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Social capital and health: Evidence that ancestral trust promotes health among children of immigrants

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ABSTRACT

This paper presents evidence that generalized trust promotes health. Children of immigrants in a broad set of European countries with ancestry from across the world are studied. Individuals are examined within country of residence using variation in trust across countries of ancestry. The approach addresses reverse causality and concerns that the trust measure picks up institutional factors in the individual's contextual setting. There is a significant positive estimate of ancestral trust in explaining self-assessed health. The finding is robust to accounting for individual, parental, and extensive ancestral country characteristics. Individuals with higher ancestral trust are also less likely to be hampered by health problems in their daily life, providing evidence of trust influencing real life outcomes. Individuals with high trust feel and act healthier, enabling a more productive life.

1. Introduction

This paper presents evidence that trust promotes health. The question is important since health has both intrinsic and instrumental value for individual well-being. Generalized trust is a central part of social capital that a wide literature has argued is a factor behind health[1]. Trust in this study is measured in the individual's ancestral country[2]. This relaxes concerns that trust is endogenous to health and that trust correlates with factors in the individual's current context, concerns faced by the related literature. The relationship between social capital and health has been examined in a growing number of studies, of which I only have space to discuss a few. Restricting attention to studies of individual outcomes (such as self-reported health status), the existing studies fall in two categories based on the level at which social capital is measured. Studies have examined social capital at the individual level, usually measured by self-reports in surveys. Petrou and Kupek (2008), Giordano and Lindstrom (2010), Fiorillo and Sabatini (2011), Yamamura (2011) present interesting results in this vein. Other studies have focused on social capital measures at the contextual (or ecological) level where the individual lives; such studies include Mellor and Milyo (2005),

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[1] Generalized trust is measured by the survey question "Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people?".

[2] In particular, the average trust in the parent's birth country, referred to as ancestral trust, is used to capture a permanent component of the individual's trust in a sample of children of immigrants.

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Islam et al. (2008)[3]. Both these approaches face challenges to the interpretation of the causal relationship between social capital and health. Individual correlations between social capital and health may reflect causality in either direction, or concerns that omitted individual or contextual factors drive the relationship. Relating health to contextual social capital faces concerns that the average social capital where the individual lives picks up omitted contextual factors that affect health. As all other contextual factor cannot be accounted for it will always be a concern.

A few recent studies have made progress toward stronger causal relationships by using instrumental variables. Ronconi et al. (2012)examine the influence of individual level social capital on health using individual assessments of access to public transit as an instrument for informal social interactions. D'Hombres et al. (2010) study how three indicators of social capital at the individual level affect health, where individual social capital measures are instrumented with contextual social capital measures. These papers mark advances in the literature toward stronger causal interpretations. Yet, they impose identifying assumptions of a similar kind as the previous literature since they require that instruments at the individual or contextual level are not correlated with any other factor at the individual or contextual level that drives health but the factor they are instrumenting for.

This paper proposes a different approach that relaxes some of the assumptions in the current literature. First, the analysis is performed within the individual's context. Using fixed effects at the contextual level accounts for all contextual factors that affect the health of individuals in the area. This avoids the concern that omitted contextual factors where the individual lives drive the result. Second, the measure of social capital used in the analysis is assessed in a different context from where the studied individual lives. Social capital is hence not determined by the health outcomes of the studied individuals. If there is a relationship between this measure of social capital and health, the relationship is from social capital to health. This addresses the reverse causality concern.

I study children of immigrants and relate their health assessments to the trust in their ancestral country. Children of immigrants offer a helpful 'natural experiment.' The children of immigrants have different ancestral influences of trust, yet they face similar contextual influences. Given that there is cultural transmission of trust from the parent to the child of the immigrant one can use the ancestral trust as a measure of the individual's trust.

Ancestral trust is strongly related to individual trust as shown below and in Ljunge (2014a). Important, for the purposes of this study, ancestral trust is not affected by the subjective health of an individual born and residing in a different country. Using this component of individual trust that is not endogenous to the context in which the individual lives allows me to determine that the causal direction of the association between trust and self-assessed health is from trust to health[4]. Of course, interpreting the estimate as a causal effect requires the additional assumption that other factors do not influence the relationship. This additional assumption is examined through rigorous robustness checks, which lend plausibility to the causal interpretation[5]. Instrumental variables results, where ancestral country language structure is used to instrument ancestral trust, also support the causal interpretation of the effect of trust on health.

Trust is in this paper conceptualized as part of an individual's cognitive social capital, the part that captures an individual's preferences and beliefs that in turn could affect behaviors and health outcomes. As the focus is on the persistent part of trust that is transmitted across generations, this trust measure is considered part of an individual's preferences. Since beliefs depend on the current context and the ancestral trust measure used in the analysis below is separated from the context the individual lives in there is no clear connection to the belief part of the individual's cognitive social capital.

Trust, part of the cognitive social capital, is related to personality traits and non-cognitive skills of an individual[6]. Those with higher generalized trust could be seen as more optimistic. They may in a given situation put a higher discount factor on uncertain benefits and less weight on costs, compared to those with lower trust, which could influence their behavior. Personality traits like conscientiousness and persistence have been found to influence a range of outcomes like education, labor market success, and juvenile crime as discussed by Almlund et al. (2011). Conti and Heckman (2010) estimate a strong causal effect of non-cognitive skills on self-assessed health. Hampson et al. (2007) find an association of conscientiousness with self-assessed health over and above the personality trait's influence through education[7,8]. Relating trust to health is a novel contribution to this expanding literature.

1.1. Hypothesis

The empirical hypothesis to be tested is that trust inherited from the parent's birth country has an influence on the child's health. The hypothesis builds on a model

[3] Kim et al. (2008) review papers that have studied correlations between trust and health both at the individual and contextual levels. Other papers such as Kim et al. (2006) study multilevel models.

[4] The causal effect of trust on health need not be positive, for example if you trust the advice of charlatan doctor there may be a negative effect. It is an empirical question to examine the influence of trust on health.

[5] The level of development and health outcomes in the ancestral country are accounted for. Also examined is the influence of income inequality, as well as political and legal institutions in the ancestral country. These factors do not have a significant influence on the health of children of immigrants, while the positive influence of ancestral trust remains.

[6] Trust is one facet of 'agreeableness' in the Big Five categorization of personality traits.

[7] The non-cognitive skills Conti and Heckman (2010) study are locus of control, perseverance, cooperativeness, completeness, attentiveness, and persistence. Hampson et al. (2007) study the Big Five personality traits.

[8] Further evidence on the association between conscientiousness and health are discussed in for example Roberts et al. (2005).

with several steps. First, the parent's trust is shaped in her country of birth and correlate with average trust in the parent's birth country. Second, the parent could transmit her trust to the child in a cultural transmission process (Bisin and Verdier, 2001, 2010), although the child lives in a different context than where the parent's trust was formed. Third, the child's trust may manifest itself in perceived health and health outcomes of the child through a range of potential channels.

The first part of the hypothesis is uncontroversial. The trust of an individual is correlated with the mean trust of the birth country. This is true for non-migrants as well as migrants. The second step, transmission of trust from a migrant parent to the child born and living in another country, is less clear a priori. This paper and others in the literature presents evidence on the trust transmission link between the first and second steps in the model. The main test in this paper is linking the third to the first step, that is, relating health of children of migrants to trust in the parent's birth country.

The trust measure in the first step is a measure of trust in the second step due to the intergenerational transmission of trust. Relating trust in the second step to health in the third step is challenging because of reverse causality and concerns that contextual factors in the second step affect the estimates. These concerns are addressed by relating the trust measure in the first step to health in the third step, yet trust in the first step captures the culturally transmitted part of trust in step two.

How might trust improve health? It is possible trusting individuals seek care for their ailments, and follow the prescribed treatment plans to a larger extent than individuals whose distrust may include medical personnel and advice[9]. Skinner and Staiger (2007) find that social capital is important in explaining adoption of heart health technology. My results are consistent with trust, a part of social capital, leading individuals to adopt health promoting practices. Trust could also promote 'life protection' as analyzed by Ehrlich and Chuma (1990) and Ehrlich (2000). Trust may discourage a sedentary lifestyle, an individual risk factor, as Ljunge (2012) finds that higher trusting individuals spend less time in the TV couch. It may be that trust increases the social network of an individual as well as the quantity and quality of social interactions, which may have direct or indirect health effects as discussed by for example Ronconi et al. (2012). Moreover, psychosomatic health effects are well documented in the literature[10]. The results presented below suggest a positive psychosomatic influence of trust.

The paper proceeds as follows. The next section discusses the empirical models, followed by a presentation of the data. The results are discussed in Section 4, and the last section concludes.

2. Data

Self-assessed health, the main dependent variable in the analysis below, is a measure that is strongly associated with both current and future objective measures of health[11]. Self-assessed health has a well-established negative relationship with mortality, see for example Benjamins et al. (2004) and Jylhä (2009) as well as the references therein. It also predicts other important health-related outcomes, such as health-care utilization (Pot et al., 2009) and functional ability in old age (Idler and Kasl, 1995)[12]. Health is also one of the strongest correlates with subjective well-being as discussed in Graham's (2010) book, indicating that health may be important for individual well-being. Health also has instrumental value as it facilitates a more productive life.

The main data set is the European Social Survey (ESS). The second to fifth rounds are used[13]. The survey asks about the country of birth of the respondent as well as the country of birth of both parents[14]. This information allows me to identify children of immigrants and which countries their parents originate from[15]. Looking at 30 countries of residence for second generation immigrants reduces the concern that the results are driven by conditions of one particular country. Individuals with ancestry from 87 countries are observed. This reduces the concern that the results are particular to a small number of ancestral backgrounds. The focus is on individuals with an immigrant mother since this is the population where ancestral trust is transmitted across generations; see evidence presented in Section 4 and in Ljunge (2014a). The summary statistics are presented in Table 1. The children of immigrants are similar to the general population on observables.

2.1. Subjective health

Subjective, or self-assessed, health is measured by one question in the ESS. The interviewer asks "How is your health in general? Would you say it is.." and reads out the categories "Very good," "Good," "Fair," "Bad," "Or, very bad." The category "Very good" is coded with a 5 and each following category with a lower digit. The variable health is

[9] Ciechanowski et al. (2004) present correlations among diabetes patients that are consistent with this mechanism.

[10] Stress is associated with cardiovascular disease as well as other chronic diseases. Experiments inducing stress lead to atherosclerosis and hypertension in primates and mice (Henry and Stephens, 1997). Stress at work is associated with greater risk of cardiovascular disease (Marmot and Wilkinson, 1999), and mortality is higher for workers in low-control jobs (Amick et al., 2002). Generalized trust is another psychological state that could affect bodily functions.

[11] Self-assessed health is also referred to as subjective health or self-reported health.

[12] In patients with advanced cancer, self-assessed health is a stronger predictor of mortality than performance and selected clinical indicators, symptoms, and health-related quality of life measures (Shadbolt et al., 2002). It predicts functional decline (Fleishman and Crystal, 1998) and survival in HIV patients (Dzekedzeke et al., 2008). Yet, there is no consensus that subjective health coincides with objective health, see for example Suchman et al. (1958).

[13] See Table A1 for the participating countries in each round. Round 2 was collected in 2004, round 3 in 2006, round 4 in 2008, and round 5 in 2010.

[14] Extensive documentation of the data is available at http://ess.nsd.uib.no/.

[15] The terms children of immigrants and second generation immigrants are used interchangeably in this paper.

Table 1
Summary statistics.

Variable	General population sample		Immigrant mother sample		Immigrant father sample	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Self-assessed health	3.74	0.94	3.84	0.94	3.8	0.94
Trust	4.86	2.51	4.93	2.48	4.84	2.47
Trust in the parent's birth country			2.89	1.11	2.81	1.05
Age	47.5	18.5	44.0	18.02	44.1	18.01
Female	0.542	0.498	0.535	0.499	0.539	0.499
Married	0.532	0.499	0.480	0.500	0.490	0.500
Never married	0.272	0.445	0.329	0.470	0.323	0.468
Upper secondary degree	0.447	0.497	0.507	0.500	0.504	0.500
College/university degree	0.240	0.427	0.273	0.446	0.266	0.442
Out of labor force	0.476	0.499	0.446	0.497	0.451	0.498
Unemployed	0.040	0.196	0.046	0.210	0.047	0.212
Low income	0.254	0.435	0.222	0.415	0.223	0.417
Middle income	0.300	0.458	0.306	0.461	0.302	0.459
Catholic	0.289	0.453	0.196	0.397	0.181	0.385
Protestant	0.115	0.319	0.074	0.262	0.066	0.249
Observations	186,080		7652		7942	

Notes: Data from the European Social Survey, rounds 2 through 5. The immigrant mother sample refers to individuals born in the country of residence whose mother is born in a different country. Correspondingly, the immigrant father sample refers to individuals born in the country of residence whose father is born in a different country.

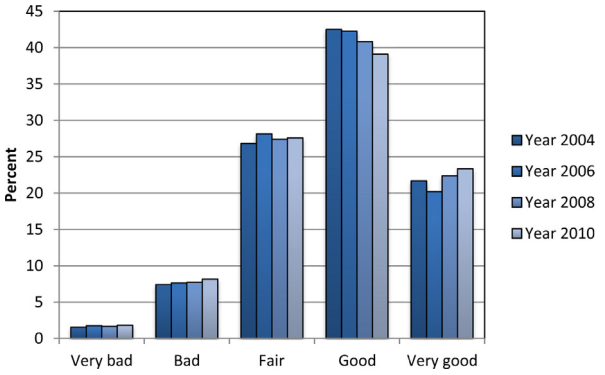

Fig. 1. How is your health in general?

hence increasing in health status. The distribution by survey year is plotted in Fig. 1.

2.2. Individual trust

Generalized trust for the individual is measured with the standard trust question, "Using this card, generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people?." The respondent is asked to respond on a scale, "Please tell me on a score of 0 to 10, where 0 means you can't be too careful and 10 means that most people can be trusted."

2.3. Trust in the mother's country of birth

Average trust in the mother's country of birth is computed in the integrated European Values Survey and the World Values Survey (EVS/WVS)[16]. This allows me to expand the analysis of second generation immigrants beyond those with ancestry in the countries covered by the ESS. The EVS/WVS trust measure can be matched with immigrants from 87 nations in the ESS. Moreover, the countries in the EVS/WVS are much more diverse and include countries from Africa, the Americas, and Asia[17]. The EVS/WVS surveys are made using representative samples of the population in each country.

The generalized trust question has the standard formulation in the EVS/WVS, "Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?" The answers are coded 1 for "Most people can be trusted" and 0 for "You can't be too careful". Averages are computed for all countries and across the waves[18]. The averages arguably capture the trust levels in the population accurately; levels which are highly persistent over time (see for example Bjørnskov, 2007). The average is multiplied by 10 so the scale is the same as in the ESS. For the ancestral trust levels by mother's birth country see Table A2[19]. Trust in the father's birth country is computed correspondingly.

2.4. Additional ancestral country characteristics

Ancestral trust, the variable of main interest in the analysis below, is related to other ancestral country characteristics. There is a positive relationship between trust and income across countries. We do not want to

[16] The country average is based on the five EVS/WVS waves collected between 1981 and 2008.

[17] Extensive documentation is available at www.worldvaluessurvey.org.

[18] Johnson and Mislin (2012) provide experimental validation that trust elicited in the EVS/WVS trust question correlate with trusting behavior. The ESS uses the same question. The difference in the surveys is in the responses where the EVS/WVS is binary and the ESS is a scale from 0 to 10. Although this may matter in individual comparisons it may be a smaller concern when sample averages are used as is the case here.

[19] There is no information on the parent's age or when the parent migrated, so trust levels cannot be assigned by such distinctions.

confound the influence of ancestry from a more developed country with the influence of a higher trusting country. The log of the ancestral country's gross domestic product per capita is used to measure the influence of ancestry from a higher income nation[20].

It may also be argued that ancestral health outcomes can be transmitted to second generation immigrants. I account for this by measuring life expectancy at birth. Additional measures of the health status in the ancestral country are infant mortality (per 1000 births) and the probability per 1000 that a newborn baby will die before reaching age five, if subject to current age-specific mortality rates. I also account for inequality through the Gini coefficient for income, as well as the ratio between the incomes of the top compared to the bottom 20%. All these measures are taken from the World Development Indicators (WDI) provided by the World Bank[21]. Institutional features of the ancestral country are measured by the rule of law (from the WDI) and the degree of democracy (measured by the polity2 variable from the Polity IV project).

Measures on happiness, the locus of control and membership in a religious denomination are computed as means by country across the waves in the integrated European and World Values Survey. Happiness is measured by the question "Taking all things together, would you say you are:" with alternatives "Not at all happy," "Not very happy," "Quite happy," or "Very happy." Locus of control is elicited with the question "Some people feel they have completely free choice and control over their lives, while other people feel that what they do has no real effect on what happens to them. Please use this scale where 1 means "none at all" and 10 means "a great deal" to indicate how much freedom of choice and control you feel you have over the way your life turns out." Cross-country data on the big five personality traits is from Schmitt et al. (2007).

2.5. Individual control variables

The ESS includes a rich set of individual controls. Age, gender, marital status, education, employment status, income, and religious affiliation are observed. Marital status is captured by two dummies for married and never married, with widowed and divorced being the excluded category. Education is captured by one dummy for tertiary (university) degree and above, and one dummy for upper secondary as the highest attained degree. Lower education is the excluded category. One dummy captures individuals who are out of the labor force (students, not employed and not looking for work, and retired), and another dummy for unemployed who look for work. The employed is the omitted category. Income is measured by income decile, based on the country specific income distribution. I create one dummy for the bottom three deciles, Low Income, and one dummy for the middle four deciles, Middle Income. Religion dummies for being a Catholic or a Protestant are included while other religious denominations are in the excluded category.

2.6. Hampered in daily activities by health problems

Part of the analysis uses an outcome variable based on individuals' functional abilities. The ESS has one question asking "Are you hampered in your daily activities in any way by any longstanding illness, or disability, infirmity or mental health problem? If yes, is that a lot or to some extent?" An answer of "yes" (either a lot or to some extent) is coded as 0, and the answer "no" is coded as 1.

3. Empirical specifications

The main type of analysis is ordinary least squares regressions of the following form:

$$\text{Health}_{icat} = \beta_0 + \beta_1 \text{Mean\_Trust}_a + \beta_2 X_i + \gamma_{ct} + \epsilon_{icat} \quad (1)$$

Health_{icat} captures the subjective health by individual i, born and residing in country c with a parent born in country a, and $a \neq c$, in period t. This regression is run on a sample of second generation immigrants. The mean level of ancestral trust, Mean_Trust_a, is common to all individuals with a parent born in country a. X_i captures individual demographic and economic controls that may affect self-assessed health. Accounting for the socio-economic status is important; see for example Smith (2007). The country of residence-by-year fixed effect is denoted by γ_{ct}, and ε_{icat} is the error term. All standard errors are clustered by the parent's birth country to allow for arbitrary correlations of the error terms among individuals with the same ancestral country. I present estimates from an ordinary least squares regression below but the results are robust to using an ordered Probit or Logit model.

Reverse causality is not a concern in (1) since the health of a person born and residing in country c cannot affect the average value of trust in the parent's birth country a. Confounding factors are of course a concern so it is important to include an extensive list of individual controls in X_i. The inclusion of the country-by-year fixed effect γ_{ct} means that the institutional structure and all other unobserved differences which apply to all residents in country c in period t are accounted for. It also means that the variation used to identify the estimate on ancestral trust is to compare the outcomes of second generation immigrants within each country of residence and year relative to the values in their countries of ancestry[22]. Since the country fixed effects are included for each year they account for non-linear trends that may differ across countries[23]. The method, labeled the 'epidemiological

[20] Current measures of gross domestic product are used since data for more countries are available in recent years. As the rank of income across countries is fairly stable the current measure captures differences in development. Moreover, the results are robust to using national income measures from 1960, 1970, 1980, or averages across those periods.

[21] I use the data set compiled by Samanni et al. (2010).

[22] For example, I am comparing if individuals with high trust ancestry born in France have better self-assessed health than those born in France with lower trust ancestry.

[23] The influence of the health care system, as analyzed by for example Finkelstein et al. (2012), would be captured by these fixed effects.

approach,' and the related literature are discussed in more detail in Fernandez (2010)[24].

The model (1) corresponds to a 'reduced form' or intention to treat model of a two-stage model where ancestral trust is used as an instrument for the individual's trust. Estimating the two-stage model does, however, require stronger assumption as all the influence of ancestral trust must work through the measure of individual trust. The main hypothesis is that ancestral trust works through the individual's trust but it could also work in ways not captured by the trust question. The reduced form model is less restrictive in how the ancestral trust influences health. Yet, the interpretation that trust promotes health holds in the reduced form. Allowing a causal interpretation with weaker assumptions is why I focus on the reduced form model. The two-stage model produces qualitatively similar results as the reduced form model.

The main specification in the analysis, model (1), relates inherited trust to the relative health of children of immigrants within country of residence. Inherited trust, Mean_Trust_a, is meant to capture a persistent part of the individual's trust. This is the part of trust one might expect to be transmitted across generations. The transmission channel from parent to child is labeled direct vertical transmission in Bisin and Verdier's (2001) model. Trust may also be shaped by the society the child grows up in, labeled oblique horizontal transmission in their model. These social influences may change, for example due to changes in the political system, and introduce a time-varying component of trust. As children of immigrants are studied within country and year, all individuals face similar social influences in their residence countries over time. Including the country by year fixed effects hence focuses attention on the persistent part of trust. This is also where there is evidence of cultural transmission of trust. The analysis in Section 4 and Ljunge (2014a) finds that the persistent part of trust is transmitted to children of immigrants in Europe[25].

Viewing trust from the perspective of a personality trait, one may expect it to capture a permanent component. These traits stay fairly unchanged over the life course as discussed in Almlund et al. (2011) and the references therein. This perspective of trust as a preference parameter or personality trait offers a way to understand the persistent influences of trust on health.

4. Results

Many studies have reported positive correlations between subjective health and individually reported trust. This is also true in the ESS data. Studying samples of the general population, natives with native parents, children of immigrant mothers, and children of immigrant fathers reveal similar positive correlations. The estimates are reported in Appendix Table A3. These findings indicate that the ESS data is not different from other data studied in the literature. The associations between the control variables and self-assessed health are similar in the general population and among the children of immigrants. This indicates that their behaviors are similar along the observable dimensions. It provides further assurance that the children of immigrant samples are similar to the general population.

Yet, the correlations between subjective health and self-reported trust may reflect causality in either direction. How can the reverse causality concern be addressed? We need a measure of trust that does not depend on self-assessed health. Children of immigrants offer a helpful 'natural experiment.' The second generation immigrants have different ancestral influences of trust. Given that there is cultural transmission of trust from the parent to the child of the immigrant one can use the ancestral trust as a measure of the individual's trust. Evidence of transmission of trust across generations is given in Appendix Table A4. The trust of a child of an immigrant mother is significantly related to the trust in the mother's birth country. The model accounts for a standard set of demographic and economic controls, as well as country-by-year fixed effects. These results indicate that part of trust is transmitted across generations and that ancestral country trust is a measure of this persistent component of an individual's trust. For further details on the transmission of trust and robustness checks accounting for parental and ancestral country characteristics see Ljunge (2014a).

Since the health of a second generation immigrant born and residing in one country have no way of determining the average trust level in the parent's birth country there is no reverse causality concern. This approach is explored below.

There is a strong positive relationship between ancestral trust and self-assessed health, indicating that trust promotes better health. The relationship for children with an immigrant mother is illustrated in Fig. 2 for the largest ancestral groups. The mean trust in the mother's birth

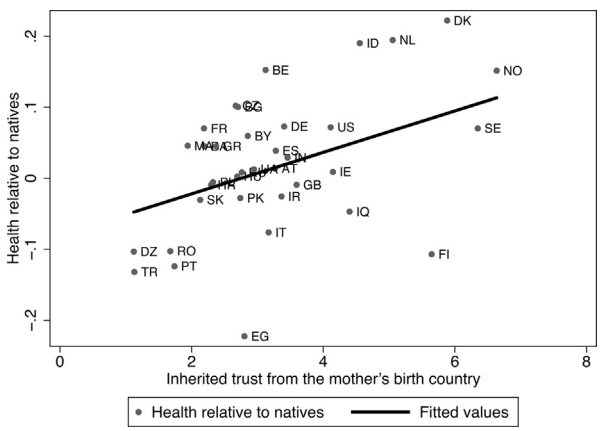

Fig. 2. Ancestral trust and health differences compared to natives. The sample is children of immigrants with an immigrant mother. Country labels follow ISO-3166. Data are from the European Social Survey and the World Values Survey.

[24] The method has been applied to a range of outcomes including women's work and fertility (Fernández and Fogli, 2006; Fernández and Fogli, 2009), see Fernandez (2010) for a review of applications.

[25] For evidence in the US see Algan and Cahuc (2010), Tabellini (2008), and Guiso et al. (2006).

Table 2
Self-reported health and trust. Baseline results.

Dependent variable: self-assessed health status				
Sample	Children of immigrants with an immigrant mother	Children of immigrants with an immigrant mother	Children of immigrants with an immigrant father	Children of immigrants with an immigrant father
	(1)	(2)	(3)	(4)
Trust, mother's birth country	**0.036**	**0.029**		
	(0.016)**	(0.014)**		
Trust, father's birth country			**0.021**	**0.018**
			(0.015)	(0.014)
Age	−0.014	−0.040	−0.012	−0.037
	(0.003)***	(0.004)***	(0.003)***	(0.004)***
Age squared/100	−0.007	0.020	−0.009	0.018
	(0.004)*	(0.005)***	(0.003)***	(0.004)***
Female	−0.095	−0.069	−0.071	−0.050
	(0.023)***	(0.024)***	(0.023)***	(0.027)*
Married		0.066		0.059
		(0.025)**		(0.031)*
Never married		−0.055		−0.042
		(0.036)		(0.036)
Upper secondary		0.080		0.110
		(0.030)***		(0.031)***
College or university		0.217		0.269
		(0.028)***		(0.033)***
Out of labor force		−0.201		−0.190
		(0.027)***		(0.030)***
Unemployed		−0.144		−0.088
		(0.050)***		(0.041)**
Low income		−0.168		−0.126
		(0.032)***		(0.030)***
Middle income		−0.024		−0.044
		(0.025)		(0.020)**
Catholic		0.029		−0.016
		(0.029)		(0.027)
Protestant		0.084		0.104
		(0.033)**		(0.036)***
Country-by-year fixed effects	Yes	Yes	Yes	Yes
R-squared	0.261	0.289	0.272	0.299
Observations	7652	7652	7942	7942

Notes: The dependent variable is self-assessed Health, which ranges from 1, 'very bad' to 5 'very good.' Columns (1) and (2) study a sample of children of immigrants with an immigrant mother and estimates the effect of trust in the mother's country of birth on health. Columns (3) and (4) study children of immigrants with an immigrant father and estimates the effect of trust in the father's country of birth on health. Low income is a dummy for the bottom three deciles. Middle income is a dummy for the middle four deciles. Data is from the second to fifth waves of the European Social Survey. Standard errors in parenthesis. Standard errors allow for clustering on the parent's birth country. Significance stars,
* $p < 0.1$,
** $p < 0.05$,
*** $p < 0.01$.

country is measured on the horizontal axis[26]. The vertical axis measures the difference between the health of the ancestral group and the natives in their country of birth, averaged across the 30 countries of birth in the sample. The positive relationship implies that those with higher trust ancestry express relatively better health. This is in essence the variation explored in the following analysis while accounting for individual, parental, and ancestral country characteristics.

The first regression analysis considers a sample of children with an immigrant mother[27]. The first specification regresses the individual's self-assessed health on the mean trust in the mother's country of birth, along with the most exogenous individual controls, as well as country-by-year fixed effects. The estimate of the relationship between trust and health is 0.036 and strongly significant, as seen in column (1) of Table 2. The result indicates that trust influences self-assessed health[28]. Specification 2 of Table 2 adds a set of economic and demographic individual controls to the model[29]. The point estimate on trust in the mother's country drops slightly but remains significant. The lower point estimate indicates that some of the influence of trust on health may operate through the channels now controlled for, such as income, education, and labor force status.

[26] 4 on the horizontal axis correspond to 40% expressing high trust in the mother's birth country.
[27] I refer to this sample as the immigrant mother sample.
[28] As discussed in an earlier footnote, these results are from a reduced form model. I obtain similar positive and significant estimates of the influence of trust on health in a two-stage model where ancestral trust is used as an instrument for the individual's expressed trust.
[29] The specification contains controls for low and middle income groups. Results are robust to accounting for income deciles.

Self-assessed health is declining with age in a close to linear way, although at a slightly decreasing rate. Men are healthier than women, and marriage has a positive association. The strongest predictors for better health are high education, not low income, and a strong labor force attachment. Protestants express better health than others.

The estimated relationship between trust and health is quantitatively significant. An increase in the ancestral trust of one standard deviation corresponds to half the influence of having an upper secondary education or moving one decile higher in the low end of the income distribution. Changing from no trust (measured by 0) to fully trusting (a 10) ancestry corresponds to the combined estimates of a college degree and being married.

In the third and fourth columns of Table 2 the sample with an immigrant father is studied. The self-assessed health is related to trust in the father's country of birth, as well as the other controls. The estimated coefficient is positive as expected, but lower in magnitude and not statistically significant. The results suggest heterogeneity between mothers and fathers in the transmission of trust on health. It also indicates that the relationship is not purely genetic, as such a mechanism would be expected to work equally through mothers and fathers. The stronger influence of mothers also mirrors the stronger transmission of trust from mothers in Appendix Table A4. As the cultural transmission of trust is insignificant on the father's side it stands to reason that the influence of ancestral trust on health is also insignificant on the father's side. The insignificant estimates do not imply that there is no relationship on the father's side, in particular since the method has known attenuation biases, only that the relationship is not strong enough to be significant in this sample.

Table 2 is estimated using ordinary least squares (OLS) which impose a cardinal relationship of the health variable although it is ordinal. This does not affect the results as very similar results are found when the models are estimated by an ordered Probit model. Estimates have similar sign and significance as seen in Appendix Table A5. The OLS model is used below as estimates are easier to interpret in the linear model.

Table 2 uses all the available data. There may be a concern that the results in column (2) are influenced by ancestries with few children of immigrants in the data. The results are robust to including ancestral countries with at least 5, 10, 15, or 25 observations. Small immigrant groups do not drive the result. Although the main reason for studying children of immigrants is that it allows separating the cultural influence from institutions there are implications for immigration and integration policy. The results indicate that trust in the ancestral country influences the health outcome of the second generation immigrant. It suggests that the health of a country may be influenced by the composition of immigrants. Moreover, the findings suggest that ancestral trust could be used for targeting health interventions.

4.1. Robustness

The baseline results indicate a causal effect of trust on health. There is of course no way, as in all studies, to be sure that something else is not behind the result[30]. I perform a range of robustness checks to address plausible alternative stories. I account for parental characteristics as well as ancestral country health, wealth, and institutions. The significant estimate of trust remains while most of the alternative channels have no significant impact on health. The robustness results provide further plausibility to interpreting the influence of trust on health as causal.

4.1.1. Sorting

Selection of immigrants is not necessarily a problem for the analysis. First, the children of immigrants have not chosen to emigrate, and being born and raised in the country of residence they are integrated in society. The children of immigrants also look similar to the general population on observables. Even so, the estimates would not be affected by selection if it is uniform. For example, if only high trust individuals choose to emigrate it would not necessarily affect the estimate since only variation in differences, not levels, across ancestries is used to identify the estimate in Table 2. Furthermore, if there is positive sorting so that high trust individuals move to high trust countries, and there is cultural transmission from trust to self-assessed health, this would compress the variation in the left hand side variable, attenuate the estimate, and bias it toward zero[31].

The concern is if migrants are selected on trust such that the least trusting in low trust countries and the highest trusting in high trust countries migrate. Data on the trust of first generation migrants paint the opposite pattern. Migrants (in ESS countries) from low trusting Brazil are much more trusting than non-migrant Brazilians. Migrants from high trusting Norway and Sweden express similar trust as the non-migrant population. This pattern indicates that the point estimate on ancestral trust is substantially downward biased since the ancestral trust measure based on non-migrants exhibit much larger variation than the perhaps more relevant variation in trust across migrant groups[32].

Yet, there may be a concern that ancestry from a high trust country captures a more developed country ancestry, and that the level of development may transmit to health. To address this the logarithm of gross domestic product (GDP) per capita in the mother's birth country is added to the specification. The results are robust as seen in column (1) of Table 3, and the estimate on GDP is insignificant. It is hence trust and not level of development that drive the results[33].

As the variation used is only across countries the current GDP measures used capture differences in

[30] Interpreting an estimate as causal always relies on an untestable identifying assumption.

[31] If parents of similar trust levels migrate to a certain country, and their trust is transmitted to the health of second generation immigrant children, this would produce similar health assessments for their children no matter their ancestry. The variation in the dependent variable health is in this case smaller (compared to if the parents had the average trust in their ancestral country), which leads to a weaker relationship with ancestral trust, and hence leads to an estimate biased toward zero.

[32] Taken at face value the pattern indicates a downward bias by a factor of three to five.

[33] The results are also robust to accounting for finer controls of individual income at the decile level.

Table 3
Robustness checks including parental characteristics.

Dependent variable: self-assessed health status						
Alternative specification	Add ancestral GDP	Ancestral subjective health	Mother's education	Parental education	Parental education + working mom	Parental education + working parents
	(1)	(2)	(3)	(4)	(5)	(6)
Trust, mother's birth country	0.036	0.037	0.034	0.034	0.033	0.033
	(0.016)**	(0.018)**	(0.017)**	(0.016)**	(0.016)**	(0.016)**
Log of GDP per capita, mother's country of birth	−0.010	−0.013	−0.016	−0.017	−0.017	−0.017
	(0.015)	(0.015)	(0.014)	(0.014)	(0.014)	(0.014)
Average self-reported health, mother's country of birth		0.027	0.033	0.030	0.031	0.031
		(0.050)	(0.048)	(0.048)	(0.048)	(0.048)
Upper secondary education, mother			0.078	0.038	0.035	0.036
			(0.029)***	(0.037)	(0.036)	(0.036)
Tertiary education, mother			0.098	0.045	0.040	0.041
			(0.039)**	(0.048)	(0.047)	(0.047)
Upper secondary education, father				0.074	0.075	0.074
				(0.029)**	(0.029)**	(0.028)**
Tertiary education, father				0.102	0.104	0.102
				(0.037)***	(0.036)***	(0.036)***
Working mother (at age 14)					0.020	0.020
					(0.023)	(0.022)
Working father (at age 14)						0.012
						(0.030)
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes
Country-by-year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.285	0.285	0.286	0.286	0.286	0.286
Observations	7245	7150	7150	7150	7150	7150

Notes: The dependent variable is self-assessed Health, which ranges from 1, 'very bad' to 5 'very good.' All specifications study second generation immigrants and estimates the effect of trust in the mother's country of birth on self-assessed health. Individual controls include age, age squared, gender, education, labor force attachment, income, and religious denomination. Country of residence-by-year fixed effects are included in all specifications. Data is from the second to fifth waves of the European Social Survey. Standard errors in parenthesis, which allow for clustering on the mother's birth country. Significance stars,
* $p < 0.1$,
** $p < 0.05$,
*** $p < 0.01$.

development across countries. Since the rank of national income stays roughly constant the current measure also captures past differences. Accounting for GDP from 1960, 1970, 1980, or averages over those periods, which would closer correspond to the mother's time of immigration, yield similar results to those presented here[34].

To address a concern that it is differences in self-reporting of health, rather than trust, which drive the results ancestral health assessments are accounted for in the second column of Table 3. The influence of trust is robust to controlling for the average subjective health in the mother's birth country. The influence of ancestral self-reported health is insignificant. It is hence trust and not health reporting behavior that drive the results[35].

Another approach to address parental sorting is to account for parental education. This shuts down any transmission of ancestral trust through parental education. Dummies for upper secondary and tertiary education for the mother are included in column (3) of Table 3, while keeping the ancestral country GDP measure to account for the level of development. The estimate on trust in the mother's birth country is robust to these added controls. The coefficients on the mother's education are positive and significant. The fourth column adds indicators for the father's education as well. The influence of ancestral trust is not affected by controlling for father's education. The estimated influence of father's education is strong and positive on health, and the influence of mother's education is now insignificant[36]. The positive influence of parental education on health is also present in the full sample and is in line with previous studies such as Ross and Mirowsky (2011) and Flores et al. (1999).

The last two columns in Table 3 add controls for if, in turn, the mother and father were working when the respondent was age 14. These controls have a negligible influence on the other estimates. The results are hence robust to these controls that might capture an influence of migrant sorting.

These results also point to an important role of parental education as a driver of health. High education of the father

[34] The survey does not ask when the mother migrated.
[35] Ancestral self-assessed health is also insignificant at conventional levels when estimating the model without ancestral trust and GDP. It indicates that the transmission of self-reported health from the ancestral country to children of immigrants is not strong.
[36] The estimates capture the total influence of ancestral trust minus what is mediated through the included control variables. If birth weight information was available it would be interesting to include as a control to examine how important it is to shut down this channel. This is left for future research.

Table 4
Ancestral health influences.

Dependent variable: self-assessed health status				
Alternative specification	Life expectancy	Infant mortality	Child mortality	Cumulative model
	(1)	(2)	(3)	(4)
Trust, mother's birth country	**0.036**	**0.035**	**0.036**	**0.032**
	(0.016)**	(0.015)**	(0.016)**	(0.015)**
Log of GDP per capita, mother's country of birth	−0.012	−0.037	−0.028	−0.035
	(0.023)	(0.028)	(0.026)	(0.027)
Life expectancy at birth, mother's country of birth	0.000			−0.001
	(0.004)			(0.005)
Infant mortality (per 1000 live births) mother's country of birth		−0.002		−0.006
		(0.001)		(0.004)
Mortality rate under 5 years of age, mother's country of birth			−0.001	0.003
			(0.001)	(0.002)
Individual controls	Yes	Yes	Yes	Yes
Country-by-year fixed effects	Yes	Yes	Yes	Yes
R-squared	0.285	0.285	0.285	0.285
Observations	7245	7245	7245	7245

Notes: The dependent variable is self-assessed Health, which ranges from 1, 'very bad' to 5 'very good.' All specifications study second generation immigrants and estimates the effect of trust in the mother's country of birth on self-assessed health. Individual controls include age, age squared, gender, education, labor force attachment, income, and religious denomination. Country of residence-by-year fixed effects are included in all specifications. Data is from the second to fifth waves of the European Social Survey. Standard errors in parenthesis, which allow for clustering on the mother's birth country. Significance stars,
* $p < 0.1$,
** $p < 0.05$,
*** $p < 0.01$.

transmits into improved health over and above the influence of the individual's education and other controls. Policy promoting higher education could hence have a payoff in promoting health in both the current and future generations.

4.1.2. Ancestral health outcomes

Trust could be correlated with health outcomes in the ancestral countries, which suggests an alternative explanation to my finding that trust promotes health. To address this issue several measures of health in the ancestral country are include. The control for GDP per capita in the ancestral country is kept in the specification since it may capture the general level of development in the country of which health is one aspect. The first direct measure of ancestral country health is life expectancy in years at birth[37]. The results are presented in column (1) of Table 4. Both life expectancy and GDP in the ancestral country are insignificant while trust remains strongly significant. Column (2) accounts for infant mortality and column (3) accounts for the probability that a child dies before turning 5 year of age[38]. Also these health measures are insignificant while the main estimate on trust is unchanged. Column (4) of Table 4 includes all the measures of ancestral health outcomes with similar results: the estimate on trust remains similar while the estimates on the health outcomes are insignificant. The results suggest that the results are driven by trust and not ancestral health outcomes.

4.1.3. Ancestral institutions and beliefs

Health could be influenced by many institutional factors, although birth country institutional factors are accounted for through country fixed effects. Wilkinson and Pickett (2009) have for example suggested that income inequality has a number of undesirable consequences, one of which is to hurt health. The hypothesis that this is transmitted across generations is examined by controlling for inequality in the ancestral country. Column (1) of Table 5 includes the Gini coefficient, which is a common measure of income inequality. Also accounted for is GDP in the ancestral country, as it may influence other institutional factors. The estimate on the Gini is insignificant and the influence of trust remains strong. Wilkinson and Pickett (2009) used a slightly different measure of inequality: the ratio of the income share of the top 20% to the bottom 20%. Column (2) of Table 5 uses this measure instead of the Gini. The result is similar, although the estimated influence of trust is now even larger.

Trust is correlated with well-functioning institutions. It could hence be that health is driven by norms shaped by these institutions rather than trust. To account for such influences 'Rule of Law' is included as a control in column (3) of Table 5. The influence of trust remains strong. More democratic countries also tend to have higher trust. To account for influences of democratic institutions on health the polity2 variable (which is increasing the more democratic institutions a country has) is accounted for. The estimates in column (4) of Table 5 show that it does not

[37] Trust and life expectancy are positively correlated across countries.
[38] Both the child mortality measures are negatively correlated with trust across countries.

Table 5
Ancestral institutional factors and beliefs.

Dependent variable: Self-assessed health status							
Alternative specification	Gini	Relative income shares	Rule of law	Democracy	Happiness	Locus of control	Cumulative model
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Trust, mother's birth country	**0.035**	**0.039**	**0.034**	**0.034**	**0.036**	**0.044**	**0.045**
	(0.015)**	(0.016)**	(0.016)**	(0.016)**	(0.017)**	(0.017)**	(0.019)**
Log of GDP per capita, mother's country of birth	−0.013	−0.011	−0.025	−0.007	−0.011	−0.016	−0.038
	(0.016)	(0.015)	(0.026)	(0.016)	(0.015)	(0.016)	(0.026)
Gini coefficient, mother's country of birth	−0.002						
	(0.002)						
Income share of top 20 vs bottom, 20%, mother's country of birth		−0.000					0.002
		(0.005)					(0.007)
Rule of law, mother's country of birth			0.019				0.029
			(0.024)				(0.035)
Democracy (polity2), mother's country of birth				−0.000			−0.000
				(0.003)			(0.003)
Happiness, mother's country of birth					−0.015		0.004
					(0.073)		(0.118)
Locus of control, mother's country of birth						−0.073	−0.075
						(0.054)	(0.059)
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country-by-year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.285	0.285	0.285	0.285	0.285	0.289	0.289
Observations	7188	7188	7245	7102	7245	6973	6813

Notes: The dependent variable is self-assessed Health, which ranges from 1, 'very bad' to 5 'very good.' All specifications study second generation immigrants and estimates the effect of trust in the mother's country of birth on self-assessed health. Individual controls include age, age squared, gender, education, labor force attachment, income, and religious denomination. Country of residence-by-year fixed effects are included in all specifications. Data is from the second to fifth waves of the European Social Survey. Standard errors in parenthesis, which allow for clustering on the mother's birth country. Significance stars,
* $p < 0.1$,
** $p < 0.05$,
*** $p < 0.01$.

account for the influence of trust, and the influence of democratic institutions is insignificant.

Trust may capture an optimistic character trait. Another facet of optimism is happiness, and we would want to separate the influence of these aspects of optimism. In the fifth column of Table 5 the average happiness in the mother's birth country (ancestral country log GDP per capita is also included to capture the level of development broadly). The influence of ancestral trust on health remains positive and significant.

Locus of control is a personality trait that has been associated with a range of individual outcomes (Almlund et al., 2011). The measure is increasing with more internal locus of control, the sense that the individual can influence his outcomes. The ancestral country average is included in column 6 of Table 5. The point estimate on ancestral trust increases a bit while locus of control is insignificant.

Column (7) of Table 5 includes all the five last controls (as well as GDP) to account for them jointly[39]. The influence of trust is robust to this specification, and the additional ancestral influences are insignificant. The influence of ancestral trust on health assessments is also robust to accounting for the Big Five personality traits (extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience) as well as the religiousness in the ancestral country.

[39] The Gini is highly collinear with the relative income share variable indicating that they capture the same variation across countries. The collinearity precludes including both variables in the same specification.

4.1.4. Good health: A binary health outcome

This section studies a binary health variable. The respondent is considered in 'Good Health' if the self-assessed health is either 'Very good' or 'Good.' This is coded as a 1 and 0 otherwise. The binary coding provides another robustness check and point of comparison to the literature.

The influence of ancestral trust on health is positive and significant also with the binary measure of health. Column 1 of Table 6 presents a barebones model where only age and gender is controlled for apart from trust in the mother's birth country. The point estimate of ancestral trust is positive and strongly significant. The result is very similar when adding a comprehensive set of individual controls, as seen in column 2 of Table 6. The third column of Table 6 adds the log of GDP per capita in the mother's birth country to account for ancestral influences correlated with the level of development. The point estimate is slightly higher and remains highly significant. The influence of a one standard deviation increase in ancestral trust on the probability of being in good health corresponds to the influence of an upper secondary education.

Table 6
Good health and trust.

Dependent variable: good health (binary)			
Model	Barebones	Individual controls	Add ancestral GDP per capita
	(1)	(2)	(3)
Trust, mother's birth country	**0.021**	**0.018**	**0.024**
	(0.008)***	(0.007)**	(0.008)***
Log of GDP per capita, mother's country of birth			−0.010
			(0.008)
Age	−0.006	−0.019	−0.018
	(0.003)**	(0.003)***	(0.003)***
Age squared/100	−0.003	0.010	0.010
	(0.003)	(0.003)***	(0.003)***
Female	−0.041	−0.029	−0.030
	(0.013)***	(0.015)**	(0.015)*
Married		0.029	0.024
		(0.013)**	(0.013)*
Never married		−0.027	−0.027
		(0.017)	(0.017)
Upper secondary		0.039	0.037
		(0.013)***	(0.013)***
College or university		0.108	0.103
		(0.014)***	(0.014)***
Out of labor force		−0.107	−0.103
		(0.013)***	(0.013)***
Unemployed		−0.082	−0.080
		(0.028)***	(0.029)***
Low income		−0.074	−0.073
		(0.014)***	(0.014)***
Middle income		−0.004	−0.001
		(0.012)	(0.013)
Catholic		0.008	0.010
		(0.015)	(0.015)
Protestant		0.029	0.033
		(0.017)*	(0.018)*
Country-by-year fixed effects	Yes	Yes	Yes
R-squared	0.22	0.24	0.24
Observations	7940	7652	7245

Notes: The dependent variable Good Health is binary. Good Health takes the value 1 if the self-assessed health is 'very good' or 'good,' and otherwise it takes the value 0. All specifications study second generation immigrants and estimates the effect of trust in the mother's country of birth on Good Health. Country of residence-by-year fixed effects are included in all specifications. Data is from the second to fifth waves of the European Social Survey. Standard errors in parenthesis, which allow for clustering on the mother's birth country. Significance stars,
* $p < 0.1$,
** $p < 0.05$,
*** $p < 0.01$.

4.1.5. Mother's vs. father's influence

Previous models have examined the influence of trust in one parent's birth country on health. This section studies the influence of trust in both parents' countries for a sample of children of immigrants where both parents are immigrants. This restricted sample is used because native born parents' birth country trust is not separated from other contextual factors in the child's native country, which may introduce a positive bias.

For comparability to Table 2, the baseline models are estimated including trust in the mother's birth country in specification (1) and including the father's birth country trust in specification (2) of Table 7 for the sample where both parents are immigrants. The results are similar to Table 2, with a positive and significant estimate on the mother's side but insignificant on the father's side.

Both the mother's and father's birth country trust are included in specification (3) of Table 7. The estimate on trust in the mother's birth country is positive and significant while it is insignificant on the father's side. The estimates are significantly different with a *p*-value of 0.07, indicating that there is a significant difference in the influence of trust on health across parents[40].

4.2. Determinants of ancestral country trust

Ancestral country trust has been taken as given thus far. Below I explore language as a factor that may shape the ancestral trust levels. The approach is to study if linguistic features have an influence on trust levels, and to estimate how the health of children of immigrants is influenced by ancestral trust shifted by these "deep" features. I combine the approach of relating language structure to trust with

[40] Exploring why this difference exists between mothers and fathers is left for future research.

Table 7
Self-reported health and trust among children to two immigrants.

Dependent variable: self-reported health status			
Sample: children of immigrants with an immigrant mother and immigrant father			
	(1)	(2)	(3)
Trust, mother's birth country	**0.049** (0.020)**		**0.070** (0.030)**
Trust, father's birth country		**0.018** (0.019)	**−0.035** (0.032)
Age	−0.041 (0.006)***	−0.038 (0.007)***	−0.039 (0.006)***
Age squared/100	0.018 (0.006)***	0.016 (0.007)**	0.017 (0.006)***
Female	−0.058 (0.035)	−0.059 (0.035)*	−0.055 (0.035)
Married	0.025 (0.040)	0.020 (0.043)	0.027 (0.040)
Never married	−0.092 (0.067)	−0.078 (0.066)	−0.076 (0.067)
Upper secondary	0.086 (0.034)**	0.101 (0.034)***	0.095 (0.034)***
College or university	0.254 (0.038)***	0.257 (0.042)***	0.254 (0.036)***
Out of labor force	−0.176 (0.039)***	−0.172 (0.040)***	−0.173 (0.040)***
Unemployed	−0.078 (0.060)	−0.075 (0.056)	−0.062 (0.062)
Low income	−0.133 (0.047)***	−0.146 (0.042)***	−0.143 (0.048)***
Middle income	−0.000 (0.038)	−0.017 (0.030)	−0.010 (0.035)
Catholic	0.014 (0.043)	0.013 (0.036)	0.007 (0.045)
Protestant	0.172 (0.052)***	0.155 (0.065)**	0.180 (0.053)***
Country-by-year fixed effects	Yes	Yes	Yes
R-squared	0.296	0.298	0.296
Observations	3918	3895	3793

Notes: The dependent variable is self-assessed Health, which ranges from 1, 'very bad' to 5 'very good.' The sample throughout this table is restricted to children of immigrants whose mother and father are immigrants. Column (1) estimates the relationship between Health and trust in the mother's birth country. Column (2) estimates the relationship between Health and trust in the father's birth country. Column (3) includes both the trust in the mother's and father's country. Country-by-year fixed effects included in all specifications. Low income is a dummy for the bottom three deciles. Middle income is a dummy for the middle four deciles. Data is from the second to fifth waves of the European Social Survey. Standard errors, which allow for clustering on the parent's birth country, in parenthesis. Significance stars,
* $p < 0.1$,
** $p < 0.05$,
*** $p < 0.01$.

the epidemiological approach and apply it to the influence of trust on health; a novel contribution to the literature.

4.2.1. Language

Language structure is used as an instrument for trust. Languages have features that put different emphasis on how to relate to other people. The grammatical language structures are stable and slow moving, arguably more so than trust. It is hence plausible that the language structure is determined prior to the trust measures as well as other economic and social outcomes.

Language structure's influence on trust could be interpreted through economic theory. Consider a multi-generational version of Bisin and Verdier's (2001) cultural transmission model, where trust is the cultural trait transmitted across generations. The multi-generational model needs an initial value, where language structure could be seen as the initial value that influences the trust of the first generation. The trust induced by language structure in the first generation is transmitted according to the model to subsequent generations. The model provides a persistent link between the pre-determined language structure and modern day trust levels.

The use of first and second pronouns in conversations is one feature that differs across languages. In Italian, for example, it is allowed to drop the pronoun while in English it is mandatory to use the pronoun. Languages where dropping the first-person pronoun is forbidden are typical of cultural traditions that gave more emphasis to the individual relative to his social context and thus were more respectful of the individual and his rights as argued by Kashima and Kashima (1998, 2005). This grammatical rule is used by Licht et al. (2007) to examine how individualism affects the rule of law across countries. Tabellini (2008) use the rule to examine how trust affects institutions across countries. None of these authors use language structure to study individual outcomes as I do. I follow Tabellini (2008) and define the variable "No pronoun drop" as 1 if the language forbids the drop of pronouns and 0 otherwise. The variable is expected to be positively related to trust.

The second grammatical rule I consider is the differentiation between singular and plural personal pronouns, in keeping with Tabellini (2008). French, for example, distinguishes between the singular and plural You, the Tu and Vous (T–V for short), depending on the social distance between the subjects. Many languages had the T–V distinction historically but later dropped it. Languages who kept the T–V distinction are indicative of cultures that put stronger emphasis on hierarchy and social distance, which may have a negative influence on generalized trust[41]. The variable "2nd person differentiation" is defined as 1 if the number of second person pronouns that might be used in spoken language varies according to the social proximity between speakers and 0 otherwise[42]. I expect the variable to have a negative relationship with trust.

Based on these two variables capturing grammatical rules "Language structure" is defined as No pronoun drop minus 2nd person differentiation[43]. Language structure is expected to be positively related to trust. The variable is defined by country. In a handful of countries with several

[41] One example of the shift from the T–V distinction is the use of *thee/thou* in Middle English that was replaced by *you* in Modern English. Middle English was used until the late 15th century.

[42] The variable distinguishes between languages where the grammar allows for 2nd person differentiation compared to those that don't. The variable does not capture if the differentiation is common in practice, where allowed, which may affect the accuracy of the variable. However, such mismeasurement would not invalidate the use of the variable, but rather only attenuate the relationship between language structure and trust.

[43] Tabellini (2008, pp. 276) illustrates the language structure across the world in a map.

Table 8
Language structure as instrument for ancestral trust.

Sample	Immigrant mother Trust, mother's birth country	Immigrant mother Self-assessed health status	Immigrant father Trust, father's birth country	Immigrant father Self-assessed health status
Model	First stage	Second stage	First stage	Second stage
	(1)	(2)	(3)	(4)
Trust, mother's birth country		**0.568** (0.294)*		
Trust, father's birth country				**0.892** (0.348)**
Language structure, mother's birth country	0.073 (0.017)***			
Language structure, father's birth country			0.069 (0.017)***	
Individual controls	Yes	Yes	Yes	Yes
Country-by-year fixed effects	Yes	Yes	Yes	Yes
Observations	6137	6137	6336	6336

Notes: The table display first and second stage estimates of a 2SLS model for the immigrant mother and father sample, respectively. Ancestral country trust is the dependent variable in columns (1) and (3). Health is the dependent variable in the second stage estimates in columns (2) and (4), where ancestral trust is instrumented with ancestral country language structure. The dependent variable is self-assessed Health ranges from 1, 'very bad' to 5 'very good.' All specifications study second generation immigrants; columns (1) and (2) study those with an immigrant mother and columns (3) and (4) those with an immigrant father. All regressions include a full set of country of residence-by-year fixed effects. Individual controls include age, age squared, gender, education, labor force attachment, income, and religious denomination. The sample includes all ancestral groups with at least 15 individuals observed. Data is from the second to fifth waves of the European Social Survey. Standard errors in parenthesis, which allow for clustering on the parent's birth country. Significance stars,
* $p < 0.1$,
** $p < 0.05$,
*** $p < 0.01$.

language groups the variable is a weighted average of the respective language groups, where possible[44]. The exact definitions follow Tabellini (2008), with one modification[45,46].

The use of more or less hierarchical language structures to shift trust fits with previous evidence in economics. Most directly related is Tabellini (2008) who uses it to study trust. Guiso et al. (2006) finds that more hierarchical religions suppress trust while less hierarchical religions promote trust. Less hierarchical political institutions are found to promote trust in Ljunge (2014b). Hence, the literature finds that less hierarchical institutions tend to promote trust and language structure is one of these institutions.

4.2.2. Results

The association between language structure and ancestral country trust is presented in Table 8. The estimated coefficient on language structure is positive and strongly significant in the sample with an immigrant mother as seen in the first specification of Table 8[47]. The positive sign is as expected. Trust is higher in countries where the language puts less emphasis on hierarchy, and more emphasis on the individual's rights. The first stage estimate of ancestral country language structure on ancestral country trust for the sample with an immigrant father is presented in specification (3) of Table 8. The strong influence of language structure is robust across the mother and father samples.

The grammatical structure, as captured by the Language variable, in the parent's country of birth is used as an instrument of the trust in the parent's country of birth. The second stage estimate on ancestral trust in the sample with an immigrant mother is reported in specification (2) of Table 8. The estimate is positive and significant at conventional levels. The point estimate and the standard errors are much larger in Table 8 compared to the baseline regressions. It implies a large confidence interval for the true parameter, and the estimate is hence not precise with respect to the magnitude. As mentioned earlier, the baseline model has known attenuation biases. To the extent that the instrumental variable approach alleviates these problems it makes sense that the point estimate is higher. Yet, it is hard to draw strong conclusions based on estimates with large error bands.

The instrumental variables result provides an additional robustness checks. Previous analysis has considered a range of possible alternative ancestral influences in addition to trust, and found trust to be robust while almost all other ancestral influences are insignificant. The instrumental variable estimate dispels concerns about omitted influences as long as they are unrelated to language structure. It is not clear how the ancestral

[44] The weighting applies to Canada, Singapore, South Africa, and Switzerland.
[45] The data is generously made available at http://didattica.unibocconi.it/mypage/index.php?IdUte=48805&idr=5112.
[46] I adjust the coding of Danish to allow for second person differentiation.
[47] The F-statistic for the exclusion of the Language variable is at least 19 across the two samples in Table 8.

Table 9
Hampered by health problems in daily activities.

Dependent variable: hampered by health in daily activities (0 = Yes, 1 = No)			
	(1)	(2)	(3)
Trust, mother's birth country	**0.013**	**0.011**	**0.013**
	(0.005)***	(0.005)**	(0.006)**
Log of GDP per capita, mother's country of birth	−0.016	−0.015	−0.017
	(0.008)**	(0.008)*	(0.014)
Age	−0.000	−0.008	−0.008
	(0.002)	(0.002)***	(0.002)***
Age squared/100	−0.008	−0.000	−0.000
	(0.002)***	(0.002)	(0.002)
Female	−0.037	−0.036	−0.036
	(0.011)***	(0.013)***	(0.013)***
Married		0.036	0.037
		(0.019)*	(0.019)*
Never married		−0.037	−0.036
		(0.019)*	(0.019)*
Upper secondary		0.047	0.046
		(0.013)***	(0.013)***
College or university		0.093	0.093
		(0.015)***	(0.015)***
Low income		−0.058	−0.059
		(0.015)***	(0.016)***
Middle income		−0.004	−0.003
		(0.012)	(0.013)
Catholic		−0.027	−0.026
		(0.014)*	(0.014)*
Protestant		−0.014	−0.015
		(0.016)	(0.016)
Gini coefficient, mother's country of birth			0.000
			(0.001)
Rule of law, mother's country of birth			−0.001
			(0.010)
Democracy (polity2), mother's country of birth			−0.000
			(0.001)
Life expectancy at birth, mother's country of birth			0.000
			(0.002)
Infant mortality (per 1000 live births) mother's country of birth			−0.000
			(0.001)
Country-by-year fixed effects	Yes	Yes	Yes
R-squared	0.129	0.144	0.142
Observations	7515	7262	7087

Notes: The dependent variable is based on the question "Are you hampered in your daily activities in any way by any longstanding illness, or disability, infirmity or mental health problem? If yes, is that a lot or to some extent?", where the answer "No" is coded as 1 and a 0 otherwise, i.e., if the answer is "Yes, a lot" or "Yes, to some extent." The sample in this table is children of immigrants whose mother is an immigrant. Country-by-year fixed effects included in all specifications. Low income is a dummy for the bottom three deciles. Middle income is a dummy for the middle four deciles. Data is from the second to fifth waves of the European Social Survey. Standard errors, which allow for clustering on the parent's birth country, in parenthesis. Significance stars,
* $p < 0.1$,
** $p < 0.05$,
*** $p < 0.01$.

country language structure would influence health in other ways than modeled[48].

The second stage result for the sample with an immigrant father is presented in specification (4) of Table 8. The estimate is positive and significant. This result contrasts with the baseline model in Table 2 where trust on the father's side is insignificant. The significant estimate on the father's side could be explained with attenuation bias. It could also be that the ancestral trust shifted by the language structure is particularly important on the father's side and that this variation produces the significant estimate. The results presented here that less hierarchical language structures facilitate trust also align with findings that less hierarchical political structures promote trust among children of immigrant fathers in Ljunge (2014b). It could hence be that trust shaped by more or less hierarchical structures are particularly important on the father's side.

4.3. Hampered by health problems in daily activities

Self-assessed health is a valuable measure of health. It could, however, be that this measure of health and the influence of inherited trust does not correlate with health outcomes. The subjective and objective assessments of health need not overlap perfectly as pointed out by Suchman et al. (1958). To examine if trust also affects health outcomes I study a health related outcome reported

[48] Yet, one can never be certain that the exclusion restriction holds.

in the survey. Individuals indicate if they are hampered in their daily activities by any longstanding illness, or disability, infirmity or mental health problem or if they have no such issues. The answer is coded in a binary fashion with 0 indicating that the individual is hampered in some way and with a 1 if the answer is no.

The first specification in Table 9 finds that those with higher ancestral trust are less likely to report any health impediments in daily life. The first model includes ancestral trust, level of development, and the most exogenous individual controls (as well as the country-by-year fixed effects). The second specification adds individual controls for education, marital status, income, and religion[49]. The estimate on trust remains positive and significant. The result is also robust to accounting for a range of alternative ancestral influences including inequality, institutions, and health as seen in the third specification of Table 9.

The results in Table 9 dispel the concern that trust promotes self-assessed health only but has no influence on health outcomes. Table 9 studies a relevant health outcome and finds that this health outcome is better the higher is ancestral trust. There is hence evidence that trust makes a difference in individuals' daily life.

5. Conclusion

This paper makes a case for a causal effect of trust on health by addressing reverse causality, omitted variables, and selection. The method of studying children of immigrants within country of birth and using variation in trust across ancestral countries addresses reverse causality. Extensive robustness checks account for a range of plausible alternative factors, such as ancestral country development, longevity, and institutions, driving the result. While impossible to account for all omitted factors, the robustness of the trust estimate and the insignificance of most alternative factors make it plausible that the identifying assumption of no relevant omitted factors could hold. Instrumental variables result using language structure as an instrument for ancestral trust confirm the positive estimates of trust on health. Moreover, evidence on migrant selection on trust indicates that the point estimate on ancestral trust may be substantially downward biased.

The findings point to ancestral trust as a factor guiding where to target health policy interventions. This narrow interpretation of the result may be expanded as birth country trust is one component of an individual's trust.

If one accepts children of immigrants as representative of natives, and there are several reasons to think so, then the results have wide implications for social capital and health promotions. Children of immigrants look similar to natives on average (Table 1) and have similar socio-economic health gradients as natives (Table A3). It could be plausible to generalize the findings to a positive influence of the persistent component of trust among natives on their health. Under such an interpretation of the findings the health policy implications widen to include trust building among individuals in the general population. This interpretation of course relies on assumptions on the generalizability of the findings that have not been tested here, and such tests are probably impossible to undertake convincingly due to the potential endogeneities between trust, health, and contextual factors. Children of immigrants provide a unique laboratory where these endogeneity problems can be addressed and if we think these individuals are representative the analysis may contribute to our understanding of the influence of social capital on health in the general population.

The findings of a positive influence of trust on self-reported health are relevant for health policy since self-reported health is a strong predictor of several health outcomes as discussed in the introduction. Yet, subjective health may not overlap perfectly with objective health as pointed out by Suchman et al. (1958). The content and meaning of self-reported health remains debated in the literature; see for example Jylhä (2009) and the comment by Huisman and Deeg (2009).

It is hence valuable to present evidence on how trust affects health issues in daily life. Evidence presented finds that those with higher trust are less likely to report that their daily activities are hampered by health problems. Hence, higher trust makes a positive difference in the lives of individuals. It validates that the estimated positive influence of trust on subjective health have bearing also along more objective health margins.

The policy implication, if one accepts the generalization of the results to the general population, is to promote trust. The literature has documented several means toward building trust: teaching practices (Algan et al., 2013b), social skills training (Algan et al., 2013a), community involvement (Algesheimer et al., 2012), economic freedom (Knack and Zak, 2003; Aghion et al., 2010; Berggren and Jordahl, 2006), and political freedom (Ljunge, 2014b).

How do we understand the influence of trust on health? One standard model of health outcomes is health capital, which depreciates unless invested in (Grossman, 1972; Ehrlich and Chuma, 1990). The model implies that past inputs into health will have a dissipating clout as time passes. The influence of inherited trust on individual health presented in this paper suggests that there are social inputs in the determination of health that depreciate very slowly, which is challenging to account for in the standard model. The finding instead suggests a variant of a model with several inputs into health determination that may be substitutes or complements (Heckman, 2007; Conti and Heckman, 2010). The results presented here suggest that trust, a character trait not considered in this literature, is added as a separate input in such a model.

Trust as a factor in health production may be complimentary with other factors that could promote health. Education and occupational status are strong correlates with health[50]. Children of immigrant mothers

[49] Labor force status is not included as a control since health impediments are likely determinants of labor force status rather than the other way around.

[50] Amick et al. (2002) find that mortality is higher for workers in low-control jobs.

from high trusting countries have higher education and work in higher skilled occupation with greater worker autonomy as found in Ljunge (2014c). Those with higher trusting ancestry are more likely to work, less likely to be unemployed or have long unemployment spells, and less likely to be retired. In addition, Ljunge (2014c) also finds that these individuals earn more than those with low trust ancestry. These are all factors that have been argued to promote health, see for example Marmot and Wilkinson (1999). Although some of these factors have been accounted for in the analysis, the controls are unlikely to capture the complete influence. Trust may hence promote health by affecting education, occupational status, income, and labor supply in ways not captured by the controls.

The results provide evidence of one mechanism through which trust can promote successful societies beyond the direct impact on health. The recent literature has found a positive influence of average trust on economic and social development, but how this success comes about is not well understood[51]. Trusting individuals are thought to be more likely to interact with others[52]. Health enables interactions among individuals. Trust can hence affect health and behavior of individuals. Weil (2007) shows that health is an important factor in accounting for income differences across countries. The results in this paper indicate that health is one channel through which trust could stimulate growth since better health enables individuals to be more productive.

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Appendix A. Appendix

Tables A1–A5.

Table A1
Countries participating in the ESS by survey round.

Country	Survey round				
	1	2	3	4	5
Austria	X	X	X		
Belgium	X	X	X	X	X
Bulgaria			X	X	X
Croatia					X
Cyprus			X	X	X
Czech Republic	X	X		X	X
Denmark	X	X	X	X	X
Estonia		X	X	X	X
Finland	X	X	X	X	X
France	X	X	X	X	X
Germany	X	X	X	X	X
Greece	X	X		X	X
Hungary	X	X	X	X	X
Ireland	X	X	X	X	X
Israel	X			X	X
Italy	X	X			
Luxembourg	X	X			
Netherlands	X	X	X	X	X
Norway	X	X	X	X	X
Poland	X	X	X	X	X
Portugal	X	X	X	X	X
Russian Federation		X	X	X	
Slovakia		X	X	X	X
Slovenia	X	X	X	X	X
Spain	X	X	X	X	X
Sweden	X	X	X	X	X
Switzerland	X	X	X	X	X
Turkey		X		X	
Ukraine		X	X	X	X
United Kingdom	X	X	X	X	X

Notes: Edition 2.0 of ESS round 5 is used, and the cumulative file for earlier rounds. Rounds 2 through 5 are used in the analysis since they include parental birth country. Survey years as follows: round 1 in 2002; round 2 in 2004; round 3 in 2006; round 4 in 2008; and round 5 in 2010.

[51] Tabellini (2008) shows how historical political institutions shape trust and in turn affect income. Algan and Cahuc (2010) measure trust among waves of immigrants to the U.S. and estimate a positive effect of trust on growth across countries. As shown in an earlier literature trust correlates with favorable economic outcomes (Knack and Keefer, 1997) and with indicators of good government (La Porta et al., 1997, 1999) in cross-country data.

[52] Health may also encourage civic participation since good health allows individuals to engage in the public sphere and may explain why trust is associated with better functioning institutions.

Table A2
Countries of ancestry on the mother's side and summary statistics.

Country code	Trust, mother's country of birth	Count of 2nd generation immigrants	Country Code	Trust, mother's country of birth	Count of 2nd generation immigrants	Country code	Trust, mother's country of birth	Count of 2nd generation immigrants
AL	0.256	15	FR	0.219	250	MY	0.088	7
AM	0.247	11	GB	0.359	197	NG	0.219	8
AR	0.196	23	GE	0.185	33	NL	0.506	103
AT	0.327	173	GH	0.085	7	NO	0.664	66
AU	0.446	13	GR	0.237	77	NZ	0.500	4
AZ	0.205	18	GT	0.157	1	PE	0.075	5
BA	0.219	117	HK	0.411	6	PH	0.071	17
BD	0.222	7	HR	0.229	96	PK	0.274	54
BE	0.313	80	HU	0.269	169	PL	0.233	433
BG	0.270	56	ID	0.456	80	PT	0.174	120
BR	0.064	34	IE	0.415	113	RO	0.168	189
BY	0.286	116	IL	0.235	2	RU	0.276	972
CA	0.445	24	IN	0.346	84	SE	0.635	61
CH	0.438	31	IQ	0.440	144	SG	0.147	2
CL	0.203	13	IR	0.336	64	SI	0.182	21
CN	0.542	12	IS	0.413	8	SK	0.213	177
CO	0.120	4	IT	0.317	468	TH	0.415	10
CS	0.276	47	JO	0.295	4	TR	0.113	432
CY	0.128	13	JP	0.416	5	TW	0.296	1
CZ	0.267	172	KG	0.167	5	TZ	0.081	2
DE	0.341	661	KR	0.317	2	UA	0.295	234
DK	0.588	51	LT	0.262	32	UG	0.078	1
DO	0.264	2	LU	0.248	14	US	0.411	145
DZ	0.112	114	LV	0.206	29	UY	0.248	8
EE	0.242	16	MA	0.194	356	VE	0.148	5
EG	0.280	58	MD	0.182	22	VN	0.478	13
ES	0.328	142	MK	0.111	28	ZA	0.198	10
ET	0.244	18	ML	0.175	3	ZW	0.112	2
FI	0.565	202	MT	0.188	4			
ET	0.244	18	MX	0.241	4			

Notes: Country codes according to ISO-3166. Trust is measured between 0 and 1, where 1 corresponds to 'most people can be trusted.' Country averages of trust are computed across the waves in the integrated European Values Survey and World Values Survey. The average across countries is 0.27, and the standard deviation is 0.135 (both unweighted). The count of 2nd generation immigrants refers to the number of individuals with an immigrant mother in the European Social Survey.

Table A3
Self-reported health and self-reported trust. Individual correlations.

Dependent variable: self-reported health status				
Sample	General population	Native born with native born parents	Children of immigrants with an immigrant mother	Children of immigrants with an immigrant father
	(1)	(2)	(3)	(4)
Trust	**0.036**	**0.036**	**0.033**	**0.035**
	(0.002)***	(0.003)***	(0.004)***	(0.003)***
Age	−0.035	−0.035	−0.039	−0.036
	(0.002)***	(0.002)***	(0.004)***	(0.004)***
Age squared/100	0.017	0.017	0.019	0.017
	(0.002)***	(0.002)***	(0.005)***	(0.005)***
Female	−0.049	−0.047	−0.069	−0.048
	(0.015)***	(0.017)***	(0.024)***	(0.027)*
Married	0.086	0.089	0.061	0.055
	(0.009)***	(0.010)***	(0.025)**	(0.030)*
Never married	0.019	0.021	−0.060	−0.043
	(0.011)*	(0.011)*	(0.037)	(0.036)
Upper secondary	0.102	0.100	0.072	0.101
	(0.012)***	(0.012)***	(0.030)**	(0.030)***
College or university	0.192	0.191	0.190	0.236
	(0.014)***	(0.015)***	(0.027)***	(0.032)***
Out of labor force	−0.222	−0.220	−0.199	−0.191
	(0.015)***	(0.018)***	(0.027)***	(0.030)***
Unemployed	−0.126	−0.116	−0.133	−0.085
	(0.014)***	(0.016)***	(0.049)***	(0.041)**
Low income	−0.167	−0.162	−0.162	−0.122
	(0.009)***	(0.010)***	(0.031)***	(0.030)***
Middle income	−0.046	−0.042	−0.025	−0.045
	(0.008)***	(0.009)***	(0.024)	(0.020)**
Catholic	0.038	0.039	0.035	−0.011
	(0.018)**	(0.021)*	(0.028)	(0.028)
Protestant	0.077	0.062	0.077	0.105
	(0.015)***	(0.016)***	(0.033)**	(0.035)***
Country-by-year fixed effects	Yes	Yes	Yes	Yes
R-squared	0.315	0.316	0.295	0.306
Observations	186,080	156,371	7625	7913

Notes: The dependent variable is self-assessed Health, which ranges from 1, 'very bad' to 5 'very good.' Column (1) estimates the association between Health and generalized trust of the individual in the general population. Column (2) trims the sample to include native born individuals with native born parents. Column (3) restricts the sample to second generation immigrants with an immigrant mother. Column (4) studies children of immigrants with an immigrant father and estimates the correlation of self-reported trust and health. Low income is a dummy for the bottom three deciles. Middle income is a dummy for the middle four deciles. Data is from the second to fifth waves of the European Social Survey. All models are estimated with ordinary least squares. Standard errors in parenthesis. Standard errors allow for clustering on the parent's birth country. Significance stars,

* $p < 0.1$,
** $p < 0.05$,
*** $p < 0.01$.

Table A4
Trust transmission.

Dependent variable: trust		
Sample	Children of immigrants with an immigrant mother	Children of immigrants with an immigrant father
	(1)	(2)
Trust, mother's birth country	**0.091**	
	(0.038)**	
Trust, father's birth country		**0.025**
		(0.048)
Age	−0.030	−0.031
	(0.011)***	(0.012)**
Age squared/100	0.034	0.032
	(0.011)***	(0.012)***
Female	−0.016	−0.029
	(0.055)	(0.051)
Married	0.160	0.036
	(0.078)**	(0.069)
Never married	0.182	0.009
	(0.126)	(0.116)
Upper secondary	0.323	0.266
	(0.087)***	(0.074)***
College or university	0.914	0.980
	(0.093)***	(0.083)***
Out of labor force	−0.100	0.012
	(0.079)	(0.057)
Unemployed	−0.449	−0.277
	(0.144)***	(0.174)
Low income	−0.181	−0.137
	(0.074)**	(0.077)*
Middle income	0.043	0.006
	(0.054)	(0.058)
Catholic	−0.075	−0.038
	(0.077)	(0.091)
Protestant	0.271	0.123
	(0.084)***	(0.098)
Country-by-year fixed effects	Yes	Yes
R-squared	0.133	0.123
Observations	7625	7913

Notes: The dependent variable is generalized trust, which ranges from 0, 'you can't be too careful when dealing with people' to 10 'most people can be trusted.' Column (1) estimates the association between trust and generalized trust of second generation immigrants in the sample with an immigrant mother. Column (2) studies the sample with second generation immigrants with an immigrant father. Data is from the second to fifth waves of the European Social Survey. Standard errors, allowing for clustering on the parent's birth country, in parenthesis. Significance stars,

* $p < 0.1$,

** $p < 0.05$,

*** $p < 0.01$.

Table A5
Self-reported health and trust. Ordered Probit results.

Dependent variable: self-reported health status				
Sample	Children of immigrants with an immigrant mother	Children of immigrants with an immigrant mother	Children of immigrants with an immigrant father	Children of immigrants with an immigrant father
	(1)	(2)	(3)	(4)
Trust, mother's birth country	0.050	0.042		
	(0.023)**	(0.021)**		
Trust, father's birth country			0.030	0.026
			(0.021)	(0.020)
Age	−0.025	−0.058	−0.021	−0.054
	(0.005)***	(0.006)***	(0.004)***	(0.005)***
Age squared/100	−0.003	0.031	−0.007	0.028
	(0.005)	(0.006)***	(0.004)	(0.006)***
Female	−0.126	−0.096	−0.095	−0.069
	(0.031)***	(0.033)***	(0.032)***	(0.037)*
Married		0.075		0.070
		(0.033)**		(0.041)*
Never married		−0.083		−0.060
		(0.049)*		(0.050)
Upper secondary		0.106		0.149
		(0.039)***		(0.040)***
College or university		0.295		0.370
		(0.037)***		(0.045)***
Out of labor force		−0.258		−0.250
		(0.036)***		(0.038)***
Unemployed		−0.207		−0.121
		(0.071)***		(0.059)**
Low income		−0.233		−0.173
		(0.046)***		(0.040)***
Middle income		−0.041		−0.069
		(0.038)		(0.031)**
Catholic		0.048		−0.017
		(0.041)		(0.037)
Protestant		0.121		0.142
		(0.046)***		(0.051)***
Country-by-year fixed effects	Yes	Yes	Yes	Yes
Observations	7652	7652	7942	7942

Notes: The dependent variable is self-assessed Health, which ranges from 1, 'very bad' to 5 'very good.' Column (1) estimates the association between Health and generalized trust of the individual in the general population. Columns (1) and (2) studies the sample of children of immigrants with an immigrant mother and estimates the effect of trust in the mother's country of birth on health. Columns (3) and (4) studies children of immigrants with an immigrant father and estimates the effect of trust in the father's country of birth on health. Low income is a dummy for the bottom three deciles. Middle income is a dummy for the middle four deciles. Data is from the second to fifth waves of the European Social Survey. All models are estimated with Ordered Probit, estimated coefficients are reported. Standard errors, which allow for clustering on the parent's birth country, in parenthesis. Significance stars,
* $p < 0.1$,
** $p < 0.05$,
*** $p < 0.01$.

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