance is trust between strangers, or more precisely between two randomly-selected residents of a country. Particularly in large and mobile societies where personal knowledge and reputation effects are limited, a sizeable proportion of potentially mutually-beneficial transactions will involve parties with no prior personal ties. In societies where strangers can trust each other to act in the collective interest, people not only can leave their bicycles unattended and unlocked on the street, they can contract with a wide range of parties without extended written agreements, and run a business without devoting substantial time to monitoring employees, partners, and suppliers. A resident of a high-trust society may also be more likely than a member of a low-trust society to support efficient economic policies, whether or not those policies increase one's personal income.

Thus, it is something like trust in strangers, or the propensity to cooperate in large-

15

numbers prisoners' dilemma settings, that must be measured to test the hypothesis represented in the bottom right corner of Table 1. Within-family trust, intra-ethnic trust, or other forms of limited-radius trust may well be corrosive to wider-radius trust (i.e. trust in strangers). Strong intra-ethnic trust in an ethnically-heterogeneous society may restrict the scope for transacting and lead to segmented markets, reducing gains from specialization and from economies of scale (Greif 1994).

4. Measuring Trust: Can the Indicator be Trusted?

In a critique of Fukuyama (1995), Solow (1995) argues that systematic tests of the economic impact of trust are needed, but are precluded by lack of data, as "measurement seems very far away." Subsequent cross-country analyses (LaPorta et al. 1997, Knack and Keefer 1997, Zak and Knack 1998) have relied heavily on survey-based indicators that are doubtless highly imperfect, due to translation difficulties, sampling error, and response bias, but which nevertheless produce values that are consistent with information from independent sources.

Zak and Knack (1998) analyze the impact of trust on economic performance using trust data for 40 market economies from the World Values Surveys (WVS). The number of respondents in these surveys ranges from several hundred to several thousand. Some groups □ for example city-dwellers and the better-educated □ are oversampled in some countries (Inglehart 1994). The weight variable provided in the data can partially correct for this problem, but higher-status groups still tend to be overrepresented, particularly in the less developed countries, even with use of the weight variable (Inglehart 1994). This problem should have the effect of attenuating the variation in country-level measures of trust □ which tend to be positively correlated with income and

education levels □ making it more difficult to reject the null hypothesis that trust has no effect.

The question used to assess the level of trust in a society is: "Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people?" The standard trust indicator (TRUST) is the percentage of respondents in each nation replying that "most people can be trusted" (after deleting the "don't know" responses). Several survey waves have been conducted, in 1981, 1990-91 and 1995-96. To minimize the potential for reverse causality, Zak and Knack use the earliest available observation for each country. The mean value for TRUST in their 40-nation sample is 32.3 percent, with a standard deviation of 15.1 percent.

This trust item is somewhat ambiguous with respect to which "people" respondents have in mind. It is surely measuring something more broad than intra-family or intra-clan trust.[11] Responses, however, are likely to be influenced by the frequency of encounters with strangers. In low-trust environments, a higher proportion of transactions will occur between close friends and relatives and a lower proportion between strangers, relative to high-trust environments. When asked if "most people" can be trusted, some respondents conceivably take into account in their replies only those people they transact with or are likely to transact with; in low-trust environments, therefore, this survey indicator may not be a good measure of high-radius trust (trust in strangers). Note that one implication of this sort of measurement error is that cross-country variation in the trust measure will be reduced, making it more difficult to reject null hypotheses regarding the effects (or determinants) of trust.

Assessments of whether or not "most people" can be trusted are likely to reflect in part interactions with foreigners for respondents in small nations such as Luxembourg, in contrast to

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[11]For 26 of the 40 nations, data on respondents' levels of trust in their own families are also available. The country-

large nations such as the USA. However, the measured economic performance of Luxembourg is

influenced more heavily by any transactions occurring with foreigners. Therefore, this effect of

country size on trust responses should not be an important source of measurement error.

Despite the range of potential problems, there is substantial reason to believe that the

survey-based trust indicator is in fact a reasonably good measure of high-radius trust that is not

overly sensitive to translation difficulties, non-random samples of respondents, or other sources of

measurement error. First, most country values appear to be consistent with popular impressions

and anecdotal evidence; for example, the highest values are observed for the Nordic nations, where

citizens commonly leave unlocked bicycles and unattended strollers in public areas.[12] Second,

there is extremely wide cross-country variation in the percentage of high-trust respondents, with

several countries at 10% or below. These low values suggest that few respondents interpret "most

people" in a highly circumscribed way. Third, data from experiments conducted by the *Reader's

Digest* (as reported in *The Economist*, June 22, 1996) provide reassuring behavioral evidence for

the validity of these survey measures. Fourth, the trust measure is strongly associated with

attitudinal measures of how trust*worthy* people are toward strangers. Finally, evaluations by

foreigners in surveys are generally consistent with the assessments of a nation's own residents.

In the *Reader's Digest* experiment, twenty wallets containing $50 worth of cash and the

addresses and phone numbers of their putative owners were "accidentally" dropped in each of 20

cities, selected from 14 different western European countries. Ten wallets were similarly "lost" in

each of 12 U.S. cities. The number of wallets returned with their contents intact was recorded for

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level correlation between the two trust measures is only 0.24.

[12]An unattended stroller on a New York City sidewalk resulted in the arrest of a Danish mother in 1997 ("Neglect
Charge Dropped in Danish Baby Case," *New York Times*, May 22 1997: B4). The frequency of unlocked bicycles in
public areas is apparently declining in Scandinavian cities in recent years.

each city. Country-level proportions of the number of returned wallets are then calculated. Figure

1 depicts the relationship at the country level between returned wallets and the WVS trust indicator.

The proportion of wallets returned is correlated with TRUST at 0.65. This correlation cannot be

explained away by attributing high trust attitudes and wallet-returning behavior to higher per capita

incomes: the partial correlation between TRUST and returned wallets, controlling for per capita

income, is even higher than the simple correlation.

For many countries in the World Values Survey, regional aggregates as well as national

aggregates can be constructed for TRUST. For example, nine regions in the U.S. are identified.

The cities in the wallets experiment can then be matched with these regional values for TRUST.

Figure 2 depicts the cross-regional relationship between returned wallets and TRUST; for countries

in the WVS for which respondents' regions are not identified, Figure 2 includes the country-level

observations contained in Figure 1. By matching cities in the wallets experiment only with survey

respondents from the region in which the city is located, greater precision can be attained in Figure

2 than in Figure 1. However, the WVS surveys are designed to be representative only at the

national level, not the regional level, so using regional observations adds one source of

measurement error even as it reduces another source. Neither the country-level nor regional-level

test is necessarily superior to the other, therefore, but they are both useful for validating TRUST

because they contain different information. The regional-level association between returned wallets

and TRUST turns out to be nearly as strong as the country-level association.

The wallets experiment evidence indicates that non-random samples, translation problems,

and discrepancies between professed attitudes and actual behaviors do not introduce severe noise in

the survey-based measure of trust. It is also consistent with the belief that TRUST measures wide-

19

radius trust, because the "lost" wallets in the experiments are found by strangers.

Trust in strangers could not be sustained for long in an environment where trust*worthy* behavior toward strangers is absent. At the aggregate level, trust should be correlated with trustworthiness.[13] The wallets experiment is reassuring in this respect. Additional evidence is available from a series of WVS items on respondents' attitudes toward taking advantage of strangers in various contexts (e.g. cheating on taxes or subway fares, or not reporting damage to a parked vehicle). Cooperative attitudes on these survey items are strongly correlated with TRUST across countries, even when controlling for per capita income (Knack and Keefer 1997).

Foreigners' perceptions of the trustworthiness of a nation's residents are correlated with TRUST, i.e. with levels of trust among a nation's own citizens. In 1980, Eurobarometer conducted surveys in 10 European Community nations, and included the following question:

> Now I would like to ask about how much you would trust people from
> different countries. For each country please say whether, in your opinion, they are
> in general very trustworthy, fairly trustworthy, not particularly trustworthy, or not at
> all trustworthy.

The survey inquired about Americans and about 13 European nationalities. Responses are likely to reflect first-hand experiences with the nationals of another country, second-hand accounts from one's own countrymen about their experiences with nationals of the other country, and information concerning how nationals of the other country behave with respect to each other (e.g. crime rates, impressions about social norms and mores, etc.).[14] Because a willingness to cheat foreigners does

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[13]At the individual level of course, a non-trusting person could be very trustworthy while a trusting person may be untrustworthy. However, Glaeser et al. (2000), using a novel combination of experimental and survey data from Harvard students, find that the standard trust survey item predicts trustworthy behavior better than it predicts trusting behavior. Their findings cast some doubt on the validity of the trust item at the individual level, but provide support for its validity at the aggregate level.

[14]In the absence of any other information, responses may reflect primarily trust in the other country's *government*.

not necessarily indicate how a country's nationals interact with each other, these external

perceptions do not provide an ideal validation test for TRUST. However, unlike TRUST, external

assessments are not potentially sensitive to translation problems (assessments are provided by

respondents in 9 or 10 nations, with surveys administered in numerous languages), or to "cultural"

differences in the way people respond to survey questions, or to the possibility that "most people"

means something different to respondents in low-trust and high-trust societies.

Figure 3 depicts the relationship between TRUST and the measure of how trustworthy

foreigners perceive a country's nationals to be. There is a positive correlation (0.45, p = 0.056 for

1-tailed test), although not as strong or statistically significant as the correlations of TRUST with

returned wallets and trustworthy attitudes.

These correlations with external assessments, trustworthy attitudes and trustworthy

behavior (in the form of returned wallets) collectively provide substantial evidence for the

validity of the standard survey measure of trust. Each of these validity tests is less than ideal:

the returned wallets proportions are based on a sample of only 10 dropped wallets in some

countries; the prevalence of trustworthy attitudes in a country does not necessarily reflect

trustworthy behavior; and external assessments to a large degree likely reflect expectations

regarding how foreigners expect to be treated by nationals of a given country, which may or may

not be strongly correlated with the way nationals of that country behave with respect to each

other. However, the potential sources of "measurement error" in each of these variables –

Eurobarometer surveys show a striking rise in trust in the Chinese between 1970 and 1986. Given the very limited information most respondents could have had regarding the behavior of the Chinese people towards each other or towards foreigners, this increase (from a very low initial level) is in all probability attributable to changes in Chinese governmental policies over the period. Eurobarometer data on trust by Europeans in the Chinese, Russians, and Japanese are omitted from the analysis that follows because of the very limited information most respondents could have had on the behavior of the nationals (as opposed to the governments) of those countries in 1980.

returned wallets, trustworthy attitudes, and external assessments – are independent of each other

and are independent of the potential sources of error in TRUST. The fact that they are each

strongly correlated with TRUST suggests that the latter variable is a useful measure of wide-

radius trust that is not a hopelessly noisy product of imperfect translations, non-random samples,

cultural differences in the way people respond to survey questions, or differences in the way

respondents interpret the ambiguous phrase "most people."

Using this survey-based measure of trust, the following section reproduces from Zak and

Knack (1998) cross-country empirical findings on the relationship between trust and economic

performance, and replicates some of those tests for a restricted, OECD-only sample. Because

data on TRUST are available for many more countries (40 market economies) than are data on

returned wallets, external assessments, and trustworthy attitudes, those latter variables are not

used below.[15]

5. Empirical Evidence on Trust and Economic Performance

Fukuyama (1995) attributes cross-national differences in economic performance to

variations in trust and "spontaneous sociability." He emphasizes the implications of the radius of

trust for industrial organization: where trust does not extend beyond the family, the supply of

capital and of qualified managers is more limited, constraining the scale of private firms. More

generally, he argues that higher-trust societies are better able to implement efficient

organizational innovations when changes in technology or other factors make existing

organizational forms obsolete. Trust can influence economic outcomes through macro-political

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[15]However, Knack and Keefer (1997) find that TRUST and trustworthy attitudes are similarly related to investment

channels as well, because "sociability is also a vital support for self-governing political

institutions" (325), as in Putnam (1993).

Fukuyama's empirical evidence is mostly descriptive and qualitative rather than

quantitative. Among the nations he discussed in detail, he classified the U.S., Japan and

Germany as high-trust societies, and France, Italy, China, Korea, Hong Kong and Taiwan as low-

trust societies, based on impressionistic evidence.

La Porta et al. (1997) and Knack and Keefer (1997) used the WVS trust measure to

conduct more systematic tests of Putnam's and Fukuyama's hypotheses. La Porta et al. found that

trust is positively associated with growth (significant at 0.10) over the 1970-93 period,

controlling only for initial per capita income. They also tested Fukuyama's firm scale hypothesis,

regressing the revenues of the 20 largest firms as a proportion of GDP on per capita income,

TRUST, and a measure of trust in family members. Providing striking support for Fukuyama,

the scale measure is unrelated to income, and strongly related to the two trust measures:

positively for TRUST, and negatively for trust in family. La Porta et al. also found that higher-

trust societies have lower infant mortality, controlling for income, a result also obtained for the

American states by Kawachi et al. (1997).

For the 29 market economies included in the 1980-81 and 1990 waves of the WVS,

Knack and Keefer add TRUST to Barro-type investment and growth regressions for the 1980-92

period, finding positive and significant relationships. Results for growth, but not for investment,

are weaker when longer periods (1970-92 or 1960-92) are used. Results are also somewhat

sensitive to outliers, as might be expected in such a small sample. Deleting Korea and Brazil

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and growth in their 29-nation sample.

reduces the TRUST coefficient by half in the growth regression, although it remains highly significant. Deleting Korea from the investment regression makes TRUST insignificant. Results are also somewhat sensitive to the measures of human capital included in the regressions: TRUST coefficients are lower using the Barro-Lee (1993) attainment measures than using enrollment measures, or attainment measures from other sources.

Zak and Knack (1998) present a general equilibrium growth model in which investors of varying types are randomly matched each period with brokers of varying types, where trust declines with difference in type. Low trust is predicted to reduce investment and growth. Their empirical tests add eleven countries to the 29-nation sample used by Knack and Keefer (1997), using data on TRUST for nine countries provided by Ronald Inglehart from the third wave of World Values Surveys (conducted in 1995-96) and for two more countries (Greece and Luxembourg) from Eurobarometer surveys conducted in the 1980s. Results are strengthened using this larger sample: TRUST is significantly related to growth over longer periods such as 1970-92, as well as for 1980-92, and the estimated impact of TRUST on growth is much less sensitive to outliers or to the choice of human capital variables than in Knack and Keefer (1997). Equations 1-5 in Table 3 reproduce regression results from Zak and Knack (1998). The dependent variable is average annual growth in per capita income for 1970-92 (1980-92 in equation 3), as constructed from Summers and Heston (1991) data. Other than TRUST, regressors include 1970 per capita income, schooling attainment for 1970 (mean years for the population aged 25 and over) from Barro and Lee (1993), and the price of investment goods for 1970, as a percentage of U.S. prices (from Summers and Heston 1991).

Equation 1 demonstrates the positive relationship between trust and growth. In the 40-

nation sample, the effects of initial income and schooling are weaker than in larger samples (e.g.

compare to Barro 1991). Higher investment goods prices, relative to U.S. levels, are

significantly and negatively associated with growth, as expected. Controlling for these

influences, growth rises by nearly 1 percentage point on average for each 15-percentage point rise

(one standard deviation) in TRUST.

Controlling for investment rates in the growth regression in equation 2, the trust

coefficient falls by more than one-fourth but remains significant.[16] This finding has two

plausible explanations: first, that some components of investment broadly defined – including

investments in ideas – may not show up in the investment data, and second, that trust may

influence growth through other channels as well as through investment. For example, high trust

levels may reflect social cohesion conducive to the implementation of efficient economic

policies.

Half of the trust observations are from surveys conducted midway through the 1970-92

period (the 1980-81 wave), with the remainder from surveys conducted even later, raising the

possibility of reverse causation from growth to trust. The extremely high (0.91) correlation of

trust values from the first survey wave to the second wave suggests that trust variations over time

are very small relative to variation across countries. Nevertheless, the equation 1 regression was

replicated for the 1980-92 period, which is somewhat less subject to reverse causation than the

1970-92 period. The coefficient of trust is higher for the 1980-92 regression, as shown in

Equation 3, than it is for the longer period in Equation 1, suggesting that simultaneity bias is not

driving our results. Equation 4 reports results from a more formal correction for the possible endogeneity of TRUST, two-stage least squares regressions which use as exogenous instruments for TRUST the Catholic and the Muslim shares of each country's population.[17] The exogenous component of trust is significantly and positively associated with growth, as shown in equation 4.[18]

The negative (but insignificant) coefficient on initial per capita income in Equation 1 indicates that other things equal, poorer countries grow faster, on average, than richer ones. Relative backwardness does not necessarily help every poor country, however. Attracting and successfully adapting foreign capital and technology may be facilitated by trust between economic agents; backwardness would then provide a larger advantage for a high-trust poor nation than for a low-trust poor nation. This hypothesis implies a negative coefficient on the interaction term TRUST x GDP per capita.[19] This prediction is borne out in Equation 5. For nations with trust levels 10 percentage points above the mean, the coefficient on initial income more than doubles and attains statistical significance. For countries 10 points below the mean on trust, the coefficient drops to zero, and backwardness yields no growth advantage over rich nations.

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[16]In the 29-nation sample in Knack and Keefer (1997), TRUST was no longer significant in growth regressions when investment was included as a regressor.

[17]Based in part on a discussion by Putnam (1993), La Porta et al. (1997) classify these as "hierarchichal religions" with inimical effects on interpersonal trust. The first-stage regression explains 76% of the variation in TRUST; in the absence of the religion variables, income, schooling, and investment goods prices explain only 50%.

[18] The higher coefficient on trust in 2SLS is consistent with the possibility that simultaneity bias could take the form of higher growth reducing trust; Olson (1963), among others, has argued that rapid growth can disrupt traditional social structures and ties.

[19] More precisely, the interaction term was specified as the product of the deviations of TRUST and 1970 per capita GDP from their sample means; this modification leaves the coefficient and standard error for the interaction term unchanged, while making the coefficients on TRUST and on per capita GDP more readily interpretable.

Equation 1 of Table 4 replicates a regression from Zak and Knack (1998) linking TRUST to rates of investment as a share of GDP. Investment is not significantly related to schooling in equation 1; it is higher where per capita incomes are higher, where investment goods prices are relatively low, and where trust is higher. The investment/GDP share rises by nearly one percentage point for each seven-percentage point increase in TRUST. Equation 2 reports results using two-stage least squares, with percent Catholic and percent Muslim as instruments. The TRUST coefficient increases slightly, but is not significant at conventional levels.

There is apparently only one study that has examined the relationship between TRUST and economic performance in an OECD sample. Helliwell (1996) found that TRUST was *negatively* and significantly related to productivity growth for a sample of 17 OECD members. In examining productivity growth only, Helliwell did not explore the possibility that trust influences income growth through factor accumulation channels.

An OECD-only test is more demanding than tests employing the larger sample, because there is substantially less variation in the dependent variables and in TRUST. The coefficient of variation (CV) for TRUST is 0.47 in the larger sample, and 0.34 in the OECD. The CV for growth declines from 0.83 to 0.49, and the CV for investment/GDP drops from 0.31 to 0.16.

Equation 6 of the growth table, Table 3, replicates equation 1 for OECD nations only, reducing the sample from 40 to 25. In this sample, per capita incomes exhibit strong convergence. The other notable difference from equation 1 is that the TRUST coefficient is not significantly related to income growth. Of course, it is impossible to know whether restricting the sample produces more accurate estimates by separating dissimilar countries with dissimilar growth processes, or produces less accurate estimates by discarding useful information. The

TRUST coefficients of 0.064 in equation 1 and 0.006 in equation 6 present two alternative

answers to the question of whether increasing trust would improve economic performance in an

OECD nation. The interaction result from equation 5 offers a third possible answer: one way to

interpret this interaction coefficient is that the marginal impact of a 1-point rise in TRUST drops

from 0.057 to 0.047, 0.037 etc., as 1970 per capita income levels increase by $1,000, $2,000 etc.

from the sample mean of $5,850. The marginal impact rises similarly for nations with below-

average incomes. These estimates imply that trust matters for growth for several of the poorer

OECD nations, particularly Turkey (with a Summers-Heston per capita income of $3,741 in

1990) and Mexico ($5,827 in 1990).

For investment, estimates for OECD nations are less problematic. First, the effects of

TRUST on investment do not vary significantly with per capita income levels. Second, estimates

of TRUST's effects on investment are very similar for the larger sample of countries and for the

OECD sample. Equation 3 in Table 4 replicates equation 1, but deletes 15 non-OECD nations.

The TRUST coefficient changes only slightly, and despite an increase in the standard error[,] it is

significant at the 0.06 level for 2-tailed tests (0.03 for 1-tailed tests). Figure 4 depicts the partial

relationship between investment and TRUST in this OECD sample, controlling for initial

income, education, and investment goods prices. Equation 4 replicates the 2SLS test of equation

2 for the OECD sample. The TRUST coefficient in equation 4 is larger than in equation 2,

although neither one of them are significant at conventional levels.

6. Empirical Evidence on Group Memberships and Economic Performance

Two classic works in social science sharply conflict in their perspectives on whether private associations tend to generate positive or negative externalities on nonmembers. Putnam (1993) viewed memberships in horizontal associations as a source of trust and social ties conducive to governmental efficiency and economic performance. He attributed the successes of northern Italy, relative to the south, in large part to its richer associational life, asserting that groups "instill in their members habits of cooperation, solidarity, and public-spiritedness" (Putnam 1993, 89-90). Olson's (1982) view of associations was much less favorable, emphasizing their propensity to act as special interest groups lobbying for preferential policies that impose disproportionate costs on the rest of society.[20]

Knack and Keefer (1997) tested these alternative theories using WVS data on group memberships, available for 26 market economies. Tables 5 and 6 present the results of tests very similar to those in Knack and Keefer (1997).

Respondents in the World Values Surveys were asked whether they belonged to any of the following types of organizations:

a) social welfare services for elderly, handicapped or deprived people;

b) religious or church organizations;

c) education, arts, music or cultural activities;

d) trade unions;

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[20]Adam Smith had long before noted the rent-seeking potential of groups: when "people of the same trade" meet "even for merriment and diversion" the result is often "a conspiracy against the public" or "some contrivance to raise prices" (quoted in Granovetter 1985, 484). Associational life may also be conducive to violent revolution. Marx blamed the inability of the 19th century French peasantry to overthrow capitalism on the absence of dense networks of social interaction: the peasants did not enter into "manifold relations with one another..." (quoted in Hardin 1982, 189).

e) political parties or groups;

f) local community action on issues like poverty, employment, housing, racial equality;

g) third world development or human rights;

h) conservation, the environment, ecology;

i) professional associations;

j) youth work (e.g. scouts, guides, youth clubs, etc.).

The overall measure of the density of associational activity ("group memberships") is the average number of groups cited per respondent in each country. This indicator unfortunately does not measure the intensity of participation in groups. Assuming that group memberships are correlated with levels of activity, this measure constitutes a reasonable approximation of Putnam's notion of the density of horizontal networks in a society.[21] Independent data on union memberships as a proportion of the labor force for the late 1970s are available from Wallerstein (1989) for 18 of the 26 countries with WVS data on group memberships (for the late 1970s), permitting a check on the reliability of the survey data. The cross-country correlation of this variable with item d on trade union memberships is a reassuring 0.68.

Equations 1 and 4 in Table 5 show that group memberships are not related to (respectively) growth or investment. A possible explanation for this result is that the harmful effects of groups as rent-seeking organizations theorized by Olson (1982) are roughly offset by the positive effects posited by Putnam (1993).

To further explore this possibility, memberships in "Olson groups" are differentiated from memberships in "Putnam groups." Groups b, c and j from the above list were identified as those

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[21]This measure — like those Putnam (1993) used for Italy — does not capture informal networks, which he also

groups least likely to act as "distributional coalitions" but which involve social interactions that can build trust and cooperative habits. The total memberships per respondent in these three "Putnam" categories range from 0.83 (for the United States) to 0.06 (Finland). Groups d, e and i were deemed most representative of groups with redistributive goals; total memberships in these "Olson" groups per respondent range from 0.76 (Iceland) to 0.12 (Korea).

Neither type of group membership is significantly associated with growth in equation 2 of Table 5. Paradoxically, "Olson memberships" comes close to being significant but with a *positive* coefficient. Neither variable is significant in 2SLS tests (equation 3) which use percent Muslim, percent Catholic, and percent Protestant as instruments.[22]

When entered into investment regressions, "Olson memberships" are not significant. "Putnam memberships" are significant, but with a *negative* coefficient (equation 5). This negative coefficient increases substantially in a 2SLS test (equation 6), but the standard error rises even more, leaving "Putnam memberships" insignificant.

This attempt at distinguishing types of groups thus provides no empirical support for the supposition that group memberships overall have neutral effects on economic performance because positive externalities generated by "Putnam groups" roughly counterbalance negative externalities generated by "Olson groups." These tests are rather crude, however: the categories of groups are overly broad, making it difficult to distinguish confidently rent-seeking from purely social groups, and the depth of commitment to groups is unmeasured. Membership in groups classified here as "Putnam groups" could simply be proxying stronger preferences for leisure, which might harm measurable economic performance.

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considers to be important.

31

However, there are serious theoretical deficiencies in the perspectives on groups advanced by both Putnam (1993) and Olson (1982). While some associations may in fact "instill in their members habits of cooperation, solidarity, and public-spiritedness," other (even purely social) groups segregated by class, occupation, or ethnicity may build cooperation and trust only among group members, perhaps even encouraging distrust between members and nonmembers.[23] Olson's predictions on growth and groups overlook the fact that professional and trade associations do more than lobby for legal barriers to entry and tax breaks. They may have positive effects on economic performance by establishing ethical codes and standards that build wide-radius trust (Bergsten 1985), or by reducing transactions costs, e.g. by spreading information about the identity of cheaters (Bernstein 1992).

For 17 OECD nations, Helliwell (1996) found that an index of group memberships from the WVS, was negatively and significantly related to productivity growth. Table 6 replicates the regressions from Table 5, but only for OECD nations, reducing the sample from 26 to 22 nations. Results on the groups variables are very similar across the two tables. The only significant relationship is the perverse effect of "Putnam memberships" on investment rates, an effect which increases in magnitude but loses precision in 2SLS tests.

7. Conclusion

This paper provides arguments and evidence for the importance of "high-radius trust" in

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[22]Percent Protestant is positively related to group memberships, but not to TRUST, controlling for percent Muslim and Catholic, explaining why only the latter two variables were used as instruments for TRUST in section 5.
[23] In later work, Putnam (e.g. 1995, 665) is more careful to note that some social networks facilitating cooperation among their members can have detrimental effects for the wider community.

the economic performance of nations. The impact of a rich associational life, as measured by

memberships in groups, is less favorable. This finding should not be surprising from an

Olsonian (1982) perspective, in which many groups further the well-being of their own members

at the expense of the rest of society. In the framework of Table 1, there is little basis for

hypothesizing that cooperation and trust *within a group*, i.e. low-radius trust, will be conducive

to *national* economic performance. (It may of course improve the welfare of members of the

group.)

Assuming that the relationship demonstrated here between high-radius trust and

economic performance holds up as more data gradually become available (both over time and

across countries), an important task for future research is to study more closely the characteristics

of governments and societies that build high-radius trust. Under what, if any, conditions do

groups generate positive instead of negative spillovers for the rest of society, instilling

cooperative habits and public-spirited thinking instead of seeking rents? If "good governance"

with reliable legal mechanisms of enforcing contracts and property rights is necessary for high-

radius trust to thrive, are sustainable reforms in governance feasible in the absence of social

cohesion and cooperative norms? Do some societies simply function better than others, for

cultural and historical reasons that are largely immune to policy levers?

Another valuable line of inquiry in cross-country analysis would follow micro-level

analysis in employing other indicators of well-being, in addition to measurable economic

performance. These could include objective measures (e.g. health and crime), but perhaps most

importantly[,] survey-based indicators of happiness and life satisfaction. According to J. S. Mill

(1848): "The advantage to mankind of being able to trust one another, penetrates into every

33

crevice and cranny of human life: the economical is perhaps the smallest part of it, yet even this

is incalculable." Taking into account the value of leisure, and of transactions facilitated by trust

that do not enter the national accounts, more inclusive measures of well-being should be

associated with trust in the same way as investment and growth rates.

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Table 2
Summary Statistics
"World" Sample and OECD Sample

Variable	Sample	Coefficient of variation	Mean	Standard deviation	Minimum	Maximum
Trust	World	.47	32.3	15.1	5.0	61.2
	OECD	.34	39.1	13.2	10.0	61.2
Growth, 1970-92	World	.83	1.91	1.59	-1.22	6.96
	OECD	.49	2.39	1.18	0.93	6.96
Investment/GDP, 1970-92	World	.31	21.7	6.7	3.0	35.7
	OECD	.16	25.4	4.2	16.8	35.7
GDP per capita, 1970	World	.62	5850	3613	767	12,963
	OECD	.39	7731	3029	1680	12,963
School attainment, 1970	World	.47	5.31	2.48	0.74	10.22
	OECD	.35	6.43	2.28	1.21	10.22
Price of investment goods, 1970	World	.24	80.1	19.5	46.2	136.4
	OECD	.21	80.0	16.7	46.2	120.2
Group memberships	World	.45	.77	.35	.38	1.70
	OECD	.46	.80	.37	.38	1.70
Putnam memberships	World	.55	.32	.18	.06	.83
	OECD	.58	.32	.18	.06	.83
Olson memberships	World	.59	.30	.18	.12	.76
	OECD	.56	.33	.18	.12	.76

Table 3
Trust and Growth

Equation	1	2	3	4	5	6
Period	1970-92	1970-92	1980-92	1970-92	1970-92	1970-92
Sample	World	World	World	World	World	OECD
Method	OLS	OLS	OLS	2SLS	OLS	OLS
Constant	4.034	1.097	1.955	4.035	4.218	3.751
	(0.886)	(0.812)	(0.806)	(0.927)	(0.965)	(0.886)
GDP per capita	-0.083	-0.194	-0.005	-0.082	-0.085	-0.354*
(000s)	(0.108)	(0.107)	(0.153)	(0.099)	(0.093)	(0.127)
Schooling	-0.049	-0.096	-0.194	-0.048	0.015	0.062
attainment	(0.149)	(0.115)	(0.234)	(0.170)	(0.140)	(0.114)
Price of investment	-0.043*	-0.024*	-0.018*	-0.043*	-0.042*	0.009
goods	(0.010)	(0.009)	(0.007)	(0.011)	(0.011)	(0.008)
Trust	0.064*	0.046*	0.088*	0.064*	0.057*	0.006
	(0.022)	(0.019)	(0.028)	(0.026)	(0.019)	(0.016)
Investment/GDP		0.136*				
		(0.033)				
Trust*GDP					-0.010*	
					(0.004)	
R^2	.42	.57	.29	.37	.50	.53
SEE	1.27	1.11	1.87	1.27	1.20	0.88
Mean, D.V.	1.91	1.91	1.30	1.91	1.91	2.39

N = 40 in equations 1-5 and N = 25 in equation 6. A * indicates significance at 0.05 level for 2-tailed test. R^2 does not have its usual interpretation in 2SLS (equation 4). Instruments in 2SLS include percent Muslim and percent Catholic; p-value in test of overidentifying restrictions is 0.27.

Table 4
Trust and Investment (1970-92)

Equation	1	2	3	4
Sample	World	World	OECD	OECD
Method	OLS	2SLS	OLS	2SLS
Constant	21.655	21.585	24.939	24.939
	(3.115)	(3.450)	(2.536)	(2.536)
GDP per capita	0.826*	0.821*	0.237	0.308
(000s)	(0.261)	(0.370)	(0.298)	(0.486)
Schooling	0.349	0.295	-0.184	-0.508
attainment	(0.598)	(0.632)	(0.464)	(0.813)
Price of inv. goods	-0.137*	-0.138*	-0.071	-0.086
	(0.028)	(0.042)	(0.051)	(0.077)
Trust	0.135*	0.149	0.141	0.220
	(0.058)	(0.097)	(0.072)	(0.138)
R^2	.55	.55	.13	.15
SEE	4.7	4.7	4.3	4.3
N	40	40	25	25
Mean, D.V.	21.7	21.7	25.4	25.4

White-corrected standard errors are shown in parentheses. A * indicates significance at 0.05 for 2-tailed tests. R^2 does not have its usual interpretation in 2SLS. Instruments in 2SLS include percent Muslim and percent Catholic; p-value in test of overidentifying restrictions is 0.06 in equation 2 and 0.83 in equation 4.

Table 5
Group Memberships and Economic Performance

Equation	1	2	3	4	5	6
Dependent variable	Growth 1970-92			Investment/GDP 1970-92		
Method	OLS	OLS	2SLS	OLS	OLS	2SLS
Constant	5.509	5.836	4.131	25.857	27.343	23.071
	(1.618)	(1.776)	(2.885)	(3.268)	(3.520)	(8.554)
GDP per capita	-0.136	-0.152	-0.329	0.471	0.198	-0.335
(000s)	(0.158)	(0.149)	(0.305)	(0.292)	(0.341)	(0.905)
Schooling	0.083	0.065	0.495	0.637	0.750	1.935
attainment	(0.176)	(0.177)	(0.506)	(0.468)	(0.525)	(1.499)
Price of investment	-0.044	-0.049	0.012	-0.080	-0.094	0.067
goods	(0.025)	(0.027)	(0.061)	(0.059)	(0.063)	(0.181)
Group	0.898			-3.086		
memberships	(0.807)			(4.606)		
Putnam		0.593	-10.613		-10.861*	-42.866
memberships		(1.519)	(10.109)		(4.971)	(29.970)
Olson memberships		2.615	-1.139		6.760	-1.140
		(1.519)	(4.577)		(6.412)	(13.570)
R^2	.28	.32	.14	.23	.35	.19
SEE	1.31	1.30	2.41	4.6	4.3	7.1
Mean, D.V.	2.11	2.11	2.11	24.4	24.4	24.4

N = 26. White-corrected standard errors are shown in parentheses. A * indicates significance at 0.05 for 2-tailed tests. Note R^2 does not have its usual interpretation in 2SLS. Instruments in 2SLS include percent Muslim, percent Catholic, and percent Protestant; p-value in test of overidentifying restrictions is 0.39 in equation 3 and 0.25 in equation 6.

Table 6
Group Memberships and Economic Performance in the OECD

Equation	1	2	3	4	5	6
Dependent variable	Growth 1970-92			Investment/GDP 1970-92		
Method	OLS	OLS	2SLS	OLS	OLS	2SLS
Constant	4.293	4.265	2.473	23.232	24.935	16.627
	(0.911)	(0.842)	(2.385)	(3.651)	(2.718)	(11.547)
GDP per capita	-0.455*	-0.452*	-0.604*	-0.181	-0.319	-1.027
(000s)	(0.135)	(0.133)	(0.221)	(0.425)	(0.407)	(1.069)
Schooling	0.130	0.124	0.389	0.787	0.923	2.161
ttainment	(0.118)	(0.114)	(0.319)	(0.513)	(0.529)	(1.544)
Price of investment	0.013	0.013	0.063	0.040	0.009	0.239
goods	(0.008)	(0.008)	(0.052)	(0.071)	(0.060)	(0.254)
Group	-0.252			-6.026		
memberships	(0.345)			(4.293)		
Putnam		0.099	-6.442		-13.417*	-44.088
memberships		(0.738)	(5.976)		(4.629)	(28.935)
Olson memberships		-0.602	-2.892		1.557	-8.873
		(0.592)	(3.201)		(6.326)	(15.499)
R^2	.67	.68	.43	.16	.28	.14
SEE	0.80	0.82	1.45	4.4	4.2	7.0
Mean, D.V.	2.39	2.39	2.39	25.6	25.6	25.6

N = 22. White-corrected standard errors are shown in parentheses. A * indicates significance at 0.05 for 2-tailed tests. Note R^2 does not have its usual interpretation in 2SLS. Instruments in 2SLS include percent Muslim, percent Catholic, and percent Protestant; p-value in test of overidentifying restrictions is 0.35 in equation 3 and 0.61 in equation 6.
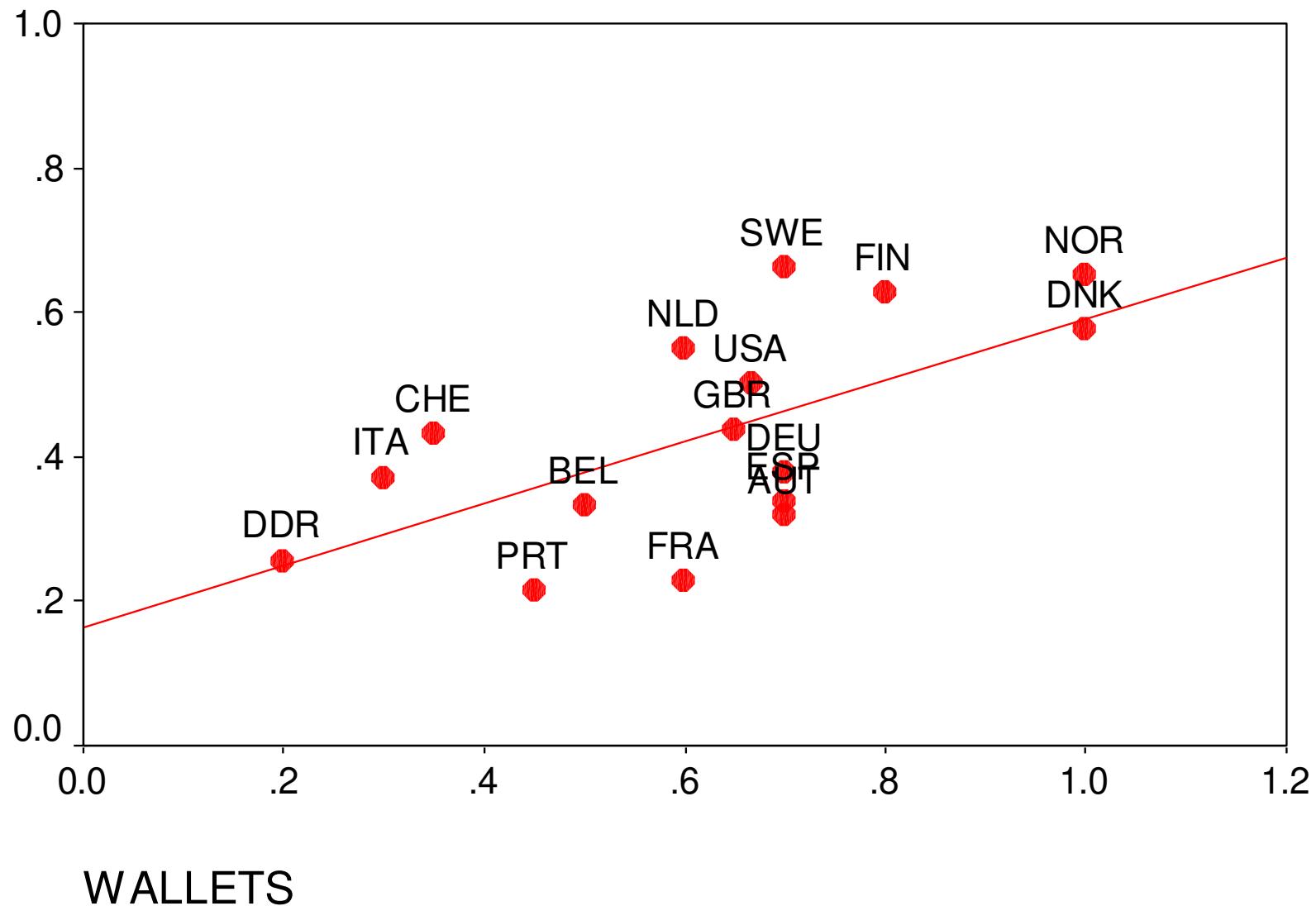
Figure 1

Trust and Returned Wallets (Nations)
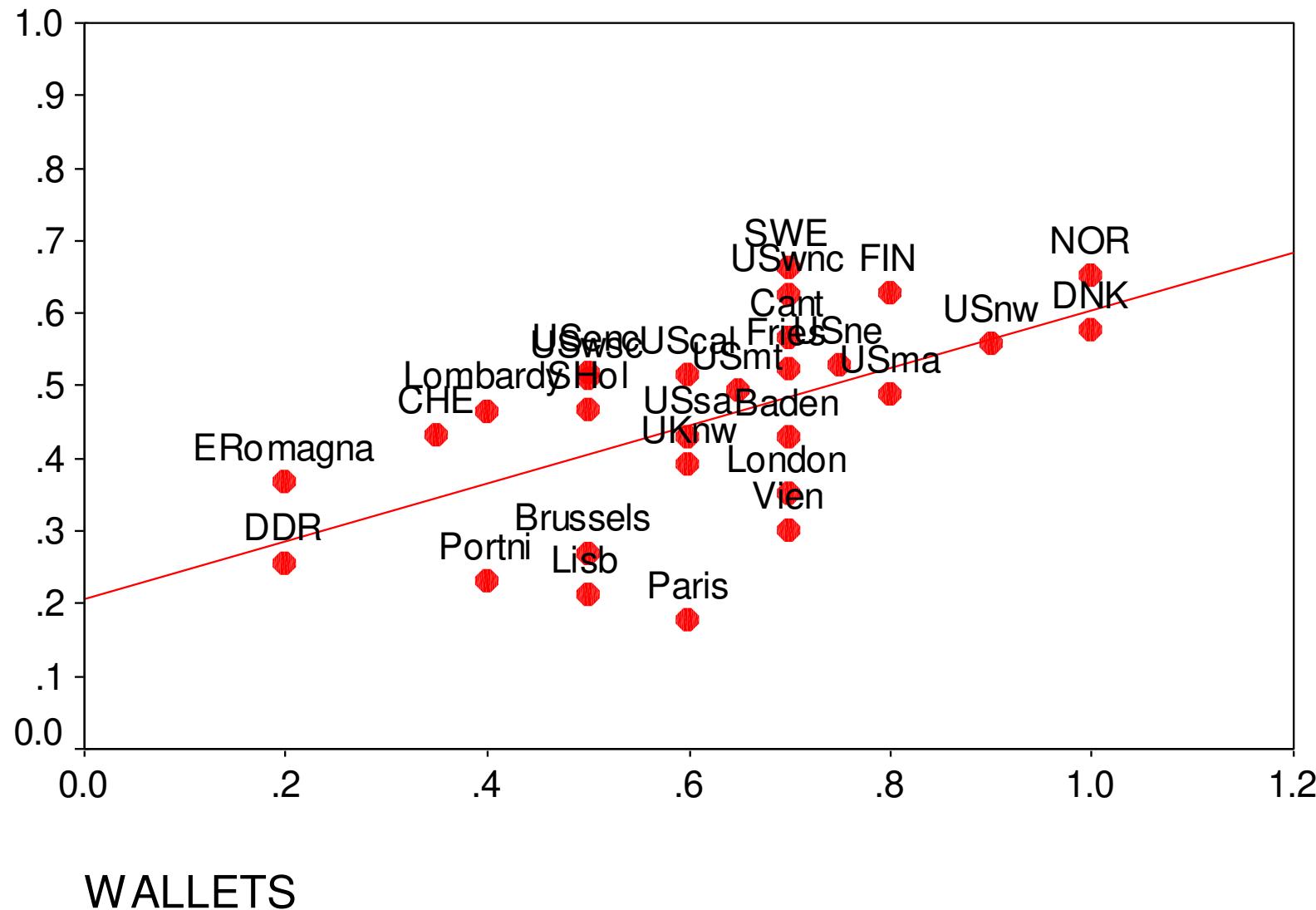

WALLETS

Figure 2

Trust and Returned Wallets (Regions)

Figure 3

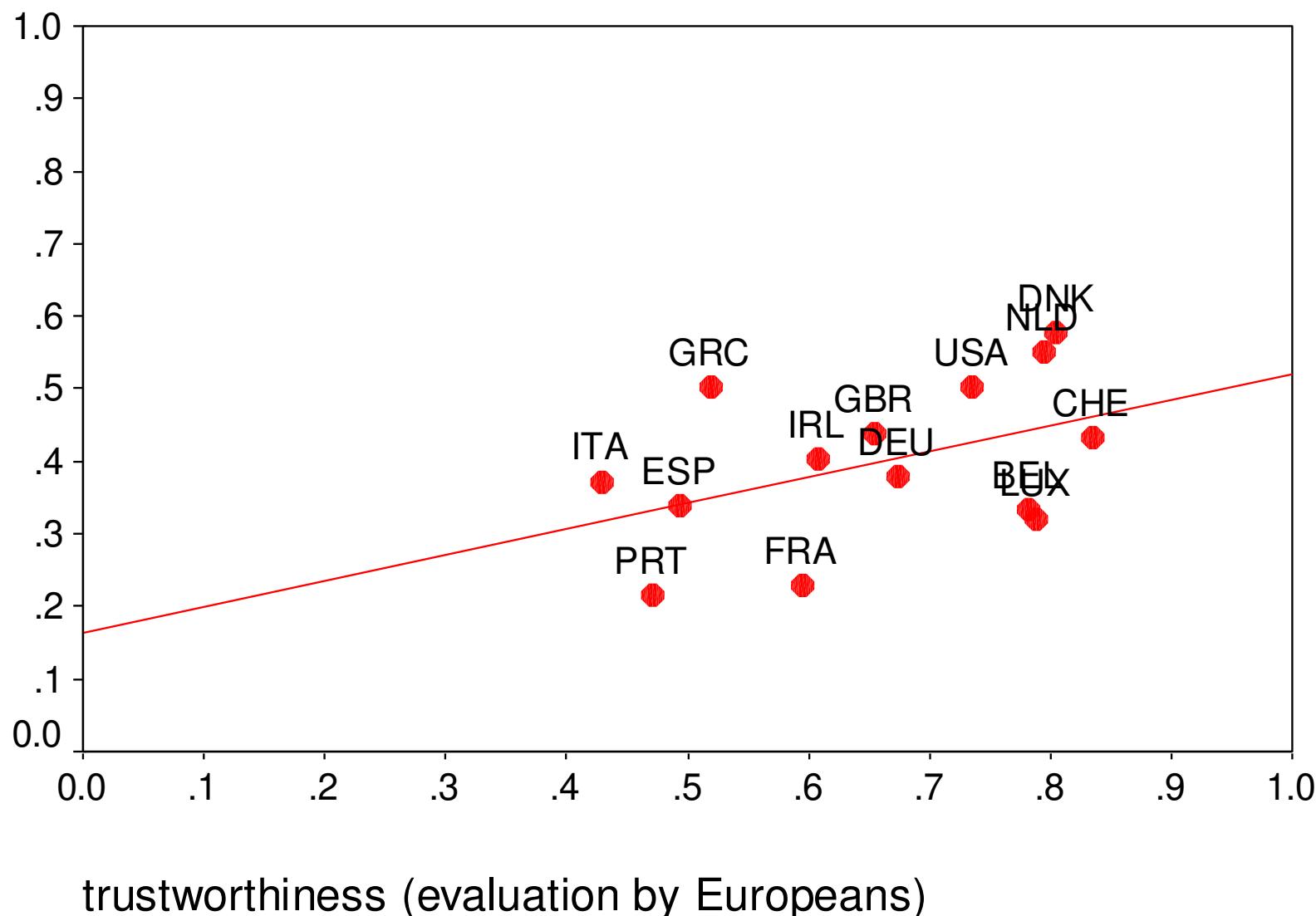## External Perceptions of Trustworthiness

trustworthiness (evaluation by Europeans)

Figure 4

investment and trust (partial plot), OECD