Parents, Schools and Human Capital Differences across Countries

Marta De Philippis† Federico Rossi‡

†Bank of Italy

‡Warwick University

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Introduction

- Human capital varies greatly across countries (years of schooling, test scores..)
- Recent growth literature $\rightarrow$ important for cross-country differences in income (Hanushek et al, 2000, 2009, 2012)
- What explains differences in human capital achievement?
- For test scores, policy debate mostly focused on school quality
- At individual level, we know that home environment and parents are crucial for skill formation
- Is parental influence important for cross-country gaps in performance?

Quantifying Cross-Country Gaps in Parental Influence

- Previous work → include measures of parental socio-economic background when estimating "educational production functions" (Woessman, 2016)

- Several channels of parental influence not perfectly captured by those: parenting style, transmission of preferences and cultural traits..

- Our proposal: study the school performance of second generation immigrants
  → compare children born and educated in the same country/school, with parents from different nationalities

- Performance gaps across parental nationalities as proxies for cross-country gaps in an unobservable parental component

What We Do

- Look at two schooling outcomes:
  - PISA score
  - grade retention from US Census
- Study the performance of second generation immigrants
- Augment the "educational production function" specification with parental country of origin fixed effects, identified from second generation immigrants
- Quantify the role of this parental component for cross-country gaps in PISA performance
- Use data on parental migration history, education and time use to explore the nature of this parental component

Preview of Main Findings

- Second generation immigrants from high PISA countries do better than their peers from low PISA countries
- Patterns of selection on observables suggest that this result is not due to differential selection into emigration
- Unobserved parental characteristics account for
  - 15% of the total cross-country variation in PISA scores (as much as observable parental characteristics)
  - More than 50% of the out-performance of East Asian countries (compared to the average)
- Evidence in supporto of a "cultural" explanation
- Differences in parental time use across nationalities

Related Literature

- **Cross-Country differences in human capital**: Bils and Klenow (2000), Hendricks (2002), Hanushek and Woessman (2012), Schoellman (2012, 2016), Manuelli and Seshadri (2014), Restuccia and Vandenbroucke (2014), Woessman (2016), Doepke and Zilibotti (2017)

- **School performance of immigrants**: Levels et al (2008), Dustmann et al (2012), Jerrim (2014), Dronkers et al (2016)

- **Epidemiological approach and culture**: Giuliano (2007), Alesina and Giuliano (2010), Fernandez and Fogli (2009), Fernandez (2011), Figlio et al (2019)

Outline

- The Role of Parental Observable Characteristics
- Second Generation Immigrants: Motivating Evidence
  - PISA
  - US Census
- Selection into emigration
- The Role of Parental Unobservable Characteristics
- Mechanism
- Conclusions

Data - PISA

- Micro-data from PISA: cross-country evaluation of students' performances in math, reading and science
- Repeated cross sections (2003, 2006, 2009, 2012, 2015)
- Sample of 79 countries
- In this presentation: results for math scores

Educational Production Function

- Focus on "native" students
- Generic educational production function

$$T_{icst} = Parents_{icst} + EduSystem_{cst} + \beta' D_{icst} + \alpha_t + \varepsilon_{icst}$$

- T_{icst}: score in wave t of student i, in country c, school s
- $Parents_{icst}$: effect of characteristics of parents and the home environment
  - $\rightarrow$ $Parents_{icst} = ParentsObs_{icst} + ParentsUnobs_{icst}$
- $EduSystem_{cst}$: effect of resources and institutional features of the educational system
- D_{icst}: student's age, gender

Decomposing the Cross-Country Variation

- Average score (across all waves) of students in country c:

$$T_c = \alpha + ParentsObs_c + ParentsUnobs_c + EduSystem_c + \beta' D_c$$

- Additively decompose the cross-country variance of T_c
- Compute contributions of parental characteristics as

$$\frac{\text{Cov}(\widehat{ParentsObs}_c, T_c)}{\text{Var}(T_c)}$$

$$\frac{\text{Cov}(\widehat{ParentsUnobs}_c, T_c)}{\text{Var}(T_c)}$$

Educational System Controls

$$T_{icst} = Parents_{icst} + EduSystem_{cst} + \beta' D_{icst} + \alpha_t + \varepsilon_{icst}$$

- Various approaches to control for $EduSystem_{cst}$:

1. Observable characteristics of schools and countries' educational environments (Woessmann, 2016): resources, accountability, monitoring, autonomy..
   → available for 37 countries
2. Country × Wave fixed effects
3. School × Wave fixed effects

Parental Characteristics

$$T_{icst} = Parents_{icst} + EduSystem_{cst} + \beta' D_{icst} + \alpha_t + \varepsilon_{icst}$$

- The parental component is given by

$$Parents_{icst} = ParentsObs_{icst} + ParentsUnobs_{icst}$$

  where $ParentsObs_{icst} = \rho' X_{icst}$

- $X_{icst} \rightarrow$ parents' education, employment, occupational status, number of books and language spoken at home
- $ParentsUnobs_{icst}$ residual $\rightarrow$ any systematic cross-country variation absorbed by country/school FE

Results - Baseline Decomposition

	[1]	[2]	[3]	[4]	[5]
$\frac{\text{Cov}(\widehat{ParentsObs}_c, T_c)}{\text{Var}(T_c)}$	26.36	25.10	17.42	12.70	8.89
# Country	37	37	79	37	79
School Controls	Yes	No	No	No	No
Host Country × Wave FE	No	Yes	Yes	No	No
School × Wave FE	No	No	No	Yes	Yes
Sample	Edu Obs	Edu Obs	All	Edu Obs	All

The Role of Parental Observable Characteristics

- Depending on sample and controls, parental observable characteristics account for 9%-25% of the cross-country variation in test scores
- Larger sample: 9%-16%
- Observables might fail to capture relevant channels through which parents affect human capital accumulation
- Might underestimate overall importance of parental influence for cross-country gaps

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- **Second Generation Immigrants: Motivating Evidence**
  - **PISA**
  - **US Census**
- Selection into emigration
- The Role of Parental Unobservable Characteristics
- **Mechanism**
- **Conclusions**

Second Generation Immigrants

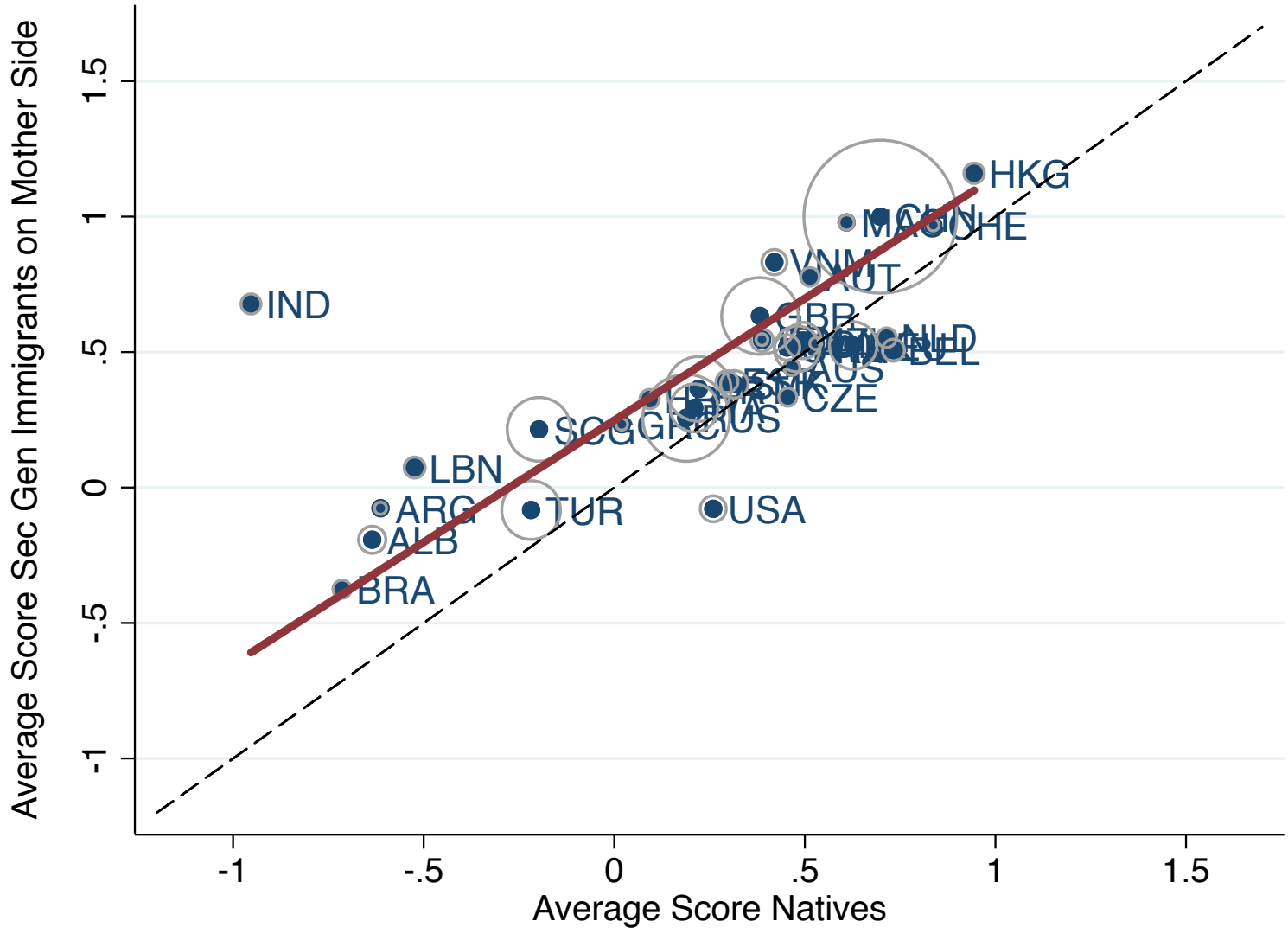
- Laboratory to study cross-country differences in parental influence
- Two key premises
  1. Within host country/school, sec gen immigrants subject to same educational system and country-level factors
  2. Cross-country differences in parental practices and (unobservable) parental characteristics should be preserved across countries of origin of immigrant parents
- Test whether sec gen immigrants from high-PISA countries to do better than peers from low-PISA countries
- Caveats: emigrants' selection, differential cultural assimilation..

  $\rightarrow$ come back to those later

Data - PISA

- Identify second generation immigrants based on students' and parents' country of birth
- Exclude students born in country different from the one where they take the test
- We observe $\sim$ 50000 sec gen immigrants, across 39 host countries and from 59 countries of origin
- Large heterogeneity in sample size by country of origin
- "Core sample": 31 countries of origin from with at least 100 emigrant mothers and fathers

The Raw Data


Average Score Sec Gen Immigrants on Mother Side
1.5
1
.5
0
-.5
-1
-1
-.5
0
.5
1
1.5
Average Score Natives
HKG
IND
LBN
ARG
TUR
USA
ALB
BRA
CZE

Specification

- Estimate the following specification:

$$T^m_{icst} = \theta_0 + \theta_1 T^m + \theta_2' X_{icst} + \theta_{cst} + \varepsilon^m_{icst}$$

  - $T^m_{icst} \rightarrow$ score of student i, in school s, country c, wave t whose mother is from country m
  - $T^m \rightarrow$ average score of native students in the mother country of birth m
  - $X_{icst} \rightarrow$ socio-economic and demographic characteristics (including dummy for native fathers) List
  - $\theta_{cst} \rightarrow$ country/school $\times$ wave fixed effects

- Sample = Second generation immigrants on mother's side
- Standard errors clustered at the mother's country of birth level, inflated by estimated measurement error

Results - Math Score

	Dependent Variable: PISA Math Score				
	All	All	All	All	No East Asia
Score Country *m*	0.755***	0.628***	0.271**	0.225***	0.174**
	(0.208)	(0.223)	(0.119)	(0.072)	(0.082)
N	49097	49097	49097	49097	31347
# Country *m*	59	59	59	59	52
R Squared	0.10	0.23	0.34	0.66	0.62
Socio-Econ Controls	No	Yes	Yes	Yes	Yes
Host Country × Wave FE	No	No	Yes	Yes	Yes
School × Wave FE	No	No	No	Yes	Yes
Wave FE	Yes	Yes	Yes	Yes	Yes

Robustness of Baseline Result

- Reading and Science Show
- Second generation immigrants on father's side Show
- Full sample (including natives) Show
- Excluding source and host countries Show
- More controls at the country-of-origin level Show

Data - US Census

- Follow Oreopoulos and Page (2006): measure of grade repetition from children's age and grade attended
- No Grade Repeated = 1 if grade attended $\geqslant$ mode for the student's state, age, quarter of birth and census year cell
- 1970-1980 waves; focus on 8 to 15-year-old children
- Useful information on parents' immigration history
- No school identifiers $\rightarrow$ control for Commuting Zone fixed effects

Results - US Census

	Dependent Variable: 1= No Grade Repeated				
	All	All	All	All	No East Asia
Score Country *m*	0.094***	0.050***	0.032***	0.029***	0.023**
	(0.031)	(0.014)	(0.010)	(0.010)	(0.010)
Female	0.069***	0.069***	0.068***	0.068***	0.071***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Mother Sec Edu		0.055***	0.047***	0.044***	0.042***
		(0.012)	(0.012)	(0.011)	(0.012)
Mother Ter Edu		0.060***	0.053***	0.050***	0.045***
		(0.011)	(0.009)	(0.010)	(0.010)
Father Sec Edu		0.045***	0.039***	0.040***	0.045***
		(0.014)	(0.010)	(0.010)	(0.009)
Father Ter Edu		0.063***	0.062***	0.063***	0.068***
		(0.015)	(0.012)	(0.011)	(0.011)
Log Family Income		0.043***	0.036***	0.034***	0.035***
		(0.010)	(0.008)	(0.008)	(0.008)
N	53553	53553	53553	53553	49634
# Country *m*	64	64	64	64	57
Years Since Migr Mother	no	no	no	yes	yes
Comm. Zone FE	no	no	yes	yes	yes

Other controls: child's and parents' age dummies, family size, year FE, quarter of birth FE, father's immigrant status.

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Selection

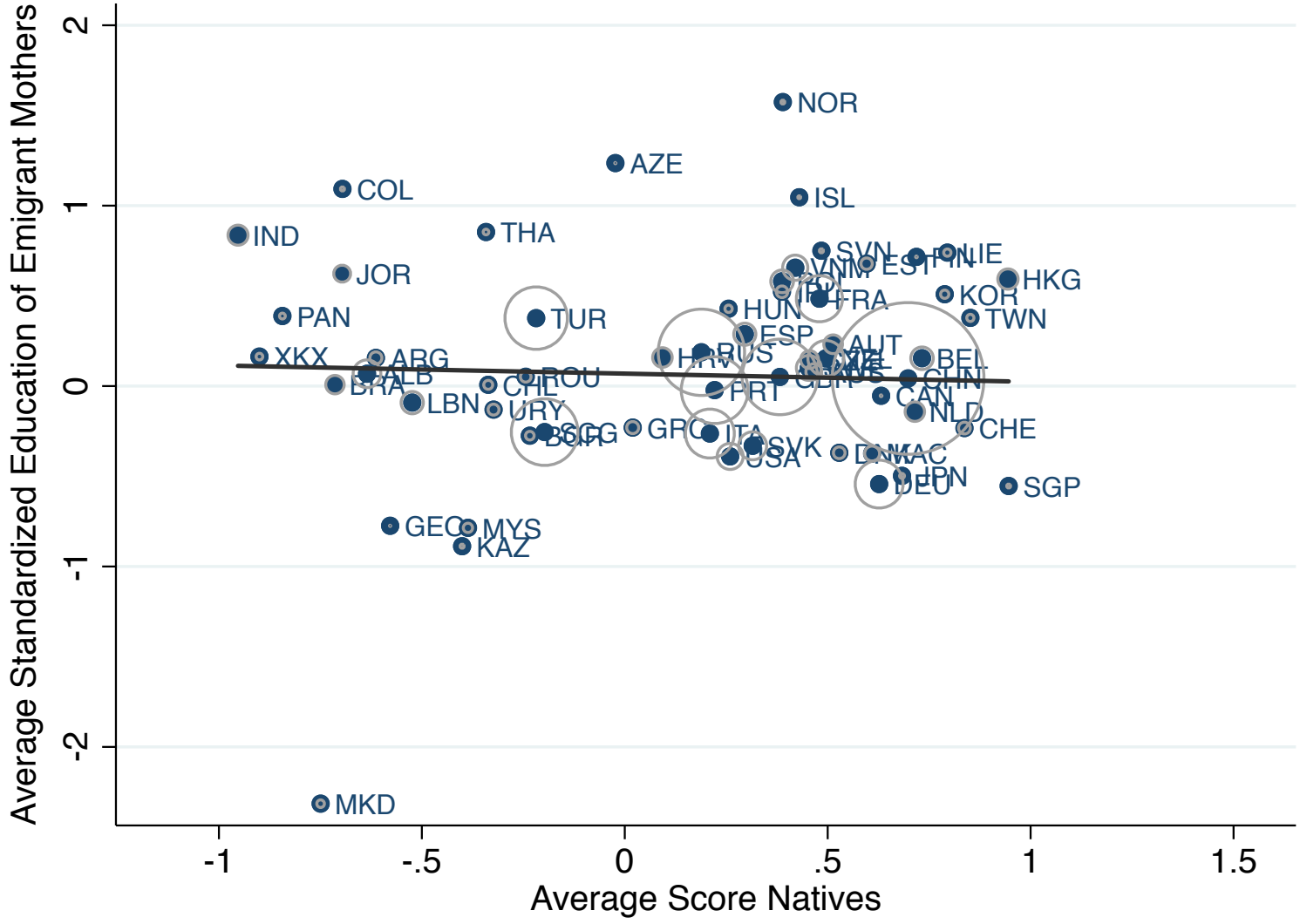
- We compare second generation immigrants across parental nationalities
- A common degree of selection across countries of origin would not be a problem
- We worry about the possibility of differential selection across high- and low-PISA countries
- In particular, more positive selection from high-PISA countries could rationalise our results

Selection on Observables

- Build proxies of selection based on observable characteristics
- Parental education:

$$Selection_{i,c}^{m} = \frac{YrsEdu_{i,c}^{m} - \overline{YrsEdu}_{m}^{m}}{SD(YrsEdu_{i,m}^{m})}$$

Selection into Emigration - Evidence for Mothers



Selection into Emigration - Regression Evidence

	Dependent Variable: Standardized Years of Education			
	[1]	[2]	[3]	[4]
	Mothers		Fathers	
Score Country *m*	0.005	-0.083		
	(0.222)	(0.197)		
Score Country *f*			0.019	-0.135
			(0.210)	(0.164)
N	49097	49097	48834	48834
R Squared	0.07	0.61	0.07	0.59
Host Country × Wave FE	Yes	No	Yes	No
School × Wave FE	No	Yes	No	Yes

Selection - Taking Stock

- No evidence of positive differential selection
- Consistent with findings in development accounting literature (Hendricks and Schoellman, 2018)
  - If anything, migrants from poorer (and low PISA) countries more positively selected
- Similar results from the US Census sample Show
- Results robust to controls for linguistic and cultural distance Show

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Educational Production Function

- Re-consider the educational production function, including both natives and second generation immigrants

$$T_{icst}^{mf} = Parents_{icst}^{mf} + \alpha_{cst} + \mu' D_{icst} + \theta^m NatMoth_{icst}^{m} + \zeta^f NatFath_{icst}^{f} + \varepsilon_{icst}^{mf}$$

- T_{icst}^{mf}: score in wave t of student i, in country c, school s, with parents born in countries m and f
- Parental component:

$$\begin{aligned} Parents_{icst}^{mf} &= ParentsObs_{icst} + ParentsUnobs_{icst} \\ &= \xi' X_{icst} + \gamma^m + \delta^f + \tilde{u}_{icst}^{mf} \end{aligned}$$

where γ^m and δ^f are country-specific average unobservable contributions of mothers from m and fathers from f

Educational Production Function - Estimation

- γ^m and δ^f identified by parental country-of-origin fixed effects, out of second generation immigrants
- Estimate

$$\widehat{ParentsObs}_c = \hat{\xi}' X_c \quad , \quad \widehat{ParentsUnobs}_c = \hat{\gamma}^c + \hat{\delta}^c$$

- Compute contributions for cross-country variation as

$$\frac{\mathrm{Cov}(\widehat{ParentsObs}_c, T_c)}{\mathrm{Var}(T_c)} \quad , \quad \frac{\mathrm{Cov}(\widehat{ParentsUnobs}_c, T_c)}{\mathrm{Var}(T_c)}$$

for countries in the Core Sample (at least 100 emigrant mothers and fathers)

Decomposition - Results

	[1]	[2]
$\frac{\widehat{\text{Cov}(ParentsObs_c, T_c)}}{\text{Var}(T_c)}$	21.21	10.64
$\frac{\widehat{\text{Cov}(ParentsUnobs_c, T_c)}}{\text{Var}(T_c)}$	15.86	11.57
# Country	31	31
Host Country × Wave FE	Yes	No
School × Wave FE	No	Yes
Sample	Sec Gen	Sec Gen

Decomposition - East Asia Countries vs Mean

		$\widehat{ParentsObs_c}$ Gap		$\widehat{ParentsUnobs_c}$ Gap	
Country	PISA Gap	School FE	Country FE	School FE	Country FE
Hong Kong	0.72	0.00	0.00	0.19	0.43
		(0.00)	(0.01)	(0.15)	(0.15)
China	0.54	-0.04	-0.09	0.25	0.62
		(0.01)	(0.01)	(0.04)	(0.05)
Macao	0.37	-0.04	-0.10	0.19	0.47
		(0.00)	(0.01)	(0.08)	(0.10)
Vietnam	0.16	-0.14	-0.31	0.29	0.49
		(0.01)	(0.01)	(0.05)	(0.06)

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Mechanism

We proceed in three steps:

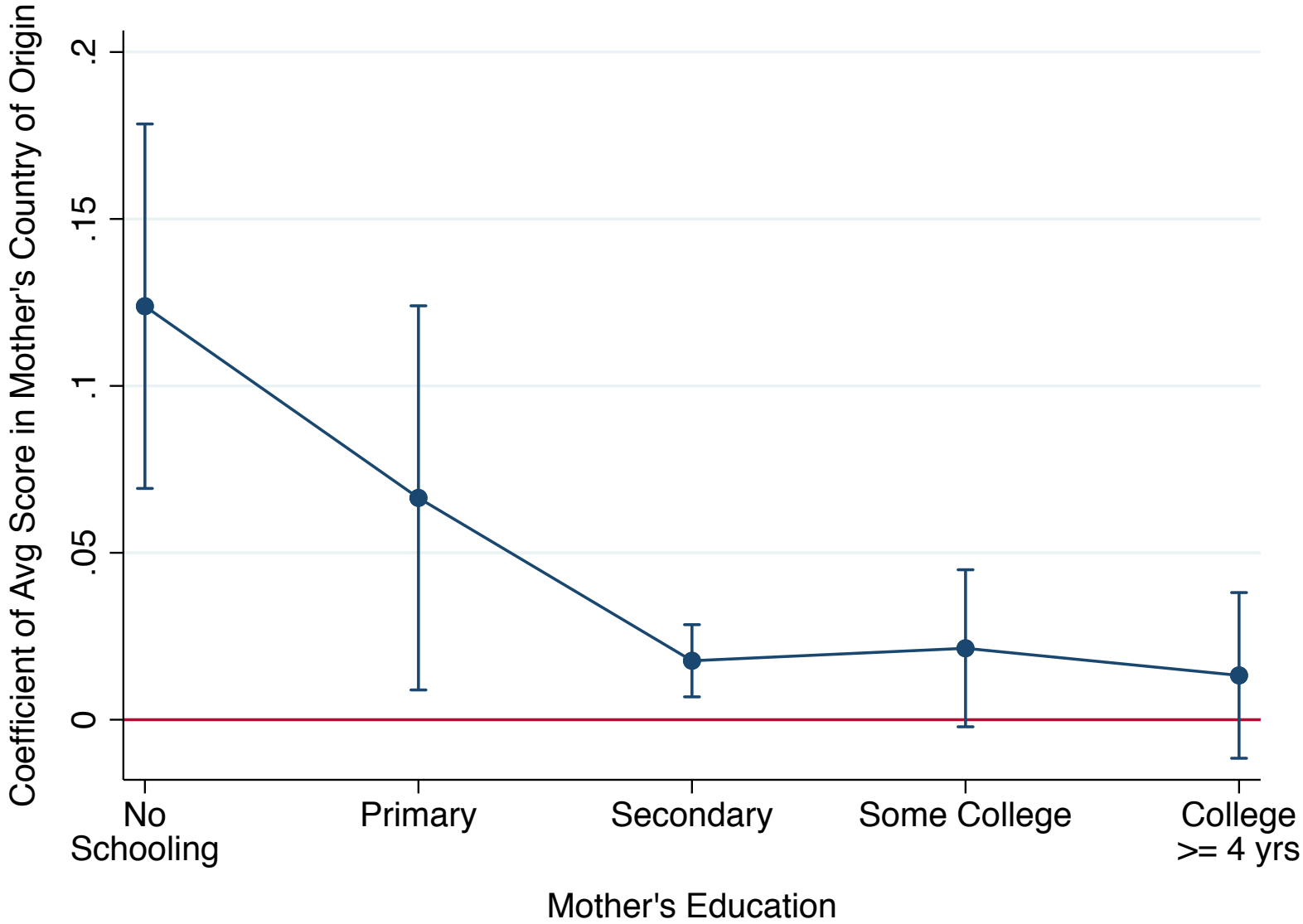
1. Heterogeneity analysis
2. Controls for cultural proxies
3. Parental time use

Heterogeneity: Parental Education

- Possible interpretation → Intergenerational transmission of educational quality
- Would imply an even more central role for the school system

→ would imply a stronger country-of-origin effect among parents with higher education in their home country

Heterogeneity: Mother's Education

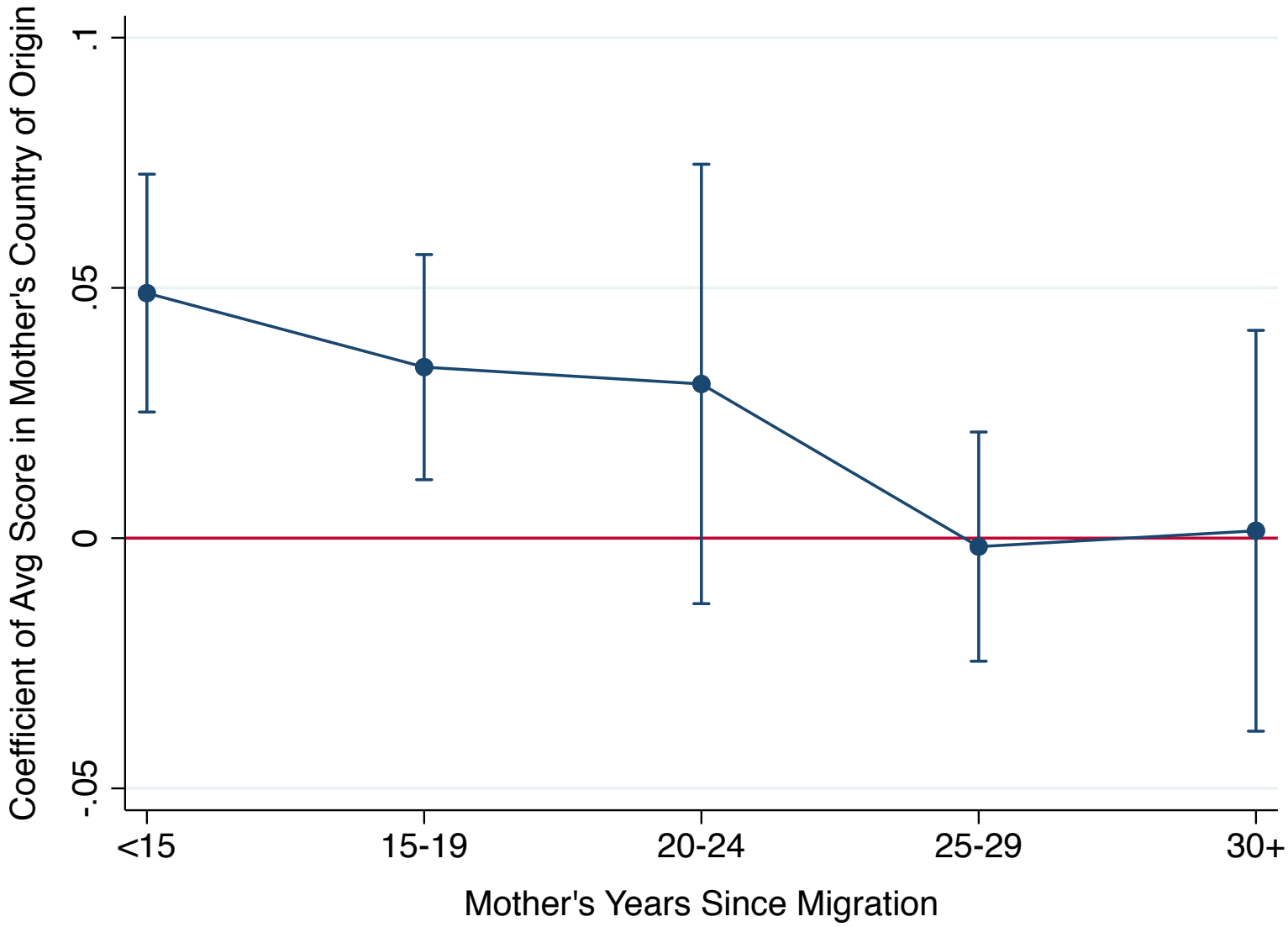


Heterogeneity: Years Since Migration

- Possible interpretation → Country-specific Cultural Traits
- Country-of-origin effect should attenuate as parents integrate in the US

→ weaker country-of-origin effect among parents who have spent more years in the US

Heterogeneity: Years Since Migration



Proxies for Culture

Five proxies from the World Value Survey:

- Long-term orientation (Dohmen et al, 2015; Galor and Ömer, 2016; Figlio et al., 2019)
- Beliefs of importance of hard work (Weber, 1930)
- Locus of control (Coleman and DeLeire, 2003; Lekfuangfu et al., 2018)
- Trust (Guiso et al., 2006; Algan and Cahuc; 2014; Coleman, 1988; Rafael La Porta and Vishny, 1997; Bjornskov, 2009)
- Prevalence of secular and rational values (Inglehart and Welzel, 2005; Ek, 2018)

Proxies for Culture

	Dependent Variable: Math Score		
	(1)	(2)	(3)
Score Country *m*	0.223***	0.038	0.111
	(0.073)	(0.082)	(0.081)
Long Term Orientation		0.464**	0.264*
		(0.215)	(0.137)
Hard Work		−0.091	
		(0.124)	
Trust		0.193	
		(0.148)	
Locus of Control		0.372**	0.305***
		(0.162)	(0.106)
Secular-Rational Values		−0.078	
		(0.060)	
N	48398	48398	48398
# Country *m*	52	53	52
Socio-Econ Controls	yes	yes	yes
Host Country FE	yes	yes	yes
School FE	yes	yes	yes
Year FE	yes	yes	yes

Time Use

What do parents from high PISA countries do differently?

- Look at immigrant parents in the ATUS Survey, 2002-2015
- Total time spent in childcare, split between educational, recreational and basic activities (following Aguiar and Hurst, 2007)
- No school identifiers $\rightarrow$ control for State FE

Time Use of Parents

	Total	Educational	Recreational	Basic
Score Country p	11.966***	3.118**	5.866**	2.982
	(4.258)	(1.333)	(2.271)	(2.046)
Mother	66.230***	8.480***	1.090	56.660***
	(3.854)	(0.870)	(3.192)	(2.434)
Parent Sec Edu	−1.702	4.631***	−2.945	−3.389
	(6.002)	(0.764)	(3.170)	(2.638)
Parent Ter Edu	4.220	4.100***	−1.999	2.119
	(3.586)	(1.297)	(2.288)	(1.850)
Spouse Sec Edu	3.242	−1.869**	6.188**	−1.077
	(2.912)	(0.813)	(2.832)	(1.225)
Spouse Ter Edu	12.816***	2.022	6.736**	4.059
	(3.388)	(1.517)	(2.655)	(3.016)
N	5812	5812	5812	5812
# Country p	64	64	64	64
Mean Dep. Var.	89.33	10.54	22.03	56.75
State FE	yes	yes	yes	yes
Year FE	yes	yes	yes	yes

Other controls: years since migration, age, number of children, children's gender and age, father immigrant status, log family income, dummies for retired, disabled, full time students. Standard errors clustered by parent's country of origin.

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Conclusions

- Empirical strategy to infer the importance of unobservable parental characteristics for cross-country differences in human capital
- Importance of parents goes well beyond the impact of their socio-economic characteristics
- Variation in parental influence related to cultural factors

→ Macro models of human capital accumulation should be consistent with cross-country differences in the role of parents

→ Policy: importing school practices of high PISA countries might not be enough to improve test performance

List of Socio-Economic Controls

- Student: age in months, gender
- Parents: parental education dummies, employment status dummies, ISEI index of occupational status, number of books at home dummies, different language spoken at home dummy, father's immigrant status dummy

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Results - Reading Score

	Dependent Variable: PISA Reading Score				
	All	All	All	All	No Asia
Score Read Country *m*	0.600**	0.409*	0.095	0.143***	0.112**
	(0.248)	(0.212)	(0.091)	(0.047)	(0.048)
Female	0.296***	0.264***	0.255***	0.208***	0.229***
	(0.034)	(0.028)	(0.023)	(0.028)	(0.029)
Father Sec Edu		0.039	0.061**	0.055	0.113***
		(0.056)	(0.031)	(0.038)	(0.033)
Father Ter Edu		−0.049	0.085**	0.049	0.093**
		(0.077)	(0.038)	(0.041)	(0.045)
Mother Sec Edu		0.072	0.090**	−0.023	−0.003
		(0.072)	(0.042)	(0.026)	(0.047)
Mother Ter Edu		−0.044	0.110***	−0.017	−0.005
		(0.095)	(0.039)	(0.035)	(0.057)
N	49097	49097	49097	49097	31347
# Country *m*	59	59	59	59	52
Host Country × Wave FE	No	No	Yes	No	No
School × Wave FE	No	No	No	Yes	Yes

Other controls: father immigrant status, book at home, parents' working status, language spoken at home.

Results - Science Score

	Dependent Variable: PISA Science Score				
	All	All	All	All	No Asia
Score Science Country *m*	0.711***	0.507**	0.227**	0.245***	0.209***
	(0.240)	(0.228)	(0.115)	(0.068)	(0.076)
Female	−0.038	−0.070**	−0.082***	−0.125***	−0.103***
	(0.037)	(0.030)	(0.026)	(0.026)	(0.023)
Father Sec Edu		0.046	0.079**	0.066*	0.122***
		(0.064)	(0.033)	(0.034)	(0.040)
Father Ter Edu		−0.021	0.123***	0.084**	0.126***
		(0.074)	(0.028)	(0.040)	(0.049)
Mother Sec Edu		0.005	0.063	−0.023	0.013
		(0.068)	(0.038)	(0.030)	(0.050)
Mother Ter Edu		−0.111	0.086**	−0.024	−0.002
		(0.091)	(0.037)	(0.033)	(0.057)
N	43463	43463	43463	43463	27503
# Country *m*	58	58	58	58	51
Host Country × Wave FE	No	No	Yes	No	No
School × Wave FE	No	No	No	Yes	Yes

Other controls: father immigrant status, book at home, parents' working status, language spoken at home.

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Results - Fathers

	Dep Variable: PISA Science Score				
	(1)	(2)	(3)	(4)	(5)
Score Country *f*	0.792***	0.653***	0.305**	0.202**	0.148
	(0.194)	(0.215)	(0.132)	(0.085)	(0.096)
Female	−0.113***	−0.142***	−0.156***	−0.199***	−0.183***
	(0.035)	(0.034)	(0.030)	(0.026)	(0.029)
Father Sec Edu		−0.063**	−0.024	−0.005	−0.004
		(0.030)	(0.028)	(0.017)	(0.035)
Father Ter Edu		−0.134**	0.003	−0.003	−0.010
		(0.055)	(0.043)	(0.037)	(0.054)
Mother Sec Edu		0.078	0.088**	−0.009	0.041
		(0.060)	(0.039)	(0.041)	(0.077)
Mother Ter Edu		−0.025	0.106***	0.009	0.050
		(0.072)	(0.038)	(0.040)	(0.077)
N	48834	48834	48834	48834	32069
# Country *m*	58	58	58	58	52
Host Country × Wave FE	No	No	Yes	No	No
School × Wave FE	No	No	No	Yes	Yes

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Results - Full Sample

	Dep Variable: PISA Math Score				
	(1)	(2)	(3)	(4)	(5)
Score Country *m*	0.414**	0.371**	0.229*	0.150**	0.105*
	(0.177)	(0.172)	(0.123)	(0.067)	(0.059)
Score Country *f*	0.459**	0.403**	0.248**	0.160**	0.102
	(0.180)	(0.177)	(0.118)	(0.065)	(0.063)
Score Country *m* * Native Mother	0.174	0.067	−0.031	−0.032	0.055
	(0.149)	(0.163)	(0.098)	(0.059)	(0.051)
Score Country *f* * Native Father	−0.026	−0.088	−0.176	−0.114**	−0.035
	(0.153)	(0.167)	(0.112)	(0.057)	(0.060)
Female	−0.110***	−0.113***	−0.112***	−0.143***	−0.145***
	(0.012)	(0.012)	(0.012)	(0.013)	(0.015)
Native Mother	−0.117*	−0.179**	−0.052	−0.013	0.035
	(0.064)	(0.086)	(0.060)	(0.040)	(0.032)
Native Father	−0.009	−0.142*	−0.028	0.004	0.009
	(0.069)	(0.076)	(0.066)	(0.029)	(0.029)
N	1445071	1445071	1445071	1445071	1326079
# Country *m*	59	59	59	59	52
# Country *f*	58	58	58	58	52
Host Country × Wave FE	No	No	Yes	No	No
School × Wave FE	No	No	No	Yes	Yes

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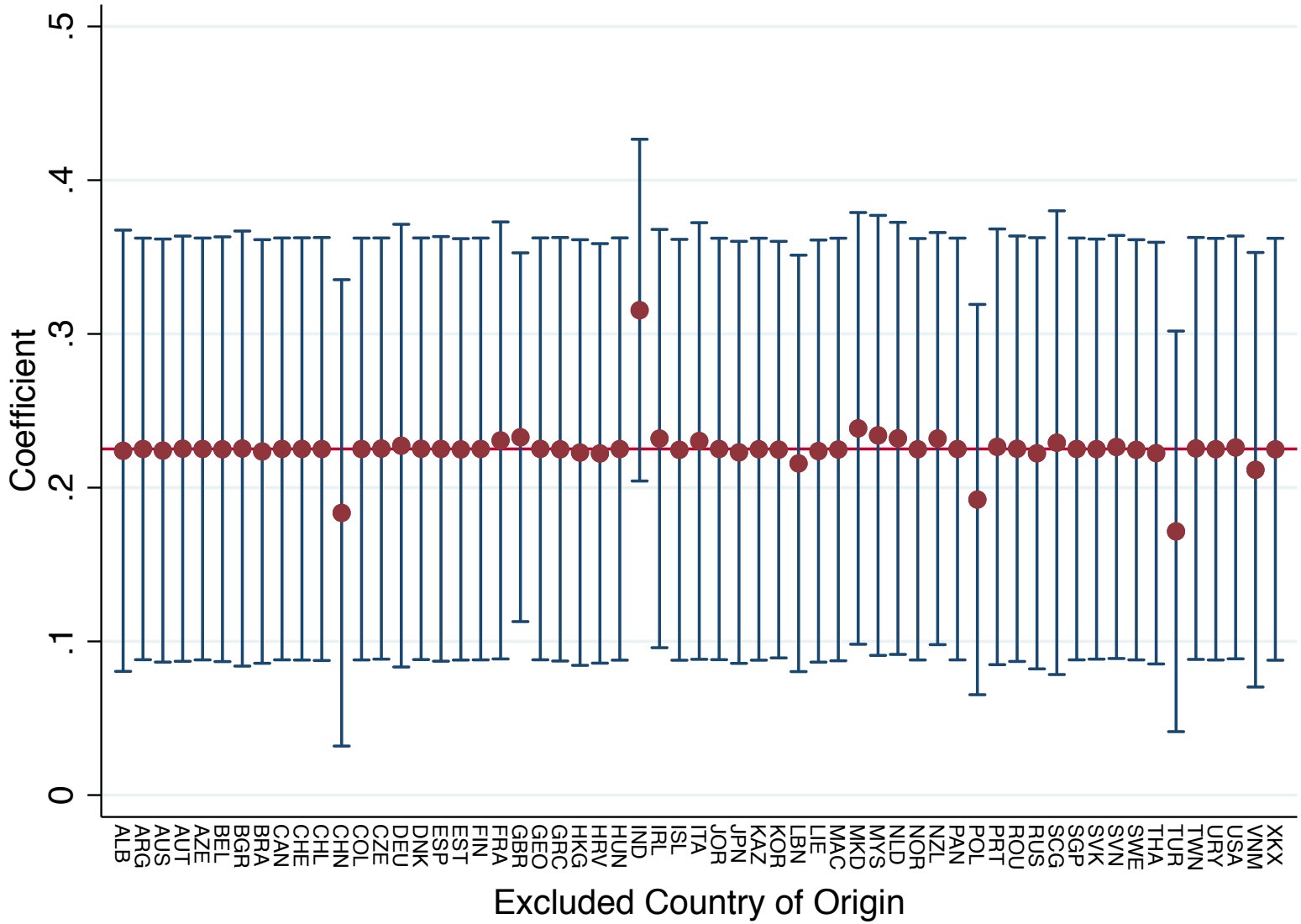
Omitting Countries of Origin



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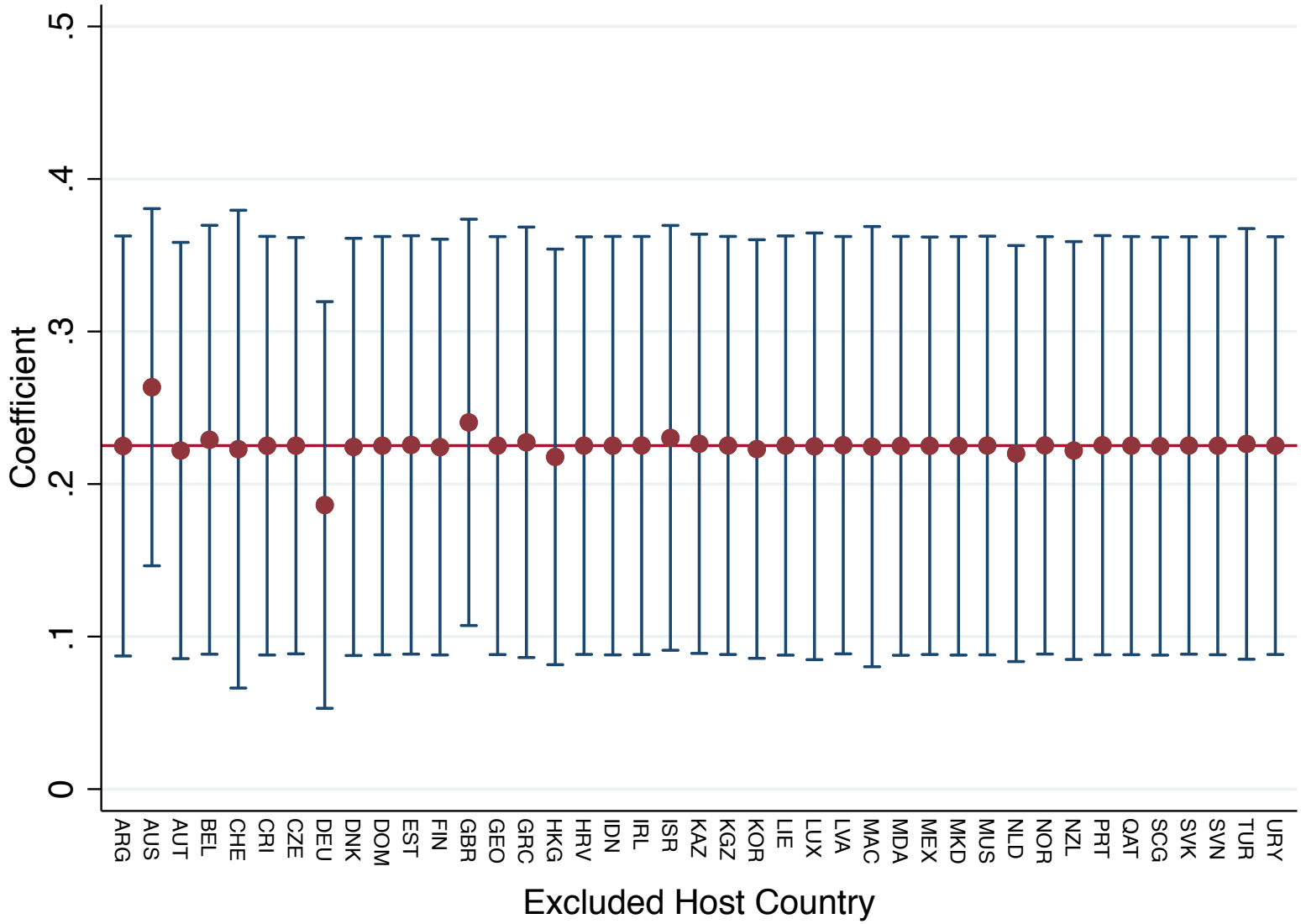
Omitting Host Countries



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Country-Level Controls

	Dependent Variable: PISA Math Score					
	(1)	(2)	(3)	(4)	(5)	(6)
Score Country *m*	0.291***	0.228***	0.254***	0.230***	0.332***	0.351***
	(0.077)	(0.085)	(0.073)	(0.082)	(0.067)	(0.070)
Exp.per Stud *m*	−0.007**					0.002
	(0.003)					(0.009)
Some Shortage *m*		0.406**				0.254
		(0.189)				(0.264)
Large Shortage *m*		−0.241				−0.431
		(0.224)				(0.464)
Pupil/Teacher *m*			0.003			0.014***
			(0.007)			(0.005)
Avg Years Edu *m*				0.001		0.017
				(0.012)		(0.013)
Log GDP *m*					−0.114***	−0.144*
					(0.034)	(0.083)
N	48834	48834	48834	48834	48834	48834
# Country m	49	49	49	49	49	49
Socio-Econ Contr	Yes	Yes	Yes	Yes	Yes	Yes
School-Wave FE	Yes	Yes	Yes	Yes	Yes	Yes

Standard errors clustered at the mother's country of origin level.

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Selection into Emigration - US Census

- Measure average and standard deviation of 35-45 years old adults' education in country of origin from Barro and Lee (2001)
- If anything, negative differential selection Show
- Restrict attention to parents entirely educated in home country:
  - Similar pattern of differential selection Show
  - No differential gradient with respect to time between education completion and migration Show

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Selection into Emigration - US Census

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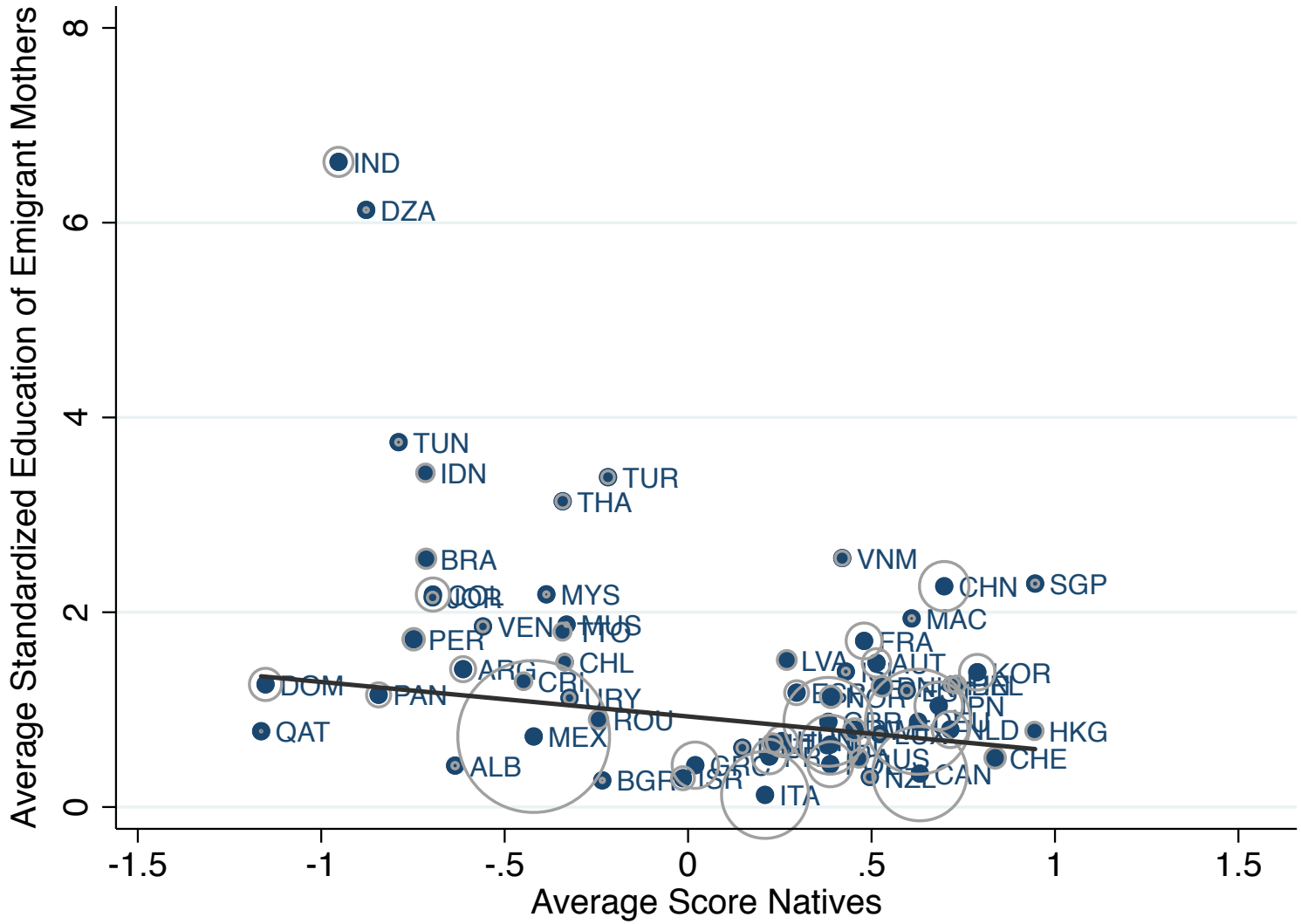
Selection into Emigration - Parents Educated in Home Country



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Selection into Emigration - Parents Educated in Source Country

	Dependent Variable: Standardized Years of Edu	
	Mothers	Fathers
Score Country m	−0.668*	
	(0.382)	
Score Country m × Years betw Edu and Migration Mother	0.014	
	(0.015)	
Years betw Edu and Migration Mother	−0.060***	
	(0.007)	
Score Country f		−0.248
		(0.381)
Score Country f × Years betw Edu and Migration Father		−0.462
		(0.326)
Years betw Edu and Migration Father		−0.055***
		(0.005)
N	30118	26658
R Squared	0.21	0.25
Comm Zone FE	yes	yes
Year FE	yes	yes

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Linguistic and Cultural Distance

- Additional concern: differential quality of the country-student "match"
- Linguistic Distance: constructed following the Automated Similarity Judgment Program (Wichmann and Brown, 2016)
- Cultural Distance from Spolaore and Wacziarg (2015): based on the WVS

Linguistic and Cultural Distance

	Dependent Variable: PISA Math Score			
	(1)	(2)	(3)	(4)
Score Country *m*	0.247***	0.277***	0.229**	0.287***
	(0.075)	(0.071)	(0.096)	(0.103)
Mother Linguistic Distance		0.018*		
		(0.009)		
Father Linguistic Distance		0.017*		
		(0.009)		
Mother Cultural Distance				0.035
				(0.024)
Father Cultural Distance				0.0095
				(0.026)
N	46896	46896	23513	23513
# Country *m*	49	49	49	49
Host Country × Wave FE	yes	yes	yes	yes
School × Wave FE	no	yes	yes	yes
Socio-Econ Controls	yes	yes	yes	yes

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