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Trust Drives Internet Use

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Abstract

This paper estimates the effect of trust on internet use by studying the general population as well as second generation immigrants in 29 European countries with ancestry in 87 nations. There is a significant positive effect of trust on internet use. The positive trust effect is not universal to all media, as individuals with high trust are shown to consume less television. The finding provides evidence for one mechanism through which trust creates good outcomes. Individuals with high trust spend time online, and eschew the isolation of the TV couch, which may produce more productive opportunities.

JEL codes: D13, D83, J62, Z13
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1 Introduction

Trust is essential in market interactions. Theory predicts that trust leads to good outcomes as it enables people to engage in transactions and form matches to increase well-being. As Arrow (1972) puts it, "Virtually every commercial transaction has within itself an element of trust, certainly any transaction conducted over a period of time. It can be plausibly argued that much of the economic backwardness in the world can be explained by the lack of mutual confidence."

The causal link between trust and aggregate outcomes has been explored in several recent papers.[2] Tabellini (2008 and 2010) shows how historical political institutions shape trust and in turn affect income.[3] Algan and Cahuc (2010) study trust among waves of immigrants to the U.S. and estimate a causal effect of trust on growth across countries. The evidence points to an important role for trust in economic and social development, yet, knowledge of the mechanisms through which trust promotes growth is limited.

This paper studies how trust affects internet use, a specific channel through which trust may influence an individual's pool of productive matches. Dimaggio and Bonikowski (2008) find a positive correlation between internet use and wages, consistent with a positive effect of internet use on growth. Forman, Goldfarb, and Greenstein (2012) find evidence that internet use leads to wage growth across U.S. cities. My contribution is to link trust to internet use.

To what extent is the positive correlation between internet use and trust observed in individual data causal? To address the reverse causality concern I study the internet use of second generation immigrants and relate their behavior to the trust in their ancestral country. Ancestral trust is strongly related to individual trust as shown in Ljunge (2012). Important, for the purposes of this study, ancestral trust is not affected by the internet use of an individual born and residing in a different country. Using this component of individual trust that is not endogenous to the setting in which the individual lives allows me to interpret the correlation of trust and internet use as causal. There is a strong positive effect of ancestral trust on internet use, indicating that trust drives internet use.

The interpretation that high trust individuals are more outgoing and interactive is further corroborated when studying time spent watching TV. Individuals with high trust ancestry spend significantly less time on the TV couch. As watching TV is a

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[2] An earlier literature has shown trust to correlate with favourable economic outcomes (Knack and Keefer 1997) and with indicators of good government (La Porta et al. 1997 and 1999) in cross country data.

[3] Guiso et al (2008) study the effects of historical institutions on social capital.

passive activity the results support the interpretation that trust promotes interactions. These results also show that trusting individuals aren't just curious and consume more of all kinds of media; they focus their media consumption on internet use which is more interactive.

The paper proceeds as follows. The next section discusses the empirical specifications, followed by a section presenting the data. The results are presented in section 4, and the last section concludes.

2   Empirical Specifications

I run two regressions. The first regression is

$$Internet\_Use_{ict}=\alpha_0+\alpha_1 Trust_{ict}+\alpha_2 X_i+\gamma_{ct}+\varepsilon_{ict} \qquad (1)$$

$Internet\_Use_{ict}$ captures the use of internet by individual i, residing in country c, in period t. $Trust_{ict}$ is the individual's stated trust. X_i captures individual demographic and economic controls that may affect internet use. The country of residence-by-year fixed effect is denoted by γ_{ct}, and ε_{ict} is the error term. The results presented below are from an ordinary least squares regression but the findings are robust to using an ordered Probit or Logit model.

To address the reverse causality concern, that internet use may influence trust, I use the 'epidemiological approach' as Fernandez (2010) labels the method in her handbook chapter. The second type of analysis is ordinary least squares regressions of the following form:[4]

$$Internet\_Use_{icat}=\beta_0+\beta_1 Mean\_Trust_a+\beta_2 X_i+\gamma_{ct}+\varepsilon_{icat} \qquad (2)$$

$Internet\_Use_{icat}$ captures the internet use by individual i, born and residing in country c with a parent born in country a, and a≠c, in period t. This regression is run on a sample of second generation immigrants. The average level of ancestral trust, $Mean\_Trust_a$, is common to all individuals with a parent born in country a. As above,

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[4] The results are robust to using the ordered Logit or the ordered Probit estimator.

X_i captures individual demographic and economic controls that may affect internet use. 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.

Reverse causality is not a concern in (2) since the internet use of a person born and residing in country c can't 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, which is done. The inclusion of the country-by-year fixed effect γ_{ct} means that I account for the institutional structure and all other unobserved differences which apply to all residents in country c in period t. 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 traits in their countries of ancestry.[5] Since the country fixed effects are included for each year they account for non-linear trends that may differ across countries. Fernandez (2010) provides a more detailed discussion of the method and the related literature.

3   Data

The European Social Survey (ESS) is the main data set. Data from the second to fifth rounds of the ESS are used.[6] The survey asks about the country of birth of the respondent as well as the country of birth of both parents.[7] This information allows me to identify second generation immigrants and which countries their parents originate from. Looking at 29 countries of residence for second generation immigrants reduces the concern that the results are driven by conditions of one particular country.[8] Individuals with ancestry from 87 countries are observed. This reduces the concern that the results are particular to a small number of ancestral

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[5] For example, I am comparing if individuals with high trust ancestry born in France have higher internet use than those born in France with lower trust ancestry.

[6] See Table A1 for the participating countries in each round.

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

[8] Luttmer and Singhal (2011) use the same data set to study preferences for redistribution.

backgrounds. I focus on individuals with an immigrant mother. The summary statistics are presented in Table 1. The second generation immigrants are similar to the general population on observables. Their mean age is somewhat lower, which may account for their slightly higher education and internet use.

3.1 Internet Use

The following question captures internet use. "Now, using this card, how often do you use the internet, the World Wide Web or e-mail - whether at home or at work - for your personal use?" The categories for the answers are "No access at home or work," "Never use," "Less than once a month," "Once a month," "Several times a month," "Once a week," "Several times a week," and "Every day." The answers are coded from 0 to 7 so a higher value captures more frequent use.

The distribution of internet use, by survey wave, is plotted in Figure 1. There is a clear trend over time from the left to the right of the distribution, where all of the increase is driven by a higher fraction of people using internet every day. The trend points to the importance of including country-by-year fixed effects in the analysis.

The survey question focuses on personal use. It may also be a reasonable measure of internet use in a professional context. DiMaggio and Bonikowski (2008) present evidence to support this conjecture. Both personal and professional internet use may allow individuals to explore productive opportunities.

Figure 1. How often do you use the internet, the World Wide Web or e-mail?
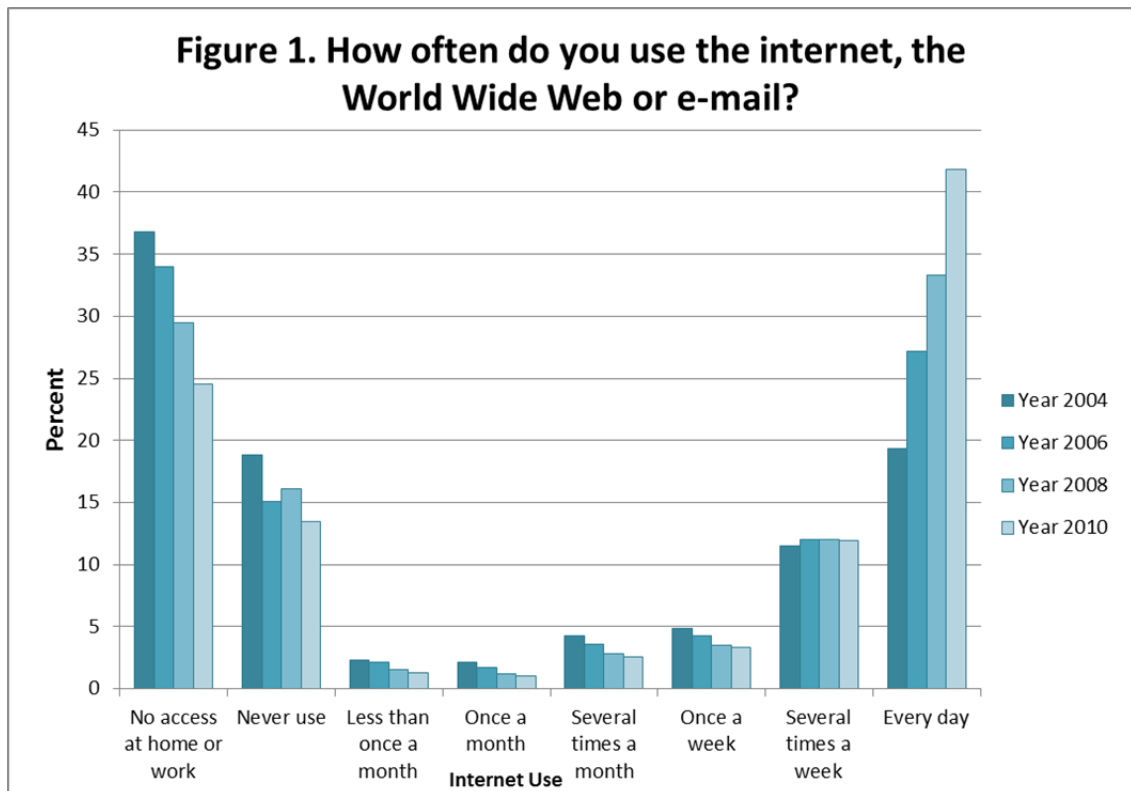
3.2 Individual Trust

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."

3.3 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). This allows me to expand the analysis of second generation immigrants beyond those with ancestry in the countries covered by the ESS. In the EVS/WVS trust is observed for 87 nations. Moreover, the countries in the EVS/WVS are much more diverse and include countries from Africa, the Americas, and Asia.[9]

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

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.[10] The average is multiplied by 10 so the scale is the same as in the ESS. For the ancestral trust levels by country see Table A2.

Table 1. Summary statistics.

Variable	General population sample		Immigrant mother sample	
	Mean	Std. Dev.	Mean	Std. Dev.
Internet use	3.42	3.07	4.13	3.04
Trust	4.86	2.51	4.94	2.48
Trust in the mother's birth country			2.89	1.12
Age	47.5	18.5	44.0	18.03
Female	.542	.498	0.536	0.499
Married	0.532	0.499	0.481	0.500
Never married	0.272	0.445	0.328	0.469
Upper secondary degree	0.448	0.497	0.509	0.500
College/univeristy degree	0.240	0.427	0.273	0.446
Out of labor force	0.476	0.499	0.446	0.497
Unemployed	0.040	0.196	0.046	0.209
Low income	0.253	0.435	0.221	0.415
Middle income	0.300	0.458	0.306	0.461
Catholic	0.291	0.454	0.199	0.399
Protestant	0.116	0.321	0.075	0.264
Observations	184118		7546	

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.

3.4 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.

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[10]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.

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. There are two dummies for being a Catholic or a Protestant. All other religious denominations are in the excluded category.

3.5 TV Watching

Part of the analysis considers another outcome variable; time spent watching TV. It is captured by the following question: "On an average weekday, how much time, in total, do you spend watching television?" Answers are coded into eight categories with values 0 through 7; "None", "Less than 0,5 hour", "0,5 hour to 1 hour", "More than 1 hour, up to 1,5 hours", "More than 1,5 hours, up to 2 hours", "More than 2 hours, up to 2,5 hours", "More than 2,5 hours, up to 3 hours", and "More than 3 hours".[11]

4 Results

The main results are presented in Table 2. First I examine the association between internet use and trust among individuals in the full ESS sample. The point estimate in column (1) is 0.069 and strongly significant. The estimate accounts for a range of demographic and economic controls. Country-by-year fixed effects are also included, which account for non-linear trends in unobserved factors that affect internet use across time and countries. The estimated coefficient is consistent with a causal effect of trust on internet use but we cannot rule out that causality also runs in the direction from internet use to trust.

How can the reverse causality concern be addressed? A trust measure that does not depend on individual internet use is required. Second generation immigrants offer a 'natural experiment' that can help. The second generation immigrants have different

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[11] The sample average (standard deviation) in the full sample is 4.33 (2.06), and in the sample of second generation immigrants with an immigrant mother it is 4.13 (2.14).

ancestral influences of trust. Given that there is cultural transmission of trust, evidence of which is given in Ljunge (2012), one can use the ancestral trust as a proxy for individual trust. Since the internet use of a second generation immigrant born and residing in one country can't possibly affect the average trust level in the parent's birth country there is no reverse causality concern. This is the approach I take.

I consider a sample of second generation immigrants with an immigrant mother.[12] In order to change one aspect of the analysis at a time I first estimate the model in the first column but restricted to the immigrant mother sample. The results presented in column (2) of Table 2 are very similar to column (1). It indicates that the immigrant mother sample behaves in a similar way to the full sample, and that studying these individuals doesn't change the findings. The association between trust and internet use is of similar magnitude and significance in the first two columns. All the significant estimates display similar magnitudes in column (2), although some of the estimated effects of the demographic variables lose their significance in the smaller sample.

In the main specification I regress the individual's internet use on the mean trust in the mother's country of birth, along with the other controls. The estimate of the effect of trust on internet use is 0.096 and strongly significant, as seen in column (3) of Table 2. The result indicates that trust drives internet use.[13]

The estimated effect of trust on internet use in the second generation sample is larger than the association in the general population. Since the estimate in the general population captures bidirectional effects between trust and internet use, it could indicate that internet use reduces trust.

Internet use is declining with age, and the relationship is close to linear. Women use it less than men, while marital status has a weak association. The strongest

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[12] I refer to this sample as the immigrant mother sample.
[13] The results are qualitatively similar for the sample with an immigrant father, although less precisely estimated. This mirrors the finding in Ljunge (2012) that cultural transmission of trust is stronger on the mother's side.

predictors for more internet use are high education, high income, and a strong labor force attachment. Catholics use the internet less than others.

The associations between the control variables and internet use are similar in the general population and among the second generation immigrants. It indicates that their behaviors are similar along the observable dimensions. It provides further assurance that the second generation immigrant sample is similar to the general population.

The estimated effect is quantitatively significant. An increase in the ancestral trust of one standard deviation corresponds to the effect of being two years younger or moving two deciles higher in the middle of the income distribution.

Although the main reason for studying second generation immigrants is that it allows separating the cultural influence from institutions there are implications for the integration of immigrants, which could have consequences for immigration and integration policy. The results show that trust of the ancestral country affect behavior in the second generation. It suggests that the internet use of a country may be influenced by the composition of immigrants. The results also suggest that one of the benefits of policy that builds trust may be to make individuals interact more.

4.1 Robustness

The results in Table 2 are robust to a number of alternative specifications. The lowest category of internet use, 'no access at home or work,' could be particular. A response of 'no access' could capture that the individual have chosen to not have internet access at home, although there may be access at public libraries etc. The second option, 'never use,' may signal that the person has chosen to have access but it isn't utilized. The two categories could have some overlap. The results are robust to recoding the two lowest categories as one category, as well as if the individuals in the 'no access' category are omitted from the analysis. The estimates are reported in columns (1) and (2) of Table 3.

Selection of immigrants is not necessarily a problem for the analysis. First, the second generation immigrants have not chosen to emigrate, and being born and

raised in the country of residence they are integrated in society. The second generation 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 column (3) of 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 internet use, this would compress the variation in the left hand side variable, attenuate the estimate, and bias it toward zero.

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 internet use. To address this I add the logarithm of gross domestic product (gdp) per capita in the mother's birth country to the specification. The results are robust as seen in column (3) of Table 3, and the estimate on gdp is insignificant. It is hence trust and not level of development that drive the results.

Another approach to address parental sorting is to account for parental education. This shuts down any transmission of ancestral trust through parental education. I include dummies for upper secondary and tertiary education for the mother and father in column (4) of Table 3. The estimate on trust in the mother's birth country is robust to these added controls. In column (5) of Table 3 I include gdp in the mother's country of birth along with the parental education variables. The results are robust to this specification as well.

These results also point to an important role of parental education as a driver of internet use. High education both of the mother and the father transmit into higher internet use beyond the effect of the individual's education and other controls. Policy promoting higher education could hence have a pay-off in driving personal interactions both in the current and future generations.

In Table 2 I use all the available data. There may be a concern that the results in column (3) are influenced by ancestries with few second generation immigrants in

the data. The results are robust to including ancestral countries with at least 5, 10, 15, or 25 observations. The result is not driven by small immigrant groups.

The dependent variable internet use is a discrete ordinal variable. The linear model estimated in Table 2 has the advantage of a straightforward estimation and interpretation of coefficients. I have also estimated the model with ordered Probit and ordered Logit models. The results are similar to those presented in Table 2.

4.2 Time-varying Coefficients

The use of internet has increased substantially over the years, as seen in Figure 1. At the same time the underlying characteristics have not changed correspondingly. It could indicate that underlying coefficients have changed over time. To allow for time-varying coefficients I have interacted the control variables with a time trend, and added these interaction terms to the specification. Significant estimates of the interaction terms would indicate time-varying effects.

There is no evidence of a trust having a differential effect over the years studied. Some of the estimates of the demographic controls show a time trend. Women, who use internet less than men, tend to catch up over time. I find that individuals with upper secondary education advance relative to those with less education, while there is no time trend among college educated respondents (who tend to be frequent users). Those with low and medium income lag behind those with high income over time, indicating a widening internet use gap across the income distribution. Unemployed show a significant increase over time from a low level of internet use. Married individuals increase use over time from a low level, while those never married have lower use over time but from a high level, indicating a convergence in use across marital status groups. Protestants catch up relative to the omitted denominations.

4.3 Heterogeneity

Does trust differentially affect internet use across country of residence and country of ancestry? I address this using the sample of second generation immigrants. I find a strong effect of ancestral trust on internet use in the Western European context,

but not in Eastern Europe. There are significant differences in the effect of trust across ancestry, with the strongest effect among Latin Americans but none for those with African ancestry.

4.3.1 Country of Residence

Does ancestral trust's effect on internet use differ among second generation immigrants across Europe? I create dummies for individuals residing in Western and Eastern Europe. The region of residence dummies are interacted with the variable capturing the average trust in the mother's country of birth. Coefficients for the influence of ancestral trust for individuals living in Western and Eastern Europe are then estimated in the same model.

The effect of ancestral trust on internet use is large and strongly significant for individuals in Western Europe, as seen in model A in Table 4. The point estimate for individuals in Eastern Europe is negative, but very imprecisely estimated so it is far from significant. The estimates show that the effect of trust on internet use is driven by behavior in Western Europe.[14]

Are there differences within Western Europe? I create dummies for Northern and Southern Europe and perform the analysis as above.[15] The estimates do not reveal any differences between Northern and Southern Europe. The estimate is a bit higher in magnitude and more precisely estimated in Northern Europe as seen in model B in Table 4, but the differences are not significant.[16] The estimate for Eastern Europe is the same as in the previous specification, as expected.

4.3.2 Ancestry

Does the influence of trust on internet use differ by ancestry? I construct dummies for each continent of ancestry, and interact with ancestral trust as above. The estimate on European ancestry is similar to the baseline, as seen in model A of Table

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[14] The two estimates are, however, not significantly different from each other due to the large standard error of the Eastern Europe estimate.

[15] Southern Europe is classified by speaking Latin based languages and being located around the Mediterranean. See Table A1 for further details on country classifications.

[16] In comparison, the cultural transmission of trust is strong in Northern Europe but insignificant in Southern Europe as reported in Ljunge (2012).

5. The largest estimate is found among those with Latin American ancestry, although the standard error is fairly large.[17] The point estimate for African ancestry is negative but insignificant. Point estimates for American and Asian ancestry are positive but not significant at conventional levels. The test of equality of the estimated coefficients across ancestral continents has a very low p-value, indicating that the effect of trust on internet use is significantly different across ancestries.

Next, I estimate the same model but restrict the sample to residents in Northern Europe to study the effects in a more homogenous environment with strong transmission of trust. The results in model B of Table 5 are similar to the previous model. The effect of ancestral trust becomes significant for those with Asian and American ancestry. The point estimate for African ancestry is closer to zero. There are still significant differences across ancestry.

4.4 Time Spent Watching TV

One hypothesis is that trusting individuals are more curious and seek out more information in all forms, which is not necessarily related to exploring potential productive matches. To separate these interpretations I study another media use; time spent watching TV. It is a media where curious individuals may acquire information, but it does not offer the interactive experience of internet use.

The analysis is performed analogously to above but the dependent variable time spent watching TV replaces internet use. The first column in Table 6 regresses the time spent watching TV on the individual's expressed trust as well as a host of individual controls for the full sample (natives and immigrants). The point estimate is negative and significant, indicating that those who express higher trust spend less time watching TV.

To address the reverse causality concern, that time spent watching TV may affect trust, I study second generation immigrants.[18] Ancestral trust isn't affected by individual TV watching. The effect of trust in the mother's birth country on time

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[17] Latin America is defined as Mexico and the Americas south thereof.
[18] Olken (2009) studies the opposite direction of causality, if watching TV affects trust.

spent watching TV is negative and strongly significant (p=0.025) as seen in column 2 of Table 6. The result indicates that trust activates people and drives them off the couch.

The estimate is quantitatively significant. A one standard deviation increase mother's ancestral trust corresponds to the effect of having an upper secondary education compared to less education, or the effect of being four years younger. The point estimate is higher in magnitude for the immigrant mother sample but the confidence intervals of the two estimates of trust in columns 1 and 2 overlap. Among the controls, time spent watching TV is decreasing in education, labor force attachment, and income, while it is increasing in age.

The estimated effect of ancestral trust is also present on the father's side, but it is a bit less precisely estimated. The results are robust to controlling for mother's and father's education. Adding controls essentially shuts down some channels through which the ancestral trust could affect TV watching. The estimated effect of ancestral trust is somewhat larger in a stripped down model where I only control for age, age squared, and gender, indicating that some of the effect of ancestral trust works through the included controls. The results are robust to requiring at least 5, 10, 15, or 25 immigrants to have ancestry in each country. The results are also robust to using the ordered Probit or Logit estimators.

5   Conclusion

I find evidence that trust drives internet use. Internet use and trust are positively associated in the general population. In order to address the reverse causality concern I study second generation immigrants in Europe. I find that internet use is positively affected by trust in the mother's birth country, which provides evidence of a causal effect of trust on internet use.

The finding is robust. It is not explained by contemporaneous individual factors like income or education, by ancestry from more developed nations, or parental education. The results are driven by the second generation immigrants residing in

Western Europe. It indicates that the effect of trust on behavior depends on the current context where individuals live, and it mirrors the weak cultural transmission of trust among immigrants in Eastern Europe found in Ljunge (2012). There is significant heterogeneity across ancestry in the effect of trust on internet use. The effect is strongest among those with Latin American and European ancestry, while it is absent for those with African ancestry.

By studying time spent watching TV I can dispel the hypothesis that trust increases all media consumption. Rather, trust drives media where you meet and communicate with other individuals. Internet use allows individuals to explore professional opportunities as well as become better informed consumers.

The results provide evidence of one mechanism through which trust can promote successful societies. The recent literature has found a positive effect of average trust on income per capita, but how this success comes about is not well understood.[19] Trusting individuals are thought to be more likely to interact with others. One tangible manifestation of such behavior is to search out information on internet and to interact with people online and through e-mail. It allows individuals to meet and communicate with others and explore productive possibilities, which in turn may promote growth and efficient institutions. Cultural beliefs like trust can hence affect behavior of individuals. The paper provides evidence of a behavioral link in the black box between trust and national income.

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[19] See Algan and Cahuc (2010) and Tabellini (2010).

Table 2. Trust and internet use. Main results.

Dependent variable: Internet use			
Sample:	General population	2nd generation immigrants with an immigrant mother	2nd generation immigrants with an immigrant mother
	(1)	(2)	(3)
Trust	**0.069**	**0.074**	
	(0.004)***	(0.012)***	
Trust, mother's birth country			**0.096**
			(0.029)***
Age	-0.085	-0.085	-0.091
	(0.011)***	(0.010)***	(0.017)***
Age squared/100	0.021	0.023	0.029
	(0.012)*	(0.010)**	(0.017)*
Female	-0.233	-0.252	-0.250
	(0.027)***	(0.056)***	(0.049)***
Married	-0.073	0.074	0.071
	(0.032)**	(0.082)	(0.091)
Never married	0.046	0.083	0.074
	(0.052)	(0.105)	(0.137)
Upper secondary	0.637	0.441	0.463
	(0.127)***	(0.069)***	(0.116)***
College or university	1.839	1.602	1.672
	(0.153)***	(0.080)***	(0.099)***
Out of labor force	-0.360	-0.443	-0.450
	(0.039)***	(0.071)***	(0.062)***
Unemployed	-0.550	-0.217	-0.234
	(0.072)***	(0.143)	(0.136)*
Low income	-0.883	-0.891	-0.900
	(0.058)***	(0.080)***	(0.106)***
Middle income	-0.284	-0.265	-0.262
	(0.045)***	(0.068)***	(0.077)***
Catholic	-0.243	-0.259	-0.281
	(0.045)***	(0.083)***	(0.090)***
Protestant	-0.137	-0.062	-0.059
	(0.030)***	(0.108)	(0.085)
Country-by-year fixed effects	Yes	Yes	Yes
R-squared	0.473	0.425	0.422
Observations	184118	7519	7546

Notes: The dependent variable is Internet Use, which ranges from 0, 'no access,' to 7, use 'every day.' Column (1) estimates the association between Internet Use and generalized trust of the individual in the general population. Column (2) restricts the sample to second generation immigrants with an immigrant mother. Column (3) studies second generation immigrants and estimates the effect of trust in the mother's country of birth on internet use. 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 paranthesis. Standard errors allow for clustering on the mother's birth country. Significance stars, * p<0.1, ** p<0.05, *** p<0.01.

Table 3. Robustness checks.

Dependent variable: Internet use

Alternative specification:	Merge two lowest internet use categories	Exclude lowest internet use category	Add ancestral GDP	Parental education	Parental education + ancestral gdp
	(1)	(2)	(3)	(4)	(5)
Trust,	0.088	0.076	0.097	0.076	0.078
mother's birth country	(0.027)***	(0.031)**	(0.034)***	(0.026)***	(0.030)**
log of GDP per capita,			0.051		0.032
mother's country of birth			(0.059)		(0.055)
Upper secondary education,				0.425	0.402
mother				(0.091)***	(0.094)***
Tertiary education, mother				0.396	0.394
				(0.098)***	(0.097)***
Upper secondary education, father				0.150	0.191
				(0.103)	(0.107)*
Tertiary education, father				0.313	0.312
				(0.135)**	(0.141)**
Individual controls	Yes	Yes	Yes	Yes	Yes
Country-by-year fixed effect	Yes	Yes	Yes	Yes	Yes
R-squared	0.415	0.297	0.425	0.427	0.429
Observations	7546	5638	7140	7546	7140

Notes: The dependent variable is Internet Use, which ranges from 0, 'no access,' to 7, use 'every day.' All specifications study second generation immigrants and estimates the effect of trust in the mother's country of birth on internet use. Individual controls include age, age squared, gender, education, labor force attachment, income, and religious denomination. Data is from the second to fifth waves of the European Social Survey. Standard errors in paranthesis, which allow for clustering on the mother's birth country.
Significance stars, * $p<0.1$, ** $p<0.05$, *** $p<0.01$.

Table 4. Heterogeneity Based on Birth Place of 2nd Generation Immigrant.

Model	Sample	Main sample: Second generation immigrants with an immigrant mother Dependent variable: Internet Use	Coefficient (s.e.)	Test of equality (p-value)	Observations
A	Full Sample	Trust, mother's birth country *Born in Western Europe	0.114 (0.029)***	0.24	7546
		Trust, mother's birth country *Born in Eastern Europe	-0.044 (0.124)		
B	Full Sample	Trust, mother's birth country *Born in Northern Europe	0.108 (0.033)***	0.53	7546
		Trust, mother's birth country *Born in Southern Europe	0.087 (0.050)*		
		Trust, mother's birth country *Born in Eastern Europe	-0.044 (0.124)		

Notes: The dependent variable is Internet Use, which ranges from 0, 'no access,' to 7, use 'every day.' All specifications study second generation immigrants and estimates the effect of trust in the mother's country of birth on internet use. Individual controls include age, age squared, gender, education, labor force attachment, income, and religious denomination. Country of residence-by-year fixed effects included. Data is from the second to fifth waves of the European Social Survey. Standard errors in paranthesis, which allow for clustering on the mother's birth country. Significance stars, * $p<0.1$, ** $p<0.05$, *** $p<0.01$.

Table 5. Heterogeneity Based on Ancestry (5 Continents).

Model	Sample	Dependent variable: Internet Use	Coefficient (s.e.)	Test of equality (p-value)	Observations
A	Full Sample	Trust, mother's birth country *Mother from Europe	0.101 (0.030)***	0.0002	7499
		Trust, mother's birth country *Mother from North America	0.040 (0.039)		
		Trust, mother's birth country *Mother from Latin America	0.364 (0.104)***		
		Trust, mother's birth country *Mother from Africa	-0.098 (0.089)		
		Trust, mother's birth country *Mother from Asia	0.038 (0.040)		
B	Northern Europe born	Trust, mother's birth country *Mother from Europe	0.100 (0.033)***	0.013	3230
		Trust, mother's birth country *Mother from North America	0.105 (0.053)*		
		Trust, mother's birth country *Mother from Latin America	0.397 (0.099)***		
		Trust, mother's birth country *Mother from Africa	-0.015 (0.100)		
		Trust, mother's birth country *Mother from Asia	0.084 (0.038)**		

Notes: The dependent variable is Internet Use, which ranges from 0, 'no access,' to 7, use 'every day.' All specifications study second generation immigrants and estimates the effect of trust in the mother's country of birth on internet use. Individual controls include age, age squared, gender, education, labor force attachment, income, and religious denomination. Country of residence-by-year fixed effects included. Data is from the second to fifth waves of the European Social Survey. Standard errors in paranthesis, which allow for clustering on the mother's birth country. Significance stars, * $p<0.1$, ** $p<0.05$, *** $p<0.01$.

Table 6. Trust and time spent watching TV.

Dependent variable: Time spent watching TV		
Sample:	General population	2nd generation immigrants with an immigrant mother
	(1)	(2)
Trust	**-0.023**	
	(0.005)***	
Trust, mother's birth country		**-0.072**
		(0.031)**
Age	0.021	0.035
	(0.004)***	(0.009)***
Age squared/100	-0.006	-0.009
	(0.004)	(0.009)
Female	-0.007	0.069
	(0.018)	(0.069)
Married	0.012	0.021
	(0.026)	(0.097)
Never married	-0.041	0.222
	(0.031)	(0.091)**
Upper secondary	-0.028	-0.121
	(0.044)	(0.060)**
College or university	-0.526	-0.813
	(0.077)***	(0.092)***
Out of labor force	0.510	0.316
	(0.024)***	(0.064)***
Unemployed	0.788	0.700
	(0.040)***	(0.126)***
Low income	0.206	0.163
	(0.030)***	(0.075)**
Middle income	0.183	0.087
	(0.019)***	(0.071)
Catholic	-0.032	0.001
	(0.029)	(0.082)
Protestant	-0.128	-0.071
	(0.044)***	(0.080)
Country-by-year fixed effects	Yes	Yes
R-squared	0.126	0.140
Observations	185847	7642

Notes: The dependent variable is time spent watching TV on an average week day, which ranges from 0, 'none,' to 7, 'More than three hours.' Column (1) estimates the association between Time spent watching TV and generalized Trust of the individual in the general population. Column (2) studies second generation immigrants and estimates the effect of trust in the mother's country of birth on Time spent watching TV. 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 paranthesis. Standard errors allow for clustering on the mother's birth country. Significance stars, * p<0.1, ** p<0.05, *** p<0.01.

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7 Appendix Tables

Table A1. Countries Participating in the ESS by Survey Round.

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

Note: Edition 2.0 of ESS round 5 is used, and the cumulative file for earlier rounds.

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
AD	2.07	1	FI	5.65	204	MY	0.88	7
AL	2.56	9	GB	3.59	158	NG	2.19	9
AM	2.47	10	GE	1.85	29	NL	5.06	104
AR	1.96	25	GH	0.85	7	NO	6.64	66
AT	3.27	179	GR	2.37	75	NZ	5.00	4
AU	4.46	11	GT	1.57	1	PE	0.75	5
AZ	2.05	17	HR	2.29	97	PH	0.71	17
BA	2.19	67	HU	2.69	145	PK	2.74	54
BD	2.22	7	ID	4.56	82	PL	2.33	437
BE	3.13	79	IE	4.15	113	PR	1.24	1
BG	2.70	52	IL	2.35	2	PT	1.74	121
BR	0.64	35	IN	3.46	86	RO	1.68	192
BY	2.86	121	IQ	4.40	147	RU	2.76	1039
CA	4.45	24	IR	3.36	70	SE	6.35	63
CH	4.38	32	IS	4.13	8	SG	1.47	2
CL	2.03	14	IT	3.17	472	SI	1.82	7
CN	5.42	12	JO	2.95	4	SK	2.13	180
CO	1.20	4	JP	4.16	5	TH	4.15	10
CS	2.76	47	KG	1.67	5	TR	1.13	376
CSS	1.53	1	KR	3.17	2	TW	2.96	1
CY	1.28	11	LT	2.62	34	TZ	0.81	2
CZ	2.67	160	LU	2.48	14	UA	2.95	255
DE	3.41	666	LV	2.06	31	UG	0.78	1
DK	5.88	51	MA	1.94	365	US	4.11	137
DO	2.64	2	MD	1.82	19	UY	2.48	8
EE	2.42	17	MK	1.11	28	VE	1.48	5
EG	2.80	56	ML	1.75	3	VN	4.78	13
ES	3.28	142	MT	1.88	4	ZA	1.98	10
ET	2.44	18	MX	2.41	3	ZW	1.12	2

Note: Country codes according to ISO-3166. Trust is measured between 0 and 10, where 10 corresponds to 'most people can be trusted.' Country averages of trust are computed from the integrated European Values Survey and World Values Survey. The average across countries is 2.7, and the standard deviation is 1.35 (both unweighted). The count of 2nd generation immigrants refers to the number of individuals with an immigrant mother in the European Social Survey.