

Starting off on the right foot

Integrative schooling and the educational success of immigrant children in primary school

Lisa Sofie Höckel¹ Pia Schilling²

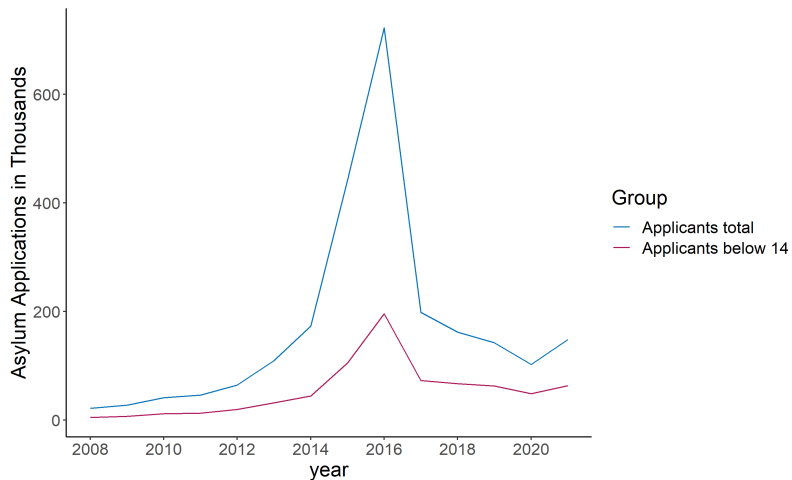
¹RWI, IZA ²Free University of Bolzano

August 25th, 2022

EAA-ESEM Congress 2022

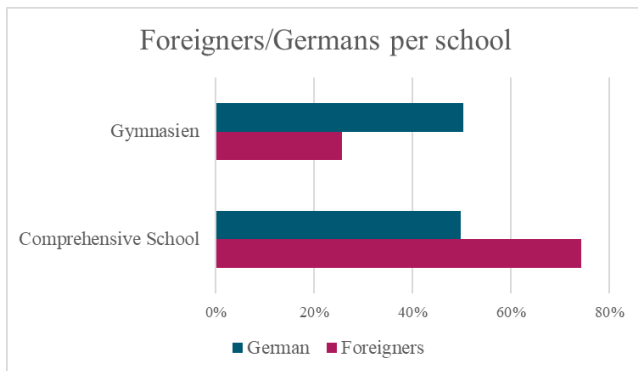


Motivation



"Integration succeeds with education!"
German ministers of education

Figure: Nationality and School Tracks



Note: Based on the total of foreign and German students in the respective secondary schools

School System Hamburg

Germany

Gap Pisa Results

Integration Models

- Variation in integration concepts in Germany
- Parallel Model and Integrative Model
 - ▶ Trade-off between secure space to learn German by adjusting to their education level and fast integration into the school system

Figure: Parallel

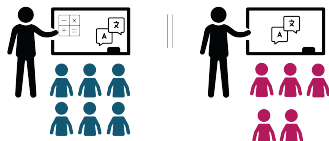
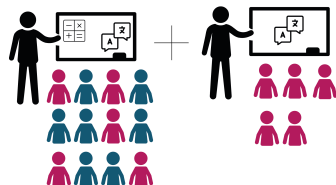


Figure: Integrative



What we do

Research Question: What is the effect of attending a parallel preparatory class in primary school on the educational success of refugee children

- Standardized Test in grade 5 (KERMIT)
- Tracking into the academic track (Gymnasium) after 4th grade

Main Contribution: We provide the first empirical analysis to identify the causal effect of educational integration models for newly immigrated primary school aged children on their academic success.

Data & Empirical Strategy: We use unique, confidential administrative data to explore the exogenous allocation of refugees to schools as a natural experiment.

Results: Attending a parallel preparatory class upon arrival

- ↓ standardized test results
- no effect on secondary school type
- ↑ students from the first class
- ↑ classroom immigrant share in secondary school

Related Literature

- Early schooling environment matters for refugees and immigrant children (Boucher et al., 2021; Gould, Lavy, and Paserman, 2004)
- Integration of refugee students in the educational system (Alan et al., 2021; Kirdar, Koc, and Dayioglu, 2021)
- Class composition and peer effects matter
 - ▶ Students benefit from being in classrooms with a high average SES (Hoxby, 2000; Peetsma et al., 2006; Van Ewijk and Slegers, 2010)
 - ▶ Mixed evidence on the effect of the proportion of language minority students (Ballatore, Fort, and Ichino, 2018; Bredtmann, Otten, and Vonnahme, 2021; Frattini and Meschi, 2019; Jensen and Rasmussen, 2011; Maestri, 2017; Schneeweis, 2015)
- Language learning as a key factor for educational performance and integration (Fenoll2018; Arendt and Bolvig, 2020; Arendt et al., 2020; Dustmann, Machin, and Schönberg, 2010; Dustmann, Frattini, and Lanzara, 2012; Figlio et al., 2021; Isphording and Otten, 2012; Lochmann, Rapoport, and Speciale, 2019; Zorlu and Hartog, 2018)

Data

Administrative Data from the city state of Hamburg

- Universe of all children starting school in 2013, 2014, and 2015
- **Sample**
 - ▶ We restrict the dataset to a sample of children with a refugee background
 - ▶ Defined as children who immigrated to Germany in or after 2013 and are from Afghanistan, Eritrea, Iran, Iraq and Syria,

RWI-GEO-GRID socio-economic data on grid level assigned to the schools

- Information about neighborhood characteristics on 1km grid
- Characteristics e.g. unemployment, purchasing power, credit risk categories, (ethnicity of) population
- Distance category to nearest refugee camp

- **Refugees** are allocated to the German federal states based on a quota and cannot choose their location freely
- **In Hamburg**, after initially being allocated to reception facilities, families are assigned to group accommodations and children start entering the school system independent of their residence status
- The allocation of refugee children into the schools is the responsibility of the school information centre (SIZ)

[Birthcountries](#)

[Map](#)

School integration in Hamburg

- Children who would by age be assigned to the first or second grade enter a regular class and receive additional language training [Overview](#)
- For children in grade three and up, Hamburg established since 2014:
- International Preparatory Classes (Parallel)
 - ▶ Focus on German language learning and goal to integrate children as soon as possible to regular class (max: one year)
- Basic classes (Parallel)
 - ▶ Focus on Alphabetization and German language learning for children who never visited a school or cannot read and write. Goal to integrate children as soon as possible to preparatory class (max: one year)
- Parallel classes are supposed to ensure students having basic German proficiency before entering regular class
- However, capacities were limited and not enough schools were able to provide preparatory classes [Grade Graph](#)

Empirical Strategy

$$Y_{ics} = \alpha + \beta PrepClass_i + \delta Ind_i + \nu school_s + \gamma Neigh_s + \lambda Class_c + \varepsilon_{ics}$$

- Y_{ics} : Educational success of student i in class c and school s
- Success measured as points in standardized test and tracking to academic school
- $PrepClass_i$: Indicator variable for previous preparatory class attendance

Description Sample

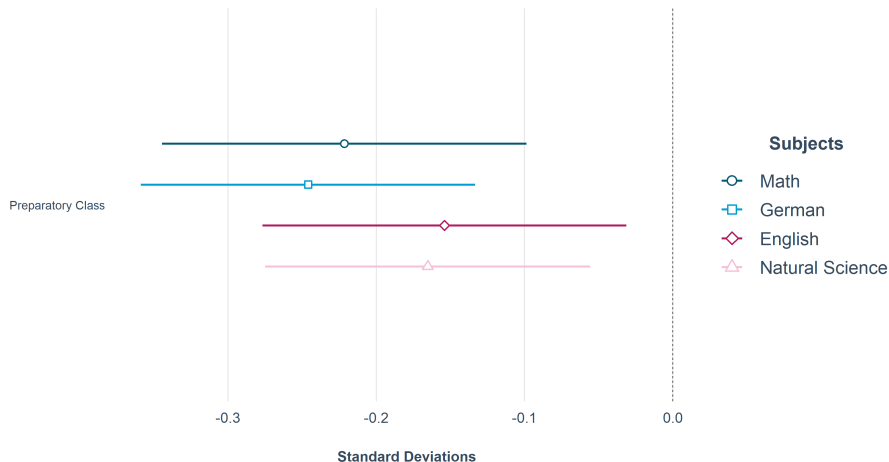
Variable	Mean	SD	N	Mean	SD	N	Test
In preparatory class	No			Yes			
Individual characteristics							
Base class	0.18	0.38	828	0.23	0.42	854	***
Female	0.51	0.50	828	0.46	0.50	854	*
Birthyear	2007.50	1.12	828	2007.31	1.21	854	***
Area Birthcountry							
... Middle East	0.69	0.46	824	0.71	0.45	854	
... Africa	0.0049	0.07	824	0.0094	0.096	854.0	
... Asia	0.30	0.46	824	0.28	0.45	854	
Educational needs	0.012	0.11	828	0.0047	0.068	854	*
Social index	2.61	0.89	828	2.66	0.92	854	
School/class controls							
School Average Kermit	-0.23	0.41	827	-0.20	0.39	854	
Av Social Index School	2.60	0.69	828	2.63	0.68	854	
Children per school	174.41	74.98	828	181.23	75.18	854	*
Children per class	18.09	5.64	828	10.75	4.11	854	***
Unemployment 2012	6.23	2.93	828	6.13	2.90	854	
Purchasing Power 2012	5.33	2.87	828	5.55	2.81	854	
Foreign Population 2012	5.81	2.89	828	5.74	2.90	854	
Acc distance	4.12	1.96	828	4.19	1.94	854	

Results: Average Test Results for Refugee Children

	(1)	(2)	(3)	(4)
Ever in preparatory class	-0.37*** (0.04)	-0.27*** (0.05)	-0.22*** (0.05)	-0.19*** (0.05)
Ever in base class	-0.38*** (0.06)	-0.32*** (0.06)	-0.32*** (0.06)	-0.26*** (0.05)
Indiv controls		✓	✓	✓
First Grade FE		✓	✓	✓
Birthcountry FE		✓	✓	✓
Immigration Year FE		✓	✓	✓
School and Neigh. controls			✓	✓
Class Controls				✓
Adj. R ²	0.11	0.19	0.30	0.43
Num. obs.	1153	1153	1153	1153
N Clusters	440	440	440	440

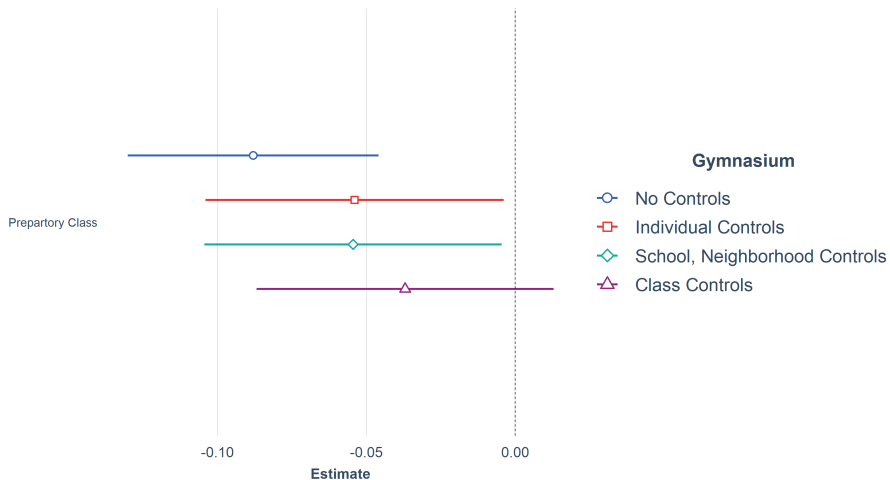
Standardized KERMIT Results, Standard Errors Clustered on Class Level, Refugees are children immigrated in of after 2013 born in Syria, Iran, Iraq, Afghanistan, and Eritrea. For migrant share per class migrant background according to microcensus/birthcountry/citizenship is used. Not shown controls: Individual: Gender, birthmonth, birthyear, immigration year, area of birthcountry, educational needs, social index (RISE), elementary with IPC, first grade; School: Children per school, form of full time school; Neighborhood: Unemployment, purchasing power, foreign population, Class: Children per class, migrants per class, average KERMIT result per class. purchasing power, children per school.* Significance at 0.1; ** Significance at 0.05; *** Significance at 0.01.

Effect of having attended a Preparatory Class



Table

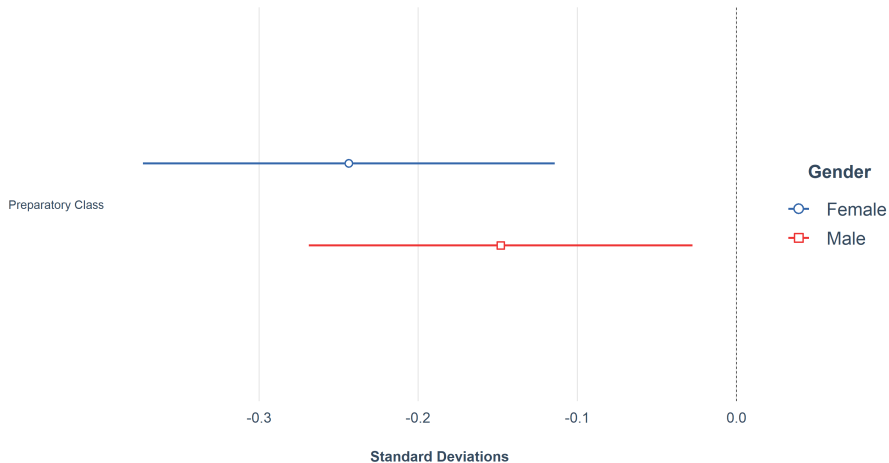
Whether Refugee Child is last observed in a Gymnasium



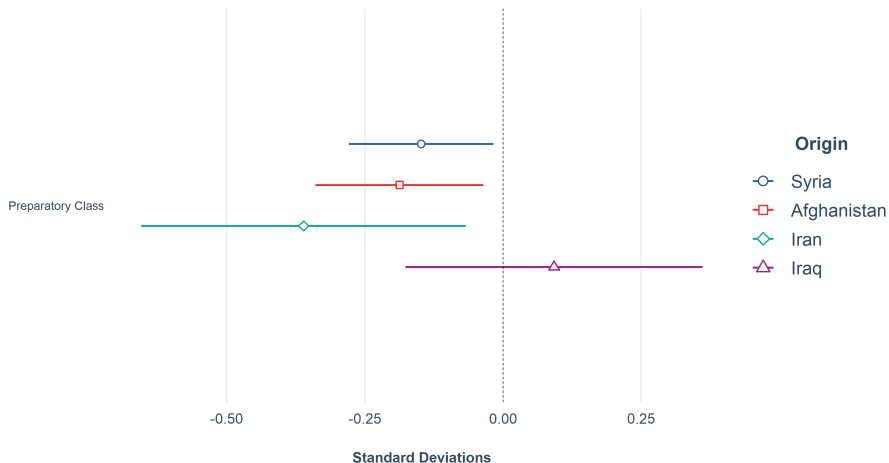
Table

Log

Average Kermit Results by Gender



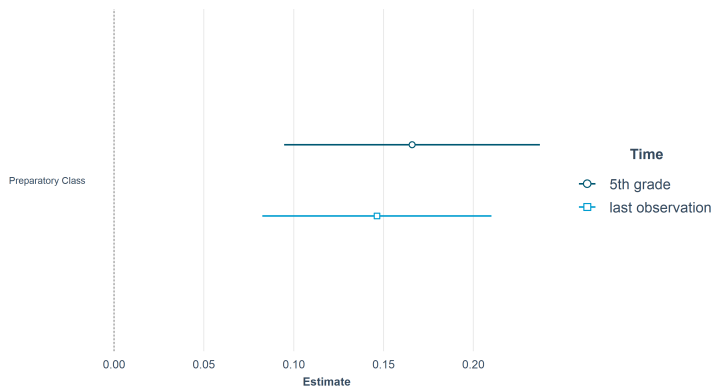
Average Kermit Results by Country of Origin



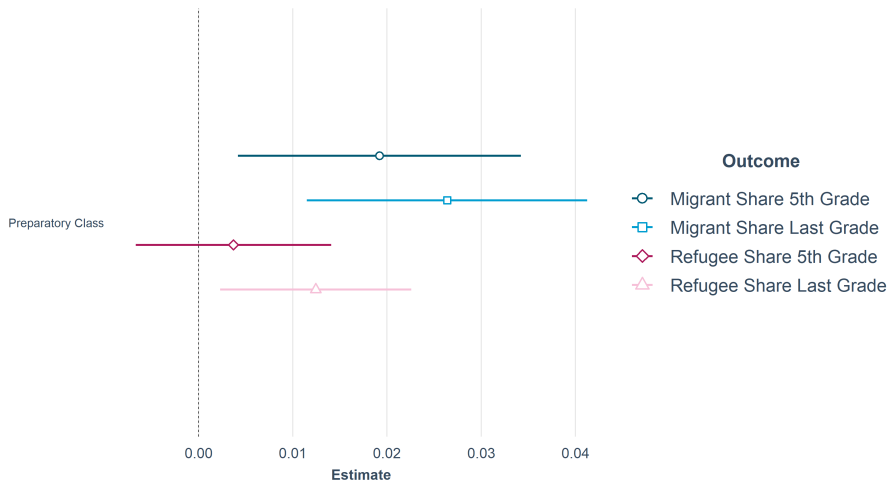
Iran Distribution

Mechanism: Social Ties

Number of pupils from the first observed class with whom refugee children are observed in the same classroom in secondary school



Mechanism: Immigrant Share in Later Years



Robustness

- Censored Regression [Table](#)
- Instrumenting preparatory class by date of birth*immigration year [Table](#)
- Excluding Children who visited a Base Class [Table](#)
- Restricting the sample to children in 3rd and 4th grade [Table](#)
- Different Refugee definition based on date of arrival [Table](#)
- Defining Refugees with more nationalities [Table](#)
- Only Syrian Children [Table](#)

Conclusion

- Our findings suggest a negative effect for recently migrated refugee children of attending a parallel preparatory class compared to being integrated in the regular class from the beginning
 - ▶ Attending a parallel class has a particularly negative effect on mathematics and German test results
 - ▶ The effect is stronger for children from Iran and female students
- Visiting a parallel preparatory class has no effect on the choice of secondary school track
- Compared to refugee students who are immediately enrolled in the regular class, refugee students who attend parallel classes have a higher likelihood of being in the same class with their first classmates, and in a classroom with a higher immigrant share in secondary school

Thank you

pia.schilling@economics.unibz.it



Alan, Sule et al. (2021). "Building social cohesion in ethnically mixed schools: An intervention on perspective taking". In: *The Quarterly Journal of Economics* 136.4, pp. 2147–2194. ISSN: 0033-5533.



Arendt, Jacob Nielsen and Iben Bolvig (2020). *Early labor market entry, language acquisition and labor market success of refugees*.



Arendt, Jacob Nielsen et al. (2020). "Language Training and Refugees' Integration". In: *NBER Working Paper No. 26834*. URL: <http://www.nber.org/papers/w26834>.



Ballatore, Rosario Maria, Margherita Fort, and Andrea Ichino (2018). "Tower of Babel in the classroom: immigrants and natives in Italian schools". In: *Journal of Labour Economics* 36.4, pp. 885–921.



Boucher, Vincent et al. (2021). "Ethnic Mixing in Early Childhood: Evidence from a Randomized Field Experiment and a Structural Model". In: *IZA Discussion Paper 14260*.



Bredtmann, Julia, Sebastian Otten, and Christina Vonnahme (2021). "Linguistic diversity in the classroom, student achievement, and social integration". In: *Education Economics* 29.2, pp. 121–142. ISSN: 0964-5292. DOI: 10.1080/09645292.2020.1866499. URL: <https://doi.org/10.1080/09645292.2020.1866499>.



Dustmann, Christian, Tommaso Frattini, and Gianandrea Lanzara (2012). "Educational achievement of second-generation immigrants: an international comparison". In: *Economic Policy* 27.69, pp. 143–185. ISSN: 0266-4658.



Dustmann, Christian, Stephen Machin, and Uta Schönberg (2010). "Ethnicity and educational achievement in compulsory schooling". In: *The Economic Journal* 120.546, F272–F297. ISSN: 0013-0133.



Figlio, David N et al. (2021). “Diversity in Schools: Immigrants and the Educational Performance of U.S. Born Students”. In: *NBER Working Paper 28596*.



Frattoni, Tommaso and Elena Meschi (2019). “The effect of immigrant peers in vocational schools”. In: *European Economic Review* 113, pp. 1–22. ISSN: 00142921. DOI: 10.1016/j.euroecorev.2018.12.005. URL: <https://doi.org/10.1016/j.euroecorev.2018.12.005>.



Gould, Eric D, Victor Lavy, and M Daniele Paserman (2004). “Immigrating to opportunity: Estimating the effect of school quality using a natural experiment on Ethiopians in Israel”. In: *The Quarterly Journal of Economics* 119.2, pp. 489–526. ISSN: 00335533. DOI: 10.1162/0033553041382193.



Hoxby, Caroline M (2000). “Peer Effects in the Classroom: Learning from Gender and Race Variation”. In: *NBER Working Paper 7867* 7867.



Isphording, Ingo E. and Sebastian Otten (2012). “Linguistic Distance and the Language Fluency of Immigrants”. In: *Ruhr Economic Papers* 274. ISSN: 1556-5068. DOI: 10.2139/ssrn.1919474.



Jensen, Peter and Astrid Würtz Rasmussen (2011). “The effect of immigrant concentration in schools on native and immigrant children’s reading and math skills”. In: *Economics of Education Review* 30.6, pp. 1503–1515. ISSN: 02727757. DOI: 10.1016/j.econedurev.2011.08.002.



Kirdar, Murat G., Ismet Koc, and Meltem Dayioglu (2021). “School Integration of Refugee Children: Evidence from the Largest Refugee Group in Any Country”. In: *IZA Discussion Paper 14716*. DOI: 10.2139/ssrn.3921506.



Lochmann, Alexia, Hillel Rapoport, and Biagio Speciale (2019). "The effect of language training on immigrants' economic integration: Empirical evidence from France". In: *European Economic Review* 113, pp. 265–296. ISSN: 00142921. DOI: 10.1016/j.euroecorev.2019.01.008. URL: <https://doi.org/10.1016/j.euroecorev.2019.01.008>.



Maestri, Virginia (2017). "Can ethnic diversity have a positive effect on school achievement?" In: *Education Economics* 25.3, pp. 290–303. ISSN: 14695782. DOI: 10.1080/09645292.2016.1238879.



Peetsma, Thea et al. (2006). "Class composition influences on pupils' cognitive development". In: *School Effectiveness and School Improvement* 17.3, pp. 275–302. ISSN: 0924-3453. DOI: 10.1080/13803610500480114. URL: <https://doi.org/10.1080/13803610500480114>.



Schneeweis, Nicole (2015). "Immigrant concentration in schools: Consequences for native and migrant students". In: *Labour Economics* 35, pp. 63–76. ISSN: 09275371. DOI: 10.1016/j.labeco.2015.03.004. URL: <http://dx.doi.org/10.1016/j.labeco.2015.03.004>.



Van Ewijk, Reyn and Peter Sleegers (2010). "Peer ethnicity and achievement: A meta-analysis into the compositional effect". In: *School Effectiveness and School Improvement* 21.3, pp. 237–265. ISSN: 0924-3453.



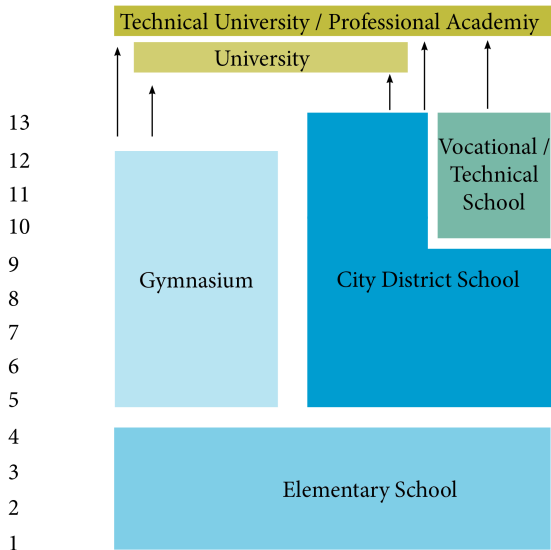
Zorlu, Aslan and Joop Hartog (2018). "The Impact of Language on Socioeconomic Integration of Immigrants". In: *IZA Discussion Paper 11485*. URL: <http://ftp.iza.org/dp11485.pdf>.

Table: Top countries by birth of newly arrived

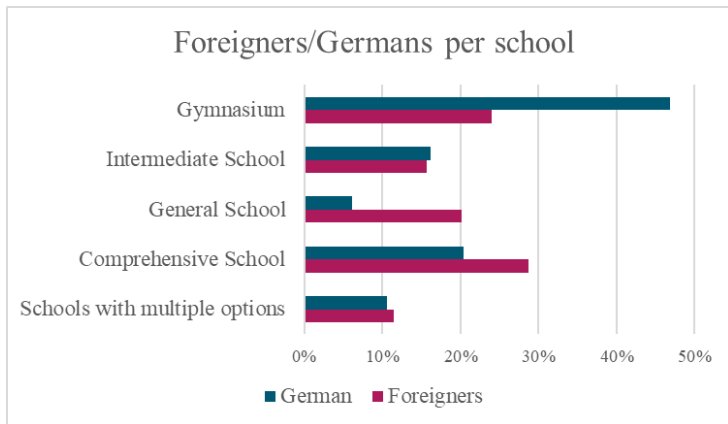
Country of birth	Observations	Percent
Syria	431	0.15
Afghanistan	330	0.11
Poland	185	0.06
Bulgaria	152	0.05
Rumania	131	0.04
Iraq	125	0.04
Iran	124	0.04
Spain	113	0.04
Germany	96	0.03
Russia	96	0.03

[◀ Back](#)

Hamburg School System



Nationality and School Tracks - Hamburg



[Back](#)

Motivation

Figure: PISA Reading scores 2015

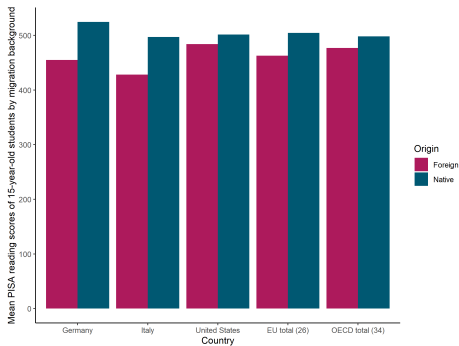
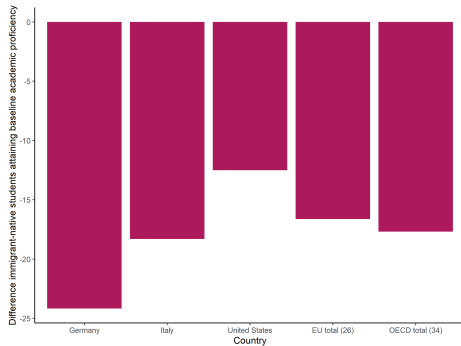


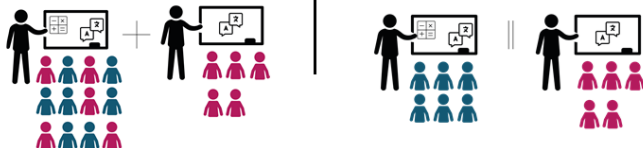
Figure: Immigrant - Native Gap PISA 2015



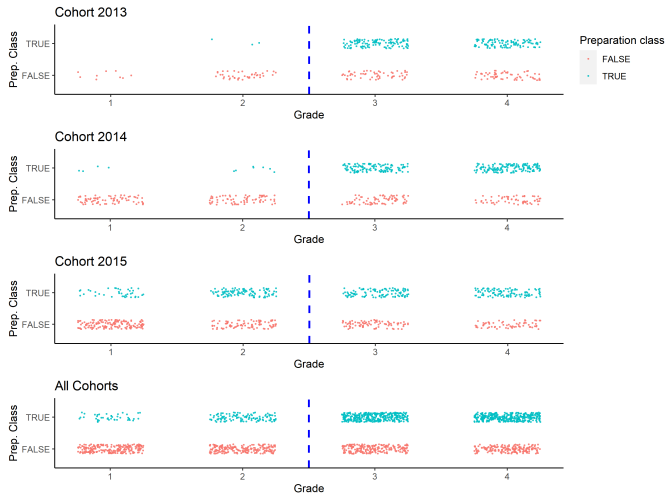
[Back](#)

School integration in Hamburg

School Year	13/14	14/15	15/16	16/17	17/18	18/19	19/20
Starting Cohort 15/16			1	2	3	4	5
Starting Cohort 14/15		1	2	3	4	5	6
Starting Cohort 13/14	1	2	3	4	5	6	7



Preparatory Class and Grade



Setting

IV

Description Sample Schools

Variable	Mean	SD	N	Mean	SD	N	Test
IPC	No			Yes			
<i>School Characteristics</i>							
Rise Index	2.85	0.68	188	2.53	0.71	50	***
School Average Kermit 2	336.33	26.04	171	322.82	28.26	50	***
Kids per School	121.38	46.87	188	138.08	52.86	50	**
Classes	5.97	2.34	188	7.66	2.72	50	***
Refugees per School	1.24	1.89	188	9.62	7.63	50	***
Share Refugees per school	0.01	0.02	188	0.07	0.05	50	***
Migrants per school	39.11	24.53	188	65.84	30.93	50	***
Migrant Share per school	0.33	0.18	188	0.48	0.17	50	***
Average No of Refugees per class	0.2	0.31	188	0.94	0.72	50	***
<i>Neighborhood Characteristics</i>							
Unemployment	5.31	2.8	188	6.48	2.92	50	***
Population	5.44	2.97	188	5.86	2.93	50	
Purchasing Power	5.47	2.97	188	5.56	2.98	50	
Foreign Population 2014	5.34	2.92	188	6.22	2.78	50	*
Car Density	2.6	1.13	188	2.26	1.08	50	*
Commercial buildings	5.37	2.95	188	5.08	2.86	50	
House Type (lower better)	5.43	2.99	188	5.68	2.85	50	
Residential Buildings	5.58	2.93	188	5.7	3.06	50	
Distance to Accommodation	4.6	2.18	188	4.28	2.25	50	

Back

Description sample in secondary school

Variable	Mean	SD	N	Mean	SD	N	Test
In preparation class	No			Yes			
Outcomes							
Gymnasium	0.23	0.42	625	0.14	0.35	528	***
KERMIT Average	-0.77	0.70	625	-1.18	0.70	528	***
Individual characteristics							
Base class	0.10	0.30	625	0.21	0.41	528	***
Migrated since 2015	0.63	0.48	625	0.95	0.22	528	***
Female	0.51	0.50	625	0.48	0.50	528	
Birthyear	2007.52	1.01	625	2007.14	0.99	528	***
Area Birthcountry							
... Middle East	0.66	0.47	625	0.69	0.46	528	
... Africa	0.0064	0.08	625	0.0038	0.061	528	
... Asia	0.33	0.47	625	0.31	0.46	528	
Cohort	2014.33	0.74	625	2014.23	0.78	528	**
Educational needs	0.067	0.25	625	0.023	0.15	528	***
Social index	2.42	0.90	625	2.43	0.92	528	
Age appropriate grade:							***
... age appropriate class	0.63	0.48	625	0.36	0.48	528	
... older	0.35	0.48	625	0.62	0.49	528	
... younger	0.018	0.13	625	0.019	0.14	528	
School/class controls							
Elem. school w/ prep class	0.63	0.48	625	1.00	0.00	528	***
Children per school	292.65	123.27	625	284.59	124.77	528	
Children per class	23.59	2.59	625	22.91	2.86	528	***
Migrant share class	0.62	0.19	625	0.65	0.19	528	**
Unemployment 2012	5.75	2.66	625	5.97	2.84	528	
Purchasing Power 2012	5.43	2.53	625	5.52	2.47	528	
Foreign Population 2012	5.52	2.80	625	6.06	2.94	528	***

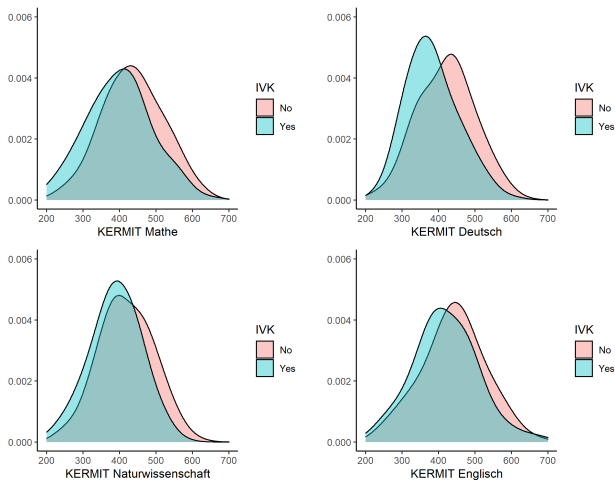
Class Quality and Refugee Share

	(1)	(2)	(3)
New Refugee share Class	-1.72** (0.69)	-1.22** (0.53)	0.04 (0.44)
Share female		-0.22* (0.12)	-0.16 (0.13)
Migrant share class		-0.71*** (0.08)	-0.26*** (0.09)
Kids per class		0.01 (0.01)	0.03*** (0.01)
Class average social index		0.26*** (0.02)	0.07 (0.06)
Class controls	No	Yes	Yes
School FE x Year FE	No	No	Yes
Adj. R ²	0.00	0.41	0.72
Num. obs.	1590	1590	1590
N Clusters	789	789	789

Estimated regression coefficients of the share of new refugee children in the classroom in grade 4th on Kermit results in grade 3. Sample is all classes in fourth grades in schools that had minimum one refugee per school in that year. Refugees are children immigrated in of after 2013 born in Syria, Iran, Iraq, Afghanistan, and Eritrea. For migrant share per class migrant background according to microcensus/birthcountry/citizenship is used. Standard Errors Clustered on class level. Significance at 0.1; ** Significance at 0.05; *** Significance at 0.01.

Description Sample

Figure: Standardized Test results and visit of preparatory class



Effect of preparatory class on standardized test scores

	(Math)	(German)	(English)	(Natural Science)
Ever in preparatory class	-0.22*** (0.06)	-0.25*** (0.06)	-0.15** (0.06)	-0.17*** (0.06)
Ever in base class	-0.32*** (0.07)	-0.28*** (0.07)	-0.20** (0.08)	-0.19*** (0.06)
Female	-0.19*** (0.04)	0.22*** (0.04)	0.07 (0.05)	-0.05 (0.04)
Average math result	0.80*** (0.07)			
Average German result		0.80*** (0.06)		
Average English result			0.85*** (0.06)	
Average natural science result				0.65*** (0.09)
Indiv controls	Yes	Yes	Yes	Yes
First Grade FE	Yes	Yes	Yes	Yes
Birthcountry FE	Yes	Yes	Yes	Yes
Immigration Year FE	Yes	Yes	Yes	Yes
School and Neigh. controls	Yes	Yes	Yes	Yes
Class Controls	Yes	Yes	Yes	Yes
Adj. R ²	0.31	0.42	0.35	0.22
Num. obs.	1130	1151	1092	1120
N Clusters	434	440	432	431

Note: Standardized KERMIT results. Standard errors clustered on class level. Not shown controls: Year of birth, month of birth, RISE social index, educational needs, elementary school offering preparatory classes, children per school, form of full time school, purchasing power, unemployment, foreign population, children per class, migrant share class. * Significance at 0.1; ** Significance at 0.05; *** Significance at 0.01.

Gymnasium Attendance and Participation in Preparatory Class

	(1)	(2)	(3)	(4)
Ever in preparatory class	-0.09*** (0.02)	-0.05** (0.03)	-0.05** (0.03)	-0.04 (0.03)
Ever in base class	-0.05** (0.03)	-0.03 (0.03)	-0.04 (0.03)	-0.01 (0.03)
Female		0.01 (0.02)	0.01 (0.02)	0.01 (0.02)
RISE social index		0.02* (0.01)	0.03** (0.01)	0.02** (0.01)
Foreign population 2012			0.02** (0.01)	0.02*** (0.01)
Indiv controls	No	Yes	Yes	Yes
First grade FE	No	Yes	Yes	Yes
Area of birth FE	No	Yes	Yes	Yes
Immigration year FE	No	Yes	Yes	Yes
School and neigh. controls	No	No	Yes	Yes
Class controls	No	No	No	Yes
Adj. R ²	0.02	0.05	0.06	0.06
Num. obs.	1320	1320	1320	1320
N Clusters	750	750	750	750

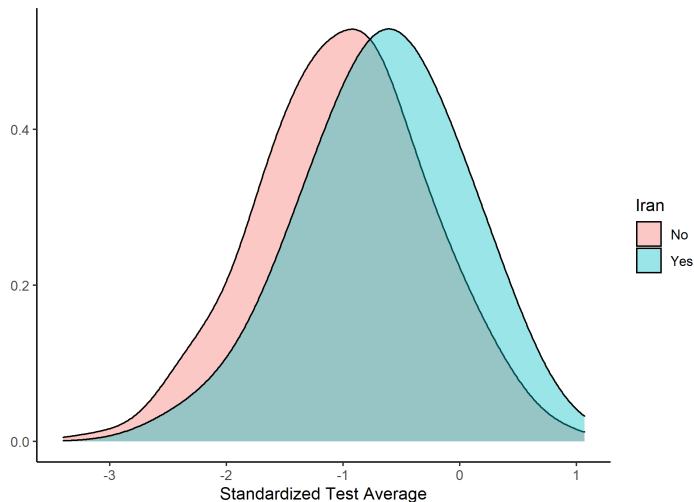
Note: Gymnasium attendance in the last observation. Standard errors clustered on class level. Not shown controls: Year of birth, month of birth, education needs, elementary school offering preparatory classes, children per school in elementary school, form of full time school in elementary school, purchasing power for elementary school, unemployment for elementary school migrant share in elementary school, children per class. * Significance at 0.1; ** Significance at 0.05; *** Significance at 0.01.

Gymnasium Attendance and Participation in Preparatory Class

	(1)	(2)	(3)	(4)
Ever in preparatory class	-0.64*** (0.16)	-0.45** (0.21)	-0.48** (0.21)	-0.32 (0.21)
Ever in base class	-0.44* (0.24)	-0.33 (0.26)	-0.35 (0.26)	-0.10 (0.28)
Female		0.07 (0.15)	0.10 (0.15)	0.09 (0.16)
RISE social index		0.16* (0.10)	0.20** (0.10)	0.20** (0.10)
Foreign population 2012			0.15*** (0.06)	0.16*** (0.06)
Indiv controls	No	Yes	Yes	Yes
First grade FE	No	Yes	Yes	Yes
Area of birth FE	No	Yes	Yes	Yes
Immigration year FE	No	Yes	Yes	Yes
School and neigh. controls	No	No	Yes	Yes
Class controls	No	No	No	Yes
Num. obs.	1320	1320	1320	1320

Note: Logarithmic regression of Gymnasium attendance in the last observation. Standard errors clustered on class level. Not shown controls: Year of birth, month of birth, educational needs, elementary school offering preparatory classes, children per school in elementary school, form of full time school in elementary school, purchasing power for elementary school, unemployment for elementary school, migrant share in elementary school, children per class. * Significance at 0.1; ** Significance at 0.05; *** Significance at 0.01.

Density KERMIT Results for Iranian vs other refugee children



Censored Regression

	(1)	(2)	(3)	(4)
Ever in prep class	-40.68*** (7.68)	-35.88*** (9.23)	-32.89*** (9.21)	-18.97** (8.15)
Ever in base class	-104.41*** (12.84)	-97.85*** (12.65)	-98.39*** (12.70)	-48.92*** (10.17)
Female		12.46* (7.40)	12.44* (7.27)	7.77 (6.42)
Social Index		5.51 (4.24)	2.54 (4.57)	-0.97 (4.14)
Foreign Population 2012			-3.04 (1.97)	-0.90 (1.99)
Class Av KERMIT result				1.02*** (0.06)
Indiv controls	No	Yes	Yes	Yes
First Grade FE	No	Yes	Yes	Yes
Birthcountry FE	No	Yes	Yes	Yes
Immigration Year FE	No	Yes	Yes	Yes
School and Neigh. controls	No	No	Yes	Yes
Class Controls	No	No	No	Yes
Total	1272	1272	1272	1272
Left Censored	119	119	119	119
Uncensored	1153	1153	1153	1153

Note: Full Kermit results censored to 450 points if missing value, Standard Errors Clustered on Class Level, Refugees are children immigrated in of after 2013 born in Syria, Iran, Iraq, Afghanistan, and Eritrea. For migrant share per class migrant background according to micro-census/birthcountry/citizenship is used. Not shown controls: form of full time school, birthmonth, birthyear, educational needs elementary offering preparatory classes, purchasing power, unemployment, children per school, children per class, migrant share class. Significance at 0.1; ** Significance at 0.05; *** Significance at 0.01.

Preparatory class instrumented by birthdate * immigration year

	(1)	(2)	(3)	(4)
Ever in preparatory class	-0.72*** (0.08)	-0.63*** (0.19)	-0.50*** (0.17)	-0.38** (0.16)
Ever in base class		-0.34*** (0.06)	-0.33*** (0.06)	-0.27*** (0.05)
Female		0.03 (0.04)	0.03 (0.04)	0.01 (0.03)
Social Index		0.11*** (0.02)	0.05** (0.02)	0.03* (0.02)
Foreign Population 2012			-0.02* (0.01)	0.00 (0.01)
Average Kermit result				0.75*** (0.06)
Indiv controls	No	Yes	Yes	Yes
First Grade FE	No	Yes	Yes	Yes
Birthcountry FE	No	Yes	Yes	Yes
School and Neigh. controls	No	No	Yes	Yes
Class Controls	No	No	No	Yes
Num. obs.	1153	1153	1153	1153
F statistic	79.07	22.91	32.22	45.28

Attendance of preparation class instrumented by date of birth * immigration Year. Standardized Kermit Results, Standard Errors Clustered on Class Level, Refugees are children immigrated in of after 2013 born in Syria, Iran, Iraq, Afghanistan, and Eritrea. Not shown controls: Individual: Birthmonth, birthyear, educational needs, immigration year, area of birthcountry, elementary offering preparatory classes, first grade; School: children per school, form of full time school; Neighborhood: Purchasing power 2012, Unemployment 2012; Class: Children per class, migrant share class. * Significance at 0.1; ** Significance at 0.05; *** Significance at 0.01.

[Back](#)
[Grade Graph](#)

3rd and 4th Grades

	(1)	(2)	(3)	(4)
Ever in preparatory class	-0.28*** (0.05)	-0.24*** (0.06)	-0.19*** (0.06)	-0.16*** (0.05)
Ever in base class	-0.40*** (0.06)	-0.37*** (0.07)	-0.35*** (0.06)	-0.27*** (0.06)
Female		0.04 (0.05)	0.03 (0.05)	-0.01 (0.04)
Social index		0.11*** (0.03)	0.05 (0.03)	0.05 (0.03)
Foreign population (2012)			-0.03** (0.01)	-0.01 (0.01)
Average KERMIT result				0.82*** (0.08)
Indiv controls	No	Yes	Yes	Yes
First Grade FE	No	Yes	Yes	Yes
Birthcountry FE	No	Yes	Yes	Yes
Immigration Year FE	No	Yes	Yes	Yes
School and Neigh. controls	No	No	Yes	Yes
Class Controls	No	No	No	Yes
Adj. R ²	0.08	0.15	0.25	0.39
Num. obs.	746	746	746	746

Standardized KERMIT Results, Standard Errors Clustered on Class Level. Sample restricted to children who started school in Germany in third or fourth grade and are born in Syria, Iran, Iraq, Afghanistan, and Eritrea. For migrant share per class migrant background according to microcensus/birthcountry/citizenship is used. Not shown controls: Individual: Birth-month, birthyear, educational needs, immigration year, area of birthcountry, elementary offering preparatory classes, first grade; School: children per school, form of full time school; Neighborhood: Purchasing power 2012, Unemployment 2012; Class: Children per class, migrant share class. * Significance at 0.1; ** Significance at 0.05; *** Significance at 0.01.

Excluding children who visit a base Class

	(1)	(2)	(3)	(4)
Ever in preparatory class	-0.38*** (0.05)	-0.27*** (0.06)	-0.24*** (0.06)	-0.24*** (0.05)
Ever in base class				
Female		0.02 (0.04)	0.02 (0.04)	0.01 (0.04)
Social index		0.12*** (0.02)	0.06** (0.02)	0.04 (0.02)
Foreign population (2012)			-0.02** (0.01)	-0.00 (0.01)
Average KERMIT result				0.69*** (0.06)
Indiv controls	No	Yes	Yes	Yes
First Grade FE	No	Yes	Yes	Yes
Birthcountry FE	No	Yes	Yes	Yes
Immigration Year FE	No	Yes	Yes	Yes
School and Neigh. controls	No	No	Yes	Yes
Class Controls	No	No	No	Yes
Adj. R ²	0.07	0.16	0.29	0.42
Num. obs.	980	980	980	980

Standardized KERMIT Results, Standard Errors Clustered on Class Level, Refugees are children immigrated in of after 2013 born in Syria, Iran, Iraq, Afghanistan, and Eritrea. For migrant share per class migrant background according to microcensus/birthcountry/citizenship is used. Not shown controls: Individual: Birthmonth, birthyear, educational needs, immigration year, area of birthcountry, elementary offering preparatory classes, first grade; School: children per school, form of full time school; Neighborhood: Purchasing power 2012, Unemployment 2012; Class: Children per class, migrant share class. * Significance at 0.1; ** Significance at 0.05; *** Significance at 0.01.

Different refugee definition based on arrival date

	(1)	(2)	(3)	(4)
Ever in preparatory class	-0.35*** (0.04)	-0.26*** (0.05)	-0.22*** (0.05)	-0.19*** (0.05)
Ever in base class	-0.39*** (0.06)	-0.33*** (0.06)	-0.32*** (0.06)	-0.26*** (0.05)
Female		0.06 (0.04)	0.05 (0.04)	0.02 (0.04)
Social index		0.11*** (0.02)	0.05** (0.02)	0.04* (0.02)
Foreign population (2012)			-0.03** (0.01)	-0.01 (0.01)
Average KERMIT result				0.79*** (0.06)
Indiv controls	No	Yes	Yes	Yes
First Grade FE	No	Yes	Yes	Yes
Birthcountry FE	No	Yes	Yes	Yes
Immigration Year FE	No	Yes	Yes	Yes
School and Neigh. controls	No	No	Yes	Yes
Class Controls	No	No	No	Yes
Adj. R ²	0.10	0.18	0.29	0.42
Num. obs.	1037	1037	1037	1037

Refugees are defined as children who arrived after they were at school starting age and born in Syria, Iran, Iraq, Afghanistan, and Eritrea. Outcome shows Standardized KERMIT Results, Standard Errors Clustered on Class Level, For migrant share per class migrant background according to microcensus/birthcountry/citizenship is used. Not shown controls: Individual: Birthmonth, birthyear, educational needs, immigration year, area of birthcountry, elementary offering preparatory classes, first grade; School: children per school, form of full time school; Neighborhood: Purchasing power 2012, Unemployment 2012; Class: Children per class, migrant share class. * Significance at 0.1; ** Significance at 0.05; *** Significance at 0.01.

Different Nationalities

	(1)	(2)	(3)	(4)
Ever in preparatory class	-0.34*** (0.04)	-0.26*** (0.05)	-0.22*** (0.05)	-0.19*** (0.04)
Ever in base class	-0.38*** (0.06)	-0.34*** (0.06)	-0.33*** (0.05)	-0.27*** (0.05)
Female		0.04 (0.04)	0.03 (0.03)	0.01 (0.03)
Social index		0.10*** (0.02)	0.05** (0.02)	0.03 (0.02)
Foreign population (2012)			-0.02** (0.01)	0.00 (0.01)
Average KERMIT result				0.80*** (0.05)
Indiv controls	No	Yes	Yes	Yes
First Grade FE	No	Yes	Yes	Yes
Birthcountry FE	No	Yes	Yes	Yes
Immigration Year FE	No	Yes	Yes	Yes
School and Neigh. controls	No	No	Yes	Yes
Class Controls	No	No	No	Yes
Adj. R ²	0.10	0.18	0.28	0.43
Num. obs.	1266	1266	1266	1266

Standardized KERMIT Results, Standard Errors Clustered on Class Level, Refugees are children immigrated in of after 2013 born in Syria, Iran, Iraq, Afghanistan, Eritrea, Albania, Kosovo, North Macedonia, Pakistan, and Serbia. For migrant share per class migrant background according to microcensus/birthcountry/citizenship is used. Not shown controls: Individual: Birthmonth, birthyear, educational needs, immigration year, area of birthcountry, elementary offering preparatory classes, first grade; School: children per school, form of full time school; Neighborhood: Purchasing power 2012, Unemployment 2012; Class: Children per class, migrant share class. * Significance at 0.1; ** Significance at 0.05; *** Significance at 0.01.

Only Syrian Children

	(1)	(2)	(3)	(4)
Ever in preparatory class	-0.31*** (0.06)	-0.21*** (0.08)	-0.18** (0.07)	-0.15** (0.07)
Ever in base class	-0.41*** (0.09)	-0.35*** (0.09)	-0.34*** (0.08)	-0.30*** (0.07)
Female		0.03 (0.06)	0.02 (0.06)	-0.01 (0.05)
Social index		0.12*** (0.04)	0.06* (0.04)	0.02 (0.03)
Foreign population (2012)			-0.02 (0.02)	-0.01 (0.01)
Average KERMIT result				0.74*** (0.08)
Indiv controls	No	Yes	Yes	Yes
First Grade FE	No	Yes	Yes	Yes
Birthcountry FE	No	Yes	Yes	Yes
Immigration Year FE	No	Yes	Yes	Yes
School and Neigh. controls	No	No	Yes	Yes
Class Controls	No	No	No	Yes
Adj. R ²	0.10	0.16	0.29	0.45
Num. obs.	534	534	534	534

Standardized KERMIT Results, Standard Errors Clustered on Class Level, Sample restricted to children who immigrated in or after 2013 from Syria. For migrant share per class migrant background according to microcensus/birthcountry/citizenship is used. Not shown controls: Individual: Birthmonth, birthyear, educational needs, immigration year, area of birthcountry, elementary offering preparatory classes, first grade; School: children per school, form of full time school; Neighborhood: Purchasing power 2012, Unemployment 2012; Class: Children per class, migrant share class. * Significance at 0.1; ** Significance at 0.05; *** Significance at 0.01.

Location Refugee Camps and Elementary Schools in Hamburg

