

Culture, Gender, and Financial Literacy

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Motivation

Financial Literacy

Culture

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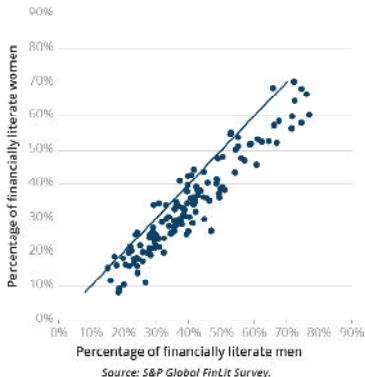
Robustness Checks and
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Figure 1: Financial literacy rates among men and women around the world



- ▶ Consistently lower financial literacy among women wrt men (Bucher-Koenen et al., 2017)
- ▶ True for most countries (Hasler and Lusardi, 2017) and across different socio-demographic characteristics (Mahdavi and Horton, 2014)
- ▶ Despite women's and men's convergence in many economic outcomes!

- ▶ Women tend to have lower financial resources than men
 - ▶ lower earnings
 - ▶ more work interruptions
 - ▶ longer life expectancy
 - ▶ Lower financial knowledge
- perfect storm for women financial insecurity and poverty, especially after retirement (Lusardi and Mitchell, 2008)
- ⇒ Important to understand the reasons behind women's disadvantage in financial knowledge

About culture :

- ▶ Increasing share of foreign-born individuals in developed countries, transmitting values and beliefs to second-generations
- ▶ Growing interest in understanding the role of culture on households' financial outcomes (Ke, 2018, Fuchs-Schundeln *et al.*, 2019)

Possibly the effect of culture is passing via financial literacy
(Brown *et al.*, 2018; Davoli and Rodriguez-Planas, 2021)

Culture:

Customary beliefs and values that ethnic, religious, and social groups transmit fairly unchanged from generation to generation (Guiso, Sapienza & Zingales, 2006)

- ▶ Traditional norms constrain both men and women to behave as socially stipulated by their social category
- ▶ Gender differences in preferences and norms shown to systematically shape men's and women's differential economic behavior (Nollemberger et al., 2016; Buser et al., 2014, Ke, 2018)

⇒ they may also shape the gender gap in financial knowledge

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Research Question:

Are cultural gender differences (gender norms) associated with the gender gap in financial literacy?

- ▶ Culture may affect individuals' financial knowledge because they have internalized certain beliefs and values related to
 - ▶ relevance of gathering economic information to make informed financial decisions
 - ▶ need to have precautionary savings
 - ▶ amount of risk that is reasonable to handle

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How to separate the effects of culture from the effects of formal institutions?



Exploit the difference in the “portability” of culture relative to economic and institutional conditions

Epidemiological approach (Fernandez, 2008): comparing the financial literacy of U.S men and women, who share the same institutional setting but identify with different countries of ancestry

- ▶ National Longitudinal Survey of Youth
 - ▶ 9500 individuals from NLSY79 (1979) and NLSY97 (1997): different cohorts of individual self-reporting measure of ethnic identification (28 different country of ancestry)
 - ▶ "The Big Three", questions on inflation, risk diversification and interest rate [Questions](#)
 - ▶ Individual-level characteristics (education, family, employment)
- ▶ 2014 S&P Global Financial Literacy Survey: difference between the proportions of women and men who are financially literate in each country (proxy for culture)
- ▶ Cross-country information on human capital, preferences, economic and financial development (GPS, World Value Survey, OECD, World Bank etc....)

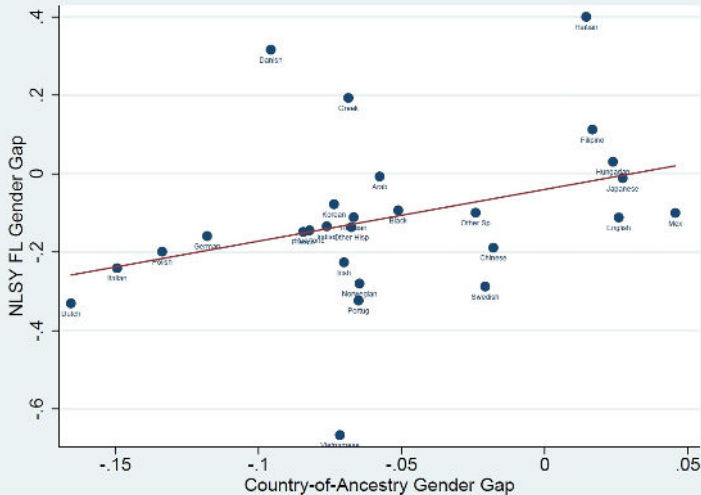
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Estimation Equation

$$FL_{irjt} = \beta_0 + \beta_1 Female_{irjt} + \beta_2 S\&PFL_j^{GGap} + \beta_3 S\&PFL_j^{GGap} * Female_{irjt} + X'_{irjt}\beta_4 + Z'_j\beta_5 + \gamma_r + \gamma_t + \epsilon_{irjt}$$

- ▶ FL_{irjt} : financial literacy for household i (answering correctly the Big Three), leaving in region r , from country of ancestry j , surveyed at time t
- ▶ $S\&PFL_j^{GGap}$: gender gap (difference between proportion of women and proportion of men who are financially literate) in country of ancestry j
- ▶ X_{irjt} : age, gender, education, household characteristics, parents' characteristics
- ▶ Z_j : country-of-ancestry covariates
- ▶ γ_t, γ_r : survey-year and region-of-residence fixed effects
- ▶ ϵ_{irjt} : errors clustered at country of ancestry level

Table 1: Country-of-Ancestry Gender Gap in Financial Literacy
and Financial Knowledge in the US

	(1)	(2)	(3)
Female	-0.116*** (0.010)	-0.123*** (0.008)	-0.123*** (0.008)
<i>S&PGap</i>	-0.543 (0.387)	-0.497*** (0.225)	
Female* <i>S&PGap</i>	0.462*** (0.126)	0.561*** (0.094)	0.551*** (0.099)
N	9623	9623	9623
Individual Controls		X	X
Country FE			X
Weights	X	X	X

Clustered standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

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Results are very robust!

- ▶ Different model specification (Logit, unweighted)
- ▶ Different samples **Subsamples**
- ▶ Controls for parents characteristics, non-cognitive and cognitive skills **Parents** **Non-cognitive**
- ▶ Falsification test **Falsification**

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Unmeasured Human Capital?

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We rule out:

- ▶ confounding factors related to country-of-ancestry gender differences in economic or human capital development
- ▶ gender differences in respondents' socio-demographic characteristics, parental wealth and financial sophistication, cognitive and non-cognitive skills
- ▶ generic gender differences in the inter-generational transmission of human capital (as opposed to gender differences in the inter-generational transmission of financial information)

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Gender Differences in Preferences

→ Greater convergence in patience and altruism is associated with men's and women's lower financial knowledge in the US [Table](#)

→ No longer a negative effect of country-of-ancestry financial literacy on men's financial knowledge, once we use financial literacy gender gap net of the aforementioned preferences [Table](#)

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Table 2: Gender Gap in Financial Literacy net of Preferences

	Patience	Altruism
Female	-0.150*** (0.009)	-0.145*** (0.007)
<i>S&PGap</i>	-0.317 (0.240)	-0.445* (0.258)
Female* <i>S&PGap</i>	0.501*** (0.094)	0.528*** (0.099)
N	8858	8858

Clustered standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Yes, gender differences in culture matter!

We find:

- ▶ higher gender convergence in financial knowledge in the country of ancestry → higher financial understanding of women in the US relative to their male counterparts
- ▶ After removing country-of-ancestry gender variation in patience and altruism, cultural beliefs regarding gender convergence in financial knowledge continue to be associated with women's (relative and absolute) greater financial literacy in the US

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Dummy variable built on (Lusardi and Mitchell (2008)):

Interest Rate : Let us assume you have a balance of euros 100 in your savings account. This balance bears interest at an annual rate of 2%, and you leave it there for 5 years. What do you think: How high is your balance after 5 years? (Higher than 102 euros; exactly 102; lower than 102; don't know, refuse to answer)

Inflation : Let us assume that the interest paid on your savings account is 1% per year and the inflation rate is 2% per year. What do you think: After a year, will you be able to buy just as much, more or less than today with the balance in your savings account?

Diversification : Do you agree with the following statement:
"The investment in the stock of a single company is less risky than investing in a fund with stock in similar companies"?

Table 2: Gender Gap in Financial Literacy in the US and Gender Gap in Preferences in the Country of Ancestry

Panel A: OLS estimates					
	(1)	(2)	(3)	(4)	(5)
Female	-0.131*** (0.019)	-0.161*** (0.021)	-0.133*** (0.011)	-0.145*** (0.015)	-0.156*** (0.028)
Patience gap	-0.318*** (0.076)				0.006 (0.114)
Female×Patience gap	0.070 (0.071)				0.182 (0.169)
Risk-Taking gap		-0.053 (0.113)			
Female ×Risk-Taking gap		-0.077 (0.081)			
Altruism gap			0.290*** (0.028)		0.295*** (0.080)
Female×Altruism gap			-0.112** (0.047)		-0.230* (0.130)
Pos. Reciprocity gap				-0.076 (0.176)	
Female× Pos. Reciprocity gap				0.038 (0.123)	
N	8501	8501	8501	8501	8501
Individual controls	X	X	X	X	X
Panel B: Average preferences in the country of ancestry					
	Patience	Risk taking	Altruism	Pos. reciprocity	
Average Preference Male	0.171 (0.437)	0.026 (0.231)	0.157 (0.315)	0.121 (0.311)	
Average Preference Female	0.063 (0.383)	-0.190 (0.271)	-0.046 (0.326)	-0.103 (0.330)	
Gender Gap	-0.073 (0.185)	-0.159 (0.256)	0.060 (0.204)	-0.035 (0.202)	

Table 3: Country-of-Ancestry Gender Gap in Financial Literacy Net of Preferences and Financial Knowledge in the US

Residuals from	(1) Patience	(2) Risktaking	(3) Altruism	(4) Pos. Reciprocity	(5) Altruism and Patience	(6) All
Female	-0.150*** (0.009)	-0.146*** (0.007)	-0.145*** (0.007)	-0.144*** (0.008)	-0.151*** (0.009)	-0.150*** (0.010)
Origin Country <i>S&P</i> Gap Residuals	-0.317 (0.240)	-0.442* (0.229)	-0.445* (0.258)	-0.424 (0.260)	0.317 (0.253)	-0.290 (0.261)
Female×Origin Country <i>S&P</i> Gap Residuals	0.501*** (0.094)	0.506*** (0.088)	0.528*** (0.099)	0.535*** (0.101)	0.514*** (0.107)	0.559*** (0.117)
$\beta_2 + \beta_3$	0.183 (0.191)	0.064 (0.232)	0.083 (0.225)	0.111 (0.223)	0.197 (0.191)	0.269 (0.183)
N	8858	8858	8858	8858	8858	8858
Individual controls	X	X	X	X	X	X

Notes: The dependent variable is a dummy equal to one if the respondent has answered all three financial literacy questions in the NLSY correctly. "Origin Country *S&P* Gap Residuals" are the residuals from a country level regression of country-of-ancestry gender gap in financial literacy (difference between the proportion of financially literate females and males in the country of ancestry, taken from the *S&P FinLit* survey) on male and female country-of-ancestry preferences measures (taken from the Global Preference Survey). In column (1) the ancestry country gender gap in financial literacy is regressed on patience levels and its residuals are used as control variable. A similar procedure is applied in column (2), (3) and (4), with different measures of preferences. In column (5) the ancestry country gender gap in financial literacy is regressed on patience and altruism levels, and its residuals are used as control variable. In column (6) a similar procedure is applied, using all the four preferences. Individual controls include information about survey year, age, individual's education, place of residence, marital and employment status, family size, whether the individual is born abroad, mother's education and employment (for a complete list of estimates see Appendix Table A.6). Results are weighted and errors are clustered at the country of ancestry level. Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table S.9: Gender Gap in Financial Literacy in the US and in the Country of Ancestry: Different Samples

The following group is excluded:					
	(1) African Americans	(2) English	(3) Germans	(4) Mexicans	(5) Irish
Female	-0.129*** (0.007)	-0.115*** (0.020)	-0.123*** (0.010)	-0.124*** (0.010)	-0.118*** (0.008)
Origin Country <i>S&P</i> Gap	-0.491*** (0.162)	-1.109*** (0.206)	-0.378 (0.247)	-0.408* (0.212)	-0.469* (0.238)
Female × Origin Country <i>S&P</i> Gap	0.546*** (0.102)	0.621*** (0.160)	0.681*** (0.122)	0.556*** (0.104)	0.530*** (0.084)
N	6923	8189	8184	8378	8948
Individual controls	X	X	X	X	X

Notes: The dependent variable is a dummy equal to one if the respondent has answered all three financial literacy questions correctly in the NLSY survey. "Origin Country *S&P* Gap" refers to the difference between the proportion of financially literate women and men in the country of ancestry, taken from the S&P FinLit survey (% of adult population who answered correctly 3 out of 4 financial literacy questions). Individual controls include information about survey year, age, education, place of residence, marital and employment status, family size, whether the individual is born abroad, mother's education and employment. Each column excludes the specified country of ancestry. Results are weighted and errors are clustered at the country of ancestry level. Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table S.10: Effect of Country-of-Ancestry Financial Literacy: Parents' Education and Financial Sophistication

	(1) Father education	(2) Homeowners	(3) Stocks	(4) Debt	(5) Savings
Female	-0.128*** (0.008)	-0.126*** (0.023)	-0.120*** (0.021)	-0.126*** (0.022)	-0.122*** (0.023)
Origin Country <i>S&P</i> Gap	-0.465** (0.184)	-0.855*** (0.223)	-0.795*** (0.207)	-0.813*** (0.224)	-0.792*** (0.215)
Female \times Origin Country <i>S&P</i> Gap	0.561*** (0.087)	1.077*** (0.167)	1.069*** (0.159)	1.045*** (0.162)	1.062*** (0.171)
Father education					
<i>Some college</i>	0.037* (0.019)				
<i>College+</i>	0.034* (0.020)				
Father employed	0.071*** (0.010)				
Parents homeowners		0.037* (0.021)			
Parents with stocks			0.066*** (0.015)		
Parents with debt				0.011 (0.014)	
Parents saving					0.062*** (0.013)
N	6851	3480	3647	3646	3660
Individual controls	X	X	X	X	X

Notes: The dependent variable is a dummy equal to one if the respondent has answered all three financial literacy questions correctly in the NLSY survey. "Origin Country *S&P* Gap" refers to the difference between the proportion of financially literate women and men in the country of ancestry, taken from the S&P FinLit survey (% of adult population who answered correctly 3 out of 4 financial literacy questions). Individual controls include information

Table S.11: Effect of Country-of-Origin Financial Literacy: Cognitive and Non-Cognitive Skills

	(1)	(2)	(3)	(4)
	Full Sample	NLSY79	NLSY97	
Female	0.020*** (0.011)	0.023*** (0.010)	0.017 (0.006)	0.040*** (0.015)
Origin Country <i>SkP</i> Gap	-0.211*** (0.068)	-0.222** (0.238)	-0.261 (0.212)	-0.614*** (0.224)
Female × Origin Country <i>SkP</i> Gap	0.461*** (0.121)	0.414*** (0.080)	0.211*** (0.103)	1.084*** (0.117)
IQ (2 nd quantile)	0.076*** (0.009)			
IQ (3 rd quantile)	0.261*** (0.014)			
IQ (4 th quantile)	0.351*** (0.030)			
Female × IQ (2 nd quantile)	0.012 (0.020)			
Female × IQ (3 rd quantile)	0.069** (0.039)			
Female × IQ (4 th quantile)	-0.079*** (0.075)			
Risk Taker (1)		0.000 (0.003)		
Risk Taker (2)		0.015*** (0.005)		
Female × Risk Taker (1)		-0.008* (0.005)		
Female × Risk Taker (2)		0.002 (0.006)		
Interested in news		0.025** (0.010)		
Female × Interested in news		-0.015 (0.012)		
Locus of Control			-0.012*** (0.005)	
Female × Locus of Control			0.003 (0.003)	
Hard worker				0.000 (0.000)
Following rules				0.011 (0.008)
Female × Hard worker				0.008 (0.012)
Female × Following rules				-0.002 (0.009)
N	9414	9264	5885	3921
Individual controls	N	N	N	N

Table S.12: Effect of Country-of-Ancestry Financial Literacy on Other Outcomes: Falsification Test

	(1) Height (inch)	(2) Weight (pound)	(3) Employed	(4) Ever Arrested
Female	-1.317*** (0.235)	-33.883*** (2.276)	-0.083** (0.011)	-0.195*** (0.013)
Origin Country <i>S&P</i> Gap	1.647 (1.451)	-21.528 (14.407)	-0.040 (0.171)	0.098 (0.093)
Female \times Origin Country <i>S&P</i> Gap	-3.027 (3.054)	15.794 (19.672)	-0.226 (0.147)	-0.189 (0.148)
N	9060	9591	9623	9464
Individual controls	X	X	X	X

Notes: The dependent variable is, respectively, (1) height in inches, (2) weight in pounds, (3) whether the individual is employed and (4) whether the individual has ever been arrested. "Origin Country *S&P* Gap" refers to the difference between the proportion of financially literate females and males in the country of ancestry, taken from the *S&P FinLit* survey (% of adult population who answered correctly 3 out of 4 financial literacy questions). Individual controls include information about survey year, age, individual's education, place of residence, marital and employment status, family size, whether the individual is born abroad, mother's education and employment. Results are weighted and errors are clustered at the country of ancestry level. Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.