
Do Trust and Trustworthiness Pay Off?

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ABSTRACT

Are individuals who trust others better off than those who do not? Do trustworthy people prosper more than untrustworthy ones? We formulate and, using data from the World Values Survey, empirically evaluate predictions about the relationship between an individual's income and his self-reported attitudes toward trust and trustworthiness, and predictions about how these relationships are mediated by the average level of trust and trustworthiness in the country. On average, exhibiting trust has a positive, while exhibiting trustworthiness has a negative impact on income. More strikingly, the payoff to being trustworthy increases with the average level of trust in a given country.

I. Introduction

The notions of trust and trustworthiness have received much recent attention in social science, stimulated in part by the work of Putnam (1993) and Fukuyama (1995), but with antecedents in, for example, Coleman (1990). Economists have for a long time recognized the critical role played by trust in economic performance. Arrow (1972), for example, remarks: "Virtually every commercial transaction has within itself an element of trust, certainly any transaction conducted over a period of time. It can plausibly be argued that much of the economic backwardness in

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the world can be explained by the lack of mutual confidence." In high-trust societies, individuals need to spend fewer resources to protect themselves from being exploited in economic transactions. Knack and Keefer (1997) argue that trusting societies tend to have stronger incentives to innovate and to accumulate both physical and human capital and, as a result, grow faster.

The flip side of trust is trustworthiness. Glaeser et al. (2000) distinguish between trusting behavior, which they define as "the commitment of resources to an activity where the outcome depends upon the cooperative behavior of others," and trustworthy behavior, which "increases the returns to people who trust you." The idea of reputation, the level of trust one is perceived to merit, has also been examined. As Axelrod (1986) puts it, an individual's reputation derives from adherence to or violation of a norm that others view as a signal about the individual's future behavior in a wide variety of situations.

Whether an individual trusts a potential business partner has traditionally been modeled in the economic literature as a matter of the partner's reputation for his type or, more precisely, a belief about the partner's type when this type is imperfectly observed. One strand of literature, represented by the work of Sobel (1985), Watson (1999), and Blonski and Probst (2000), analyzes the formation of reputation in repeated games with a fixed set of players. These authors show that mutual trust builds up over time as partners start by committing small amounts of resources early in the game to "get to know" their opponents, and successful experiences then lead to an increase in the scale of cooperation over time.

However, most realistic situations involve games in which the identity of opponents may change over time. To address this, another strand of research uses random matching models of the kind pioneered by Rosenthal (1979) to address the issues of trust and trustworthiness. Tirole (1996), using a matching model with nonrepeated matches, considers the case of imperfect observability of individual reputations, which leads players to utilize both individual and collective reputations when forming their beliefs about their potential business partners' types. Ghosh and Ray (1996), using a matching model with no observability of individual reputations, allow for repeated interaction within a given match. This repeated interaction leads to the buildup of mutual trust as in a repeated game with a fixed set of players.

In this paper we empirically investigate the impact of being trusting and trustworthy on individual income. Apart from focusing on the direct effects of these attitudes, we also examine how the personal return to trust is affected by the average level of trustworthiness in one's society, and how the personal return to trustworthiness is affected by the average level of trust in one's society.

To provide an analytic framework behind our empirical investigation, we first briefly and informally discuss an infinite horizon matching model of trust and trustworthiness that illustrates the nature of trust and trustworthiness in social interactions. Using this theoretical model as a framework, we then begin the task of linking the microeconomic theory to empirical evidence based on micro data. We estimate a model of the private return to trust and trustworthiness, using data for individuals in 18 countries from the 1990 wave of the World Values Survey. We find evidence that the return to trustworthiness is negative on average, but increases with the average amount of trust in the society, so that its return is negative in low-trust countries and positive in high-trust countries. The underlying theoretical model suggests that this

may be the case when dishonest behavior is likely to be disclosed to future trading partners, since being untrustworthy then has a higher cost in terms of foregone future transactions. We also find that the return to trust is positive on average, but is not statistically significantly related to the average level of trustworthiness in the society. Strikingly, these results suggest the possibility that a country might be in an equilibrium trap where it is not in most people's interest to invest in either trust or trustworthiness, and, as a consequence, productive relationships are largely foregone.

The paper is structured as follows. Section II discusses the conceptual framework for the empirical analysis.¹ Section III reviews previous empirical work. Section IV describes the dataset we use, and Section V contains our empirical results. Section VI concludes.

II. Model

The economy consists of two types of agents, initiators and respondents, who randomly meet in every period. Initiators invest resources into transactions whose successful completion depends on the cooperation of respondents. In particular, a respondent may cooperate, in which case both parties have a positive net payoff, or he can simply steal the investment, in which case no net payoff is generated. In light of this possibility, an initiator may not invest the resources in the first place. Trusting pays off when it is met with a trustworthy response, but it is costly when met by an untrustworthy response. One testable prediction of this model is that the individual payoff to trust increases with the average level of trustworthiness in the society.

Whether trustworthiness does or does not pay off depends on the observability of past individual behavior. When past behavior is perfectly observable, behaving in an untrustworthy way completely disqualifies a respondent from future trades. Since this exclusion is more costly the higher is the level of average trust, the individual payoff to trustworthiness increases with the average level of trust. When past behavior is not observable, behaving in an untrustworthy way does not endanger one's future trades, and hence the individual payoff to trustworthiness is independent of the average level of trust. For the intermediate and empirically most plausible cases, the model predicts that the individual payoff to trustworthiness increases with the average level of trust in the society.

In Sections IV and V we make use of individual cross-country evidence on income, trust, and trustworthiness to empirically investigate these relationships. Before we present our findings, in the next section we first review previous related empirical research.

III. Previous Empirical Literature

There is some empirical evidence that trust and civic duty among a country's citizens contribute to growth. Knack and Keefer (1997) test the impact of these attitudes on both growth and investment rates in a cross-section of 29 countries,

1. A formal version of the model appears in Katuščák and Slemrod (2002).

using measures of trust and civic norms from the World Values Surveys of 1981 and 1990. They find that social capital variables exhibit a strong and significant positive relationship to economic growth. As they note, the causality of this relationship could go in either direction: trust could be a product of optimism generated by high or growing incomes, or it could be that trust facilitates prosperity. However, they find that trust is more correlated with per capita income in later years than with income in earlier years, suggesting that the causation runs from trust to growth more so than vice versa.

Zak and Knack (2001) extend the Knack and Keefer framework by separately testing for the effect on growth of proxies for the presence of formal institutions, social distance, and discrimination and for whether their effect remains significantly correlated with growth controlling for measures of trust. They find that trust is positively and significantly related to growth even in the presence of measures of formal institutions or of social distance, but that most of the influence of the latter on growth occurs through their impact on trust. The one exception is a measure of property rights, which retains its independent positive association with growth even in the presence of a trust variable. They justify this finding by noting that this measure includes government actions against private agents. In contrast, the trust measure is "likely to be little affected by perceptions of the trustworthiness of government . . ." (p. 316).

Slemrod (2003), using country averages from 25 countries in the 1990 wave of the World Values Survey, finds evidence that real per capita income is higher in more trusting societies, holding constant measures of physical and human capital as well as the size of government. However, in countries with bigger governments, there is a breakdown in the trustworthiness its citizens exhibit toward government, as measured by the acceptability of tax evasion.

La Porta et al. (1999) find that, across countries, a one-standard deviation increase in the measure of trust increases judicial efficiency by 0.7 of a standard deviation and reduces government corruption by 0.3 of a standard deviation. Putnam (1993) examines cross-regional Italian data and concludes that local governments are more efficient where there is a greater civic engagement.²

In what follows, we examine household-level, rather than country-level, data from 18 countries. In particular, we estimate regression equations (with country fixed effects) explaining household income with a specification that is based on the standard earnings equations from labor economics, but that is augmented to test for the impact of trust, trustworthiness, and their interaction with country average levels of the complementary attitude.

IV. Data

Although the theory provides a consistent framework in which to evaluate data, it leaves open the precise relationship among individual income, personal characteristics, and country characteristics. To shed empirical light on the issues

2. There is a separate literature studying the determinants of trust. See Alesina and Ferrara (2000) for a notable recent contribution.

discussed in the previous section, one needs measures of individual well-being, personal trust, trustworthiness and, preferably, some additional sociodemographic variables. To our knowledge, only two datasets provide this information: the National Opinion Research Center's General Social Survey (GSS) and the World Values Survey (WVS). In order to identify the impact of average trust and trustworthiness within the society, we use the WVS (1999), as it, unlike the GSS, provides individual-level data for multiple countries.

The purpose of the WVS is to facilitate cross-national comparisons of values, norms, and attitudes. The survey was conducted in multiple waves, with limited national modifications, in several dozen countries. It asked about attitudes concerning work, family, religion, politics, and contemporary social issues and gathered a limited amount of demographic data as well. Although the data are subject to the usual reservations about attitude surveys, and in particular cross-country attitude surveys, the data has been widely and fruitfully used by political scientists and sociologists, not to mention Knack and Keefer (1997) and Zak and Knack (2001). For an extensive, albeit incomplete, list of its use in research, see Inglehart, Basanez, and Moreno (1998).

We examine the data from the 1990–93 wave for 18 developed and developing countries.³ We excluded the former communist countries because their economic and incentive structure as of the time of the survey was not conducive to trust and trustworthiness having much effect on individual prosperity.⁴ We supplement the WVS data with the Summers and Heston (1991) Penn World Tables (PWT), Mark 5.6 to be able to make real income comparisons across countries.⁵

Our measure of trust is based on the following WVS question: “Generally speaking, would you say that most people can be trusted or that you can’t be too careful in dealing with people?” This question offered two responses: “can’t be too careful” and “most people can be trusted.” We associate the former answer with “mistrusting” individuals and the latter answer with “trusting” individuals. Based on these survey responses, we create a binary variable indicating the trusting individuals. Our measure of trustworthiness is based on the following WVS question: “Please tell me whether you think lying in your own interest can always be justified, never be justified, or something in between.” This question offered 10 responses ordered from 1 (never justified) to 10 (always justified). In order to measure trustworthiness, we reversed the scale.

3. We use the following countries: Austria, Belgium, Brazil, Britain, Canada, Chile, Finland, India, Italy, Japan, Mexico, the Netherlands, Portugal, South Africa, Spain, Turkey, U.S.A., and West Germany.

4. As for the remaining countries in the 1990–93 wave, we could not use Argentina, Denmark, Ireland, Nigeria, Norway, Sweden, and Switzerland because the income category thresholds that we use for measuring real household income (see below) were not available. We could not use France because the household income data records did not precisely match with the available income category thresholds. We could not use Iceland because of the missing household income data. Finally, we could not use South Korea because of the missing education data.

5. Note, however, that to the extent that we induce a measurement error into the real household income by deflating the nominal household income by PPP-based exchange rates from Summers and Heston (1991), this measurement error only affects our summary statistics, but not our regression analyses. This is because all of our regression specifications use the natural logarithm of household income as the dependent variable and they contain country fixed effects.

Glaeser et al. (2000) measure trust and trustworthiness by conducting experiments with monetary rewards. They find that the standard question used to measure trusting behavior—used in the WVS as well as the GSS—does not have a significant correlation with trusting choices in either of two experiments. Two other questions specifically about trusting strangers do, though, predict trust (of strangers, in their experiments). Furthermore, the answers to questions about trustworthiness are not significantly related to trustworthy behavior. Surprisingly, a self-reported trusting attitude does appear to predict trustworthy behavior. Danielson and Holm (2002) conduct a similar experiment in Tanzania. They confirm that the standard survey question used to measure trust does not predict actual trusting behavior in their experimental setting. Unlike Glaeser et al. (2000), though, they find that the specific trust questions do not predict actual trusting behavior and that the general trust question does not predict trustworthy behavior. They also find that self-reported trustworthiness does in fact predict trustworthy behavior, but this effect disappears when donation motives are controlled for.

Glaeser et al. (2000) and Danielson and Holm (2002) conclude that empirical work based on the WVS/GSS survey questions about trust needs to be reinterpreted. While we take seriously the possibility that self-reported attitudes and behavior may not be highly correlated, we do find below that these self-reports help explain individual incomes with a systematic pattern, and so we conclude that they do reflect individual behavior in an important sense. Finally, although experimental evidence could certainly extend our knowledge of these issues, we expect that such evidence will not be available across multiple countries in the near future, rendering the current study infeasible from this angle.

We measure individual prosperity by real household income based on the following WVS question: “Here is the scale of incomes and we would like to know in what group your household is, counting all wages, salaries, pensions and other incomes that come in. Just give the letter of the group your household falls into, before taxes and other deductions.” This question offered 10 country-specific ranges for income. We convert the thresholds into 1990 purchasing power parity U.S. dollars using the PWT measure of PPP-based exchange rates. Our measure of real household income is a midpoint of each range and 150 percent of the highest threshold for the top range. Summary statistics for household income, trust and trustworthiness by country are reported in Table 1. It is also interesting to inspect the cross-country variation in trust and trustworthiness in relation to each other and GDP per capita. Figure 1 plots average trust against average trustworthiness level by country, revealing that there is no apparent simple correlation between the two. Figures 2 and 3 plot average trust and average trustworthiness, respectively, against PPP GDP per capita. While trustworthiness is not statistically significantly correlated with GDP per capita, trust is significantly positively correlated with it.

Because individual trust and trustworthiness are certainly not the only determinants of individual income, we examine additional sociodemographic information provided by the WVS. Our measure of respondent education is based on the following WVS question: “At what age did you or will you complete your full time education, either at school or at an institution of higher education? Please exclude apprenticeships.” This question offered a 10-point scale ranging from 1 (12 years of age or younger) to 10 (21 years of age or older). In addition, we use the data on respondent age and

Table 1
Summary Statistics of Real Household Income, Trust and Trustworthiness by Country

Country	Household Income			Trust			Trustworthiness		
	Observations	Mean	Standard Deviation	Observations	Mean	Standard Deviation	Observations	Mean	Standard Deviation
Austria	1,414	18.28	11.65	1,301	0.318	0.466	1440	8.27	2.04
Belgium	1,705	21.14	13.29	2,576	0.332	0.471	2,730	7.04	2.62
Brazil	1,679	6.36	9.69	1,766	0.067	0.249	1,774	8.20	2.73
Britain	1,101	24.80	17.47	1,440	0.436	0.496	1,473	8.17	2.08
Canada	1,461	35.88	23.50	1,673	0.524	0.500	1,712	8.18	2.24
Chile	1,470	6.74	7.22	1,458	0.227	0.419	1,495	8.65	2.23
Finland	586	29.52	15.13	558	0.627	0.484	580	8.13	1.97
India	2,429	4.77	3.87	2,365	0.343	0.475	2,480	8.76	2.03
Italy	1,424	21.52	23.12	1,932	0.371	0.483	1,987	8.33	2.19
Japan	896	32.39	18.98	911	0.417	0.493	968	8.75	1.83
Mexico	1,451	19.29	29.68	1,384	0.335	0.472	1,513	6.76	2.95
Netherlands	790	23.60	15.26	965	0.558	0.497	1,010	7.49	2.11
Portugal	1,124	13.24	10.27	1,149	0.214	0.410	1,169	7.47	2.68
South Africa	2,456	24.68	18.69	2,594	0.283	0.450	2,681	8.05	2.89
Spain	3,431	11.19	8.04	3,887	0.338	0.473	4,042	8.07	2.32
Turkey	1,007	12.50	18.27	1,012	0.100	0.300	1,017	8.72	2.23
U.S.A.	1,696	34.83	22.44	1,782	0.500	0.500	1,821	8.59	2.02
West Germany	1,932	23.68	14.27	1,725	0.378	0.485	2,013	7.46	2.34
Total	28,052	20.24	19.28	30,478	0.354	0.478	31,905	8.06	2.40

Notes: All summary statistics are weighted averages based on survey weights provided with the data. The household income figures are in thousands of PPP adjusted 1990 US dollars.

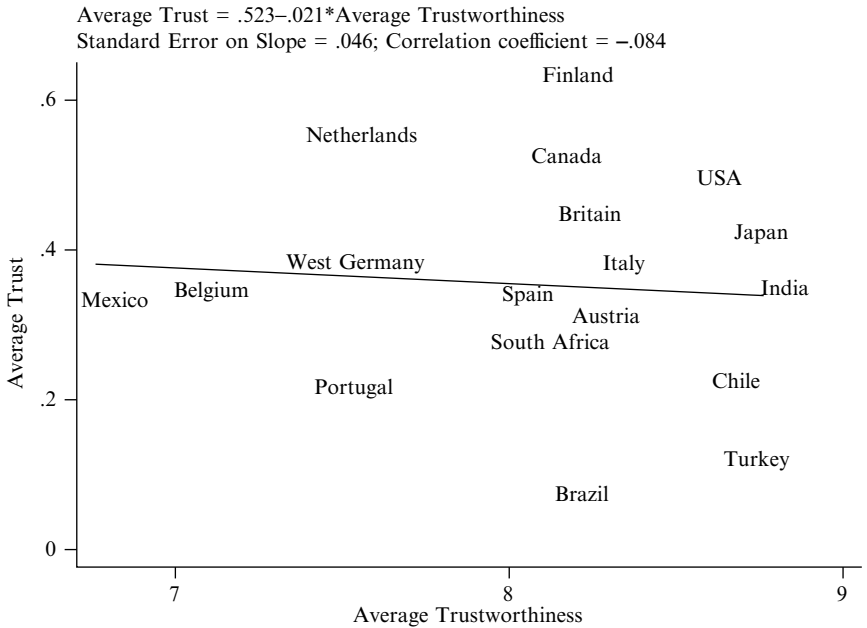


Figure 1
Average Trust versus Average Trustworthiness

gender. It is important to note that the measure of income we investigate relates to the household, but both the attitude indicators and sociodemographic variables refer to the respondent. We will have more to say later about how that affects the interpretation of our results.

V. Empirical Results

A. Baseline Results

Table 2 reports our baseline results.⁶ It presents the results of regressing the logarithm of real household income against variables that are standard in micro earnings equations plus indicators of the individual's level of trust and a second-degree polynomial of the individual's level of trustworthiness, sometimes interacted with the mean and squared mean level of these variables in the respondent's country. Because of scaling

6. The regressions are calculated using observations unweighted within countries and with sums of weights equalized across countries. We have also estimated analogous regressions with weighting within countries and sums of weights equalized across countries. None of the principal results reported in this section are affected by this change.

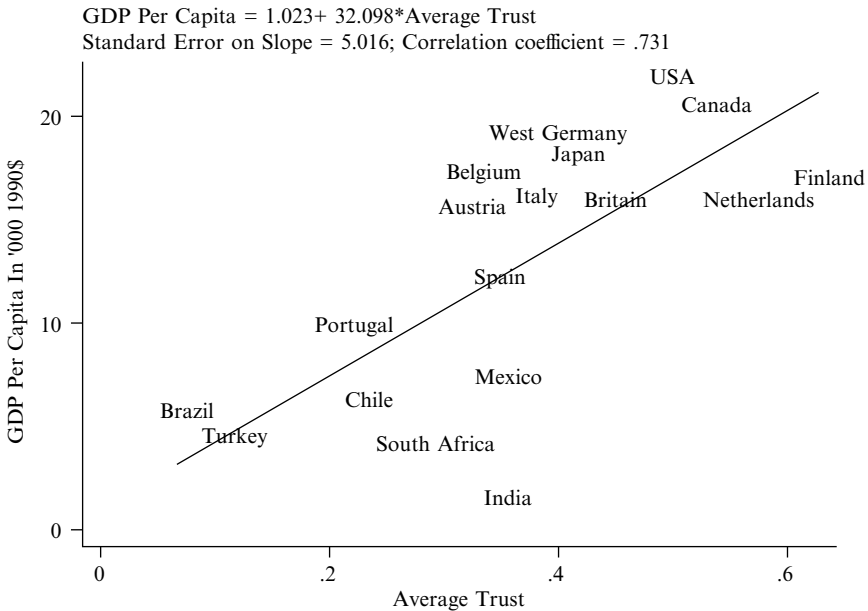


Figure 2
GDP Per Capita versus Average Trust

concerns raised by the fact that the trustworthiness measure is a 1 to 10 ordinal variable and to allow for a nonlinear impact on income, we include a second-degree polynomial in trustworthiness. All of the regressions include country fixed effects (coefficients of which are not reported here), and therefore all of the estimated coefficients are identified from within-country variation only. The standard errors are adjusted for clustering at the country level.

The specification in Column 1 contains only the standard variables in an earnings equation. The marginal return to the respondent's education level is always positive within the observed range (between 6 and 15 years), although decreasing. Based on the estimated coefficients, going from zero to ten years of education adds 87 percent to income.⁷ Furthermore, the marginal return of a year of education is 11.2 percent per year at 0 years, and falls to 6.23 percent at 10 years. These results are in line with the empirical literature,⁸ lending credence to the survey-based measures of income and

7. In this and all subsequent result interpretations, we use a first-order approximation around one to changes in the logarithmic transformation of the dependent variable.

8. In the human capital earnings approach standard in labor economics, more recent estimates of the return to education fall anywhere between 0.023 (Isacsson 1999) and 0.153 (Harmon and Walker 1995) per additional year of schooling, depending on the dataset used, the set of control variables and the econometric technique. Card (1999) provides a good summary of this literature. Our marginal effect estimates lie within this range.

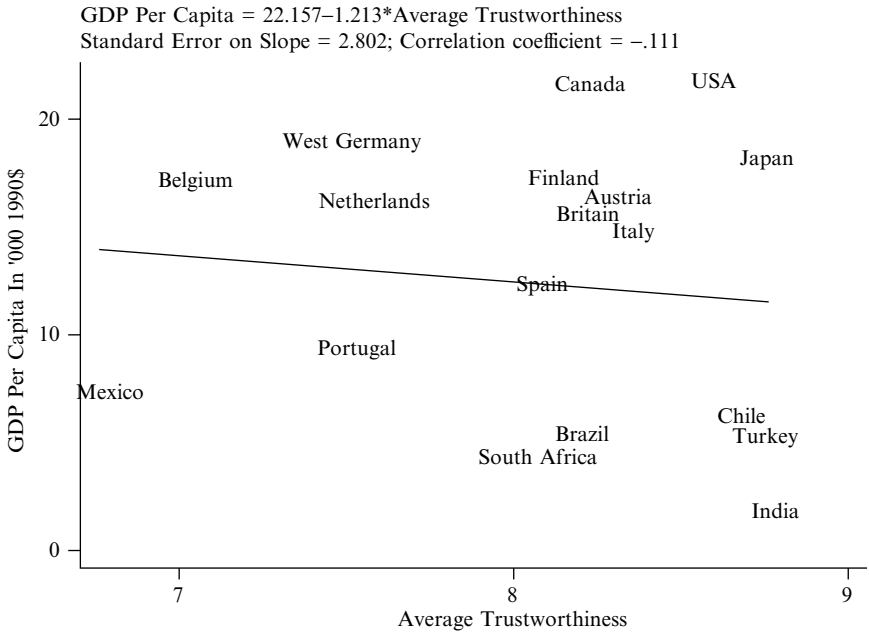


Figure 3
GDP Per Capita versus Average Trustworthiness

education. The respondent's age, which is undoubtedly partly a proxy for work experience, initially has a positive impact on income, but its impact peaks at age 38.9, and it has a marginal negative effect thereafter. The marginal return falls from 1.82 percent per year at age 20 to -2.99 percent per year at age 70.⁹ Households with male respondents have an 8.73 percent higher income.¹⁰ Although this is lower in absolute value than the typical finding in the literature,¹¹ the difference is unsurprising as our results relate to household income rather than the respondent's income. In the next subsection, we restrict the sample to include only those households in which the

9. Angrist and Krueger (1999), using 1990 Census and March 1990 CPS samples, report coefficient estimates on potential experience around 0.041 per year for the Census data and 0 or 0.013 for the CPS data, depending on whether they do or do not use the allocated CPS values. The coefficient estimates on potential experience squared are from -0.00057 to -0.00055 for the Census data and they are statistically insignificant for the CPS data. Our results are similar to these estimates.

10. All the reported estimates are statistically significant at the 95 percent confidence level unless stated otherwise.

11. Altonji and Blank (1999), using the Current Population Survey (CPS) data, estimate the coefficient on a female indicator variable to be -0.421 in 1979 when the additional controls are education, experience and region, and -0.348 when occupation, industry, and job characteristics are controlled for as well. In 1995, these estimates are -0.272 and -0.221, respectively. When using the National Longitudinal Survey of Youth data from 1994, the coefficient estimates on the female indicator variable are approximately -0.24 to -0.20.

major earners are the respondents and observe a much larger estimated male-female income differential.

Columns 2 through 4 show the estimated return to individual trust and trustworthiness, ignoring any country-level interaction effects. The results suggest that trust, but not trustworthiness, is associated with higher income. Trusting as opposed to not trusting increases income by 7.59 percent. The (differentially approximated) marginal effect of moving up one trustworthiness category at the mean level of trustworthiness of 8.06¹² is -1.54 percent. Column 4 shows that the point estimate for the return to trust is not notably changed by including the trustworthiness variables. Although the individual point estimates for the latter variables do change, there is little effect on the marginal return to moving up one trustworthiness category at the mean, which falls slightly to -1.59 percent.

Columns 5 and 6 present our central results that allow for interaction between personal characteristics and country-level means of trust and trustworthiness. Column 5 reveals that at the mean level of trustworthiness of 8.06, the return to trust is 8.59 percent of income. This estimate is similar to the estimates from the previous specifications. The estimated marginal effect on this return of a one-category increase in the country average level of trustworthiness at the mean level of trustworthiness is positive at 5.16 percent, increasing (to the first order) the return to trust from 8.59 percent to 13.75 percent; the interaction term is not, however, statistically significant.¹³ Therefore there is some indicative evidence that the payoff to trust increases with the average level of trustworthiness in the country, although not at conventional levels of statistical significance.¹⁴ The return to trust is negative in countries that have the average trustworthiness below 6.98, and is positive in countries with the average trustworthiness above that. All of the countries in our sample, except for Mexico, have means of trustworthiness greater than 6.98, and hence the return to trust is positive in almost all of the countries in our sample.

Column 6 reveals that at the mean level of trust of 0.354 and of trustworthiness of 8.06, the marginal return to a one-category increase in trustworthiness is -1.56 percent of income, which is similar to the estimates from the previous specifications. The estimated marginal effect on this return of an increase in the country average level of trust from no to full trust is positive at 6.49 percent.¹⁵ This is a striking finding: The

12. This mean and the analogous measure for trust used later are calculated using the sample weights, with sums of weights equalized across countries.

13. Let $\hat{\alpha}_0$, $\hat{\alpha}_1$, and $\hat{\alpha}_2$ be the point estimates on trust, trust interacted with the average level of trustworthiness, and trust interacted with the square of the average level of trustworthiness, respectively. Then the estimated return to trust is given by $\hat{\alpha}_0 + \hat{\alpha}_1 \overline{TW} + \hat{\alpha}_2 \overline{TW}^2$, where \overline{TW} is the average level of trustworthiness in the country. The marginal effect of an increase in \overline{TW} on this return is then given by $\hat{\alpha}_1 + 2\hat{\alpha}_2 \overline{TW}$. We evaluate these measures at the mean level of trustworthiness of 8.06.

14. This estimated marginal effect is statistically significant at the 95 percent level if standard errors are not clustered at country level. This approach would be justified in the case when the only source of correlation in the error term is captured by country fixed effects.

15. Let $\hat{\beta}_0$, $\hat{\beta}_1$, $\hat{\beta}_2$, and $\hat{\beta}_3$ be the point estimates on trustworthiness, trustworthiness squared, trustworthiness interacted with the average level of trust, and trustworthiness squared interacted with the average level of trust, respectively. Then the estimated marginal return to trustworthiness is given by $\hat{\beta}_0 + 2\hat{\beta}_1 \overline{TW} + \hat{\beta}_2 \overline{T} + 2\hat{\beta}_3 \overline{T} \times \overline{TW}$, where \overline{T} is the average level of individual trust in the country, and \overline{TW} is the individual level of trustworthiness, respectively. The marginal effect of an increase in \overline{T} on this return is then given by $\hat{\beta}_2 + 2\hat{\beta}_3 \overline{TW}$. We evaluate these measures at the mean level of trust of 0.354, and the mean level of trustworthiness of 8.06.

Table 2
Regressions Results: The Impact of Trust and Trustworthiness on Real Household Income

	Dependent Variable: Log of Real Household Income						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Education	0.1118 (0.0696)	0.1119 (0.0700)	0.1094 (0.0694)	0.1109 (0.0695)	0.1123 (0.0699)	0.1065 (0.0687)	0.1086 (0.0687)
Education squared $\times 10^{-2}$	-0.2473 (0.2797)	-0.2542 (0.2827)	-0.2368 (0.2783)	-0.2507 (0.2794)	-0.2568 (0.2815)	-0.2244 (0.2745)	-0.2411 (0.2749)
Age	0.0374*** (0.0076)	0.0369*** (0.0076)	0.0380*** (0.0073)	0.0377*** (0.0073)	0.0368*** (0.0076)	0.0381*** (0.0073)	0.0377*** (0.0072)
Age squared $\times 10^{-2}$	-0.0481*** (0.0076)	-0.0476*** (0.0076)	-0.0484*** (0.0074)	-0.0481*** (0.0074)	-0.0476*** (0.0076)	-0.0486*** (0.0073)	-0.0483*** (0.0073)
Male	0.0873*** (0.0212)	0.0899*** (0.0213)	0.0857*** (0.0213)	0.0888*** (0.0212)	0.0903*** (0.0213)	0.0871*** (0.0212)	0.0907*** (0.0212)
Trust		0.0759*** (0.0177)		0.0785*** (0.0174)	-1.9933 (3.1070)	-1.7753	
Trustworthiness $\times 10^{-1}$			0.0642 (0.3337)	0.0411 (0.3229)		0.0246 (0.9424)	
Trustworthiness squared $\times 10^{-2}$			-0.1354 (0.2093)	-0.1244 (0.2042)		-0.3139 (0.6517)	
Trustworthiness*Av.trust $\times 10^{-1}$						0.3782 (2.2750)	
Trustworthiness squared*Av.trust $\times 10^{-2}$						0.3360 (1.6046)	

Trust*Av.trustworthiness						4.6434			4.1512
$\times 10^{-1}$						(8.0593)			(7.9014)
Trust*Av.trustworthiness squared						-2.5604			-2.2856
$\times 10^{-2}$						(5.2039)			(5.0943)
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Return to trust									
∂ Return to trust/ ∂ Av.		0.0759***		0.0785***		0.0859***		0.0858***	
trustworthiness						0.0516		0.0467	
Marg. return to trustworthiness									
∂ Marg. return to trustworth./ ∂ Av.			-0.0154***	-0.0159***				-0.0156***	0.0356***
trust								0.0649**	
Observations	26,046	24,544	25,675	24,235	24,544	24,544	25,675	24,235	
R-squared	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	
Within Country R-squared	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	

Note 1: Observations unweighted within countries, with the sums of weights equalized across countries.

Note 2: Standard errors adjusted for clustering at country level in parentheses. Significance level notation: * at 10 percent, ** at 5 percent, *** at 1 percent.

payoff to trustworthiness increases with the average level of trust in the country. At the mean level of trustworthiness, the marginal return to a one-category increase in trustworthiness is negative in countries that have the average trust below 0.523, and is positive in countries with the average trust level above that. In contrast to Column 5, in all but three countries the mean level of trust falls short of this figure, with the three exceptions being Canada, Finland, and the Netherlands. Thus, our results suggest that trustworthiness is in most countries not rewarded with higher income—dishonesty pays. How much it pays varies widely. In a very low-trust country like Brazil, a one-category increase in trustworthiness at that country's mean level of trustworthiness is associated with an 4.28 percent decrease in income.

Column 7 shows that the principal results from Columns 5 and 6 are unchanged when both attitude variables and both interaction terms are included in the same equation. In particular, at the mean level of trustworthiness of 8.06, the return to trust is 8.58 percent of income, and the marginal effect on this return of a one-category increase in the country average level of trustworthiness at the mean level of trustworthiness is positive at 4.67 percent, but it is not statistically significant.¹⁶ The return to trust is negative in countries that have average trustworthiness below 6.89, and is positive in countries above that. On the other hand, at the mean level of trust of 0.354 and of trustworthiness of 8.06, the marginal return to a one-category increase in trustworthiness is -1.60 percent of income, and the estimated effect on this return of an increase in the country average level of trust from no to full trust is 3.56 percent. At the mean level of trustworthiness, the marginal return to a one-category increase in trustworthiness is negative in countries that have average trust below 0.52, and is positive in countries with an average trust level above that.

As suggested earlier by the gender differential estimates, a potential problem with these results is that we use *household* real income as a dependent variable and *respondent* attitudes and demographic characteristics as independent variables. However, it has been shown (see, for example, Mare (1991) and the references contained therein) that most married or cohabiting couples are characterized by assortative matching by education, age and many other characteristics, thus lending more credibility to our results. Another potential problem is that we restrict the coefficient estimates to be the same across all the countries. It is also possible that trust and trustworthiness are more important for the income of households with self-employed respondents than other respondents, because the former are more directly exposed to transactions with strangers rather than long-term employment relationships. Finally, trust and trustworthiness may be endogenous to income. We address all of these issues in the next subsection.

B. Robustness Analysis

In this subsection, we submit our baseline results to four robustness checks. The first one pursues the possibility that the returns to education, age, gender differential, and the returns to trust and trustworthiness may differ across countries.¹⁷ In this situation, restricting these coefficients to be the same in all countries (as we did in Table 2)

16. As before, this estimated marginal effect is statistically significant at 95 percent level if standard errors are not clustered at country level.

17. We allow the latter in a way in some of our baseline specifications, because the marginal effects of trust and trustworthiness on income depend on the complementary attitude average (and its square).

suppresses the underlying heterogeneity and may bias the estimates of the key interaction terms because they are picking up country-specific variations in the remaining coefficients. The second check addresses the issue of using household rather than individual income as our dependent variable. The third check investigates whether the results are substantively different if the estimation is conducted only on the subsample of self-employed respondents. Finally, we discuss the implications for our results and remedies for dealing with a potential endogeneity problem due to the possibility of reverse causal impacts running from income to trust and trustworthiness.

We conduct the first robustness test in a two-step procedure. In the first step, we estimate the Specifications 2, 3, and 4 of Table 2 separately for each country in the sample. In Specifications 3 and 4, we then calculate the marginal return to a one-category increase in trustworthiness at each country's average level of trustworthiness. This produces, for each equation, 18 country-specific estimates of the effect of trust or trustworthiness on real household income. In the second step, we regress the estimated return to trust in a country against the country's average level of trustworthiness and the average level of trustworthiness squared, and we regress the estimated return to a one-category increase in trustworthiness in a country against the country's average level of trust.

The first-step estimates are presented in Panel A and Panel B of Table 3.¹⁸ The third panel in this table contains the average values of trust and trustworthiness in each country for comparison purposes. Whether trustworthiness is or is not controlled for, the point estimates of the return on trust are positive in 14 out of 18 countries in the sample, and they are statistically significant at the 95 percent confidence level for 10 of these countries. The point estimates are negative only for India, Mexico, South Africa, and Turkey, and they are statistically insignificant for all of these cases. Therefore, even when allowing for heterogeneity of coefficients across countries, trust often has a positive, and never has a significantly negative, impact on household income, which is consistent with our baseline results. When trust is not controlled for, the point estimates of the return to a one-category increase in trustworthiness are negative in 14 out of 18 countries, and they are statistically significant in four of these countries. When trust is controlled for, the point estimates of the return to a one-category increase in trustworthiness are negative in 12 out of 18 countries, and they are statistically significant in five of these countries. In all other cases, the point estimates of the return to a one-category increase in trustworthiness are statistically indistinguishable from zero. As a result, allowing for heterogeneity of coefficients across countries, trustworthiness appears to have a negative or an insignificant impact on household income. This finding is also consistent with our baseline results, although the attenuation effects of coefficient heterogeneity are stronger in this case compared to the estimates of the return on trust.

The results of the second-stage regressions are shown in Table 4. Panel B shows that, even with only 18 observations, the estimated country-specific return to a one-category increase in trustworthiness is positively related to the average trust in the

18. These coefficient estimates are based on unweighted observations. Conclusions of the robustness analysis are qualitatively similar when observations are weighted, with two exceptions: the attenuation effect on the return to trust and trustworthiness estimates is stronger, and the estimated effect of the impact of the country level of trustworthiness on trust is negative, but, as in the unweighted case, statistically insignificant.

Table 3
First Stage: Trust and Trustworthiness Coefficients by Country

Country	A: Return to Trust			B: Return to Trustworthiness			C: Country Averages			
	Trustworthiness not Included	Trustworthiness Included	Trust not Included	Trust Included	t-statistics	Coefficient	Trustworthiness Included	Trustworthiness		
	Coefficient	t-statistics	Coefficient	t-statistics	Coefficient	t-statistics	Coefficient	t-statistics		
Austria	0.0789	2.0629	0.0753	1.9290	-0.0202	-1.6666	-0.0264	-2.0704	0.318	8.266
Belgium	0.0543	1.7694	0.0642	2.0783	-0.0091	-1.4742	-0.0112	-1.7631	0.332	7.038
Brazil	0.0445	0.3773	0.0390	0.3282	-0.0562	-2.9155	-0.0535	-2.7617	0.067	8.198
Britain	0.1018	2.0307	0.1052	2.0975	0.0038	0.2263	0.0013	0.0794	0.436	8.165
Canada	0.1297	3.5106	0.1341	3.6098	-0.0126	-1.0564	-0.0091	-0.7598	0.524	8.178
Chile	0.1663	3.0502	0.1647	3.0055	0.0144	0.8019	0.0074	0.4090	0.227	8.652
Finland	0.0430	0.9212	0.0373	0.8044	-0.0037	-0.2228	0.0075	0.4545	0.627	8.128
India	-0.0059	-0.1853	-0.0010	-0.0331	-0.0247	-2.1205	-0.0287	-2.4363	0.343	8.762
Italy	0.1466	4.2170	0.1393	3.9549	-0.0271	-2.1549	-0.0346	-2.7381	0.371	8.327
Japan	0.1583	3.7541	0.1418	3.3006	-0.0015	-0.0784	0.0001	0.0076	0.417	8.747
Mexico	-0.0575	-0.7492	-0.0470	-0.6094	0.0000	0.0019	0.0058	0.4124	0.335	6.761
Netherlands	0.1056	2.1435	0.1027	2.0677	0.0099	0.7655	0.0078	0.5810	0.558	7.492
Portugal	0.0122	0.2456	0.0036	0.0726	-0.0121	-1.1246	-0.0138	-1.2575	0.214	7.469
South Africa	-0.0341	-0.8289	-0.0477	-1.1568	-0.0067	-0.5284	-0.0062	-0.4727	0.283	8.047
Spain	0.0748	3.3765	0.0790	3.5387	-0.0343	-5.4676	-0.0325	-5.0488	0.338	8.071
Turkey	-0.0720	-0.6373	-0.0766	-0.6748	-0.0228	-0.8717	-0.0250	-0.9474	0.100	8.724
U.S.A.	0.1106	2.9761	0.1130	3.0280	-0.0157	-1.0336	-0.0221	-1.4307	0.500	8.593
West Germany	0.0698	2.4208	0.0660	2.2185	-0.0031	-0.4323	-0.0051	-0.6596	0.378	7.459

Note 1: The regressions are calculated using unweighted observations.

Note 2: The first pair of columns in Panel A corresponds to Specification 2 in Table 2. The first pair of columns in Panel B corresponds to Specification 3 in Table 2. The second pairs of columns in both Panel A and Panel B correspond to Specification 4 in Table 2.

Table 4

Second Stage: The Impact of Average Trustworthiness and Trust on Personal Return to Trust and Trustworthiness

Dependent Variable	A: Return to Trust		B: Return to Trustworthiness	
	Trustworth. not Included	Trustworth. Included	Trust not Included	Trust Included
First Stage				
Average trust- worthiness $\times 10^{-1}$	8.6045 (7.5696)	7.5130 (7.5255)		
Average trust- worthiness squared $\times 10^{-2}$	-5.2501 (4.9351)	-4.5848 (4.8976)		
Average Trust $\times 10^{-1}$			0.5486* (0.2894)	0.6310** (0.2412)
Constant	Yes	Yes	Yes	Yes
∂ Return to trust				
∂ Av. trust- worthiness	0.0141	0.0122		
∂ Marg. return to trustworthiness/ ∂ Av. trust			0.0549*	0.0631**
Observations	18	18	18	18
R-squared	0.16	0.12	0.23	0.28

Note 1: The ordering of columns corresponds to Table 3.

Note 2: Heteroscedasticity consistent robust standard errors in parentheses. Significance level notation: * at 10 percent, ** at 5 percent, *** at 1 percent.

country, and the coefficient is significantly different from zero at the 90 percent confidence level when trust is not controlled for in the first-stage regressions, and is significant at the 95 percent confidence level when trust is controlled for in the first-stage regressions. On the other hand, using the coefficient estimates displayed in Panel A, at the sample mean of trustworthiness of 8.06, the average trustworthiness in the country has a positive but statistically insignificant effect on the return to trust. Again, these results corroborate our baseline findings presented earlier. As a result, with a possible exception of the return on trustworthiness being negative, this two-step robustness test shows that our baseline findings do not depend critically on restricting the key coefficients to be the same across countries.

The second robustness check returns to the issue of having *household* real income as a dependent variable and *respondent* attitudes and demographic characteristics as independent variables. As we mentioned already, this issue is likely to be less impor-

tant for the education and age variables (due to assortative matching of household members) than it is for the gender variable. In this check, we run our baseline specifications (as in Table 2), but we include only those households where the respondent coincides with a major or equal wage earner within the household. The results are shown in Table 5.¹⁹ The estimated return to trust and how it is affected by the average level of trustworthiness are very close to the baseline results of Table 2. As for the remaining estimates, there are two notable differences compared with the baseline results. First, although the estimated marginal return to a one-category increase in trustworthiness is consistently negative, it is less statistically significant. In particular, the *P*-values for the test that the marginal return is zero are 0.223, 0.105, 0.165, and 0.074 in Specifications 3, 4, 6, and 7, respectively. Second, the *P*-value for the test that the marginal return to a one-category increase in trustworthiness increases with the average level of trust in the country is 0.055 in Specification 6, and 0.062 in Specification 7, which is slightly above the conventional 5 percent threshold.²⁰ Therefore, the conclusions from this robustness check mirror the ones from the previous check: with the possible exception of the return on trustworthiness being negative, the baseline findings are not sensitive to restricting the sample only to those households where the respondent coincides with a major or equal wage earner within the household.

The third robustness check investigates the possibility that trust and trustworthiness are more important for the income of households with self-employed respondents than other respondents, because the former are more directly exposed to transactions with strangers rather than long-term employment relationships. Similarly to the previous robustness check, we run our baseline specifications (as in Table 2), but we include only those households where the respondent is self-employed. The results are shown in Table 6.²¹ Again, there are two notable differences compared with the baseline results. First, although the estimated return to trust is still positive, it is less statistically significant. In particular, the *P*-values for the test that this return is zero are 0.63, 0.61, 0.115, and 0.096 in Specifications 2, 4, 5, and 7, respectively. Second, the point estimates of the increase in the country average level of trust from no to full trust on the marginal return to a one-category increase trustworthiness are negative in Specifications 6 and 7, but statistically insignificant. Third, the point estimates of the one-category increase in the country average level of trustworthiness on the marginal return to trust are negative in Specifications 5 and 7, but statistically insignificant.²² One possible interpretation of these findings is that, compared to other people, self-

19. The regressions are calculated using observations unweighted within countries and with sums of weights equalized across countries.

20. When weighting within countries with sums of weights equalized across countries, there are two differences compared to the baseline results. First, the marginal return to trustworthiness is still negative, but it is less statistically significant. In particular, the *P*-values for the test that the marginal return is zero are 0.172, 0.078, 0.121, and 0.052 in Specifications 3, 4, 6, and 7, respectively. Second, the point estimates of the increase in the country average level of trustworthiness on the marginal return to trust are negative in Specifications 5 and 7, but statistically highly insignificant.

21. The regressions are calculated using observations unweighted within countries and with sums of weights equalized across countries.

22. The current results differ from the baseline results in a similar way when observations are weighted within countries, with sums of weights equalized across countries.

employed are more likely to interact with other agents in short-term transactions, and hence they are less likely to benefit from trusting than other individuals. However, it is also possible that the overall lack of statistical significance may be due to the fact that the sample of self-employed individuals is substantially smaller (about one-twelfth as large) than the entire sample used in the analysis.

Finally, we return to the issue of what the WVS trust (and, to a lesser degree, trustworthiness) responses really measure. Recall that Glaeser et al. (2000), in particular, have argued that higher-income people are more likely to say they trust others, in part because rich people can effectively punish those who act in an untrustworthy way towards them. That is, they can “afford” to trust. To the extent this is true, there is causation running from income to the trust (and possibly trustworthiness) response, and the coefficients estimated here do not measure the structural effect of attitudes on income.

A natural approach to this concern is to identify a set of instrumental variables that are correlated with trust (or trustworthiness), but which are not influenced by income. With this objective, we selected the following five instruments: whether the respondent considers himself/herself to be a religious person, whether religion is important in his/her life, whether he/she was raised religiously, whether he/she would mind having emotionally unstable people as neighbors, and whether he/she considers having friends and acquaintances to be an important aspect of life. The first three instruments arguably proxy for an exogenous aversion to dishonesty, and therefore they should be good instruments for trustworthiness. The next instrument (emotionally unstable people as neighbors) should proxy for an exogenous aversion to dealing with strangers, and therefore it is arguably a good instrument for trust.²³ The remaining instrument (friends) is likely to proxy for an exogenous propensity to maintain good social relations with other people, and hence for both trust and trustworthiness. Our first-stage regressions confirm these patterns in the data.

Using these instruments, in the second stage the estimated return to trust remains positive in almost all specifications, but is no longer statistically significant.²⁴ In contrast, the estimated marginal return to a one-category increase in trustworthiness at the sample mean of trustworthiness remains negative and statistically significant.²⁵ However, the interaction effects become statistically insignificant. A possible reason for the lack of statistical significance of the trust variable is that our instruments, although jointly statistically significant, together with education, education squared, age, age squared, the male indicator variable, and country indicator variables, explain only approximately 12 percent of the variation in trust and 10 percent of the variation in trustworthiness. Focusing on within country variation only, these percentages drop to 3 and 5 percent, respectively. Thus, with respect to the trust measure we regard the issue of potential reverse causation as unsettled, and an important topic for future research. We see less cause for concern with regard to our estimates of the return to trustworthiness.

23. We do not have observations for this variable for South Africa. Therefore our procedure is restricted to the remaining 17 countries in the sample.

24. The results of the estimation are available from the authors.

25. The standard errors in these IV regressions are adjusted for clustering at country level.

Table 5
Regressions Results: The Impact of Trust and Trustworthiness on Real Household Income When Only Households with Major Earner Respondents are Included

	Dependent Variable: Log of Real Household Income						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Education	0.1473** (0.0687)	0.1441* (0.0703)	0.1461** (0.0682)	0.1429* (0.0699)	0.1450* (0.0704)	0.1434** (0.0671)	0.1412* (0.0692)
Education squared	-0.3740 (0.2721)	-0.3646 (0.2776)	-0.3675 (0.2701)	-0.3587 (0.2751)	-0.3688 (0.2772)	-0.3560 (0.2655)	-0.3516 (0.2711)
×10 ⁻²							
Age	0.0623*** (0.0066)	0.0620*** (0.0067)	0.0628*** (0.0066)	0.0625*** (0.0068)	0.0619*** (0.0067)	0.0628*** (0.0065)	0.0624*** (0.0067)
Age squared	-0.0691*** (0.0061)	-0.0688*** (0.0062)	-0.0693*** (0.0062)	-0.0690*** (0.0064)	-0.0688*** (0.0062)	-0.0694*** (0.0061)	-0.0690*** (0.0063)
×10 ⁻²							
Male	0.3508*** (0.0723)	0.3502*** (0.0713)	0.3547*** (0.0732)	0.3546*** (0.0717)	0.3499*** (0.0712)	0.3555*** (0.0733)	0.3555*** (0.0716)
Trust		0.0675** (0.0234)		0.0716*** (0.0228)	-0.9132 (4.3127)		-0.2523 (4.3261)
Trustworthiness			-0.2439 (0.3246)	-0.2362 (0.3119)		-1.0263 (0.7686)	-0.9887 (0.7280)
×10 ⁻¹						0.4481 (0.5503)	0.4284 (0.5196)
Trustworthiness squared			0.1070 (0.2176)	0.0919 (0.2091)		2.6894 (1.5919)	2.5901* (1.4750)
×10 ⁻²						-1.2709 (1.1623)	-1.2471 (1.0768)
Trustworthiness*Av.trust							
×10 ⁻¹							
Trustworthiness squared* Av.trust							
×10 ⁻²							

Trust*Av.trustworthiness					1.8998			0.2834
$\times 10^{-1}$					(11.2118)			(11.2403)
Trust*Av.trustworthiness squared					-0.8417			0.1441
$\times 10^{-2}$					(7.2437)			(7.2580)
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Return to trust		0.0675**			0.0716***			0.0697**
∂ Return to trust/ ∂ Av.					0.0543			0.0516
trustworthiness								
Marg. return to trustworthiness								
∂ Marg. return to trustworth./ ∂ Av.					-0.0071			-0.0077
trust								0.1585*
Observations	12,579	11,869	12,399	11,715	11,869	12,399	11,715	
R-squared	0.44	0.44	0.44	0.44	0.44	0.44	0.44	
Within country R-squared	0.15	0.14	0.15	0.15	0.15	0.15	0.15	

Notes: Observations unweighted within countries, with the sums of weights equalized across countries. Standard errors adjusted for clustering at country level in parentheses. Significance level notation: * at 10 percent, ** at 5 percent, *** at 1 percent.

Table 6
Regressions Results: The Impact of Trust and Trustworthiness on Real Household Income When only Households with Self-Employed Respondents are Included

	Dependent Variable: Log of Real Household Income						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Education	0.2051** (0.0948)	0.1995** (0.0929)	0.2105** (0.0926)	0.2025** (0.0910)	0.1982** (0.0926)	0.2066** (0.0902)	0.1997** (0.0889)
Education squared ×10 ⁻²	-0.7155* (0.3871)	-0.6902* (0.3844)	-0.7453* (0.3793)	-0.7081* (0.3784)	-0.6862* (0.3830)	-0.7240* (0.3671)	-0.6951* (0.3677)
Age	0.0231* (0.0119)	0.0263** (0.0110)	0.0251* (0.0119)	0.0288** (0.0110)	0.0263** (0.0110)	0.0251* (0.0118)	0.0288** (0.0110)
Age squared ×10 ⁻²	-0.0292** (0.0121)	-0.0338*** (0.0110)	-0.0301** (0.0121)	-0.0351*** (0.0109)	-0.0338*** (0.0110)	-0.0302** (0.0120)	-0.0352*** (0.0109)
Male	0.0932 (0.0570)	0.1092 (0.0652)	0.0873 (0.0546)	0.1029 (0.0629)	0.1098 (0.0655)	0.0855 (0.0534)	0.1043 (0.0610)
Trust		0.0212 (0.0433)		0.0235 (0.0452)	-6.9339 (6.2419)		-7.9578 (6.3349)
Trustworthiness ×10 ⁻¹			0.1212 (0.5988)	0.2472 (0.6531)		1.1765 (1.9525)	0.8885 (2.1111)
Trustworthiness squared ×10 ⁻²			-0.3385 (0.4604)	-0.4688 (0.5029)		-1.1944 (1.5144)	-0.9203 (1.6789)
Trustworthiness*Av.trust ×10 ⁻¹						-3.2109 (5.4357)	-2.0222 (6.1014)
Trustworthiness squared*Av.trust ×10 ⁻²						2.5815 (4.3120)	1.4112 (4.9826)

Trust*Av.trustworthiness					17.8663	20.4740
$\times 10^{-1}$					(16.5808)	(16.8565)
Trust*Av.trustworthiness squared					-11.3995	-13.0450
$\times 10^{-2}$					(10.9455)	(11.1426)
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Return to trust		0.0212			0.0608	0.0697*
∂ Return to trust/ ∂ Av.						
trustworthiness					-0.0510	-0.0555
Marg. return to trustworthiness						
∂ Marg. return to trustworth./ ∂ Av.						
trust						
Observations	2,112	2,017	2,095	2,004	2,017	2,004
R-squared	0.43	0.44	0.44	0.45	0.44	0.45
Within country R-squared	0.04	0.04	0.04	0.05	0.04	0.05

Notes: Observations unweighted within countries, with the sums of weights equalized across countries. Standard errors adjusted for clustering at country level in parentheses. Significance level notation: * at 10 percent, ** at 5 percent, *** at 1 percent.

VI. Conclusion

Previous empirical research has suggested that countries with a high proportion of trusting citizens tend to have a higher per capita income and to grow faster. What had not been demonstrated is the incentive people have to act in a trusting and trustworthy manner. This paper addresses this issue by empirically investigating the monetary return to behaving in a trusting and a trustworthy manner, and whether each depends on the average amount of the complementary behavior in the society. We find evidence that the personal return to trustworthiness is negative in most countries, but increasing with the average level of trust and eventually positive in some countries. On the other hand, the personal return to trust is positive in almost all of the countries we consider, and it is not statistically significantly related to the average level of trustworthiness in the society.

Additional tests show that the estimated signs of the return to trust and trustworthiness are generally robust to coefficient heterogeneity across countries, to sample restrictions to chief household earners and to self-employed individuals, and to potential endogeneity of trust and trustworthiness to income, although the statistical significance is somewhat lower than in the baseline specifications. The result that the personal return to trustworthiness increases with the average level of trust is statistically significant in the former two tests, although it is not statistically significant in the latter two tests, perhaps corroborating the experiment-based scepticism expressed in Glaeser et al. (2000) about whether the survey question purportedly measuring trust in others does so.

The result that the estimated return to trust is positive while the estimated return to trustworthiness tends to be negative in a majority of the countries we consider may seem surprising at first. Shouldn't there be a return to acquiring trustworthiness, or, in other words, reputation? Wouldn't a car mechanic be able to charge more if he is known for providing reliable service? However, as mentioned in Section II, whether trustworthiness does or does not pay off depends on the observability of past individual behavior. The less likely it is that the past behavior is observable, the lower is the cost of untrustworthy behavior in terms of being excluded from future trades, and vice versa. Because this exclusion is less costly the lower is the level of average trust, it may not be worthwhile for individuals in low-trust societies to behave in a trustworthy way.

Our empirical results begin to provide a heretofore missing connection between the cross-country analyses that find a link between growth and measures of trust and trustworthiness and analyses of the impact of trust and trustworthiness on individual prosperity and hence the incentives to exhibit these behaviors. These empirical regularities should inform future theories of the role and interaction of trust and trustworthiness.

Taken together, these results raise the possibility that countries may get mired in an equilibrium trap with low levels of trust and trustworthiness, where dishonesty pays unless and until a large fraction of people are willing to trust. Although trusting generally has a positive return, this return may not be high enough to escape this trap. This suggests the importance of institutions that increase the return to trusting and, in particular, reduce the payoff to dishonest (that is, not trustworthy) behavior for a given prevalence of the complementary attitude.

To be sure, more research is necessary to further refine these findings. First, given the difficulty in linking the survey measure of trust to observed behavior in trust game experiments, it would be insightful to verify the validity of our current measure in other settings and to explore more reliable survey instruments. Second, more work is necessary to clarify the causal links among trust, trustworthiness and individual prosperity.

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