

Paule-Paludkiewicz, Hannah; Fuchs-Schündeln, Nicola; Masella, Paolo

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Cultural Determinants of Household Saving Behavior

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Cultural Determinants of Household Saving Behavior

Nicola Fuchs-Schündeln
Goethe University Frankfurt

Paolo Masella
University of Sussex

Hannah Paule-Paludkiewicz
Goethe University Frankfurt *

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Abstract

We analyze whether culture affects the saving behavior of households and which cultural channels matter for this household decision. To disentangle cultural effects from economic and institutional factors, we study how the saving behavior of second-generation immigrants relates to the attitudes and beliefs in the respective countries of origin. Using data from Germany and the UK, we find that culture significantly determines household saving behavior. The two cultural components that we robustly identify to affect saving rates are the attitudes towards thrift and the wealth accumulation motive: second-generation immigrants from countries that value thrift and wealth accumulation more tend to save more in Germany. By linking parents to their children, we present evidence that these attitudes are related to the saving behavior of both parents and children. We also provide evidence that future-orientation is related to the saving behavior through the intergenerational transmission of language, rather than the direct transmission of attitudes.

JEL-Classification: D14, Z10

Keywords: saving, culture, immigrants

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1 Introduction

Culture plays an important role for household behavior. A vast literature finds that cultural components are indeed likely to explain a substantial part of the dispersion across households in female labor supply (e.g. Fernández, 2007; Alesina and Giuliano, 2010; Blau, 2015), male employment decisions (Moriconi and Peri, 2015), fertility (Fernández and Fogli, 2009), family living arrangements (e.g. Giuliano, 2007; Furtado et al., 2013) and household portfolio composition (Haliassos et al., 2015). Evidence on the link between culture and the household saving behavior is, however, still scarce and inconclusive and, in general, hindered by data limitation. We intend to revisit this question by employing household data that provide accurate measures of the propensity to save and also relatively refined information about the cultural origin of household members and their ancestors and by relying on several attitudes surveys containing a rich arrays of variables that can be used to more precisely isolate what cultural mechanisms explain variation across households in saving rates.

We follow Guiso et al. (2006), who define culture as "those customary beliefs and values that ethnic, religious, and social groups transmit fairly unchanged from generation to generation" and therefore focus on values and beliefs that are relatively persistent over time. In order to identify the effect of culture on savings we need to separate it from economic and institutional factors. To tackle this issue, we adopt the so-called epidemiological approach (Fernández, 2008) and analyze the saving behavior of second-generation immigrants in Germany. If culture is persistent, second-generation immigrants should still possess values and beliefs of their home country culture. However, they all share the German institutional and economic setting. Differences in the saving behavior of second-generation immigrants with different countries of ancestry can, thus, be attributed to culture. Paule (2012) analyzes the saving behavior of German immigrants, considering first-generation immigrants. In contrast, we study second-generation immigrants, whose saving behavior is less likely to be affected by immigration related issues like e.g. larger uncertainty. Further, sample selection concerns can be assumed to be of minor importance for second-generation immigrants.

With reference to the economic-psychological literature (Wärneryd, 1999), we distinguish between five different cultural aspects that may affect the saving behavior. These are 1. prevalent desire for effective accumulation and improvement, 2. thrift / thrifty habits, 3. self-control / willpower, 4. reaction to uncertainty, and 5. attitude towards the future (long term versus short term orientation). To measure these different cultural channels at the home country level, we construct cultural proxy variables based on some of the

most widely recognized cultural cross-country datasets, namely the World Values Survey / European Values Study, the Hofstede data set, and the Schwartz Value Survey.

While we focus on Germany in our main analysis, we confirm our results using data from the United Kingdom. For both Germany and the UK, we identify significant effects of culture on savings. The two cultural motives that we persistently find to matter are 1. "the desire for accumulation" that we measure by the importance assigned to wealth, material possession, and money and 2. "the attitudes towards thrift". They are robust to a whole bunch of checks including different sample adjustments, alternative estimation techniques, and additional control variables. Our estimates suggest that moving from the country at the 25th percentile of the attitudes towards thrift-distribution to the country at the 75th percentile, increases the saving rate by about 1.5 percentage points. This is about 19 % of the mean saving rate in the sample. We exploit the advantage of a household survey and directly link parents to their children to study the persistence of the effects. We find that the two saving motives "thrift" and "wealth accumulation" are related to the saving behavior of both, parents and children. As for the "future-orientation" channel, the evidence suggests that this is not culturally transmitted, but that the effect on savings is triggered by language. This finding is in line with the hypothesis by Chen (2013) that future-orientation is induced by the future-time reference of the mother tongue.¹ Finally, we do not find evidence for the "self-control"-channel and the "attitudes towards uncertainty"-channel. This may be, either because the measures we are using are inappropriate to capture these cultural aspects or, less likely, because these channels do not matter for saving behavior. We are not able to further differentiate between the two competing explanations.

This paper contributes to the growing literature that assesses the importance of culture for various economic outcomes and in particular it contributes to the studies that analyse the effect of culture on household financial behavior. Using Canadian household data Carroll et al. (1994) provide a first exploration of the relationship between culture and propensity to save of households. While they find a common immigration effect, they do not find evidence that differences in saving rates between cultural groups can be attributed to cultural factors. However, as they acknowledge in their conclusions data limitation might be at the root of their findings as cultural groups are defined in terms of very broad regions of origin (they identify four macro areas, North-West Europe, South-East Europe, South-East Asia and Other Asia), wealth is not measured very accurately and remittances are not observed. Guiso et al. (2004) focus on the effect of social

¹Consistent with the results by Chen (2013), Guin (2015) finds differences in the saving behavior of individuals from different language groups within one country.

capital and trust. Using Italian data, they show that social capital significantly affects financial development. Haliassos et al. (2015) consider the relationship between culture and stock ownership, household debt and home ownership. Studying the behavior of first-generation immigrants, they find significant differences in the financial behavior of immigrants from different cultural groups. They do not strive to reconcile the observed financial decisions of the immigrants with the financial choices of households in the home country. We add to the literature by showing that culture is a significant determinant of household saving behavior.² Moreover, we shed light on the underlying cultural channels.

The rest of the paper is structured in the following way. Section 2 describes our identification strategy and Section 3 discusses the data. In Section 4 we present our baseline results and their robustness. We complement our analysis with estimations for an alternative country, the UK, in Section 5 and conclude in Section 6.

2 Empirical Strategy

In order to disentangle the effect of culture from economic and institutional factors, we study the saving behavior of second-generation immigrants in a single country – Germany in our main analysis. As they all live in the same country, the institutional and economic setting is shared by all immigrants and, thus, held fixed. However, as pointed out before, we think of culture to be persistent over time. Therefore, there should still be systematic differences in terms of culture among second-generation immigrants if parents transmit values and beliefs to their children. Thus, if we observe differences in the saving behavior of second-generation immigrants from different home countries that correlate with attitudes in the home country, we argue that these should be attributable to cultural differences.

As pointed out by Fernández (2008), using second-generation immigrants is beneficial as compared to first generation immigrants, because it may mitigate potential sample selection problems and immigration related shocks (e.g. language problems) are less likely to matter. Gradual assimilation to the culture of the host country may affect the behavior of immigrants and this is likely to be more pronounced for second-generation immigrants. However, this will only make it harder to identify an effect as it will bias the coefficient towards zero.

²Cronqvist and Siegel (2015) find evidence that genetic predisposition explains saving behavior. While we are not able to fully disentangle cultural from genetic factors it seems unlikely that genetic predisposition can explain the strong relationship we find between thrift and accumulation preferences and saving behavior.

Using survey data from several sources, we define a variety of cultural proxies, e.g. the average attitudes towards thrift, and then associate the value of each cultural proxy in the country of origin of the ancestors of the household members to each household in the sample. As all immigrants share the same economic and institutional environment, only the cultural component of the proxy should affect the immigrants' saving behavior.³ For our analysis, we use a Tobit model, because the saving rate, our dependent variable, is censored from below. In our main sample, the saving rate is zero for 44 % of the observations. We pool the observations of all survey waves and specify the following model:

$$s_{hct} = \max(0, \alpha_0 + \beta C_c + Z_{hct}\gamma + D_t\theta + \varepsilon_{hct}).$$

s_{hct} is the saving rate of household h from country c in period t . C_c is the cultural proxy variable that varies at the home country level, and, thus, β is the main coefficient of interest. If there are cultural effects on the saving behavior, we expect β to be significant, with the sign depending on the specific cultural trait measured by C_c . Z_{hct} is a vector of individual level control variables and θ represents a vector of year dummies for the different survey waves. We cluster the standard errors at the country of origin level.

3 Data

3.1 Individual Data

We use data from the German Socio-Economic Panel (GSOEP), a representative panel study that annually interviews more than 11,000 households in Germany since 1984⁴. As households report their savings in 1992 for the first time, we use data from 1992 to 2013. We include all GSOEP subsamples apart from the "high income" subsample. A major advantage of the GSOEP is that it includes specific subsamples of immigrants, which allows us to study the saving behavior of a high number of immigrants from all over the world. To compute the saving rate, we divide the average monthly amount of household savings by the average monthly household net income and drop observations with saving rates larger than 100.⁵ Given that savings are reported at the household level, we only keep household heads.

³Carroll et al. (1994, 1999) instead directly check whether immigrants from different regions exhibit saving behaviors that are significantly different between each other once key variables such as wealth and time of residence are controlled for. We refrain from using such alternative strategy as we intend to study more explicitly what are the cultural components that matter.

⁴See Wagner et al. (2008) for more details on the GSOEP data set.

⁵The survey question on savings reads as follows: "Do you usually have an amount of money left over at the end of the month that you can save for larger purchases, emergency expenses or to build up savings? If yes, how much?"

We conduct our analysis based on the sample of second-generation immigrants. Second-generation immigrants are defined as those persons who are born in Germany and have or had a foreign citizenship or at least one parent immigrated to Germany. Thus, strictly speaking, the group is not necessarily restricted to second-generation immigrants. It could also contain other individuals with migration background that were born in Germany. For simplicity, we refer to them as "second-generation immigrants". In the literature, the home country of second-generation immigrants is usually identified based on the birth country of the parents. The GSOEP data set does not directly provide this information. Therefore, our identification procedure is largely based on Scheller (2011).⁶ He proposes an ordering of different variables that should be considered to identify the home country. Whenever information is conflicting, the key rule is to assign the country that was named most often. A detailed description of the procedure is given in Section A.1. Given the slight inaccuracy of our identification of second-generation immigrants here, we cross-check our results with data from the UK. This data set makes it possible to precisely identify second-generation immigrants and their country of origin, however, it contains a lower number of countries (see Section 5).

We restrict our sample to household heads that are not in school anymore, older than 25 and younger than 65.⁷ Our sample consists of 5,036 observations from 58 countries. Summary statistics are presented in Table 1.

Table 2 summarizes the countries of origin and the respective number of observations in our sample. While the majority of individuals are from European countries, we also observe second-generation immigrants from several different Asian, African, and North and South American countries. The largest groups of immigrants stem from so-called former "guest worker"⁸ countries like Yugoslavia, Turkey or Italy.

3.2 Cultural Data

Some theory As already pointed out we intend to discuss the underlying channels behind the relationship between culture and household savings and better understand what are the most salient saving motives that are driving the cultural effects. To have some guidance, which cultural aspects could potentially matter for the saving behavior of households, we resort to the economic-psychological literature. In his book "The Psychology of Saving" Wärneryd (1999) reviews the early economic and psychological literature with the

⁶We only made slight adjustments to the STATA code that was kindly provided to us by Scheller.

⁷We exclude ethnic German resettlers from Eastern Europe as it is not clear which culture reflects their values and beliefs best.

⁸The term "guest worker" refers to migrant workers who moved to Germany especially during the 60s and 70s in the context of bilateral recruitment agreements between Germany and countries like Italy, Greece, Spain, Morocco, Portugal, Tunisia, Yugoslavia and Greece.

Table 1: Summary Statistics

Household characteristics	Mean	Standard deviation	Min	Max
Saving rate (in %)	7.91	10.67	0	83.31
Age	37.97	11.28	25	65
No. of kids (age < 16)	0.68	0.93	0	7
No. of adults	1.81	0.64	1	6
Female	0.46		0	1
Single	0.34		0	1
Married	0.54		0	1
Divorced	0.09		0	1
Widowed	0.01		0	1
Real net monthly income (in 2010 EUR)	2468	1379	39	18000
Real net monthly permanent income (in 2010 EUR)	2472	1168	378	8403
House ownership	0.29		0	1
Education: inadequate	0.03		0	1
Education: general elementary	0.18		0	1
Education: middle vocational	0.45		0	1
Education: vocational or abitur	0.06		0	1
Education: higher vocational	0.08		0	1
Education: higher education	0.20		0	1
Employed	0.60		0	1
Self-employed	0.05		0	1
Retired	0.07		0	1
Not in labor force	0.16		0	1
Unemployed	0.08		0	1
Civil Service	0.04		0	1

Table 2: Composition of the GSOEP Sample

Europe (4013)		Asia (909)	Africa (70)	Americas (44)
Austria (261)	Luxembourg (3)	Indonesia (1)	Algeria (1)	Bolivia (1)
Belgium (81)	Macedonia (33)	Iran (3)	Cape Verde (1)	Canada (14)
Bosnia-Herzegovina (30)	Montenegro (2)	Jordan (26)	Ghana (15)	Cuba (1)
Croatia (115)	Netherlands (147)	Kazakhstan (2)	Morocco (8)	Ecuador (1)
Czech Republic (465)	Poland (340)	Kyrgyzstan (1)	Namibia (28)	Paraguay (13)
Denmark (16)	Portugal (13)	Lebanon (4)	Nigeria (2)	Peru (1)
Finland (4)	Romania (89)	Philippines (1)	Tunisia (14)	USA (13)
France (72)	Serbia (17)	Russia (86)	Togo (1)	
Great Britain (66)	Slovakia (54)	South Korea (13)		
Greece (416)	Slovenia (11)	Syria (2)		
Hungary (169)	Spain (265)	Tadzhikistan (2)		
Italy (778)	Sweden (7)	Turkey (765)		
Kosovo (4)	Switzerland (20)	Vietnam (3)		
Latvia (5)	Ukraine (31)			
Lithuania (5)	(Former) Yugoslavia (494)			

^a Number of observations is indicated in brackets. ^b If countries belong to more than one continent, country is classified according to largest geographical area.

aim of identifying psychological factors that may still help us today to explain saving behavior. He identifies six factors: 1. prevalent desire for effective accumulation and improvement, 2. thrift / thrifty habits, 3. self-control / willpower, 4. uncertainty of the future / role of expectations, 5. selective perception / limited cognitive capacity and 6. time horizon / attitude towards the future. As for the first channel, Wärneryd (1999) points out that in general "people prefer more to less of something attractive", but that there may be moral principles that restrict this desire. Thus, if the accumulation of wealth is more widely accepted in some cultures than in others, this may have an impact on the saving behavior. Wärneryd (1999) emphasizes that the second factor "thrift / thrifty habits" is often assumed to be the most important psychological aspect for saving and that the "inculcation" of this factor is more widespread in some countries than in others. Third, differences in "self-control / willpower" may lead to differences in the saving behavior. As for the fourth item "uncertainty of the future / role of expectations" Wärneryd (1999) points out that individuals have to deal with uncertainty when deciding how much to save for the future. Different ways of coping with uncertainty may lead to differences in saving choices. While "selective perception / limited cognitive capacity" has been named e.g. by Marshall (1920) to matter for savings, we think of this as a purely individual factor, which does not qualify for cultural analyses. Finally, the sixth item "time horizon / attitude

towards the future” refers to differences in the ”time preferences” of people. These differences may in turn influence the intertemporal behavior of households. At this point, it may be important to stress that this list of psychological factors mostly refers to individual saving motives. It will be our task to test whether these aspects also carry over to the more aggregate cultural level and to find adequate measures at the cultural level.

Cultural proxies To capture the different cultural channels, we construct proxies based on three of the most widely used cultural data sets, namely the World Value Survey / European Values Study (WVS / EVS), the Hofstede data set, and the Schwartz Value Survey. Based on the WVS / EVS, we generate a proxy to capture ”attitudes towards thrift”. We use three variables from the Hofstede data set, namely ”indulgence versus restraint” as a proxy for ”self-control / willpower”, ”uncertainty avoidance” as a proxy for ”uncertainty of the future / role of expectations” and ”long-term versus short-term orientation” to proxy for ”time horizon / attitude towards the future”. Finally, we make use of the Schwartz Value Survey to construct a proxy for the ”prevalent desire for effective accumulation and improvement” and we construct a second ”indulgence” variable to measure ”self-control / willpower”.

The World Values Survey (WVS, 2009) and the European Values Study (EVS, 2011) are nationally representative surveys about beliefs and preferences, which have been conducted in nearly 100 countries all over the world. We follow the procedure described by Díez-Medrano (2009) to combine the different waves of the WVS / EVS from 1981 to 2009 to one integrated data set. In each wave participants are asked: ”Here is a list of qualities that children can be encouraged to learn at home. Which, if any, do you consider to be especially important? Please choose up to five.” One of the items on the list is ”Thrift saving money and things” that participants can rank either as ”important” or ”not important”. We use this question to construct a cultural proxy that measures the importance of ”thrift / thrifty habits” across countries. To do so, we compute the fraction of participants in each country that considers thrift to be important⁹. In a second step we average this value over all existing waves. We use the average over time, as it is unclear which time-period reflects best the cultural values and beliefs of the immigrants. The mean over time should represent a relatively robust proxy. In particular, this is true if cultural values are relatively stable over time.

In addition we use Hofstede’s cultural dimensions (Hofstede, 1980). The social psychologist extracted the dimensions from answers to attitude survey questions using factor analysis. Hofstede started to inter-

⁹For Benelux and Ex-Yugoslavia we compute population weighted averages.

view IBM employees from different countries in 1967 and originally constructed four cultural dimensions. Nowadays the survey has been extended and replicated also based on different groups of people (e.g. students from different countries) and the data set that we employ is available for six cultural dimensions and for 78 to 96 countries, depending on the dimension.¹⁰ In our analysis, we make use of three of the cultural dimensions. One of the psychological aspects mentioned by Wärneryd (1999) is "self-control / willpower". To study whether this is an important cultural determinant for household saving behavior, we use the Hofstede dimension "indulgence versus restraint" as a proxy. As described by Hofstede (2011), this variable is "related to the gratification versus control of basic human desires related to enjoying life". Higher values of this variable indicate higher levels of indulgence and thus rather free "gratification of basic human desires".

As a second variable, we use the "uncertainty avoidance" dimension. Hofstede and Hofstede (2005) define it as "the extent to which the members of a culture feel threatened by ambiguous or unknown situations". The higher the index is, the more pronounced is the avoidance of uncertainty. We use this variable as a proxy for the cultural channel that was labeled "uncertainty of the future / role of expectations" by Wärneryd (1999). Finally, the dimension "long term versus short term orientation" is used as a cultural proxy for "time horizon / attitude towards the future". While long-term orientation accounts for "the fostering of virtues oriented toward future rewards", short-term orientation "stand for the fostering of virtues related to the past and the present". (Hofstede and Hofstede, 2005). The variable takes on larger values for countries with a stronger future-orientation. All three variables range on a scale from 0 to 100.

Next, we consider data from the Schwartz Value Survey, a data set that was established based on the Schwartz Theory of Basic Values (Schwartz, 1999, 2012) and provides comparable data on values for 71 different countries. It was conducted between 1988 and 2005 and a total of more than 75,000 individuals, largely K-12 schoolteachers and undergraduate students, participated in the survey (Schwartz, 2005). They had to evaluate the importance of 56-57 value items as "a guiding principle in my life" on a scale from 7 (of supreme importance) to -1 (opposed to my values). One of the items on the list is "WEALTH (material possessions, money)". If the importance of wealth, material possession, and money differs among cultural groups, countries with higher preferences for material possession may strive for saving more in order to accumulate wealth. We use this item to construct a cultural proxy that captures a saving motive similar to the channel called "prevalent desire for effective accumulation and improvement" by Wärneryd (1999). To do so, we compute the average rating of importance of wealth accumulation for each country, correct

¹⁰See <http://www.geert-hofstede.com> for the most recent version of the data set.

for differences in the scale use across countries and rescale the variable (called "wealth accumulation" in the following) to a scale from 0-100. Similar to the indulgence measure by Hofstede, there exists the item "SELF-INDULGENT (doing pleasant things)" in the Schwartz Value Survey. We proceed in the same way as for the wealth accumulation variable and construct a second indulgence variable that we can use to cross-check the results for the Hofstede indulgence measure.

Figure 1 shows the correlation between the different cultural variables measured at the home country level on the x-axis and the saving behavior of the second-generation immigrants on the y-axis.¹¹ Figure 1 shows that second-generation immigrants tend to save more in Germany, if thrift, wealth accumulation and long-term orientation is valued more in the country of origin, which is in line with our cultural hypothesis. If indulgence mattered for saving behavior, we would expect a negative relationship: countries with higher preferences for indulgence would be expected to save less. The graphs show a slight negative correlation between the indulgence measures and saving behavior that is more pronounced for the Hofstede measure. Finally, there is basically no correlation between our measure of uncertainty avoidance and the saving behavior of second-generation immigrants in Germany.

4 Results

4.1 Baseline Results

Table 3 reports the marginal effects of the Tobit model and the respective standard errors for all the cultural variables described in Section 3.2. Throughout the paper, we report unconditional marginal effects and the standard errors are clustered at the country of origin level. Panel A shows the estimation results if we do not control for any variables. The marginal effects of the thrift and wealth accumulation variables are positive and significantly different from zero and this is consistent with our cultural hypothesis: second-generation immigrants in Germany tend to save more if thrift is valued more in their ancestors country of origin and if wealth accumulation is considered to be more important. As already pointed out, we would expect a negative marginal effect of the indulgence variable. Based on Panel A the evidence is mixed. While the marginal effect of the Hofstede indulgence variable is negative and significantly different from zero at the 10 % level, the effect of the Schwartz indulgence variable on household savings is very close to zero instead. In line with

¹¹For visual clarity, we only include countries with more than 10 observations. However, the regression analysis is based on all available observations.

Figure 1: Saving Rates of Second-Generation Immigrants and Cultural Values in Home Country

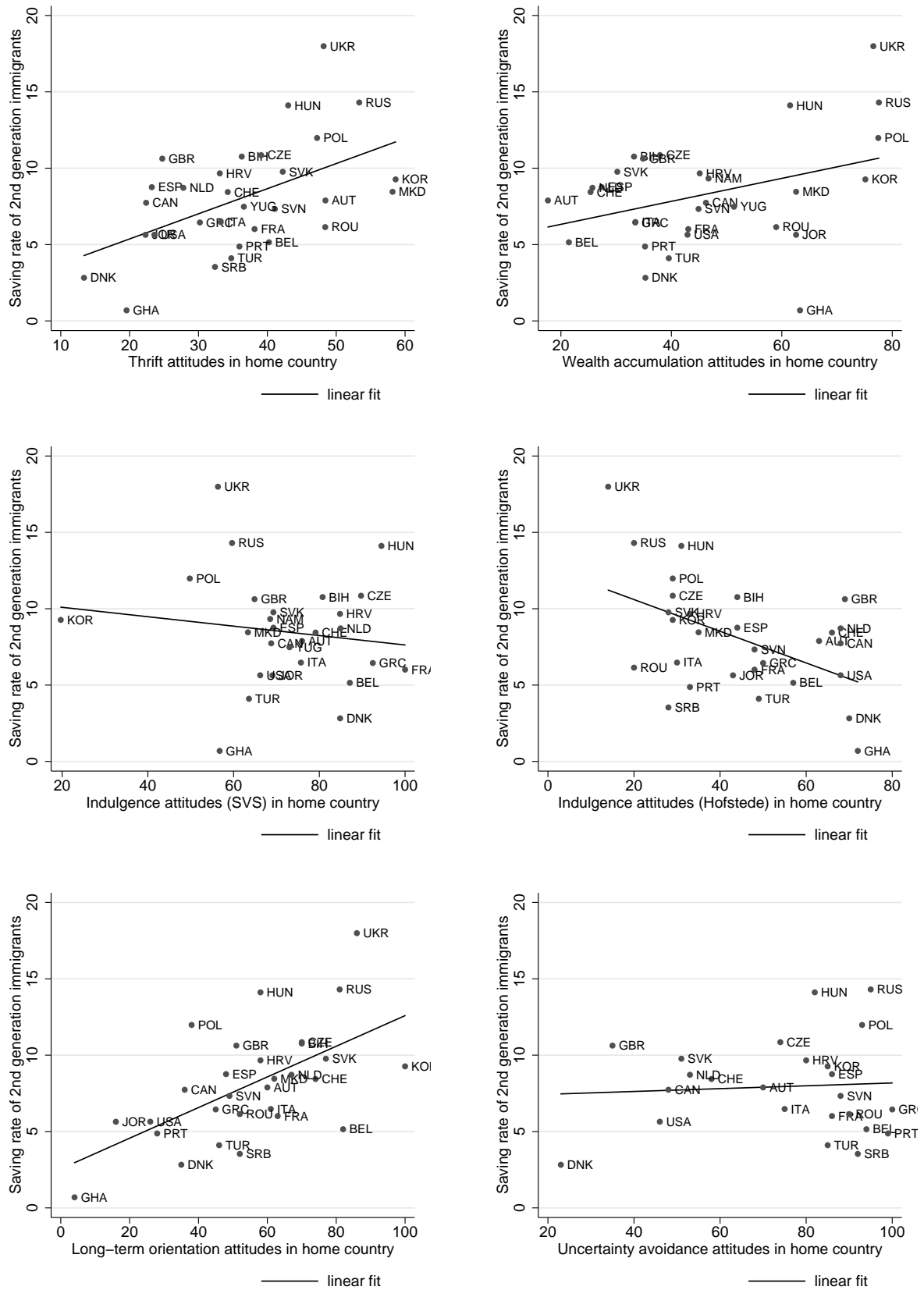


Table 3: Baseline Results

Panel A: without controls						
	(1)	(2)	(3)	(4)	(5)	(6)
Cultural variables	Thrift	Wealth accumulation	Indulgence	Indulgence	Long-term orientation	Uncertainty avoidance
Source	WVS / EVS	SVS	SVS	Hofstede	Hofstede	Hofstede
Marginal effect of cultural variable	0.15** (0.066)	0.08*** (0.023)	0.01 (0.071)	-0.08* (0.048)	0.08 (0.060)	-0.03 (0.036)
Observations	4,966	4,947	4,821	4,468	4,468	4,328
Individual controls	NO	NO	NO	NO	NO	NO
State dummies	NO	NO	NO	NO	NO	NO
Year FE	NO	NO	NO	NO	NO	NO

Panel B: with all baseline controls						
	(1)	(2)	(3)	(4)	(5)	(6)
Cultural variables	Thrift	Wealth accumulation	Indulgence	Indulgence	Long-term orientation	Uncertainty avoidance
Source	WVS / EVS	SVS	SVS	Hofstede	Hofstede	Hofstede
Marginal effect of cultural variable	0.10*** (0.029)	0.05*** (0.013)	-0.04 (0.024)	-0.03 (0.021)	0.02 (0.030)	-0.01 (0.026)
Observations	4,966	4,947	4,821	4,468	4,468	4,328
Individual controls	YES	YES	YES	YES	YES	YES
State dummies	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES

^a Clustered standard errors (at country of origin level) in parentheses.

^b *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ ^c Individual controls are: age quartile dummies, income quartile dummies, permanent income quartile dummies, gender dummy, labor market status: dummies for unemployed, not in labor force, retired, self employed, civil servant, marital status: dummies for married, divorced, widowed, five education dummies (ISCED categories), 3 kids dummies: 1 kid, 2 kids, 3 or more kids, numerical control variable for number of adults in household.

a cultural interpretation, the marginal effect of our long-term orientation proxy is positive, indicating that households whose ancestors are from countries with stronger preference for the future tend to save more. However, the marginal effect is not significantly different from zero. Finally, we would expect a positive effect of the uncertainty avoidance variable on households propensity to save: cultures that try to avoid risk would be assumed to save more. However, the marginal effect of the uncertainty avoidance variable is negative and not significantly different from zero.

While these results already give a first indication of the cultural effects, our baseline results with control variables are reported in Panel B. We include year dummies for the different survey years, dummies for the German states ("Länder") and a whole bunch of individual controls in the regressions. These are age quartile dummies, quartile dummies for the real monthly household net income, and quartile dummies for a rough measure of permanent income. Our measure of permanent income is constructed by averaging the real monthly net income of a household over all available years.¹² We control for gender, the number of adults in the household and the number of kids younger than 16 who are living in the household. For the kids we include three dummy variables for "one kid", "two kids" and "three or more kids". "No kids" is the base category. To control for the marital status we introduce dummies for "married", "divorced", and "widowed", where "single" is the excluded category. For education, we use the ISCED classification. "Inadequate education" is the base category and we control for "general elementary", "middle vocational", "vocational or abitur", "higher vocational" and "higher education". Finally, we control for the labor market status using dummies for "unemployed", "not in labor force", "retired", "self-employed", and "civil servant", where "employed" is the base category.

Table 3, Panel B shows that the marginal effects of the thrift and wealth accumulation variables are positive and significant at the 1 % level. To account for multiple hypothesis testing, we also use Bonferroni correction. Our results are robust to the correction: marginal effects of thrift and wealth accumulation remain statistically significant at the 1 % level.¹³ The marginal effects are slightly smaller than in Panel A. A one standard deviation increase in the thrift motive (standard deviation: 7.47) corresponds to an increase in the saving rate of 0.75 percentage points. Increasing the wealth accumulation motive by one standard deviation (standard deviation: 15.36) leads to an increase in the saving rate of 0.77 percentage points. While

¹²A similar measure of permanent income has e.g. been used by Bauer and Sinning (2011), who average the monthly net household income over the last five years.

¹³To control the family-wise error rate at level α , we individually test the statistical significance of our six cultural variables at a significance level of $\alpha/6$. The p-value of thrift is 0.00048, the p-value of wealth accumulation is 0.00009. Thus, using $\alpha = 0.01$, the p-values of thrift and wealth accumulation are still smaller than $0.01/6 = 0.0016$.

the marginal effects of both the indulgence variables are now negative as expected, they are however not significantly different from zero. We also do not find evidence of a robust association between our proxies for long-term orientation and uncertainty avoidance and our dependent variable.

Thus, based on Table 3 we find evidence for two of the five cultural channels that we considered. In the next section we then try to understand why the three alternative channels are not identified by our empirical strategy. One potential explanation may be that these factors just do not matter for the saving behavior of households. A second possibility is that the cultural proxies are bad measures of the cultural aspect that we would like to pick up and, therefore, are not able to identify an effect. Finally, these factors might matter for the saving behavior of households, however, they might not be transmitted by parents across generations.¹⁴

4.2 Transmission across Generations

An advantage of the GSOEP data set is that we are able to study the saving behavior of children and their actual parents if they both participate in the survey. This is of course not the case for all second-generation immigrants, but for a non-negligible part of our sample. Linking parents to their children allows us to understand whether the impact of home-country culture decreases over generations, and if so, by how much.

Table 4 presents the marginal effects for the parents (first-generation immigrants) in Panel A and as a comparison the effects for their actual children (second-generation immigrants) in Panel B¹⁵. All regressions include the control variables specified before. For the parents we find a positive and significant effect of thrift and the wealth accumulation motive. This confirms our baseline results that these two cultural channels affect the saving behavior of households. Moreover, this can be interpreted as preliminary evidence for the transmission of saving preferences from parents to children, which is consistent with previous findings by Knowles and Postlewaite (2004). Comparing the size of the marginal effects for the two cultural variables, the effect is about 20% larger for the parents than for the children suggesting some assimilation over time.

The marginal effects for the indulgence measures and uncertainty avoidance are not significantly different from zero for the parents either. In Section 4.1 we discussed three possible explanations for the absence

¹⁴Moreover, as e.g. pointed out by Fernández (2007), culture is not only passed on by the parents, but constructed by the whole social environment (e.g. neighborhood, friends, school). This horizontal transmission could still matter for second-generation migrants if they e.g. live in neighborhoods with high concentration of immigrants with the same cultural background. Thus, if we do not find an effect it may also be the lack of contact with the culture – either because parents do not teach the values to their children or because the social environment does not represent the culture of the home country. If this is the case, we might find an effect for first-generation immigrants, who were born abroad and, thus, were exposed to the home country culture at least for some years.

¹⁵Note that the observations in Table 4, Panel B are a subsample of our baseline sample that we e.g. used in Table 3.

Table 4: Results for Parents and Their Children

Panel A: parents						
	(1)	(2)	(3)	(4)	(5)	(6)
Cultural variables	Thrift	Wealth accumulation	Indulgence	Indulgence	Long-term orientation	Uncertainty avoidance
Source	WVS / EVS	SVS	SVS	Hofstede	Hofstede	Hofstede
Marginal effect of cultural variable	0.16*** (0.056)	0.05* (0.027)	0.03 (0.030)	-0.01 (0.024)	0.07* (0.036)	0.01 (0.017)
Observations	2,503	2,494	2,451	2,003	2,003	2,003
Individual controls	YES	YES	YES	YES	YES	YES
State dummies	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
Panel B: children						
	(1)	(2)	(3)	(4)	(5)	(6)
Cultural variables	Thrift	Wealth accumulation	Indulgence	Indulgence	Long-term orientation	Uncertainty avoidance
Source	WVS / EVS	SVS	SVS	Hofstede	Hofstede	Hofstede
Marginal effect of cultural variable	0.13*** (0.048)	0.04 (0.027)	-0.04 (0.035)	-0.02 (0.038)	0.03 (0.033)	-0.01 (0.033)
Observations	3,169	3,186	3,108	2,756	2,756	2,692
Individual controls	YES	YES	YES	YES	YES	YES
State dummies	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES

^a Clustered standard errors (at country of origin level) in parentheses.

^b *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ ^c Individual controls are: age quartile dummies, income quartile dummies, permanent income quartile dummies, gender dummy, labor market status: dummies for unemployed, not in labor force, retired, self employed, civil servant, marital status: dummies for married, divorced, widowed, five education dummies (ISCED categories), 3 kids dummies: 1 kid, 2 kids, 3 or more kids, numerical control variable for number of adults in household.

of a robust relationship between these variables and households' saving decisions, namely that 1. they are no determinants of saving decisions, 2. there are measurement problems or 3. cultural values are not transmitted across generations. Based on the parents' results the last explanation seems unlikely. Unfortunately, we are not able to distinguish further between the remaining two potential reasons. Finally, considering long-term orientation in the sample of parents, we find a positive marginal effect of 0.07, which is significant at the 10 % level. In contrast, the effect of long-term orientation is insignificantly different from zero if we consider the sample of children. Summing up, long-term orientation has an effect for first-generation immigrants, but it seems that it might not be transmitted across generations. We investigate this further in the next section.

4.3 Language vs. Culture

In this Section, we analyze a potential explanation for our long-term orientation findings. Chen (2013) and Sutter et al. (2015) argue that it is the language that induces either long-term or short-term orientation. They show that speakers of languages with obligatory distinction between the present and the future (like for example English) behave less future oriented, e.g. save less. In contrast, speakers of languages that grammatically do not clearly separate the future and the present (like German) may perceive the future to be closer and are thus more likely to save.

First-generation immigrants are much more likely to speak the language of the home country. If it is the language that leads to differences in time preferences, this could explain why long-term orientation matters for the saving behavior of first-generation immigrants, but not for second-generation immigrants. To investigate this hypothesis, we use a variable from the GSOEP that indicates how well immigrants speak the language of their parents. This variable is based on a self-assessment of the language proficiency on a 5 point-scale from 1 (speak the language very well) to 5 (do not speak the language at all) and is only available for six waves. As the language proficiency is likely to change only relatively slowly over time, we compute the mean value over time for every person and assign this value to all available survey years of the person. In a second step, we split the sample of second-generation immigrants based on their language proficiency. One subsample consists of second-generation immigrants that indicate to speak the parent's language either "well" or "very well". Second-generation immigrants that are less proficient in their parent's language are grouped into the second subsample. According to the language-saving hypothesis by Chen (2013), the long-term orientation variable should affect savings only for the subgroup of people that are able to speak the

Table 5: Language and Long-Term Orientation

Specification	Marginal effects of cultural variable	<i>N</i>
Cultural variable: long-term orientation (Hofstede)		
Subsample: high proficiency of parents language	0.08* (0.041)	1,415
Subsample: low proficiency of parents language	0.00 (0.024)	784
Cultural variable: verb ratio (Chen, 2013)		
Subsample: high proficiency of parents language	-1.60 (1.711)	1,380
Subsample: low proficiency of parents language	-0.17 (0.703)	737
Cultural variable: sentence ratio (Chen, 2013)		
Subsample: high proficiency of parents language	-2.28 (1.713)	1,380
Subsample: low proficiency of parents language	-0.05 (0.646)	737

^a Clustered standard errors (at country of origin level) in parentheses. ^b *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ ^c All regressions include individual controls, time fixed effects and state dummies. ^d Individual controls are: age quartile dummies, income quartile dummies, permanent income quartile dummies, gender dummy, labor market status: dummies for unemployed, not in labor force, retired, self employed, civil servant, marital status: dummies for married, divorced, widowed, five education dummies (ISCED categories), 3 kids dummies: 1 kid, 2 kids, 3 or more kids, numerical control variable for number of adults in household.

language of their parents.

Table 5 reports the estimation results. In line with the findings by Chen (2013), the marginal effect of long-term orientation is positive and significant for the "high proficiency subsample" and there is no effect for the people that do not speak the language of their country of origin. We also consider two of the variables that Chen (2013) uses to categorize languages into those that have a strong future-time reference (FTR) (e.g. English) and those with a weak FTR (e.g. German). The variables "verb ratio" and "sentence ratio" are based on text analysis of online weather forecasts and measure the number of verbs (sentences) that are future marked in relation to the total number of verbs (sentences) that are actually referring to the future¹⁶. As the GSOEP does not report the language of the home country, we assign the language spoken by the largest fraction of the home country population to each observation. Table 5 shows that the marginal effects are negative, for both "verb ratio" and "sentences ratio", which means that speakers of languages with a stronger FTR, save less. The effect is much more pronounced for the subsample that still speaks the language of the home country well as compared to the low proficiency subsample, although they are both not significantly different from zero, possibly due to the lower number of observations. This is again evidence in favor of the hypothesis that long-term orientation is induced by the FTR of the language.

One competing explanation for our findings in Table 5 could be that parents who pass on the language to their children may also transmit more of their cultural values and beliefs. To test this alternative explanation, we repeat the exercise of splitting the sample according to the language proficiency, but use our cultural proxies thrift and wealth accumulation this time. Running the regressions with thrift and wealth accumulation, the size of the marginal effects for the two subsamples is much more similar. Thus, our findings confirm the results by Chen (2013) that future-orientation seems to be largely driven by language rather than by culture.

4.4 Robustness

So far, we saw that there are cultural effects of thrift and the wealth accumulation motive and that they are persistent across generations. We test the robustness of these two channels in this Section. As depicted in Table 2, the number of observations is not equally distributed across countries, but there are both very small

¹⁶We adopt these two variable as they vary between 0 and 100. The main language coding used by Chen (2013) is a dummy variable that only distinguishes between strong and weak FTR languages. As we have only very few weak FTR languages in our sample, the variation would be rather limited. Chen (2013) shows that the two measures adopted here have a rank correlation of 1 with the weak/strong FTR dummy variable.

Table 6: Robustness Checks

Specification	(1) Thrift	(2) Wealth accumulation
Sample adjustments		
Drop smallest countries (<10 observations)	0.10*** (0.029)	0.05*** (0.013)
Drop largest country (Italy)	0.09*** (0.031)	0.05*** (0.014)
Drop if cultural proxy highest	0.11*** (0.029)	0.05*** (0.014)
Drop if cultural proxy lowest	0.10*** (0.029)	0.06*** (0.011)
German citizens only	0.12*** (0.034)	0.04*** (0.016)
Tighter age group (30-60 years)	0.10*** (0.027)	0.04*** (0.015)
Alternative estimation techniques		
OLS	0.11*** (0.033)	0.06*** (0.014)
Random effects Tobit	0.08** (0.031)	0.05*** (0.014)
Alternative dependent variables		
Savingrate incl. remittances	0.14** (0.071)	0.07** (0.033)
Falsification: doctor visit (last 3 month)	-0.00 (0.001)	-0.00 (0.001)
Individual controls	YES	YES
State dummies	YES	YES
Year FE	YES	YES

^a The table reports marginal effects. ^b Clustered standard errors (at country of origin level) in parentheses. We report unclustered standard errors for the random effects tobit model. ^c *** p<0.01, ** p<0.05, * p<0.1 ^d Individual controls are: age quartile dummies, income quartile dummies, permanent income quartile dummies, gender dummy, labor market status: dummies for unemployed, not in labor force, retired, self employed, civil servant, marital status: dummies for married, divorced, widowed, five education dummies (ISCED categories), 3 kids dummies: 1 kid, 2 kids, 3 or more kids, numerical control variable for number of adults in household.

and very large country subsamples. In order to make sure that these countries do not drive the results, Table 6 presents the marginal effects if we exclude either the largest or the smallest countries. In addition, we once drop the country with the highest value of the cultural proxy and once the country with the lowest value of the cultural proxy to show that the results are not driven by outliers. The estimates are largely unaffected.

Next, we consider the subsample of German citizens only. If immigrants only live in Germany temporarily and plan to return to their countries of origin, their behavior may still be affected by the institutional setting in their home countries. While this may in general be less of a concern for second-generation immigrants, having a German citizenship even increases the probability of staying in Germany permanently. The results are robust if we consider the subsample of German citizens only. Having a German citizenship could also be a signal for being more open to the German culture. However, as shown by the marginal effects for German citizens, the behavior of this group of people is still affected by the home country culture. This indicates that these values seem to be deeply rooted and people cannot easily give them up. The last sample adjustment that we do is to change the age thresholds. In our baseline specification, we consider people from 25 to 65 years. Here we limit the sample to those between age 30 and age 60. However, results are not sensitive to the age specification.

We also report the results of alternative estimation techniques in Table 6, namely OLS estimates and estimates of a random effects Tobit model. The random effects Tobit model allows us to take the panel structure of our data set into account, however, standard errors are not clustered at the country of origin level in this case. Both OLS and the random effects Tobit model yield very similar results as our baseline Tobit model.

In addition to accumulating savings in Germany, immigrants may send money abroad to save in their country of origin. This form of saving is especially important for temporary immigrants (Sinning, 2011). In our sample, 9.41 % of all observations have positive remittances¹⁷. To account for these transfers, we adjust our dependent variable and add remittances to the average monthly amount of savings and then divide it by the monthly net household income as before. This leads to a slight increase in the marginal effect as compared to the baseline results from 0.10 to 0.14 for thrift and from 0.05 to 0.07 for wealth accumulation. Both effects are significantly different from zero at the 5 % level.

Finally, we do a falsification check. Potentially, thrift and wealth accumulation could be proxies for other

¹⁷We classify all transfers that immigrants sent either to their children, parents, the spouse or relatives living abroad as remittances. These questions are only available since 1996.

attitudes that may vary at the home country level like for example independence and self-reliance. If this was true, thrift and wealth accumulation should also have explanatory power for other choices of the household, e.g. whether to visit the doctor or not.¹⁸ As doctor visits are largely covered by the obligatory health insurance in Germany, attitudes towards thrift or the importance assigned to wealth accumulation should not matter for the decision to go to the doctor. We estimate a Probit model, including the same explanatory variables as before and use the choice of visiting the doctor or not in the last three month as dependent variable. The estimated marginal effect is 0.00 for both thrift and wealth accumulation, reinforcing the validity of the two variables.

Now, we turn our attention to potentially omitted variables both at the country of origin level and at the individual level. Table 7 reports the results. First, we control for GDP per capita in the country of origin, which may e.g. serve as a proxy for unobserved wealth.¹⁹ If we introduce GDP per capita in the regression, the marginal effect of wealth accumulation increases slightly and leaves the results unaffected otherwise. In a next step, we control for the primary religion in the home country as previous work by Guiso et al. (2003) suggests a relationship between thriftiness and religion. We take data from the CIA World Factbook and differentiate between Christianity, Islam, Buddhism, Hinduism and Judaism. However, in our sample of second-generation immigrants, we do not have any countries where Hinduism or Judaism is the primary religion and we only have three observations from a Buddhist country,²⁰ thus, we only include an Islam dummy and Christianity is the base category. The cultural effects do not change. In column (5) and (6) we add continent dummies to our regressions and use Europe as base category. One of the key assumptions of our identification strategy is that all second-generation immigrants face the same institutional environment in Germany. This assumption could be violated if immigrants from some countries are discriminated against. If discrimination is based on the continent of origin, this would be captured by the continent dummies. Still, the cultural effects are robust.

In Panel B we consider several additional individual controls. In columns (1) to (4) we control for self-reported measures of risk and patience, which may vary by country of origin.²¹ Controlling for risk and

¹⁸We adopt this check from Osili and Paulson (2008).

¹⁹We use GDP per capita data based on purchasing power parity (PPP) provided by the Worldbank and average all available years to get a robust measure. We cross-check the results with GDP per capita data from the Penn World Table and results are robust (not reported here).

²⁰We exclude them for this exercise.

²¹To construct the measure of risk we use the GSOEP question "Are you generally willing to take risks, or do you try to avoid risks? Scale from "risk averse: 0" to "fully prepared to take risk: 10". As the question is only available for the survey years 2004, 2006 and 2008-2013, we average the value for each individual over time and use it as an individual fixed effect for all years. For patience, the GSOEP question is "How would you describe yourself: Are you generally an impatient person, or someone who

Table 7: Further Robustness Checks

Panel A: additional home country controls

Marginal effects	(1)	(2)	(3)	(4)	(5)	(6)
	Thrift	Wealth	Thrift	Wealth	Thrift	Wealth
Cultural variable	0.10*** (0.028)	0.07*** (0.017)	0.10*** (0.028)	0.05*** (0.012)	0.11*** (0.029)	0.05*** (0.012)
GDP per capita	-0.00 (0.023)	0.04 (0.037)				
Islam			-0.83 (0.650)	-1.15** (0.574)		
Africa					0.99 (1.472)	0.26 (1.469)
Americas					5.08*** (1.867)	3.13* (1.829)
Asia					-0.96* (0.495)	-1.10** (0.541)
Observations	4,966	4,947	4,963	4,947	4,966	4,947

Panel B: additional individual controls

Marginal effects	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Thrift	Wealth	Thrift	Wealth	Thrift	Wealth	Thrift	Wealth
Cultural variable	0.10*** (0.028)	0.06*** (0.014)	0.08*** (0.032)	0.04*** (0.016)	0.10*** (0.036)	0.04** (0.018)	0.12*** (0.031)	0.04* (0.021)
Protestant					0.61 (0.786)	0.99 (0.837)		
Other Christian					-0.66 (0.695)	-0.86 (0.688)		
Islam					0.10 (0.684)	0.12 (0.680)		
Other denomination					-2.91*** (0.852)	-2.87*** (0.888)		
No denomination					1.84** (0.910)	2.02** (0.976)		
Church < 1x/month							-0.34 (0.993)	0.09 (0.999)
Church > 1x/month							-0.81 (0.981)	-0.54 (0.983)
Risk dummies	YES	YES	NO	NO	NO	NO	NO	NO
Patience dummies	NO	NO	YES	YES	NO	NO	NO	NO
Observations	4,216	4,204	3,372	3,389	2,895	2,918	1,993	1,997

^a Clustered standard errors (at country of origin level) in parentheses.

^b *** p<0.01, ** p<0.05, * p<0.1 ^c "Wealth" is used as an abbreviation for "wealth accumulation".

^c Regressions include all individual controls, time fixed effects and state dummies. ^d Individual controls include: age quartile dummies, income quartile dummies, permanent income quartile dummies, gender dummy, labor market status: dummies for unemployed, not in labor force, retired, self employed, civil servant, marital status: dummies for married, divorced, widowed, five education dummies (ISCED categories), 3 kids dummies: 1 kid, 2 kids, 3 or more kids, numerical control variable for number of adults in household.

patience dummies, the marginal effects of the cultural variables are robust. Finally, we take up the question whether the two cultural components thrift and wealth accumulation still matter after controlling for either the own religious denomination or the religious intensity proxied by the regularity of church visits. The excluded categories are "Catholic" in columns (5) and (6) and "no church visits" in column (7) and (8). The results for our cultural proxies are hardly affected.

So far, we presented regression results for thrift and wealth accumulation separately. In order to disentangle the two channels, next we include them jointly in a regression. Table 8 presents the results. Whereas column (1) shows the marginal effects, if thrift and wealth accumulation are included jointly in the same regression, columns (2) and (3) present the reference values if either thrift or wealth accumulation are included separately using the same subsample. Controlling for thrift and wealth accumulation at the same time leads to a slight decrease in the size of the two marginal effects. However, both effects are still significantly different from zero, indicating that the two cultural proxies really capture two different cultural channels.

5 Evidence from an Alternative Country

For Germany, we find robust evidence that the attitudes towards thrift and towards wealth accumulation have an impact on the saving rate. Does this also hold true for other countries? In this Section, we will address the external validity of our results by studying an alternative major European immigration country: the UK. Confirming results in a different data set may also help mitigating the risk of spurious results e.g. associated with multiple hypothesis testing (Fafchamps and Labonne, 2016).

5.1 Data

We use data from the Understanding Society survey, a representative household panel survey that started in 2009. The saving question that we exploit is the following: "Do you save any amount of your income, for example by putting something away now and then in a bank, building society, or Post Office account, other than to meet regular bills? Please include share purchase schemes, ISAs and Tessa accounts." This question is available for two waves of the survey and is asked at the individual level, which means that we conduct our analysis at this level. We define the saving rate in the same way as before and divide the average monthly

always shows great patience? Scale from "very impatient: 0" to "very patient: 10". This question was asked in 2008 and 2013. We proceed in the same way as for risk. Both for risk and patience, results are robust if we do not take the average, but include the variables directly for the available years.

Table 8: Disentangling Channels

	(1)	(2)	(3)
Cultural variables	Jointly	Separately	Separately
Thrift	0.06** (0.032)	0.10*** (0.029)	
Wealth accumulation	0.03*** (0.012)		0.05*** (0.013)
Observations	4,918	4,918	4,918
Individual controls	YES	YES	YES
State dummies	YES	YES	YES
Year FE	YES	YES	YES

^a Clustered standard errors (at country of origin level) in parentheses. ^b *** p<0.01, ** p<0.05, * p<0.1

^c The table reports marginal effects.

^d Individual controls include: age quartile dummies, income quartile dummies, permanent income quartile dummies, gender dummy, labor market status: dummies for unemployed, not in labor force, retired, self employed, civil servant, marital status: dummies for married, divorced, widowed, five education dummies (ISCED categories), 3 kids dummies: 1 kid, 2 kids, 3 or more kids, numerical control variable for number of adults in household.

Table 9: Composition of the UK Sample

Europe (2066)	Asia (1473)	Africa (316)	Americas (790)	Oceania (63)
Cyprus (60)	Bangladesh (149)	Ghana (47)	Canada (118)	Australia (49)
France (65)	China / Hong Kong (68)	Kenya (78)	Jamaica (562)	New Zealand (14)
Germany (264)	India (699)	Nigeria (102)	USA (110)	
Ireland (1359)	Pakistan (508)	South Africa (66)		
Italy (151)	Sri Lanka (37)	Uganda (23)		
Poland (125)	Turkey (12)			
Spain (42)				

^a Number of observations is indicated in brackets. ^b If countries belong to more than one continent, country is classified according to largest geographical area.

amount of savings by the average individual monthly net income.

A major advantage of the Understanding Society data set is that we can directly observe the nationality of the parents and, thus, the identification of second-generation immigrants is straightforward. We include individuals in our sample if he or she was born in the UK and either the mother or the father was born abroad. If the mother was born in a foreign country, we assign the nationality of the mother. In a second step, we assign the nationality of the father, if the mother was born in the UK and the father stems from a different country. The Understanding Society data set only allows to distinguish between 23 countries of origin, which means that the variation is much lower than in the GSOEP data set (58 countries). We apply the same sample selection criteria as before and only consider second-generation immigrants that are between 25 and 65 years old. We also define the control variables in a way to make them as consistent as possible with the GSOEP data. Our sample consists of 4,708 observations. Table 9 reports the composition of the sample. Even though the majority of immigrants stems from European countries as in the GSOEP, the sample also contains many people from Asia, especially from India and Pakistan. Moreover, we observe second-generation immigrants from Africa, America and also from Australia and New Zealand.

5.2 Results

We estimate the same Tobit model as before and account for the clustering of the standard errors at the country of origin level. The regressions control for individual characteristics, time fixed effects and regional fixed effects, which are defined at the NUTS 1 level for the UK. Table 10 reports the results. Both the marginal effects of thrift and wealth accumulation are positive and significantly different from zero, consistent with

Table 10: UK Results

Marginal effects	(1) Thrift	(2) Wealth accumulation
Cultural variable	0.03** (0.014)	0.02* (0.011)
Observations	4,000	3,346
Individual controls	YES	YES
Regional FE (NUTS1)	YES	YES
Time FE	YES	YES

^a Clustered standard errors (at country of origin level) in parentheses. ^b *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ ^c Individual controls are: age quartile dummies, income quartile dummies, permanent income quartile dummies, gender dummy, labor market status: dummies for unemployed, not in labor force, retired, self employed, civil servant, marital status: dummies for married, divorced, widowed, five education dummies, 3 kids dummies: 1 kid, 2 kids, 3 or more kids, numerical control variable for number of adults in household.

our previous results. For thrift, we find that a one standard deviation increase in thrift (13.70) is associated with an increase of the saving rate of 0.41 percentage points. Increasing wealth accumulation by one standard deviation (16.29) leads to an increase of the saving rate by 0.33 percentage points. While the estimated effects are smaller than those for Germany, it confirms our finding that these two cultural channels matter for the saving behavior of households.

6 Conclusion

We conclude that culture has a significant effect on the saving behavior of households. The two main cultural aspects are the attitudes towards thrift and the importance assigned to wealth accumulation. We do not find persistent cultural effects of the other cultural channels considered here, namely self-control, attitudes towards uncertainty and time-preferences. While long-term orientation does not seem to play an important cultural role, we find some evidence that it might be related to saving behavior through the intergenerational transmission of language. This confirms the findings by Chen (2013) and Sutter et al. (2015).

In this paper, we base our choice of cultural variables on a list of psychological factors proposed by Wärneryd (1999). It is important to mention that neither he nor we make the claim to be exhaustive. There may potentially be other cultural dimensions that go beyond the channels that we study and that may have an impact on the saving decisions of households. One possible candidate could be the importance of family ties. Alesina and Giuliano (2010) demonstrate that differences in family ties help to explain a variety of household choices. However, the direction of the effect of stronger family ties on savings is not obvious a priori. Different motives as e.g. saving more to leave a bequest for the children or saving less because of expectations to receive a bequest from the parents may interact. It remains an open task for future research to disentangle these aspects.

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A Appendix

A.1 Identification of Second-Generation Migrants in the GSOEP

Second generation migrants cannot directly be observed in the GSOEP. However, the variable "migback" indicates whether an individual has an indirect migration background. Indirect migrants are defined as those persons that are born in Germany and at least one parent is non-German or was born outside of Germany or the individual has or had a non-German citizenship. As the GSOEP documentation points out, also "an individual who gains a foreign nationality will be classified as being of migrant origin even if this was not the case before" (DIW Berlin / SOEP, 2014).

In order to identify the country of origin of the indirect migrants, we largely follow the procedure proposed by Scheller (2011). We conduct the following steps:

1. In a first step we gather information on non-German nationalities that were stated by the individual in different waves. If the individual named different nationalities in different waves, the nationality that was mentioned most often is assigned. If one nationality was mentioned as often as another is, we keep the last-mentioned nationality.
2. If the variables in the first step are uninformative, we consider information provided by the interviewer on the nationalities of the individuals. This information is especially useful for household members who were not interviewed themselves (e.g. kids) and is thus of minor importance for us, as we focus on household heads. If nationalities named by the interviewer differ among waves, we proceed as in step one.
3. For indirect migrants where the country of origin is still unclear, we exploit a retrospective variable on past citizenships in a third step.
4. In step four we use information provided by the household head on the citizenships of children that were living in the household (the variable is available in two waves).
5. Since 2000, information on a second citizenship was collected. We make use of this variable in the fifth step.
6. In a sixth step we cross-check the countries of birth mentioned in different waves to see whether they deviate from the main country of birth variable "corigin", which names Germany for all indirect migrants. We find several deviations (especially for people from Poland and the Czech Republic). If a foreign country of birth was mentioned in at least one wave, we attach this nationality to the individual.
7. Finally, if we cannot identify a foreign nationality in the first six steps, we link individuals to their parents if they also participate in the survey and consider parental information. To identify the nationality of the parents, we follow the same procedure as described in steps 1 to 6. Only in recent years (since 2012) individuals were asked for the country of origin of their parents directly. We use

this information either if steps 1 to 6 did not provide the country of origin of the parents or if the parents are not part of the survey. If the father and the mother stem from different countries, we assign the maternal nationality to the individual. If the mother is German and the father has a non-German nationality, the father's home country is assigned.