

**Refugees and the Education  
of Host Populations:  
Evidence from the Syrian Inflow to Jordan**

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# Introduction

- ▶ 82.4 million people displaced by conflict worldwide
  - ▶ 86% in developing countries, clustered in and around conflict
- ▶ Labor market effects of forced migration frequently studied. Other outcomes like education less so.
  - ▶ About 29% of the displaced between 5 and 17 years old
- ▶ Potential channels include:
  - ▶ Direct crowd out (or in)
  - ▶ Changes in the returns to education
  - ▶ Peer effects

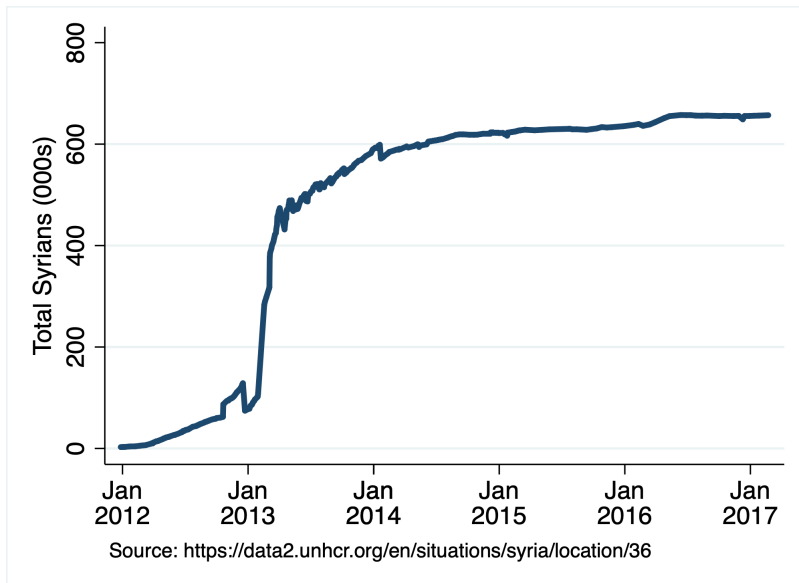
## Summary

- ▶ Did Syrian refugees affect education outcomes for Jordanians?
- ▶ Utilize school census and large household survey to examine quantity and quality of education
- ▶ Employ difference-in-differences across school cohorts and locations
- ▶ Find no evidence that greater exposure to Syrian refugees affected the attainment of Jordanians
- ▶ Expansion in high-Syrian areas (mostly donor-funded) appears sufficient to mitigate any over-crowding

## Related Literature

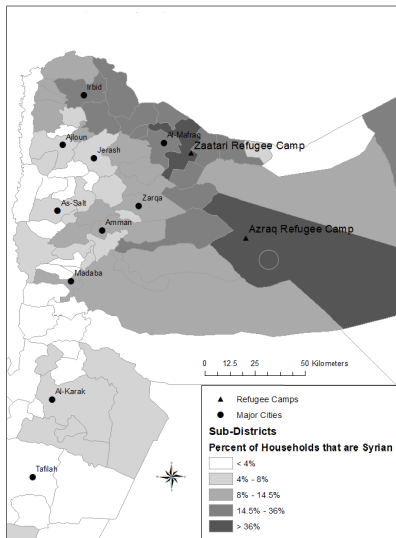
- ▶ Impact of refugees and immigrants on native-born education
  - ▶ Rozo and Sviastchi (2019): same context and null result on enrollment at sub-district level, distance from camps IV
  - ▶ Tumen (2019): Syrians in Turkey increased native-born HS enrollment, since returns to education increased
  - ▶ Baez (2011): Rwandans in Tanzania decreased attainment and literacy of Tanzanians
  - ▶ Mixed results in large literature on high-income countries
- ▶ Impact of Syrians on Jordan's labor market
  - ▶ Null results: Fallah et al (2019), Fakhri & Ibrahim (2016)

## Syrian Refugee Arrivals to Jordan



# Syrian Refugee Locations in Jordan in 2016

Overall prevalence  $\approx 7\%$ ; 18% of Syrians live in two camps

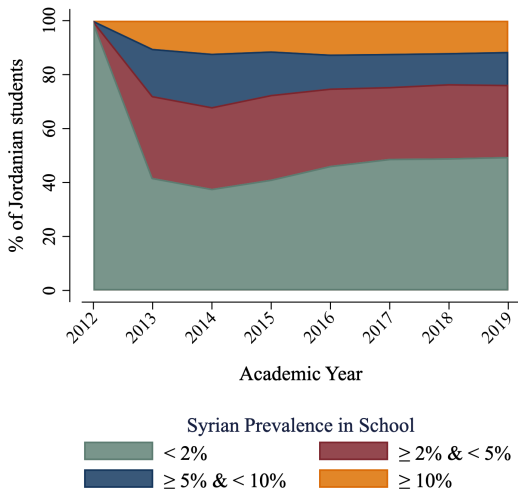


## Setting

- ▶ Basic and secondary public schools free for Jordanians and Syrians
- ▶ 85% of 18-24 year-olds finished basic education
- ▶ 56% of 22-25 year-olds finished secondary education
- ▶ 12% of Jordanians in schools with two shifts, pre-dating Syrians
- ▶ Syrian students in Jordan account for:
  - ▶ 6.8% of total student population in 2016
  - ▶ 45% of increase in enrollment since 2010
- ▶ Barriers for Syrians include bans on students three or more years older than their grade level, low perceived returns, and lack of required documents

# Exposure of Jordanians to Syrians Schoolmates

12% of Jordanians with  $>10\%$  Syrians in school





# Data

- ▶ 2010-20 School Censuses
  - ▶ Count of all basic & secondary schools, enrollment by nationality
- ▶ 2015 National Census
  - ▶ Count of all residents, by nationality to the locality level ( $n = 958$ )
  - ▶ 13.3% Syrian (higher than other data,  $\rho=0.83$  with sub-district level density from school data)
- ▶ Jordan Labor Market Panel Survey (JLMPS)
  - ▶ 2016 nationally-representative survey ( $n = 7,229$  households)
  - ▶ Individual-level roster with education variables ( $n = 33,450$ )

## Strategy: Difference-in-differences

Ex ante identification challenges:

- ▶ If refugees moved to areas with worse educational outcomes
- ▶ Syrian conflict slowed Jordan growth, which could affect education

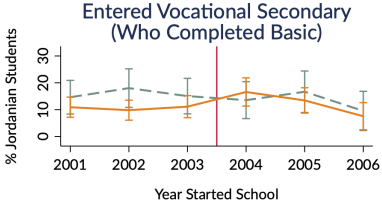
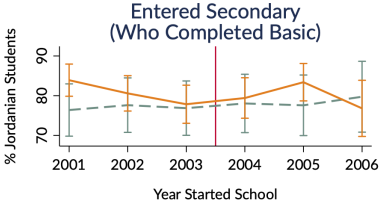
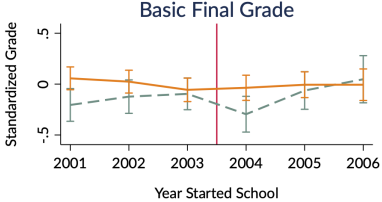
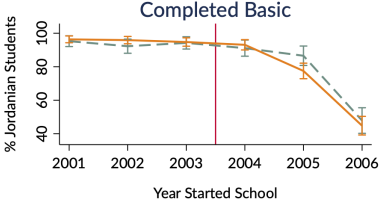
Empirical strategy:

- ▶ School or locality of birth fixed effects
  - ▶ Decompose by level of exposure: 0 – 2%, 2 – 5%, 5 – 10%, > 10%
- ▶ School cohorts: sample depends on the outcome variable
  - ▶ Treated: “Young” cohorts potentially exposed from 2013
  - ▶ Control: Cohorts too old for exposure

Identifying assumption:

- ▶ High- and low-Syrian schools or localities would have experienced similar educational trends in the absence of Syrian refugees

# Graphical Evidence



### Syrian Prevalence in School

<span style="color: green;">- - -</span> $< 5\%$	<span style="color: green;">   </span> 95% CI
<span style="color: orange;">—</span> $\ge 5\%$	<span style="color: orange;">   </span> 95% CI

## Results: Completed Basic Education

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	School-Level			Locality-Level		
Prop. Syrians $\in [0.02, 0.05) \times$ Young	0.098** (0.045)			0.063 (0.054)		
Prop. Syrians $\in [0.05, 0.1) \times$ Young	0.025 (0.067)			-0.031 (0.044)		
Prop. Syrians $\geq 0.1 \times$ Young	0.103* (0.054)			-0.009 (0.043)		
Prop. Syrians $\geq 0.05 \times$ Young		0.024 (0.045)			-0.045 (0.034)	
Proportion Syrians in 2016 $\times$ Young			0.292 (0.187)			-0.184 (0.276)
Observations	2,333	2,333	2,333	2,714	2,714	2,714
R-squared	0.516	0.513	0.513	0.338	0.337	0.337
School Cohort FEs	Yes	Yes	Yes	Yes	Yes	Yes
School or Locality of Birth FEs	Yes	Yes	Yes	Yes	Yes	Yes
Number of Schools or Localities	615	615	615	212	212	212
Dep. Var. Mean (Young, Schools $< 2\%$ )	0.71	0.71	0.71	0.74	0.74	0.74
Dep. Var. Mean (Old, Schools $< 2\%$ )	0.96	0.96	0.96	0.96	0.96	0.96

- Reject an effect of  $< -1.4$  percentage points for schools with higher than median exposure

## Grade-Level Exposure

VARIABLES	(1) Completed Basic	(2) Completed Grade 8	(3) Completed Grade 6	(4) Completed Grade 3
Prop. Syrians $\in [0.02, 0.05) \times$ Young	0.027 (0.061)	-0.037 (0.059)	0.034 (0.040)	0.015 (0.031)
Prop. Syrians $\in [0.05, 0.1) \times$ Young	0.020 (0.070)	0.092* (0.047)	-0.058 (0.073)	-0.005 (0.035)
Prop. Syrians $\geq 0.1 \times$ Young	0.062 (0.074)	0.122*** (0.040)	-0.025 (0.059)	0.012 (0.025)
Observations	1,608	1,685	1,539	2,115
R-squared	0.537	0.443	0.460	0.459
School Cohort FEs	Yes	Yes	Yes	Yes
School FEs	Yes	Yes	Yes	Yes
Number of Schools	420	461	423	559
Dep. Var. Mean (Young, Schools < 2%)	0.74	0.84	0.88	0.96
Dep. Var. Mean (Old, Schools < 2%)	0.96	0.96	0.99	0.99

## Additional Outcomes from Exposure During Basic Education

VARIABLES	(1) Repeated Basic	(2) Basic Final Grade	(3) Entered Secondary	(4) Entered Secondary (Who Completed Basic)	(5) Vocational Secondary
Prop. Syrians $\in [0.02, 0.05) \times$ Young	0.020 (0.023)	-0.077 (0.162)	0.080 (0.067)	0.026 (0.071)	-0.096 (0.077)
Prop. Syrians $\in [0.05, 0.1) \times$ Young	-0.020 (0.020)	-0.141 (0.162)	-0.064 (0.095)	-0.062 (0.097)	0.026 (0.069)
Prop. Syrians $\geq 0.1 \times$ Young	0.012 (0.027)	-0.159 (0.156)	0.165** (0.072)	0.110 (0.068)	-0.027 (0.081)
Observations	2,310	1,784	2,333	1,867	1,430
R-squared	0.338	0.495	0.514	0.509	0.423
School Cohort FEs	Yes	Yes	Yes	Yes	Yes
School FEs	Yes	Yes	Yes	Yes	Yes
Number of Schools	613	500	615	518	435
Dep. Var. Mean (Young, Schools < 2%)	0.02	-0.05	0.56	0.78	0.14
Dep. Var. Mean (Old, Schools < 2%)	0.02	-0.10	0.75	0.78	0.18

# Outcomes from Exposure During Secondary Education

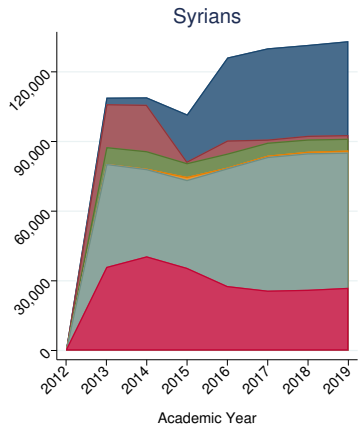
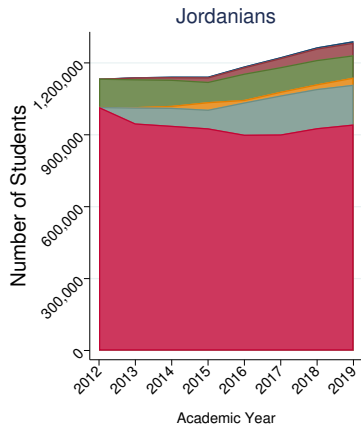
VARIABLES	(1) Repeated Secondary	(2) Completed Secondary (Who Entered)	(3) Secondary Final Grade	(4) Entered Tertiary (Who Completed Secondary)
Prop. Syrians $\in [0.02, 0.05) \times$ Young	-0.141** (0.064)	0.021 (0.088)	0.332 (0.308)	0.160* (0.086)
Prop. Syrians $\in [0.05, 0.1) \times$ Young	-0.035 (0.083)	0.247* (0.142)	-0.262 (0.256)	0.224** (0.093)
Prop. Syrians $\geq 0.1 \times$ Young	-0.264* (0.148)	0.140 (0.106)	-0.041 (0.648)	-0.206 (0.272)
Observations	1,754	1,754	313	806
R-squared	0.432	0.490	0.507	0.540
School Cohort FEs	Yes	Yes	Yes	Yes
School FEs	Yes	Yes	Yes	Yes
Number of Schools	432	432	432	248
Dep. Var. Mean (Young, Schools < 2%)	0.32	0.33	0.01	0.68
Dep. Var. Mean (Old, Schools < 2%)	0.23	0.60	-0.02	0.85

## Robustness

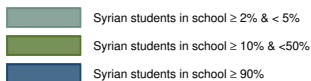
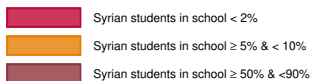
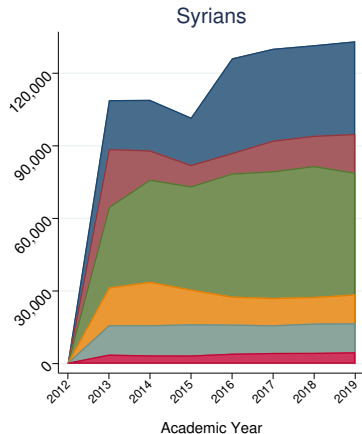
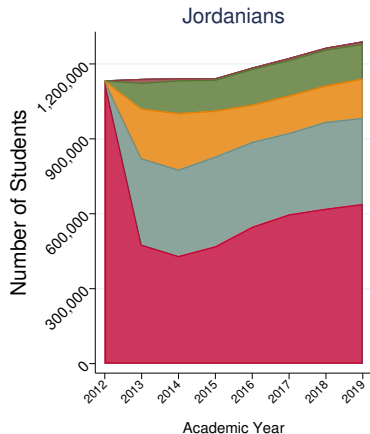
- ▶ Specifications:
  - ▶ Levels: School, Locality, Sub-district
  - ▶ Cuts: Median, Quartiles, Continuous, High vs. Low
  - ▶ Placebo: Old vs. Older cohort
- ▶ Decompositions: Gender, Household Wealth
- ▶ Outcomes (Basic and Secondary): Ever Attended, Repeated or Needed Tutoring, Graduated, Passed Final, Final Grade, Private School, Vocational School; Attended Tertiary



# Syrians Absorbed in Double-Shift Schools

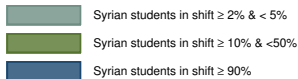
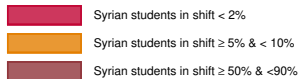
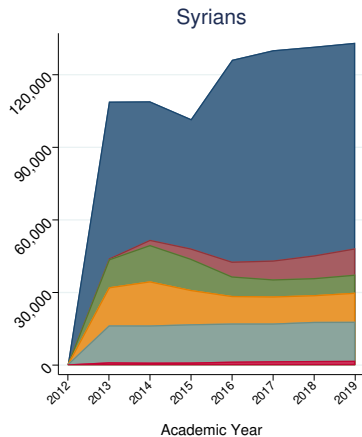
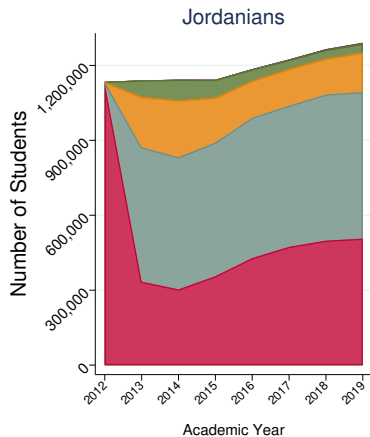


# Few Jordanians in High-Density Schools

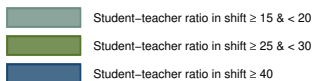
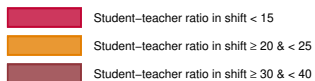
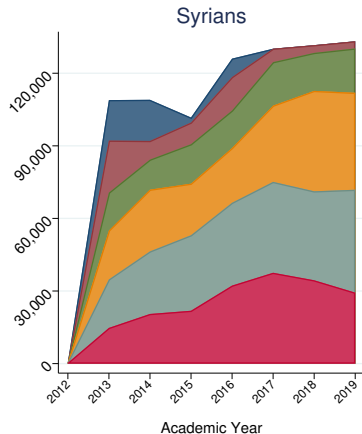
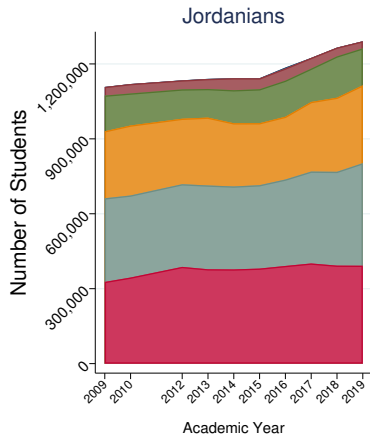


# Fewer Jordanians in High-Density Shifts

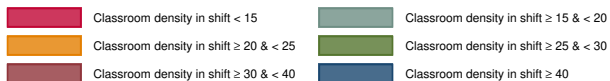
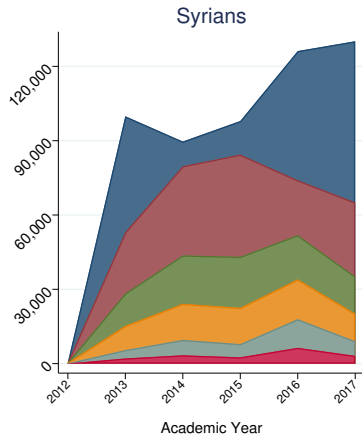
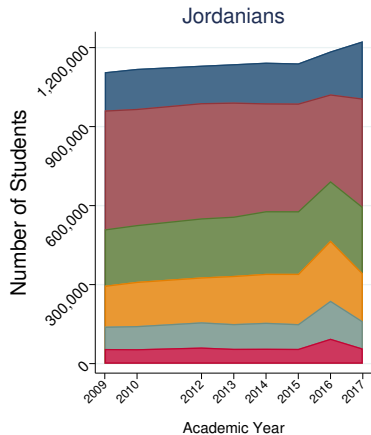
- ▶ High-density areas much more likely to open shifts



# Student-Teacher Ratio for Jordanians Unchanged



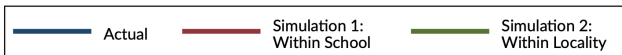
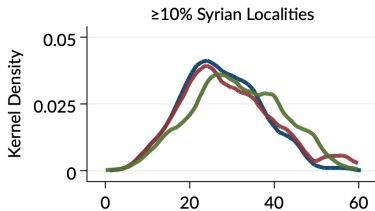
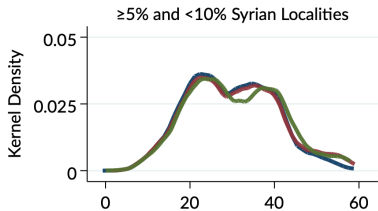
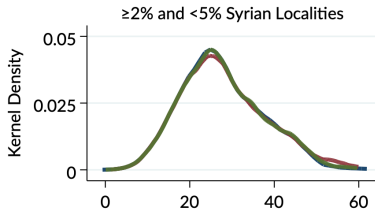
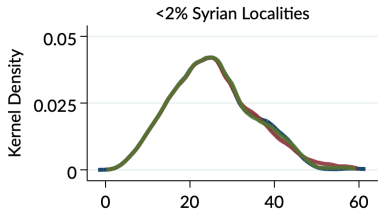
# Classroom Density for Jordanians Unchanged



# Impact of Syrian Students on Jordanian School Supply

	Locality-Level Regressions (1)–(4)				School-Level Regressions (5)–(7)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	No. Schools	No. Double-Shift Schools	Prop. Jordanian Students in Shifts $\geq 30$ Students per Classroom	Prop. Jordanian Students in Shifts $\geq 30$ Students per Teacher	=1 if Double-Shift	Prop. Jordanian Students in Shifts $\geq 30$ Students per Classroom	Prop. Jordanian Students in Shifts $\geq 30$ Students per Teacher
Prop. Syrians $\in [0.02, 0.05] \times$ Post-2012	0.064 (0.349)	0.421 (0.378)	-0.025 (0.021)	-0.002 (0.016)	0.000 (0.013)	-0.025* (0.014)	-0.004 (0.010)
Prop. Syrians $\in [0.05, 0.1] \times$ Post-2012	1.408*** (0.509)	3.315** (1.369)	-0.023 (0.022)	-0.007 (0.009)	0.047*** (0.017)	-0.014 (0.018)	-0.003 (0.014)
Prop. Syrians $\geq 0.1 \times$ Post-2012	1.711*** (0.534)	9.447*** (2.822)	-0.090*** (0.024)	-0.003 (0.011)	0.574*** (0.027)	-0.035* (0.018)	0.003 (0.011)
Observations	7,024	7,024	7,024	7,024	31,107	31,057	31,057
R-squared	0.999	0.975	0.899	0.730	0.791	0.700	0.494
Year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Locality or School FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Localities or Schools	707	707	707	707	3,111	3,106	3,106
Dep. Var. Mean (2012)	32.10	4.76	0.51	0.03	0.11	0.52	0.03

# What if Shifts in High-Density Areas Had Not Opened?



# What if Shifts in High-Density Areas Had Not Opened?

