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Working Paper

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This paper compares and evaluates the second generation of immigrants participating in the financial market with respect to their country of origin and in comparison to natives. Financial market participation differs significantly across countries, and the cultural dimensions could be a potential factor for that. In order to assess if this dimension matters, we exploited the influence that the socialist regime has had on the citizen of the East European countries. These individuals have grown a particular institutional context that has shaped a different culture regarding Western European countries. We rely on this heterogeneity and its intergenerational transmission to look for differences in the financial market participation. We show how simple theoretical models include in their specification coefficient for risk aversion, time preference, and trust. They can be the channel through which the cultural dimensions matter in the financial market participation. We show no difference in the financial market participation between the second generation of immigrants from EU countries and natives. At the same time, this difference is present when we compare them to the second generation from East European countries. Risk aversion and labor income seems to play the primary role in this heterogeneity in the financial market participation.

Keywords
Financial market, Portfolio choice, Immigration, Culture, SHARE

JEL Codes
G11, G41, J15

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Abstract: This paper compares and evaluates the second generation of immigrants participating in the financial market with respect to their country of origin and in comparison to natives. Financial market participation differs significantly across countries, and the cultural dimensions could be a potential factor for that. In order to assess if this dimension matters, we exploited the influence that the socialist regime has had on the citizen of the East European countries. These individuals have grown a particular institutional context that has shaped a different culture regarding Western European countries. We rely on this heterogeneity and its intergenerational transmission to look for differences in the financial market participation. We show how simple theoretical models include in their specification coefficient for risk aversion, time preference, and trust. They can be the channel through which the cultural dimensions matter in the financial market participation. We show no difference in the financial market participation between the second generation of immigrants from EU countries and natives. At the same time, this difference is present when we compare them to the second generation from East European countries. Risk aversion and labor income seems to play the primary role in this heterogeneity in the financial market participation.

1 Introduction

Researchers have observed a wide variation in economic outcomes across countries and ethnic groups. Is there a role of culture, independently by economic factor and institution, that can explain part of this diversity of outcomes?

Until the last decade, economists have been reluctant to rely on culture as a possible determinant of economic phenomena, mainly because its definition is so broad and the channels through which it can enter economic debate are so vague and widespread that it is difficult to design testable hypotheses.

However, awareness of cultural factors as possible determinants of economic outcomes has increased considerably. Guiso et al. (2006) define culture as "those customary beliefs and values that ethnic, religious, and social groups transmit fairly unchanged from generation to generation"; although there are other ways to define culture, most economists use this definition or others that are very similar. The main point highlighted by this definition is the channel through which it is reasonable to suppose that cultures influence economic phenomena: beliefs and preferences (values).

In this paper, we look at whether cultural differences influence financial decisions. In particular, we focus on the different roles that trust, sociability, risk aversion, and time horizon play on financial market participation between natives and immigrants.

So far, this recent literature has offered three main approaches to measure culture or analyze its impact on a broad set of economic outcomes. The most common is survey questions on self-reported preferences and beliefs (e.g., Alesina et al., 2013; Gorodnichenko and Roland, 2017).

The second approach collects experimental evidence on differences in people's behaviors from different countries and ethnicity (e.g., Henrich et al., 2001; PascualEzama et al., 2015). Finally, the third approach, also known as the epidemiological approach, links second-generation immigrants' outcomes in the same destination country to those observed in their countries of ancestry (e.g., Fernandez and Fogli, 2006, 2009).

The first approach tries to turn around the problem of identifying cultural factors and focuses directly on the channels through which culture could influence economic phenomena. The second one uses the feature of the experimental methodology to infer significant differences in the behaviors of the individual that can be attributed to differences in cultural factors. The epidemiological approach links the behaviour of the new generation of migrants, who all face the

host country's common economic and institutional aspects, to the attitudes and behaviors of individuals in the home country of their ancestors. According to this interpretation, if culture is persistent, second-generation immigrants should still possess the values and beliefs of their parents' home country culture.

Since the factors that are reasonably influenced by culture are related to individual behaviors and preferences, the economic phenomena that are affected by it are many, for instance: female labor supply (e.g., Fernandez, 2007; Alesina and Giuliano, 2010; Blau, 2015), male employment (Moriconi and Peri, 2015), fertility (Fernandez and Fogli, 2009), family living arrangements (e.g., Giuliano, 2007; Furtado et al., 2013). Another important aspect is the household saving decisions. Until now, evidence on the link between culture and household saving behavior is still weak and contradictory; for instance, Carroll et al. (1999) do not find evidence that differences in saving rates between cultural groups can be attributed to cultural factors. On the contrary, Guin (2017) shows that low- and middle-income households located in the German-speaking part of Switzerland are more likely to save with respect to similar households in the French-speaking part. An exciting aspect of this paper is that the researcher used a spatial discontinuity design based on the differences in the main languages spoken in Swiss cities for its identification. The critical assumption of the paper is that linguistic difference may proxy cultural difference that influences the distributions of time preferences across different cultural groups.

The recent literature that focuses on different saving decisions, such as financial market participation, has shown that the main channels through which culture can influence this aspect are temporal preferences and risk aversion (Chen 2013) or trust in the help by peers in adverse situations (Georgarakos and Pasini 2011). However, the cultural channels that could potentially matter for the financial market participants may be many and interlinked. In the book "The Psychology of Saving," Warneryd (1999) reviews the economic and psychological literature to identify factors that determine saving behavior such as thrifty habits, desire for effective accumulation and improvement, self-control, attitude towards the future, and its uncertainty. Since all these aspects highlighted by Warneryd enclose a large part of an individual's preferences and characteristics, these characteristics and elements can be determined by the parents' education of their children. This broad psychological aspect may be an additional reason to implement an epidemiological approach to identify the relation between culture and household decisions.

In household consumption or portfolio choice models, household preferences play an important role in various ways. Most of the economic theory of household consumption and saving behavior

is based upon the life cycle hypothesis, where household preferences depend on the rate of time preference and the household's rate of risk aversion. For instance, according to the standard two-period Markowitz portfolio model, the choice between holding risky and risk-free assets will depend on the agent's risk aversion parameter. The model of Henderson and Ioannides (1983) extends the previous model, including a role for time preference in household consumption or portfolio choice with respect to the tenure choice in the housing market. In addition to these two main individual preferences, the recent literature has introduced personal beliefs as possible factors that determine household consumption and portfolio choice, such as trust in the financial intermediaries and institutions (Guiso et al. 2006).

Our analytical framework extends the standard household consumption and portfolio model based on the individuals' preferences and beliefs. We use the information of the second generation of immigrants in Europe to see whether there is a difference in their financial market participation according to our proxy of culture. Moreover, we try to examine how this difference is characterized with respect to individuals' preferences and beliefs such as trust, sociability, risk aversion, and time horizon. We focus on the difference between the second generation of immigrants from west European countries versus the second generation from East European countries. The latter's parents were influenced, during the 20th Century, by the communist regime (Tabellini 2008), and they may have transmitted to their children a different culture that may persist in the second generations.

The remainder of the paper is organized as follows. Section 2 describes the theoretical background for the relationship between culture and institutions; then, we present basic economic models to highlight channels with which culture can affect household saving decisions. Section 3 describes the data we use and the choice made to build our variable of interest. Section 4 reports the empirical strategy, and section 5 the analysis results. Section 6 writes some robustness checks, while Section 7 discusses our findings and draws some conclusions.

2 Theoretical background

2.1 Culture and Institutions

Culture and institutions are simultaneously determined variables that affect each other and other many factors, such as geography, technology, epidemics, wars, and other historical shocks. For this reason, the relation among them is studied in different ways in the literature. Putnam (1993) took advantage of a natural experiment involving an institutional reform: in the early 1970s, Italy's central government established fifteen new regional governments. Ideally, they should have performed identically throughout the country, but in practice, they have not. The discrepancy was most pronounced between the center-north and the south. Putnam and his colleagues hypothesized that the variance was due to regional differences in levels of cooperation, participation, social interaction, and trust. They argued that these regional differences, dating back at least as far back as the twelfth century, were a function of whether the given region had experienced the institution of free cities.

Free cities developed a form of early participatory democracy, generating a feeling of belonging to a polity, whose functioning could guarantee both protection from aggression and the provision of public goods. As a result, citizens of free cities developed a deep sense of civic and cooperative behavior, a cultural trait they transmitted from generation to generation. Subsequent studies have shown strong evidence of this direction for the relation of culture and institutions, although other researches focus on the inverse relation (Buonanno et al. 2019).

In the spirit of this approach, we tried to look if there is space for artistic effect in households' decisions in Europe, exploiting the influence that the Soviet Union had during the 20th century. The culture of the Soviet Union passed through several stages during the USSR's 69-year existence, from relative freedom to repressive control and censorship.

During the Stalin regime, art and culture were put under strict control. Public displays of Soviet life were limited to optimistic, positive, and realistic depictions of the Soviet man and woman, a style called socialist realism. The purpose of socialist realism was to determine popular culture to a specific, highly regulated faction of creative expression that promoted Soviet ideals. Revolutionary romanticism elevated the typical worker, whether factory or agricultural, by presenting his life, work, and recreation as admirable to show how much the standard of living had improved thanks to the revolution. Art was used as educational information.

Despite the strict censorship of the arts and the repression of political dissidents during this period, the Soviet people benefited from social liberalization, including equal education and social roles for

women, free and improved health care, and other social benefits. Women were eligible for the same education as men and, at least legally speaking, obtained the same rights as men in the workplace. Although these goals were not reached in practice, the efforts to achieve them and the statement of theoretical equality led to a general improvement in the socioeconomic status of women. Urban women under Stalin were the first generation to give birth in a hospital with access to prenatal care. Education also improved with economic development. The generation born during Stalin's rule was the first in which most members were literate.

Starting in the early 1930s, the Soviet government began an all-out war on organized religion, and the government vigorously promoted atheism. These events have created an institutional and educational environment that has affected the countries under the influence of the Soviet Union.

Hofstede's study (1980) was based on a survey among IBM managers and employees in over 40 countries. Hofstede's framework assesses five dimensions of work values: power distance, uncertainty avoidance, individualism, masculinity, and long-term orientation. These five dimensions together have substantial face validity, and they are empirically demonstrated to be related to many aspects of management and organization. From his work, a set of indexes for those aspects was built. Moreover, it allows us to see a similarity among the countries under the socialism influence.

Similarly, in the theoretical framework of household decisions, we have seen those individual traits that matters are risk aversion, time preferences, and trust. The following analysis will explain a simple theoretical framework that shows how those traits matter. We will look for their impact on the financial market participation between children of those who have experienced the socialist regime and natives or second-generation immigrants from other countries.

2.2 Risk aversion and time preference

In the standard economic theory, the household financial market participation is just a way for the individual to solve their Intertemporal choice between consumptions and savings. The basic models used in the modern literature on consumption and saving choices are based on two main assumptions: identical economic agents maximize an intertemporal utility function, defined on the consumption levels in each period of the optimization horizon, subject to the constraint given by overall available resources. Under uncertainty, the maximization is based on expectations of future relevant variables.

We will look at how risk aversion and time preference matter in the most straightforward theoretical framework to the optimal behavior of a representative agent who lives in an uncertain environment and has rational expectations, that faces an infinite horizon and solves at time t an intertemporal choice problem of the following general form:

$$\max_{\{c_{t+i}, i=0,1....\}} U(c_t, c_{t+i}, ...)$$

subject to the constraint:

$$A_{t+i+1} = (1 + r_{t+i})A_{t+i} + y_{t+i} - c_{t+i}$$

Several assumptions are often made to derive empirically testable implications from the basic model easily. The main assumptions are as follows:

Intertemporal separability, the adoption of expected utility as the objective function under uncertainty, there exists only one financial asset with a specific and constant rate of return r and way of discounting utility in future periods that guarantees intertemporally consistent choices (usually interpreted as individual time preference) $V_{t+k}(c_{t+k}) = \beta^k u(c_{t+k})$

Assuming the utility function (i.e., $u(c_t)$ is an increasing and concave function of consumption) the first-order condition of the previous problem necessary and sufficient to solve the dynamic intertemporal problem. The Euler Equation is:

$$u'(c_t) = \frac{1+r}{\beta} E_t u(c_{t+1})$$

In this simple setting, we immediately find the theory's relevance to the individual time preferences that, together with the rate of return, govern the evolution over time of consumption and saving, and consequentially investment decisions such as participating in the financial market. With simplicity, we can include in this setting the standard constant relative risk aversion (CRRA) utility function that allows seeing the impact that risk aversion has on the intertemporal choice of the individual.

$$u(c_t) = \frac{c_t^{1-\gamma} - 1}{1 - \gamma}$$

The Euler equation with this specific utility function is:

$$\left(\frac{c_{t+1}}{c_t}\right)^\gamma = \frac{1+r}{\beta}$$

Finally, taking logarithms and using the standard approximations we can express the consumption growth rate as:

$$\Delta \log c_{t+1} = \frac{1}{\gamma}(r - \frac{1}{1+\beta})$$

The elasticity of intertemporal substitution, which is the effect of changes in the interest rate on the consumption growth rate, is constant and is measured as the reciprocal of the coefficient of relative risk aversion. From the standard model, we see that those individual traits are directly included in the theoretical model used to look for the household's decision to participate in the financial market.

2.3 Trust

Different from the time preference and risk aversion, trust is a concept that only recently attracted the attention of researchers in Economics. We use here the revised portfolio model Georgarakos and Pasini (2011) to illustrate a simple theoretical setting that explains how trust can play a role in the households' saving decision, between risky and risk-free asset:

$$\max_{a_i} EU[a_i \tilde{r} W_i + (1 - a_i) r_f W_i]$$

The household has to maximize its utility between two financial assets: a risk-free asset with certain return r_f, and a risky asset with an uncertain return $\tilde{r}$, that are distributed with mean $E[\tilde{r}] = \bar{r} > r_f$. Finally, a_i is the share allocation of the wealth endowment W_i between the two assets. Exploiting the standard assumptions of the expected utility theory, we have that an individual invests in a risk asset, $a_i > 0$, when:

$$EU[a_i \tilde{r} W_i + (1 - a_i) r_f W_i] \geq U[r_f W_i]$$

With $\tilde{r} - r_f$ we measure the return from holding a risk asset. The risk that the household face can be uncorrelated or not accounted in the $\tilde{r}$ (i.e. exogenous shock that affect financial market intermediaries, institutions etc.). Moreover, the value of a stock investment is related to the strength of the contract that are signed; if an household is not able to enforce its rights then the value of the investment is worthless. We can define mistrust as the probability p that an investor assigns to the likelihood of being unable to enforce his rights. In the social capital literature, trust is viewed as community-specific, while the mistrust is defined as common to individuals belonging to the same group. Thus, we assume that individuals of a specific group are bounded to the average

level of trust in the community. Thus we can treat this probability as given, like in the standard microeconomic theory treats the prices that a single consumer faces. We can close our set up by including trust as a discount factor that a household uses to define the final value of an investment:

$$(1-p)EU[a_i\tilde{r}W_i + (1-a_i)r_fW_i] + p(1-a_i)U[r_fW_i] \geq U[r_fW_i]$$

In this setting, a lower level of mistrust means that the household discounts less the utility from the risky asset. Again, this model is a specific theoretical example of how the trust trait affect the household's decision to participate in the financial market.

2.4 Reduced form model

Since our study is looking for an explanation to the heterogeneity in the household portfolio decision, we may or may not observe the value of the desired level stocks w_i^* for each household i, but we know whether households hold a financial products:

$$w : \begin{cases} 1 & w_i^* > 0 \\ 0 & w_i^* \leq 0 \end{cases}$$

We assume that the desired level of financial assets w_i^* depends on a set of observable socio-economic characteristics of the household and on a set of unobservable characteristics represented as follows:

$$w_i^* = \beta'X_i + \varepsilon_i$$

Where X_i is the set of observable socio-economic characteristics and where β' is a set of unknown parameters that we want to estimate. Therefore:

$$w : \begin{cases} 1 & \varepsilon_i > -\beta'X_i \\ 0 & \varepsilon_i \leq -\beta'X_i \end{cases}$$

And

$$E(w_i|X_i) = \Pr(w_i = 1|X_i) = P(\varepsilon_i > -\beta'X_i)$$

Under the assumption that investment decisions are independent across households, then the conditional probability of stockholding w, given the observable characteristics of the households X_i, is the product of all the conditional probability; thus, ownership probabilities can be studied using

standard discrete models. The simplest model for discrete dependent variables is the linear probability model that leads us to the following regression equation:

$$w_i = \beta' X_i + u_i$$

So far, we have presented only the standard discrete choice model for financial market participation. However, we are interested in determining if this discrete model is subject to heterogeneity given the cultural component. In most literature, the cultural effect on economic outcome is analyzed as a difference in levels. Basically, a proxy for culture is included in the set of observable socio-economic characteristics as dummy or factor variables. Indeed this approach can give us first evidence on the relation between stockholding and culture; however, it is reasonable to expect a more pervasive effect of the culture that can even influence the marginal effect of the other relevant socio-economic characteristics. In this case, what we are trying to look for the regression equation:

$$w_i = \beta'_k X_i + u_i$$

where β_k' is a set of unknown parameters that we want to estimate, that can be different with respect to the culture influence (*k*) of the individual. In this way, our regression equation is just the reduced form based on the standard portfolio model presented in the previous section, where we highlighted the roles of risk aversion, time preference, and trust.

3. Data

Our data are from the Survey of Health, Ageing, and Retirement in Europe (SHARE). SHARE is a Longitudinal project that collects detailed information on adults aged 50 years and older from 27 European countries, plus Israel. The present study is based on waves 1, 2, 4, 5, and 6. We selected all the countries present in these waves that the Soviet Union did not influence. Therefore, our dataset includes data from Austria, Germany, Sweden, Netherlands, Spain, Italy, France, Denmark, Greece, Switzerland, Belgium, Israel, and Luxembourg. Since we are focused on the household decision, we take from SHARE only the information about the financial respondent of each household, namely the individual that is mainly responsible for the financial decision in the house. Finally, we restrict our samples removing all the individuals that have immigrated (i.e., the first generation of immigrants) in those countries; as known in the literature, the migrants are subject to a strong self-selection process. Table I reports the pattern of individual participation in the panel: about 14% of the individuals were observed for four waves and around 25% for three waves.

Table 1. Individual panel participation

Wave 1	Wave 2	Wave 4	Wave 5	Wave 6	Percent.
X	X	X	X	X	8.66
X	X	X	X		4.09
X	X	X			5.27
	X	X	X	X	4.33
		X	X	X	12.81
			X	X	18.36
		X	X		9.56
			X		11.82
				X	11.73
		others			13.43

Since our main objective is to identify the cultural component in our observations, we use the reported country of births of the individuals' parents. In this way, we can directly identify the second generation of immigrants (i.e., those born in the country of the interview but with parents born in a different country). For the second generation of immigrants, we also distinguish between those that have both parents with a different country of birth with respect to the country of the interview and those observations that have just one parent with the country of birth different from the country of interview. We cluster individuals according to the country of origin into four groups: natives, migrants from a west European country (EU), migrants from an East European country (EE), and others. We have selected these groups in order to exploit the possible influence of the socialist regime in shaping a strongly different culture in the countries that were under its influence. With the specific proxy we use to identify culture, we have to focus our analysis on European countries that were not under the Soviet union's influence. Moreover, in EE countries, we do not have enough observations of the second generation of immigrants from EU countries.

Table 2 reports the frequencies of the second generation of immigrants in our dataset.

Table 2. Country distributions, by origin

Country identifier	Origin Zone		
	Native	EU	EE
Austria	7,375	615	349
Germany	6,654	375	397
Sweden	7,815	313	33
Netherlands	5,704	227	9
Spain	10,664	46	0
Italy	9,68	84	18
France	8,321	863	57
Denmark	7,821	250	18
Greece	1,622	5	45
Switzerland	5,268	627	6
Belgium	11,311	912	59
Israel	466	671	695
Luxembourg	1,29	291	8
Household Obs.	83,991	5279	1694

The analysis focuses on households' decisions to participate in the stock market. SHARE asks households who owns mutual funds, stocks, or bond. We use this information as a proxy for the financial market participation of the household. In the baseline regression, we take from the generated variable by SHARE a dummy that is equal to one if the household holds at least one of these financial products.

Given the complexity of the relation between the cultural components with respect to economic outcomes, the financial participation with specific individual traits, we exploit the rich information present in SHARE to obtain indexes for individuals' preferences and characteristics that are relevant in our framework, such as risk aversion, trust, time horizon, and sociability.

We classify a household as risk-averse if the financial respondent has reported an average financial risk or unwillingness to take financial risk. While, we set the variable trust equal to one if the financial respondent has reported a level of trust greater than six (i.e., in the survey, the individual are asked to scale from 0 to 10 the statement "most people can be trusted or that you can't be too

careful in dealing with people", where 0 means they cannot be too careful and 10 means that most people can be trusted).

As a proxy for the time preference, we found in SHARE a variable that measures the time span that an individual uses for planning his/her saving and spending. We set a binary variable equal to one for those individuals that report a time period greater than 5 years so that we can distinguish patient or impatient individuals. This information is treated in the SHARE survey as time constant (i.e., they are asked this question only in their first interview). This assumption is in line with the theoretical framework we presented before. Moreover, given the specific range of age of our sample, we can reasonably think that the variation over time of the individuals' preferences and beliefs is, at least, less subject to changes due to external factors, such as social environment or shock events. Although our main analyse is based on this assumption, we will control with respect to the age of the individuals and their cohorts.

We include a set of controls that can be viewed as a proxy for the family/social background, such as marital status, number of children, education, and work situation. The variable marital status represents single, married, or widow status, while education distinguishes among those with high school education, college education, or low education. Work situation, instead, identifies employed, self-employed, and retired or unemployed individuals. Finally, we use control variables for wealth, such as income and household net wealth. In the following table 3, we report descriptive statistics of our dataset. Precisely, we highlight the data distribution with respect to the cluster of origins.

Table 3. Summary statistics, by origin

Variables	Native		EU		EE	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Fin_active	.2834216	.4506622	.2954306	.4562841	.2633717	.4406115
Age	67.3054	10.50467	66.2204	9.94426	65.7103	9.66102
Risk	.7153999	.4512268	.6917778	.4618102	.6462396	.4784693
Trust	.4633879	.4986608	.4569634	.4981904	.4227331	.4943095
Time horizon	.4573305	.4981792	.4504505	.4975875	.5305292	.499406
Social	.7578851	.428366	.8236154	.3811819	.8474149	.3598141
HIS income	1073.026	1579.681	1098.645	1358.921	1083.033	1312.469
HIS wealth	1182.023	4082.096	1175.038	4549.471	1147.754	4933.676
Marital status	.5704401	.7874416	.5775953	.7605833	.5463778	.7606841
N. of children	2.089	1.438	2.101	1.489	2.258	1.630

4 Empirical Strategy

To analyse the effect of culture on financial market participation, we use the epidemiological approach. This approach isolates the effect of culture from that of contemporaneous economic conditions and institutional factors, by focusing on immigrants living in the same host country and estimates whether their country of origin affects migrants' probability to participate in the financial market at the host country.

The first way to look for the effect of culture is to look if there are differences between the second generation of immigrants with respect to natives. The key assumption of this approach is the concept of vertical transmission (from parents to children) of beliefs and preferences. In this way, we are able to avoid bias due to unobservable characteristics typical of migrants.

$$Fin_{it} = \beta_1 origin_i * G_i + \delta X_{it} + \varepsilon_{it}$$

We estimate a linear probability model where the outcome variable is the probability to participate in the financial market (i.e,. holding stock, mutual funds). In particular, $origin_i$ is the factor variable created by clustering individuals according to the country of origin by their geographical, institutional, and historical proximity, while G_i is a dummy variable that identifies the second generation of immigrants. We use their interaction as the factor variable that identifies the origins of the second generation of immigrants and measure, so that β_1 measures the difference in the probability to participate in the financial market with respect to natives. Finally, X_{it} is a vector of control variables, which also includes our measure for individuals' preferences and characteristics.

As explained in section 2, we are looking not only at the difference in the probability of participating in the financial market but also at the difference in the marginal effect of the included individuals' preferences and socio-economic characteristics that are relevant in our framework. For this reason, we add to the baseline regression the interaction term between the vector of control variables and our independent variable.

$$Fin_{it} = \beta_1 origin_i * G_i + \gamma(origin_i * G_i * X_{it}) + \delta X_{it} + \varepsilon_{it}$$

We perform the Chow-Test in order to check if the coefficients in the regression are statistically different based on the three groups. We find evidence of these differences, allowing to splitting the dataset based on the proxy of culture that we have defined.

The crucial feature of our analyse is the nature of trust, time preferences, and risk aversion from a time perspective. As explained in the data section, we have assumed that those traits are time-invariant given the age range of our sample; therefore, we cannot use the fixed-effect model for our estimation. Moreover, According to Mundlak (1978), the random effects specification is a misspecified version of the fixed effects model since it ignores the possible correlation between individual effects and regressors. By controlling for this correlation, Mundlak shows that the coefficients of the random effects specification are identical to those of the within estimation unifying in this way both approaches. Our empirical strategy is based on this approach with the aim to relax the random-effects estimator's assumption that the observed variables are uncorrelated with the unobserved variables. For completeness, we also compute regression based on the random effect model.

5 Results

We first report in table 4 the results of the first step. From our data, we have that the probability of participating in the financial market for the second generation of immigrants from East European countries is slightly lower than natives. In contrast, this difference seems to not be statistically relevant for the second generation of immigrants from other European countries. Moreover, from this preliminary step, we have obtained relevant estimation for the individual preferences and characteristics we would like to focus on. As expected in the theoretical model, the financial market participants positively correlate with the individual's time horizon, sociability, and reported trust. At the same time, this relation is negative with the individual's risk aversion.

Table 4

VARIABLES	Pooled OLS	Mundlak
EU	0.0135	0.0118
	(0.0163)	(0.0152)
EE	-0.0150**	-0.0158*
	(0.0073)	(0.0092)
trust	0.0161***	0.0138***
	(0.00405)	(0.00383)
risk	-0.218***	-0.213***
	(0.00521)	(0.00495)
time_hor	0.0643***	0.0581***
	(0.00423)	(0.00398)
social	0.0480***	0.0186***
	(0.00396)	(0.00497)
Chow test	179.98***	186.74***
Observations	73,777	73,777

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1
Individual characteristics, country and waves dummies are all included.

Since our sample comprises three different groups of observation, we would like to know if the effects of individuals' preferences and characteristics are equal among these groups. We perform the Chow test in order to assess if the marginal effects of the above variables are different among native, the second generation of immigrants from EU and EE. With this test, we are looking at whether it is reasonable to pool the data together or split our sample with respect to the individuals' origin. In the previous table, we reported the statistics of the overall case, which consider the slopes and intercepts of the linear model focusing on risk aversion, time horizon, and trust. From the test results, we can support the claim that for our sample, the three groups have different marginal effects for those variables. In light of this, we proceed with the analysis splitting our sample.

Table 5 reports the estimation of the Mundlak regressions. We follow the previous model specification and run the regression for the three groups. With respect to the marginal effect of risk aversion, we find a relevant difference between the second generation of immigrants from EE countries with respect to natives and the second generation of immigrants from EU countries. At the same time, there is no difference between the latter two groups. Although we cannot draw a

relevant conclusion concerning the marginal effect of trust and time horizon, since they are not statically significant for the second generation of immigrants from EE, we find similar and significant effects for the other two groups.

An interesting fact is highlighted by comparing the three groups with respect to some of the control variables. For all the three groups, the difference in the financial market participation among the quantiles of wealth is similar. The literature has shown that the financial market participation is usually greater for wealthier households; thus, we included wealth in our specification with respect to the quantile of its distribution in the sample.

The situation is completely different if we look at the quantiles of the labor income. The household with the highest income has financial market participation higher than the household with the lowest income. This difference is greater for the second generation of immigrants from EE than the other two groups. These results can be due to the source of wealth for this type of individual. The wealth accumulation process of previous generations can be a disadvantage for the second generation of immigrants from East Europe, so their primary source of wealth may be labor income; therefore, a higher labor income can be perceived as a higher wealth that they use in the household investment decisions.

Table 5

VARIABLES	Native *fin_active*	EU *fin_active*	EE *fin_active*
trust	0.0111***	0.00635	-0.00967
	(0.00380)	(0.0157)	(0.0272)
social	0.0184***	0.0144	-0.00805
	(0.00503)	(0.0217)	(0.0407)
risk	-0.204***	-0.223***	-0.137***
	(0.00490)	(0.0200)	(0.0327)
time_hor	0.0501***	0.0569***	0.00717
	(0.00394)	(0.0163)	(0.0285)
age	0.00578	0.00877	-0.0682**
	(0.00399)	(0.0168)	(0.0338)
c.age#c.age	6.93e-06	-5.01e-06	0.000617***
	(2.76e-05)	(0.000119)	(0.000233)
High school	0.0333***	0.0570***	0.00499
	(0.00472)	(0.0184)	(0.0322)
College	0.0654***	0.0791***	0.0161
	(0.00538)	(0.0210)	(0.0361)
Employed	-0.0182***	-0.0132	0.0680**
	(0.00500)	(0.0203)	(0.0342)
Self-employed	0.0269***	0.0128	-0.0659
	(0.00810)	(0.0343)	(0.0462)
health	0.000153	-0.0279	-0.0540*
	(0.00435)	(0.0172)	(0.0324)
1.q_income	0.00915**	0.0304	0.0467
	(0.00450)	(0.0227)	(0.0367)
2.q_income	0.0215***	0.0405*	0.0747*
	(0.00522)	(0.0235)	(0.0410)
3.q_income	0.0580***	0.0703***	0.152***
	(0.00620)	(0.0263)	(0.0463)
1.q_wealth	0.0630***	0.0893***	0.0932***
	(0.00493)	(0.0195)	(0.0355)
2.q_wealth	0.0887***	0.106***	0.124***
	(0.00492)	(0.0175)	(0.0332)
3.q_wealth	0.223***	0.228***	0.296***
	(0.00581)	(0.0213)	(0.0410)
Single	0.0117**	-0.0159	0.156***
	(0.00485)	(0.0190)	(0.0362)
Widow	0.00766	0.0364	0.102**
	(0.00509)	(0.0226)	(0.0403)
Observations	73,384	4,531	1,365

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1
Country and waves dummies are all included.

6 Robustness check

One critical element of our empirical strategy is the type of financial market participation analysed; as explained in section 3, we defined this variable as a dummy equal to one when the household hold at least one financial product among stock, bond, and mutual funds. We have therefore considered focusing on each of them separately. In Table 6, we reported the estimated results for each financial product in the three groups. We still have the same difference in the marginal effect of the risk aversion in the case of stock holding and mutual funds. However, this difference disappears when we look at holding bonds. If we think of the theoretical meaning of the bonds, i.e., lowest risk asset, we do not find this result so unexpected.

Table 6

VARIABLES	Native	EU	EE
		Bonds	
trust	0.00151***	-0.00684	0.0108
	(0.00055)	(0.0105)	(0.0206)
social	0.0151***	0.0390**	-0.0376
	(0.00401)	(0.0193)	(0.0315)
risk	-0.0315***	-0.0307**	-0.0314**
	(0.00325)	(0.0128)	(0.0125)
time_hor	0.0210***	0.0279***	0.0234
	(0.00259)	(0.0106)	(0.0207)
		Stocks	
trust	0.00411	0.00639	-0.0149
	(0.00329)	(0.0141)	(0.0221)
social	0.0181***	-0.0124	0.0872**
	(0.00432)	(0.0187)	(0.0383)
risk	-0.153***	-0.170***	-0.0787***
	(0.00451)	(0.0184)	(0.0287)
time_hor	0.0259***	0.0322**	-0.0207
	(0.00337)	(0.0144)	(0.0234)
		Mutual funds	
trust	0.00990***	-0.00129	0.00967
	(0.00327)	(0.0139)	(0.0253)
social	0.0119**	-0.0302	0.00791
	(0.00465)	(0.0224)	(0.0435)
risk	-0.140***	-0.196***	-0.107***
	(0.00437)	(0.0184)	(0.0319)
time_hor	0.0340***	0.0394***	0.00354
	(0.00333)	(0.0143)	(0.0260)

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1 Individual characteristics, country and waves dummies are all included.

In order to thoroughly assess if the second generation of immigrants from EE has a different risk aversion compared to natives and compared to the second generation of immigrants from the EU, we may look to an alternative investment decision which is homeownership. In household investment decisions, buying a house can be a substitution for riskless investment, and the impact of individual traits on this decision should be different.

We follow the same idea of our previous empirical approach. We assume that the probability of owning a home for an individual is a function of the demographic, socioeconomic, and institutional housing market characteristics:

$$H_{it} = \beta_1 origin_i * G_i + \delta X_{it} + \varepsilon_{it}$$

In the following tables, we report the results for both the steps we presented in section 4. We see already from the first baseline regression that there seems not to be a difference in the probability of owning a home with respect to the different origins of the individuals. Moreover, the impact of risk aversion is positive, as we expected, given the less risky nature of investing in house ownership.

The Chow test supports the pooling of the data among the three groups.

Table 7

VARIABLES	Pooled OLS *own house*	Mundlak *own house*
EU	-0.0182	-0.0132
	(0.0170)	(0.0151)
EE	-0.0179	-0.0105
	(0.0221)	(0.0197)
trust	0.0120***	0.00958**
	(0.00454)	(0.00407)
social	0.0174***	0.0137***
	(0.00450)	(0.00405)
risk	0.0214***	0.0141***
	(0.00524)	(0.00471)
time_hor	0.0233***	0.0147***
	(0.00463)	(0.00417)
Chow test	1.98	1.74
Observations	73,777	73,777

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1
Individual characteristics, country and waves dummies are all included.

In the following tables, we report the regression of the separated sample where any difference among groups disappears.

Table 8

VARIABLES	Native own house	EU own house	EE own house
trust	0.00784**	0.00830	0.0249
	(0.00358)	(0.0150)	(0.0257)
social	0.00803**	0.00950	0.0455
	(0.00388)	(0.0174)	(0.0330)
risk	0.00365*	0.0316	0.0338
	(0.00129)	(0.0270)	(0.0190)
time_hor	0.000639	0.00639	0.0139
	(0.00367)	(0.0147)	(0.0276)
Observations	68,377	4,185	1,215

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1
Individual characteristics, country and waves dummies are all included.

7. Conclusions

In this paper, we have focused on the decision-making process of households in their financial market participation. In particular, we have looked for an explanation for some of the heterogeneity that existed in this economic outcome, which we found can be explained by cultural differences among individuals.

To do this, we focused our analysis on the second generation of individuals, clustering them by their country of origin. The idea is that individuals share the same culture, transmitted by their parents, which shapes part of their preferences and beliefs. We exploited the strong influence that the soviet union has played for nearly 70 years to cluster our observations in the second generation of immigrants from East Europe, the European Union, and Natives.

With some simple theoretical models, we have shown how traits such as trust, risk aversion, and time preferences are relevant in the household's investment decisions. Moreover, based on the simple reduced-form model of household portfolio decisions, we predicted that the impact of these traits is different with respect to their culture.

From our findings, we have seen that the main trait that is different among our groups is risk aversion. In particular, for the second generation of immigrants from East European countries, this trait impacts less in their financial market participation with respect to natives or immigrants from countries of the European Union. We also checked if this difference remained when looking for different types of financial products, finding that it still does. On the contrary, it seems to disappear when we look for assets that can be viewed as riskless such as homeownership.

In our study, we were limited to using the simple self-reported information that was linkable to the relevant traits expected in the general portfolio model, such as risk aversion, time horizon, and trust. However, although it is still difficult to assess the causal relationship between culture and financial market participation, we think that looking with more details to the individual traits as the main link between the two can be deepener analysed future research.

Using comparable survey data among European countries allows us to treat the individuals' traits under the same empirical framework and compare the investment behavior of specific groups of households. We enrich the relevant literature on household financial decision-making by using an alternative way to look for the link between culture and the financial market. We provide evidence that the heterogeneity among the financial market between immigrants and natives can be driven by the individuals' preferences and beliefs that are crucial decision processes. Therefore even if measuring culture can be difficult, focusing on some of the channels it affects household decisions may open more possibilities to future research.

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