

Uprootedness, Human Capital, and Skill Transferability

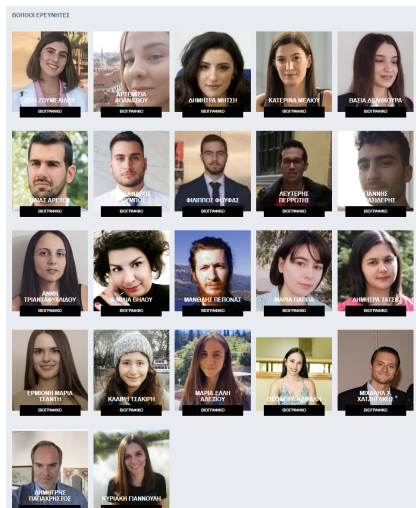
Stelios Michalopoulos¹ Elie Murard²
Elias Papaioannou³ Seyhun Orcan Sakalli⁴

¹Brown University ²University of Trento
³London Business School ⁴King's College London

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Applied Informatics and Economics Lab, UoI

Leader. Athanasios Stavrakoudis with an Amazing Team of Young Scholars



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- **United Nations Archive, Geneva**
- **The Hellenic Agency for Local Development and Local Government**
- **Dozens of Representatives from Associations from Anatolia**

Overview

Paper-Presentation Structure

- 1 Introduction
- 2 Historical Background
- 3 Data and Methodology
- 4 Human Capital. Education Dynamics
- 5 Portable Human Capital
- 6 Further Mechanisms
- 7 Discussion

Uprootedness Hypothesis

Displacement → (Portable) Human Capital

“It was always like that with Jewish families: they believed that **education was an investment for the future, the only thing that no one can [...] take away from your children, even if, God forbid, there’s another war, ... another migration.**” [Amos Oz \(2005\)](#), taken from [Becker et al. \(2020\)](#)

“Our lamented friend Reuben Kessel offered an attractive explanation: since Jews have been persecuted so often and forced to flee to other countries, they **have not invested in immobile land, but in mobile human capital-business skills**, education, etc. that would automatically go with them.” [Stigler and Becker \(1977\)](#)

Forced Displacement → Human Capital

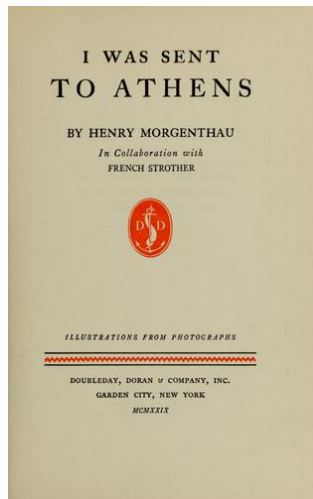
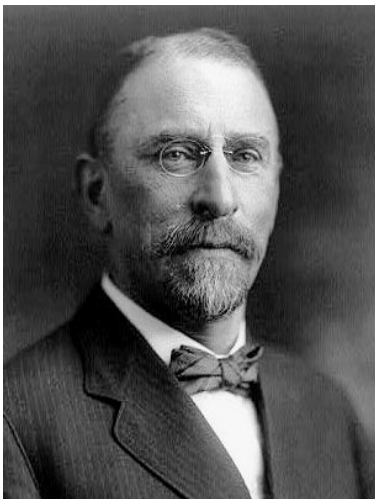
In a Nutshell. Henry Morgenthau (RSC Chair). *I was Sent to Athens*

“They explained that they represented a group of refugees from the Black Sea region of Asia Minor, who had finally been got together again after their dispersion and were now settled in the mountains of western Macedonia. They had an exceedingly hard time getting started in their new surroundings, and at times their sufferings had been severe. They were so poor that they had not been able to build even a church, but for five years had been holding their church services in a barn.

The priest himself then explained what they wanted. It was not relief from taxes, nor an extension of time on their land payments, nor any of the selfish advantages one might have expected; it was not even a church they wanted. Said the priest: **‘We are willing to go on worshiping in a stable until better times come, but we implore you to help us build a school, so that our children shall not grow up in ignorance.’** [Henry S. Morgenthau \(1929\)](#)

Henry Morgenthau, Sr. First RSC Chairman

I Was Sent to Athens



Uprootedness Hypothesis

Displacement → (Portable) Human Capital

“A very marked feature of the life of an agricultural (refugee) village is the intense desire for education. Directly a village is fairly settled, the inhabitants proceed to build a temporary wooden church, which will be replaced when they can afford it by a stone edifice. But even before they are comfortably settled they commence to agitate for a school.... The desire for education among the children is so great as to be incredible, and is most astounding to an English observer.” [Sir John Hope Simpson \(1929\), RSC Vice-Chair](#)

Roadmap

- 1 Introduction
 - Motivation
 - Results Preview
- 2 Historical Background
- 3 Data, Sample, and Approach
- 4 Human Capital
- 5 Portable Human Capital
- 6 Further Mechanisms
- 7 Discussion

Introduction

Section Structure

- 1 Motivation
- 2 Results Preview
- 3 Related Literature

Motivation (1): Forced Displacement Today

UNCHR Report mid 2024 (end of 2023)

Refugee (UN definition): “A refugee is someone who has been forced to flee his or her country because of persecution, war, or violence. A refugee has a well-founded fear of persecution for reasons of race, religion, nationality, political opinion, or membership in a particular social group.”

- **More than 122.6 million forcibly displaced:**
 - Forcibly displaced more than doubled in the last decade.
 - 43% Externally Displaced (Refugees); 57% Internally Displaced (IDPs); 72.1 million.
- **Worsening Trend:** UNCHR lists 16 Emergencies.
 - Africa: Sahel, Ethiopia, North Mozambique.
 - Asia: Myanmar, Afghanistan, Syria, Gaza, Lebanon.
 - Latin America: Venezuela, Central America.
 - Europe. Ukraine. 6.5 million refugees, 3.5 million IDPs.

Forced Displacement, Refugees in the Mediterranean

Contemporary

Refugees of the Mediterranean

- 131,582 arrivals just in 2022; more than half in Italy [UNCHR 6-11-2022]
- About 2 – 2.5 million since 2014
- 78,000 arrivals in 2024 in Italy, Greece, Cyprus, and Spain
- Main hosts: Greece, Italy, Spain, Cyprus, and Malta,
 - 165,000 refugees in Italy by the end of 2021 (UNCHR).
 - 185,000 refugees and asylum seekers in Greece (end 2019)

Motivation (2). Greek History and Identity

Bring Data and Empirical Evidence in a Deeply Emotional Issue: Lost Motherlands

- Today, one out of three Greeks with a refugee background; one out of six traces to refugees from both sides of the family tree [Own survey with *Metron Analysis*]
- In the mid-1920s, about 1/5 of the Greek population were refugees
- Greek Identity; more than half of Greek people argue that the National Catastrophe is the most important event of the modern Greek state [Own survey with *Metron Analysis*]
- Songs of Refugees [Logothetis et al. (2025)]

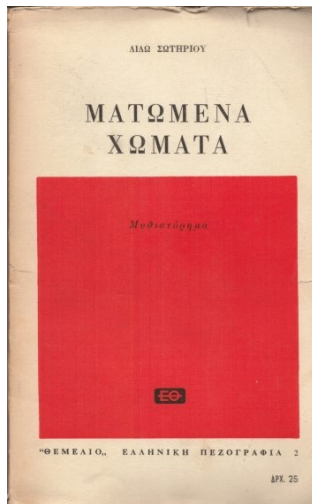
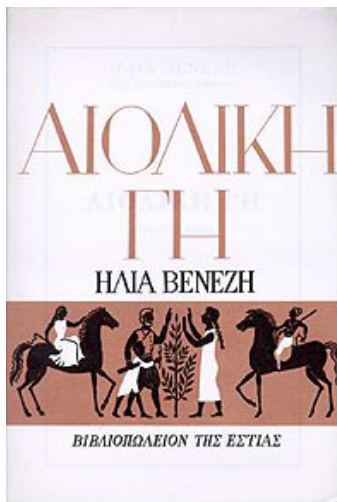
Motivation (2). Greek History, Lost Motherlands

Identity and Cultural Impact

- **Literature & Poetry.** Generation of 1930s. e.g., George Theotokas, George Seferis, Dido Sotiriou, Ilias Venezis
- **Art, Music, Theater.** e.g., Nelly (Elli Sougioultzoglou-Seraidari); Rebetiko (also in the United States); Popular (“Laiko”): Stelios Kazantzidis, Domna Samiou; Cinema: Elias Kazan(tzoglou); Dimitris Psathas; Painting: Fotis Kontoglou
- **Sports.** Major clubs [AEK, PAOK, Panionios, Near East]
- **Civic Organizations.** Thousands across the country

Motivation (2). Greek History

Greek Identity. Aeolian Land; Blood-Stained Lands (Farewell Anatolia)



This Paper

① Dataset of all refugee and native settlements

- Digitize and geocode the 1928 population census,
- Digitize and geocode rural refugee (with land grants) catalog (origin-destination structure),
- Population censuses micro-samples for 1971–2011.

② Compare educational outcomes in nearby rural refugee and native settlements dynamically over a century.

- a Significant impact on human capital: *Uprootedness*
- b Human Capital Portability
- c Additional Mechanisms. Heterogeneity:
 - Language, Background, Diversity, Agricultural Productivity, New-Old Settlements, Destination Features

Findings: “The gift of losing”

Results Synopsis. Uprootedness hypothesis

① Human Capital (Schooling)

- Refugees and their offspring invest more in (their children’s) education
 - Initially primary; then junior high; then high school and then tertiary
 - Uniform effect, boys and girls (other cuts); robust

② Portable Human Capital [no prior evidence]

- ... education degrees and skills that are easier to transfer
- ... engineering and medical professions rather than law.

③ Additional Mechanisms Heterogeneity:

- ... role of linguistic barriers to integration.
- ... role of origin (not much)
- ... role of destination (province population density, manufacturing, professions)

Forced Displacement & Human Capital Investments

Recent (Historical) Empirical Works. Reviews: Becker (2022) and Becker et al. (2020)

- **Jewish History.** *Unclear.* Botticini and Eckstein (2012)
- **Poland, after WWII.** *Positive, survey-based* Becker et al. (2020)
- **West Germany, after WWII.** *No, despite income and agglomeration* Bauer et al. (2013); Bauer and Kvasnicka (2014); Peters (2022); Ciccone and Nimczik (2023)
- **Finland after WWII.** *Some, heterogeneous, despite income gains.* Sarvimäki et al. (2022)
- **Mozambican Civil War.** *Yes, short-term* Chiovelli et al. (2023)
- **Icelandic volcano outbreak in 1973.** *Some alongside strong income effects* Nakamura et al. (2022)

Other Related Studies

Literature

Uprootedness Hypothesis: Stigler and Becker (1977), Kessel (1958), Becker et al. (2020), Ayal and Chiswick (1983), Brenner and Kiefer (1981)

- Human capital facilitates integration in new setting (country); discrimination, repression
- Transferability of skills helps in case of subsequent forced relocation or voluntary (internal or external) migration

Economic Effects of Migration: Card (2001), Sequeira et al. (2020), Dustmann et al. (2017), Abramitzky and Boustan (2017), among many others

- Educational investments of (forced) migrants
- No major educational spillovers in the countryside

Uprootedness Hypothesis, cont.

Old Conjecture

“(…) since Jews have been persecuted so often and forced to flee to other countries, they have not invested in immobile land, but in mobile human capital-business skills, education, etc. that would automatically go with them.” Stigler and Becker (1977)

“Of course, one can think of portable physical assets (e.g., diamonds) and can think of vintages of human capital, particularly helpful if the individual/family moves (e.g., medicine or trading skills versus law).”
Ayal and Chiswick (1983)

Hard to detect in Jewish history. “The argument [that persecuted minorities prefer to invest in human rather than physical capital] is problematic when one considers the salient facts of Jewish history, however, as the transition from farming to urban skilled occupations occurred in eighth- and ninth- century Mesopotamia and Persia, where the Jewish minority enjoyed significant security of life.” Botticini and Eckstein (2012)

Historical Research

Greek and International

- **General Treatise.** Mazower (2009), Mazower (1991); Mavrogordatos (2015); Mavrogordatos (1983)
- **Population Exchange.** Pentzopoulos (1962), Kitromilidis (2008)
- **Refugee Agrarian Settlements.** Kritikos (2005), Kontogiorgi (2006)
- **Refugee Settlement Committee.** Morgenthau (1929), Simpson (1929), Ladas (1932)

Contribution, Besides Big Data

Approach and Results

① Education

- Short, medium, and long-run effects; trace evolution over a century [primary, then secondary and tertiary]
- Women and men
- Stayers (in the countryside) and internal migrants (in cities)

② Human Capital Type

- Investments in **portable** human capital; core intuition uprootedness conjecture

③ Additional Channels

- **Heterogeneity** important role of linguistic barriers and destination's economic development

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Historical Background

Section Structure

- ① **Repression, Warfare, and Displacement.** Violence against ethnic minorities, The Great War, the Greco-Turkish War, and the National Catastrophe
- ② **Population Exchange.**
- ③ **The Refugees in Greece. Settlement (RSC)**
 - **Urban Refugees Settlements.**
 - **Rural Refugees and Settlements. Land allocation**

Historical Context

Greek Ottoman/Turkish Wars

- **Balkan Wars.** Significant territorial expansion for Greece in Macedonia and Epirus.
- **Repression and Violence.** Against Greek-Orthodox and other minorities, post 1908, and again post 1913.
- **The Great War and the Treaty of Sevres.** Further expansion. Western and East Thrace; Greek administration in Smyrna/Ionia [a referendum to be held]
 - National Schism (1915). Liberals (Venizelist) - Royalists (Popular/Conservatives)
 - With the assistance of *Entente*, Liberals consolidate power
 - People's Party takes power in 1920.
- **1919–1922 Greco-Turkish War.**
 - Opposition by the neo-Turks and Kemal Ataturk
 - Turkish forces defeat Greek troops (Aug./Sept 2022)

The National Catastrophe

The Burning of Smyrna



The Burning of Smyrna

On the Quai at Smyrna. Ernest Hemingway



“The worst, he said, were the women with dead babies. You couldn’t get the women to give up their dead babies. They’d have babies dead for six days... Then there was an old lady... We were clearing them off the pier, had to clear off the dead ones, and this old woman was lying on a sort of litter. They said, ‘Will you look at her, sir?’ So I had a look at her and just then she died and went absolutely stiff. Her legs drew up and she drew up from the waist and went quite rigid... You didn’t mind the women who were having babies as you did those with the dead ones. They had them all right. Surprising how few of them died. You just covered them over with something and let them go to it. They’d always pick out the darkest place in the hold to have them.”

The Exodus. 1922–23

Refugees from Anatolia

- 1 Coastal Asia Minor
- 2 Interior Asia Minor. Cappadocia-Cilicia
- 3 Eastern Thrace
- 4 Pontus (& Caucasus). South-East Black Sea
- 5 Constantinople
- 6 Bulgaria
- 7 Other. Romania, Albania, Ukraine

The Exodus. 1922–23

Refugees



The Exodus. East Thrace. 1922–23

Narratives. Ernest Hemingway. Toronto Star

“In a never ending, staggering march, the Christian population of Eastern Thrace is jamming the roads towards Macedonia. The main column crossing the Maritza River at Adrianople is twenty miles long. Twenty miles of carts drawn by cows, bullocks and muddy-flanked water buffalo, with exhausted, staggering men, women, and children, blankets over their heads, walking blindly along in the rain beside their worldly goods...

It is a silent procession. Nobody even grunts. It is all they can do to keep moving. Their brilliant peasant costumes are soaked and draggled. Chickens dangle by their feet from the carts. Calves nuzzle at the draught cattle wherever a jam halts the stream. An old man marches under a young pig, a scythe and a gun, with a chicken tied to his scythe. A husband spreads a blanket over a woman in labor in one of the carts to keep off the driving rain. She is the only person making a sound. Her little daughter looks at her in horror and begins to cry. And the procession keeps moving forward....

Outside it was drizzling. At the end of the muddy side street we were on I could see the eternal procession of humanity moving slowly along the great stone road that runs from Adrianople across the Maritza valley to Karagatch and then divides into other roads that cross the rolling country into Western Thrace and Macedonia.”

The Exodus. Constantinople. 1922–23

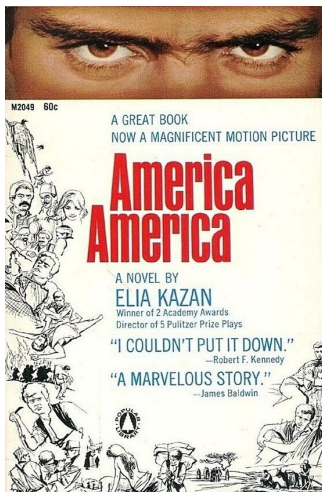
Narratives. Ernest Hemingway. Toronto Star

“(...) leaving their homes and businesses, all their associations and their livelihoods, because they were afraid to wait and see what would happen when the brown-faced men in fezzes, their carbines strapped on their backs, riding their shaggy, short, mountain horses should come ashore from the ferry from Scutari just across the narrow harbor....

The Armenians, Jews and, Rumanians are clearing out of Constantinople. They are selling their property at any sacrifice and getting out. The government issues statements urging them not to be foolish, assuring them that all measures of protection for the inhabitants will be taken, that patrols are being reinforced, that there is no danger. But the Armenians, Jews and Jewish Rumanians have heard all that before. It is probably all true, they reason, but we aren't going to take chances... So they go. With a history of a thousand years of massacre behind them. It is hard for the racial fear to be quieted, no matter who makes them promises.”

The Exodus. Interior Asia Minor 1922–23

Narratives and Film. Elia Kazan



**ELIA KAZAN'S
"AMERICA
AMERICA"
is the "best
American film
of the year!"**



AMERICA, AMERICA... screen play and directed by ELIA KAZAN. Story by JACQUES CAHANE, with FRANK BRILL. Adapted from the novel. Screenplay by Gregory Peck, Leo Anthony, Nathan Lubkin, John Warner, Jerome Frank, Paul Mann, Louis Mann. Robert Rossford and Katherine Siskind. Music by Max Steiner. ©1951 MCA INC. ALL RIGHTS RESERVED. (MCA) INC. REG. U.S. PAT. & TM. OFF. Produced by WARNER BROS.

Forced Population Exchange Convention of 1923

January 30, 1923; ratification by the Treaty of Lausanne (October 1923)

- Article 1. *“compulsory exchange of Turkish nationals of the Greek Orthodox religion established in Turkish territory, and of Greek nationals of the Moslem religion established in Greek territory.”*
- Article 2. Exemptions for the Greek inhabitants of Constantinople and the Muslims of West Thrace.
- Article 3. *“emigrant applied to all persons who have been obliged to emigrate since 18th October 1912”*
- Article 7. *“will acquire the nationality of the country of their destination, upon their arrival”*

League of Nations. Fridtjof Nansen

First High Commissioner for Refugees



1923 Forced Population Exchange

League of Nations, Turkey and Greece. Lausanne Peace Treaty

- 1 The Greek-Orthodox communities in Turkey were forced to resettle in Greece. about 1.5 million
 - Cappadocia, Pontus, Eastern Thrace, Ionia (Smyrna)
 - Population movements from 1915 (small scale, incl. subsequent migration)
 - Arrivals of Greek-Orthodox communities also from Bulgaria, Romania, Ukraine, and the Caucasus
- 2 Muslim population of Greece (mainly Macedonia) were forced to resettle in Turkey. About 400,000.

Refugees in Greece. The First Months

1.2–1.5 million Refugees

- Greece was a poor agrarian country with limited state capacity.
- The League of Nations intervened to provide immediate relief and establish refugees in productive agricultural work
- Refugees were granted **citizenship upon arrival**.
- Refugees had the same religion as (most) Greek natives.
- Refugees spoke the same language as Greek natives but with different idioms (not the ones from Cappadocia).
- Huge support from charitable organizations (mainly American). [Near East Relief Fund, the Save the Children Fund, the American Women's Hospitals, the All-British Appeal, and American Red Cross]

Philanthropic Aid

Near East Relief Fund (chartered by US Congress)



LEST THEY
PERISH

CAMPAIGN for \$3,000,000

AMERICAN COMMITTEE
FOR RELIEF IN THE NEAR EAST

ARMENIA - GREECE - SYRIA - PERSIA

ONE MADISON AVE., NEW YORK. CLEVELAND H. DODGE, TREASURER



WHERE
THE
VICTIMS
ARE

Number of Square Miles - 10,395,881
Non-Moslems (Christians chiefly) living in these countries in 1914 - 8,105,000
Died of Massacre and Starvation - 1,000,000

SAVE THE SURVIVORS -
3,950,000
STARVING PEOPLE

AMERICAN COMMITTEE
FOR RELIEF IN THE NEAR EAST
1 MADISON AVE., NEW YORK CITY
CLEVELAND H. DODGE, TREASURER

CAMPAIGN for \$3,000,000

The Refugees' Issue

Settlement and Support

- ① **Urban Refugees.** Types of Housing in Cities
 - Permanent Housing Structures
 - Renting
 - Favelas & other ways of self-housing.
- ② **Rural Refugees.** Land Grants in Villages-Towns
 - Departing Muslims (and other foreigners)
 - Nationalize large properties (enact earlier legislation)
 - Some monasteries' land
 - Drained swamps and lakes

The Refugee Settlement Commission (RSC)

Support Agency. 1923–30

- Due to the limited resources of the Greek State, the League of Nations formed the Refugee Settlement Commission (RSC) in 1923.
 - Fall 1922 and early 1923, huge support from the United States Red Cross and other agencies
- The RSC had full authority over the allocation of funds.
- RSC focused on agricultural refugees. [90% – 10% fund allocation]
- RSC Members: Henry Morgenthau Sr., RSC's first Chairman (former US Ambassador in Constantinople); other distinguished individuals: S. Delta, P. Argyropoulos, C. Howland, C. P. Eddy, Sir John Campbell, Sir John Hope Simpson, A-A Palis, T. Eustathopoulos, A. Lambros

Refugee Settlement Commission

Henry Morgentau Sr. (RSC Chairman), Eleftherios Venizelos (Prime Minister), and Apostolos Doxiadis (Minister of Refugees, Social Welfare, and Public Health)



Rural Refugees Settlement Policy

Rural Refugees (in Greece)

RSC distributed 850,000 hectares of land to refugees; About 3.5 hectares per family similar to the typical native small farmer at the time:

- Redistribution of the large estates left behind by departing Muslims (“tsifliks”) into smallholding.
- Expansion of the cultivable area through drainage works.
- Land reform

As a result, hundreds of refugee settlements: (30% new, 70% from exchanged Turks).

- The goal was to unite members of the same place to recreate the sense of community.
- Approx. 220,000 refugee families were given land grants.

RSC (and State) Work in the Countryside

Rural (Agricultural) Refugees (besides housing and land)

- 1 **Technical Support.** Cereals (wheat, corn, maize) and tobacco
- 2 **Animals.** 150,000 (RSC) plus 135,000 (state) small and big animals
- 3 **Inputs/Machinery.** Plows, tools, machinery, seeds
- 4 **Investments**
 - Drainage of swamps and lakes, wells, and small irrigation; some public works (small roads, clearing trails).
 - No responsibility for schools, clinics, hospitals, and transportation.

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Data, Sample, and Approach

Section Structure

- ① **Data**
- ② **Samples**
- ③ **Design - Identification**
 - Correlates of Refugee Presence; Balancedness

Main Data

Censuses and Catalogs

① 1928 Census

- Refugees and natives by gender across about 11,000 communities [settlements, villages, towns, cities]
- Rough origin across provinces (*eparchies*)
- Link settlements over 100 years [hundreds of administrative changes; mergers, splits, new settlements]

② General Population Censuses.

- Early. 1907, 1913, 1920
- After. 1941, 1951, 1961
- Micro-samples. 1971 (10%), 1981 (10%), 1991 (25%), 2001 (25%), and 2011 (25%).

Main Data

Censuses and Catalogs, cont.

③ Rural Refugee Catalog [full]

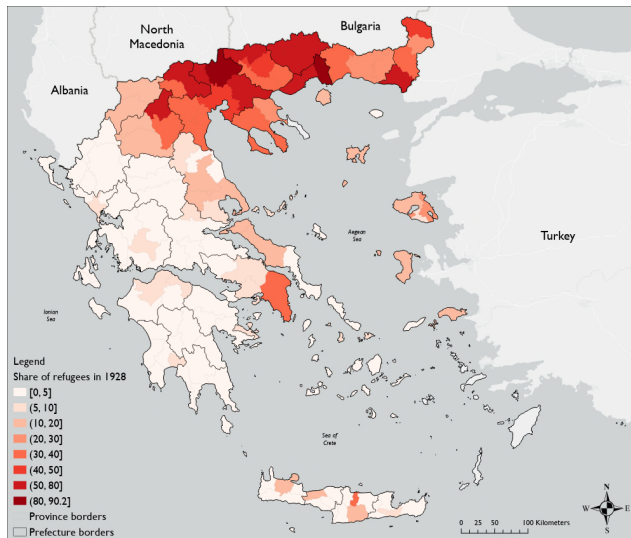
- 249,127 family names [household head]; after cleaning 211,056 ~1,424 settlements with land grants
- origin and settlement, where the family received the grant

④ Urban Refugee Catalog [about half]

- 413,614 family names [household head]
- origin but no exact settlement

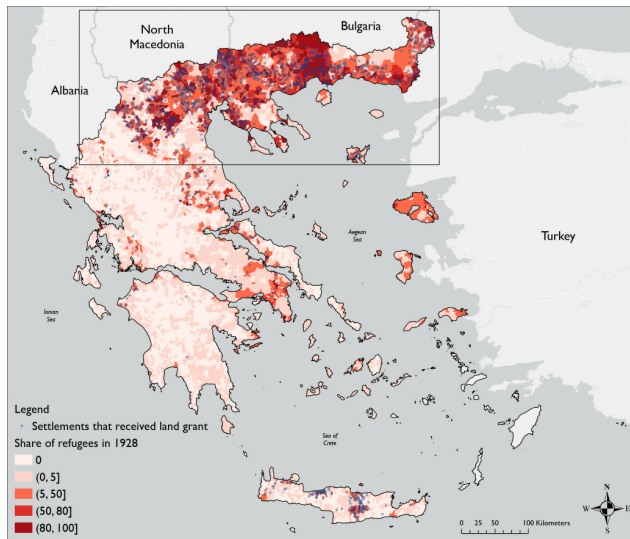
Greece in 1928

Refugee Population Share (1928 Census) across Provinces (*eparcheies*)



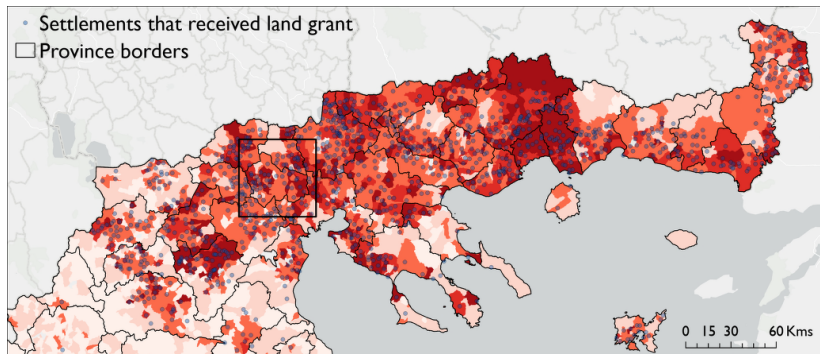
Greece in 1928, cont.

Refugee Population Share (1928 Census) across Settlements



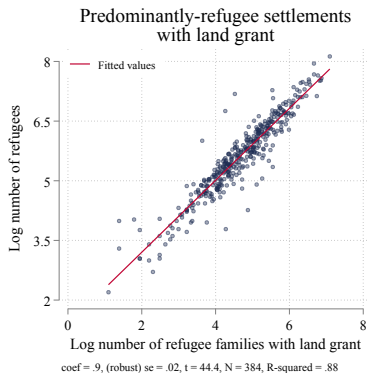
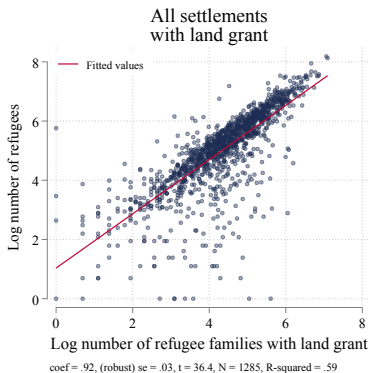
Macedonia and Western Thrace in 1928

Distribution of Refugees (1928 Census) across Settlements



Refugee Shares (Census 1928) and Land Grants (RSC)

Validation. Elasticity.



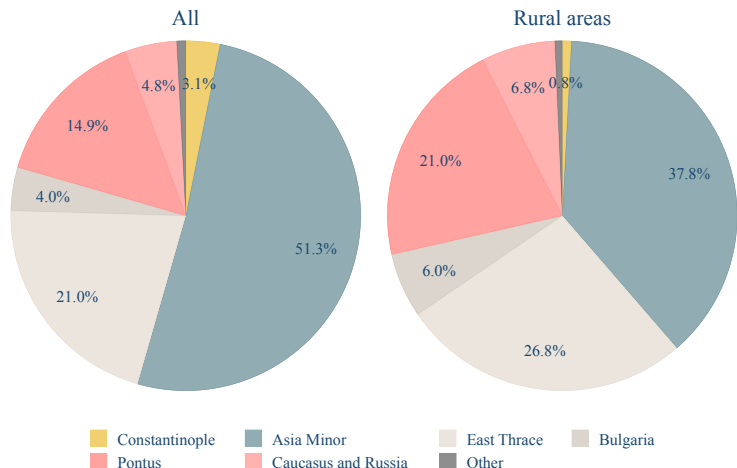
Greece in 1928

Population Shares

- **1,221,849 refugees** out of a total of 6,204,684 (19.6%)
 - 50.2% urban (mainly 3 big cities); 49.8% rural
- **Origin (broad)**
 - Asia Minor: 626,954
 - East Thrace: 256,635
 - Pontus: 182,169
 - Caucasus: 47,091
 - Russia: 11,435
 - Bulgaria: 49,027
 - Constantinople: 38,458
 - Other (Serbia, Albania, Romania, Cyprus, Egypt, and the Dodecanese): about 11,000

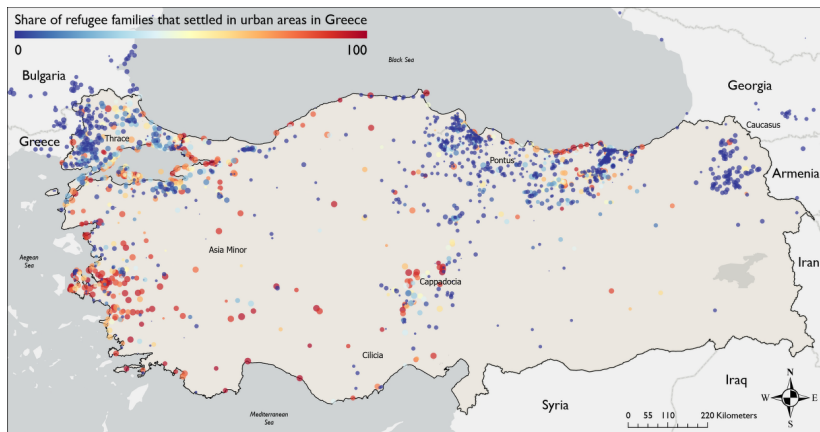
Refugees' Background in 1928

Origin Broad Categories. General Population Census



Origin of Refugees. RSC Rural and Urban Catalogs

www.Anatolia-Imprints.gr



Origin of Rural Refugees (Entire Catalog)

www.Anatolia-Imprints.gr



Origin of Urban Refugees (about 50% Catalog)

www.Anatolia-Imprints.gr



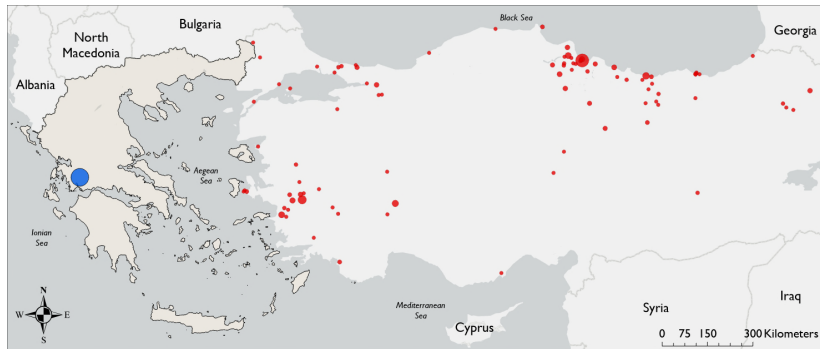
Origin in Anatolia and Destination. RSC Rural Catalog

Example. Panormos (Kiziki)



Origin in Anatolia and Destination. RSC Rural Catalog

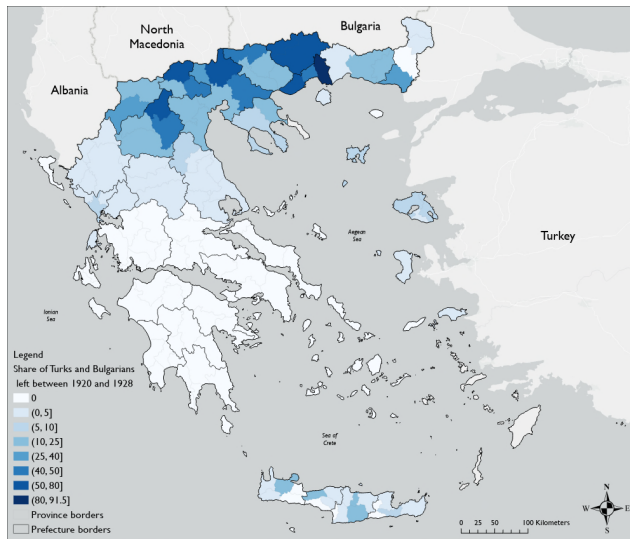
Example. Agios Konstantionos



Other Data

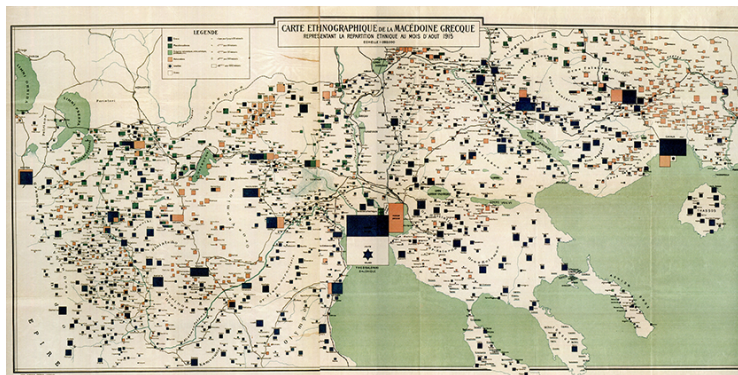
- **Rail Network** mid-1920s
- **Swamps, Malaria** mid-1920s
- **Location, Geography, Ecology.** Distance to the coast, province capitals, border, soil suitability for agriculture, elevation, etc.
- **Religious Mapping Northern Greece in 1915 - Muslim Share in 1920 Census across Provinces**

Muslim Share across Provinces in 1920

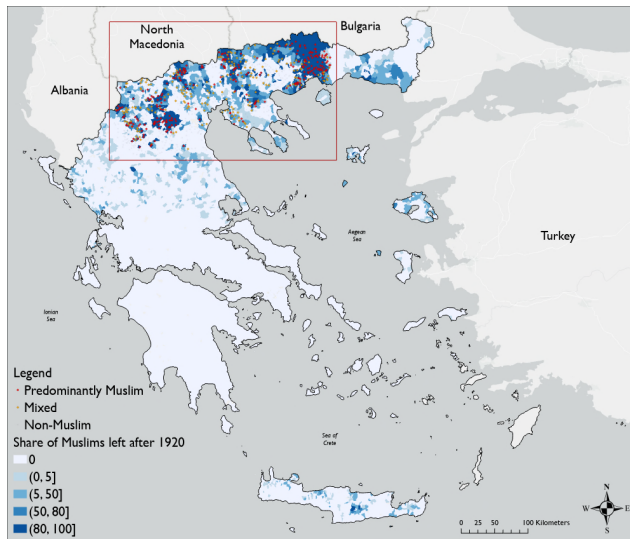


Ethnographic Map of Macedonia

Muslims, Jews, and Other Ethnic Groups

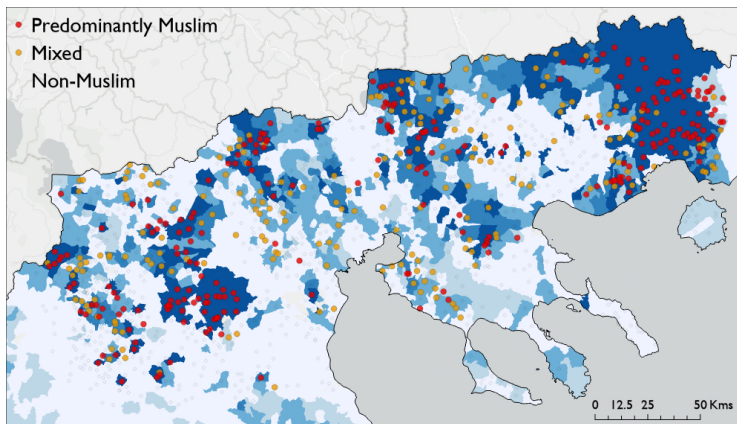


Muslim Share in 1920. Census and Ethnographic Map



Muslim Share in Macedonia in 1920

Census and Ethnographic Map



Empirical Approach. Rural Refugees

Identification

- Greek state never asked again about refugee background
→ **comparisons between predominantly refugee settlements and (nearby) predominantly native (non-refugee) settlements**
 - Focus on the Greek countryside (no exact location in the urban catalog to look at cities across neighborhoods)
 - Population share cutoffs in 1928, to identify predominantly refugee and non-refugee settlements
 - trace settlements over time [stable geographic units; Greece over a century]
- **Treatment-Control**; cond. on observables and “fixed-effects”; prefecture (admin-2), province (admin-3), sub-province (Voronoi polygons, within 25 km)

Sample Construction

All Rural Settlements; Baseline Sample; Local Sample

Starting Sample

- Drop urban settlements (<10k inhabitants in 1920),
- Exclude prefecture and province capitals (mixing),
- Exclude settlements within 25 km of Athens, Piraeus, and Thessaloniki.
- **7,769 Settlements**

Sample Construction, cont.

All Rural Settlements; Baseline Sample; Local Sample, cont.

Baseline Sample

- Rural predominantly refugee settlements (share of refugees in 1928 exceeds 80%); 682 majority refugee settlements with a land grant.
- Rural predominantly native (no-refugee) settlements (share of refugees in 1928 below 5%) with no land grant; 4,290 no refugee and in 1,801, refugee share less than 5%
- **405 predominantly refugee and 6,091 native settlements**

Local Sample

- For each refugee settlement, we keep and compare to native settlements within a 25 km (20, 15, 10 km) radius in the same province. Voronoi Polygons
- Exclude refugee settlements with no proximate native ones.
- **1,042 native and 262 refugee settlements**

Sample Construction, cont. Sensitivity

All Rural Settlements; Baseline Sample; Local Sample, cont.

Sensitivity

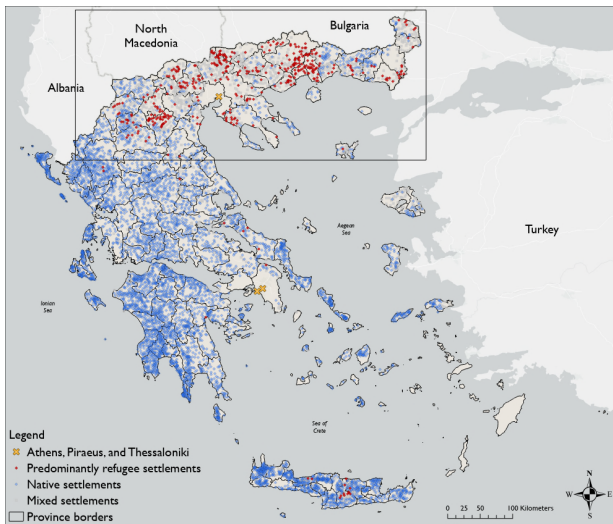
- Predominately Refugee Settlements; 50%, 60%, 70%, 80% (baseline), and 90%.
- Native (Non-Refugee) Settlements; 10%, 5% (baseline), and 1%.

Entire Sample of All Rural Settlements

- 7,769 settlements; using the share of refugees in 1928
- Refugee settlements, native settlements, and mixed ones (higher population)

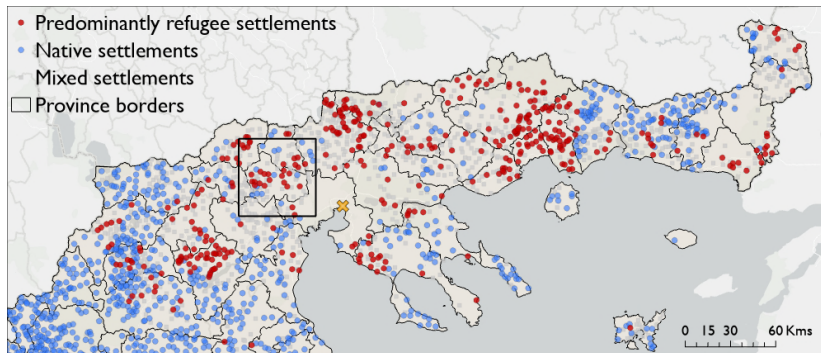
Baseline Sample

Predominately Refugee and Native Settlements



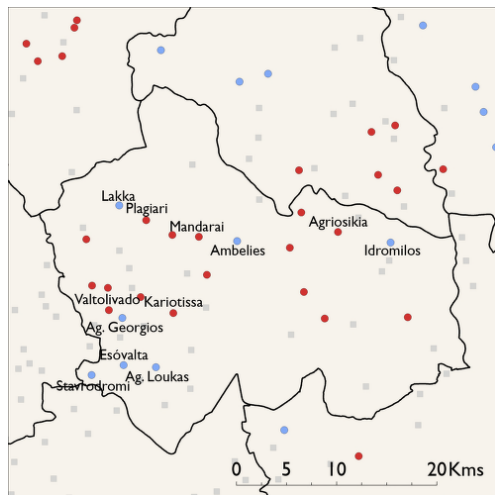
Baseline Sample – Macedonia and West Thrace

Predominantly Refugee and Native Settlements in Macedonia and West Thrace



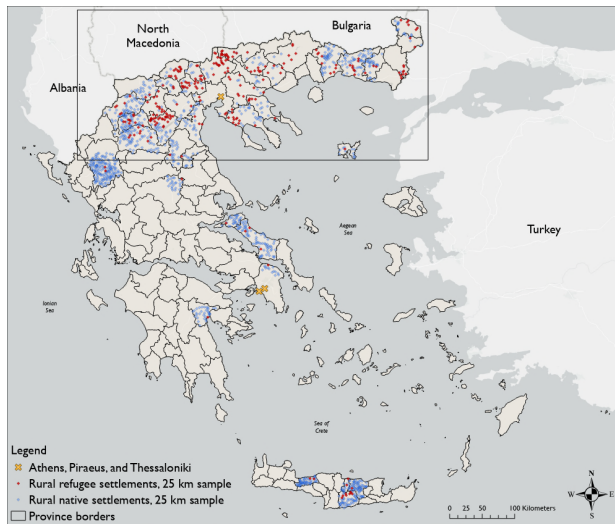
Baseline Sample – Giannitsa province

Predominantly Refugee and Native Settlements in Giannitsa, Pella, Macedonia



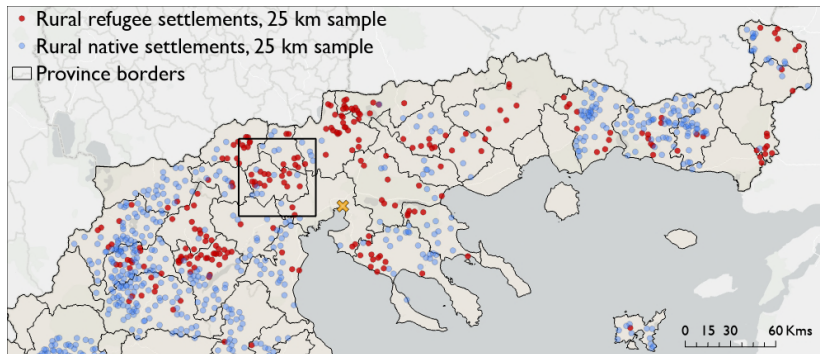
Local Analysis Sample

Nearby Native and Refugee Villages



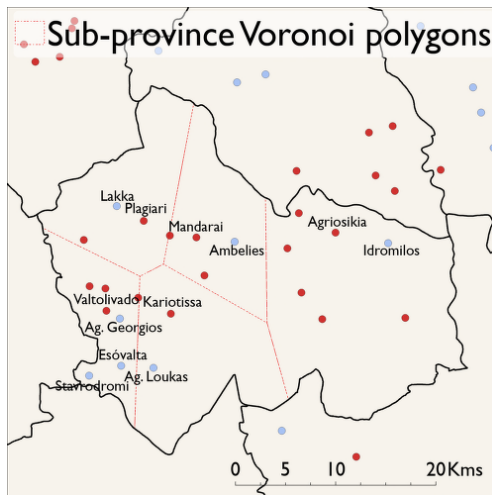
Local Analysis Example – Macedonia and West Thrace

Nearby Native and Refugee Villages in Macedonia and West Thrace



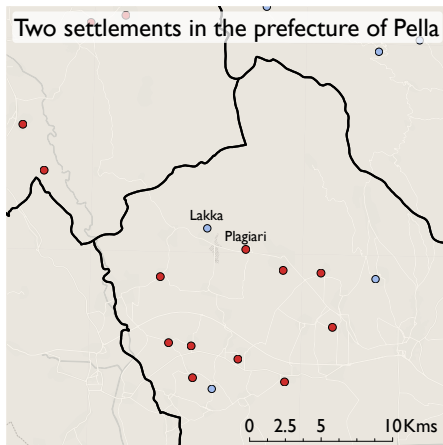
Local Analysis Example – Giannitsa province

Giannitsa with sub-eparchia polygons



Local Analysis. Example from Macedonia

Plagiari (99% refugee), Lakka (0% refugee)



Plagiari:

- 327 persons in 1928;
- 349 persons in 2011;
- Primary education of those born before 1915: 6%, after 1915: 69%;
- Employment in manufacturing (1971-2001): 8%;
- Emigration to Germany: 10%.

Lakka:

- 278 persons in 1928;
- 372 persons in 2011;
- Primary education of those born before 1915: 15%, after 1915: 64%;
- Employment in manufacturing (1971-2001): 6%;
- Emigration to Germany: 3%.

Where did Rural Refugees Settle? Correlates Presence

Dual Objective

- 1 **Quantitative (correlational) exploration of historical research**
 - Across Greece
 - Local approach [within nomos and within eparcheia]
- 2 **Identification. Balancedness**
 - Omitted variables
 - Local control-treatment design

Correlates. Refugee Presence

Historical Research. Rural Settlement Process

- **Presence of Muslims [Turks and Bulgarians].** land availability; local infrastructure
- **Ecology-Geography.** Malaria, swamps [drainage works]
- **Other.** Proximity to coast, rail, district capitals, monasteries

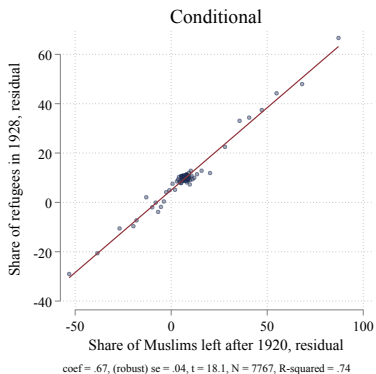
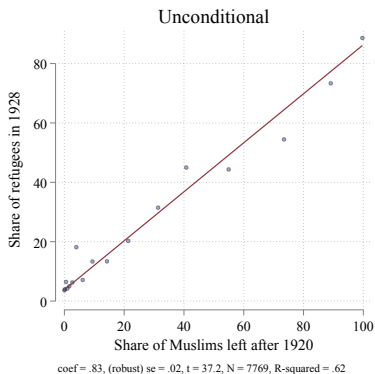
Correlates. Share of Rural Refugees

Cross-Sectional OLS Estimates

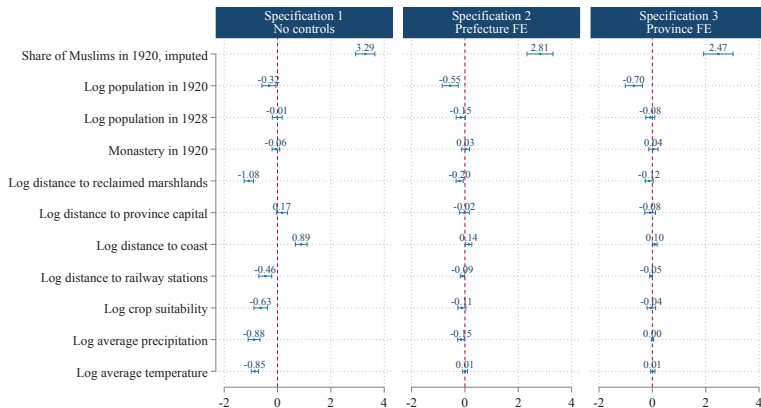
Dependent Variable:	Refugee share in 1928					
	(1)	(2)	(3)	(4)	(5)	(6)
Share of Muslims in 1920, imputed	0.825*** (0.022)	0.738*** (0.026)	0.682*** (0.033)	0.668*** (0.037)		
Log population in 1920		-2.317*** (0.341)	-2.271*** (0.342)	-2.290*** (0.356)	-1.776*** (0.393)	-1.862*** (0.361)
Monastery in 1920		0.152 (1.390)	0.083 (0.880)	0.030 (0.851)	0.037 (0.952)	0.219 (0.892)
Log distance to reclaimed marshlands		-2.675*** (0.341)	-1.058*** (0.398)	-1.001** (0.406)	-1.099 (0.677)	-0.573 (0.685)
Log distance to province capital		-0.294 (0.538)	-0.434 (0.444)	-0.318 (0.517)	0.358 (0.800)	0.135 (0.841)
Log distance to coast		0.761 (0.466)	0.417 (0.384)	0.673 (0.520)	0.872 (0.741)	0.534 (0.853)
Log distance to railway stations		-1.009*** (0.282)	-1.122*** (0.342)	-0.951* (0.506)	-0.974* (0.546)	-0.919 (0.591)
Log crop suitability		-1.594** (0.666)	-1.194* (0.643)	-1.824** (0.737)	-0.130 (1.326)	0.172 (1.607)
Log altitude		-4.327*** (0.683)	-2.657*** (0.656)	-3.061*** (0.902)	-0.729 (1.056)	-1.776 (1.167)
Log average precipitation		-12.087*** (1.874)	-1.927 (2.997)	-0.214 (4.257)	-18.187** (8.199)	-4.843 (5.115)
Log average temperature		-18.978*** (6.116)	-0.597 (4.662)	3.990 (5.314)	0.604 (7.930)	3.571 (9.297)
R-squared	0.620	0.710	0.738	0.750	0.482	0.544
Observations	7,769	7,767	7,767	7,767	7,767	7,767
Average outcome	10.0	10.0	10.0	10.0	10.0	10.0
Prefecture FE			✓		✓	
Province FE				✓		✓

Muslim Share and Refugee Share

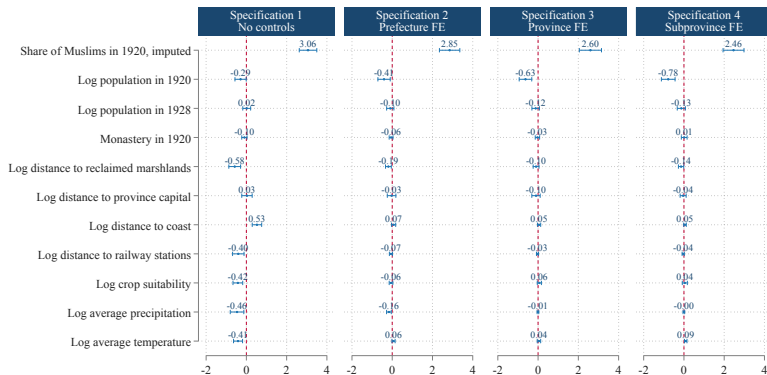
Unconditional and Conditional Association



Balancedness, cont. Binary (80%; less than 5%)

Refugee-Native Settlements. Baseline Sample, conditional on elevation

Balancedness. Binary (80%; less than 5%)

Refugee-Native Settlements. Local Sample, conditional on elevation

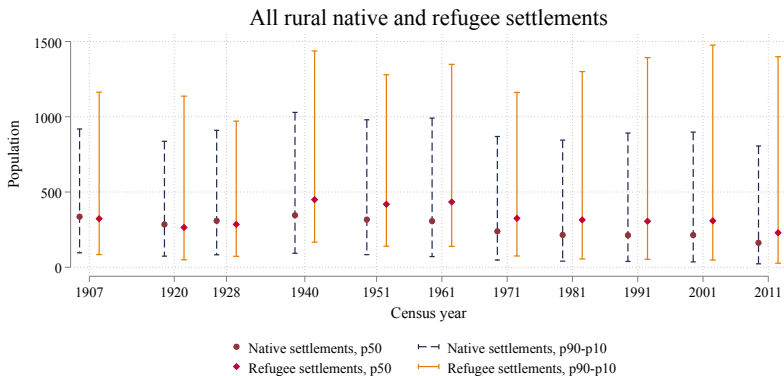
Correlates Refugee Presence. Summary

OLS. Summary

- **Presence of Muslims [Turks and Bulgarians]**
 - Significant, across the country, and prefectures
 - Correlation retains significance within provinces
- **Ecology-Geography.** Malaria, swamps
 - Significant role of altitude, even within admin3 units
 - Other features' role diminishes within prefectures (*nomoi*) and provinces (*eparchies*)
- **Other.** Proximity to coast, rail, capitals, monasteries
 - Significant across the country, but balanced within prefectures and provinces
- Tiny differences (statistically indistinguishable from zero) in the local sample (25km in the same *province*)

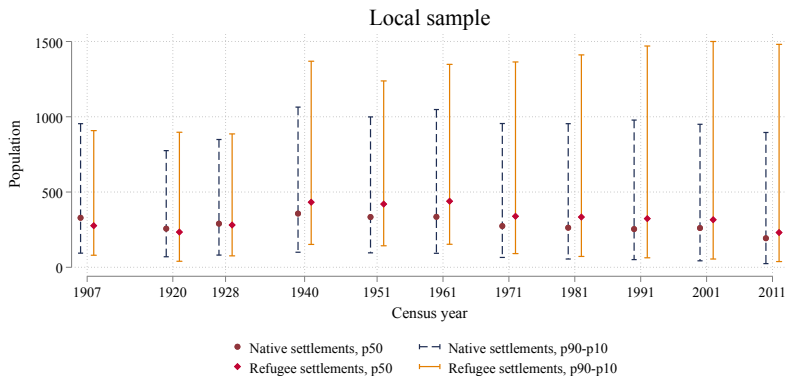
Settlements Population over Time. Baseline Analysis Sample

Native and Refugee Villages and Towns



Settlements Population over Time. Local Analysis Sample

Native and Refugee Villages and Towns



Empirical Approach

Econometric Design

- **Difference-in-Differences (DiD) design**, examining variation in educational outcomes:
 - Local comparison between refugee and native settlements in the same *province* and also within 25km
 - Across 10-year birth cohorts (born between 1887 and 1986)
 - Pure control, the cohorts too old to be affected by the 1922 displacement.
- Compare proximate rural settlements in the same province (local labor market), conditional on settlement characteristics, such as:
 - Size of the pre-settlement population, distance to coast, province capital, railway stops, and reclaimed marshlands
 - Geographic characteristics: crop suitability, altitude, precipitation, and temperature.

Empirical Specification 1. Before-After Control-Treat

Difference-in-Difference

$$Y_{icst} = \underbrace{\lambda_{(c)} REF_s^{post}}_{\substack{\text{Uprootedness} \\ \text{Post Displ.}}} + \underbrace{\phi_{(c)} REF_s^{97-18}}_{\substack{\text{Repression} \\ \text{Pre-Displ.}}} + \alpha_s + \beta_{p,c} + \gamma_{t,c} + X'_s \Psi_c + Z'_i \Gamma_c + \epsilon_{icst} \quad (1)$$

- Y_{icst} : education outcomes
- REF_s : the share of refugees in the settlement's population in 1928 or a dummy indicating whether the share of refugees in 1928 $\geq 80\%$
- α_s : settlement-of-residence fixed effects
- $\gamma_{t,c}$: cohort-specific census-year fixed effects
- $\beta_{p,c}$: cohort-specific province-of-residence (sub-province) fixed effects
- X'_i : (cohort-specific) individual characteristics, age and gender
- Z'_s : (cohort-specific) settlement characteristics: share of Muslims in 1920, log population in 1920, log distance to the coast, the provincial capital, railway stops, and reclaimed marshlands; crop suitability, altitude, precipitation, and temperature.

Empirical Specification 2.

Local Comparison across Birth Settlements

Initial Displacement and Human Capital, cont. Selective Spatial Mobility

$$Y_{icsr} = \underbrace{\lambda_{(c)} REF_s}_{\substack{\text{Uprootedness} \\ \text{Post Displacement}}} + \underbrace{\mu_r}_{\text{Residence}} + \beta_{p,c} + X'_{s,c} \Psi_{s,c} + Z'_{i,c} \Gamma_{i,c} + \xi_{icsr} \quad (2)$$

- Y_{icsr} : education outcomes and degree type
- REF_s : Indicator for the share of refugees in 1928 $\geq 80\%$
- $\beta_{p,c}$: cohort-specific province-of-birth fixed effects
- μ_r : municipality-of-residence fixed effects
- X'_i : individual characteristics, age and gender
- Z'_s : birth settlement characteristics: share of Muslims in 1920, log population in 1920, log distance to the coast, the provincial capital, railway stops, and reclaimed marshlands; crop suitability, altitude, precipitation, and temperature.

Outcome Variables and Sources

Human Capital

Education: Schooling years, completed primary, junior-high, secondary, and tertiary education

- Individuals aged between 25 and 84.
- 1971, 1981, 1991, 2001, and 2011 Census

Portable Human Capital

- College degrees mapped into transferable/non-transferable skills.
- 2011 Population Census (25%)

Roadmap

- 1 Introduction
 - Motivation
 - Results Preview
- 2 Historical Background
- 3 Data, Sample, and Approach
- 4 Human Capital**
- 5 Portable Human Capital
- 6 Further Mechanisms
- 7 Discussion

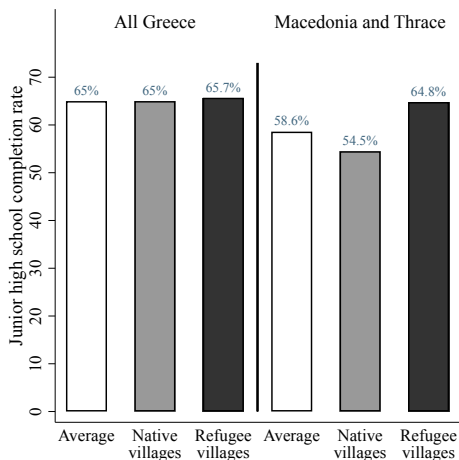
Human Capital

Preliminary Patterns

Baseline Estimates - Schooling
Sensitivity and Further Evidence

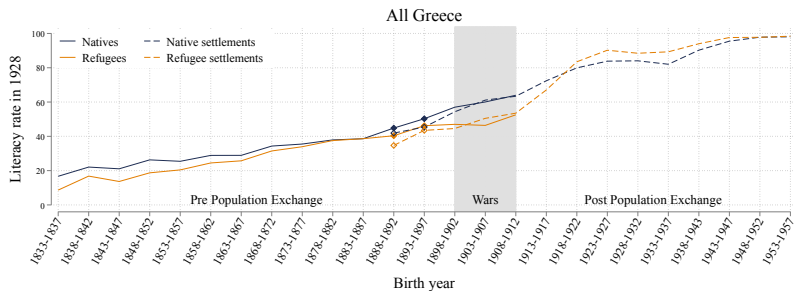
Post. Junior-high Completion Rates in 2011

Born in Native and Refugee Settlements (2011 Population Census)



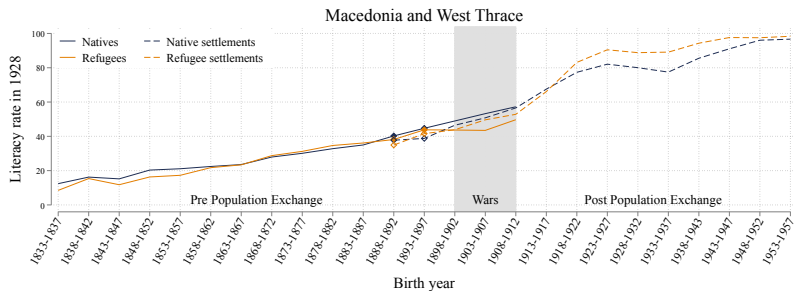
Long-Run Trends in Literacy, Greece

Refugee and Native Settlements (1928, 1971 and 1981 General Population Censuses)



Long-Run Trends in Literacy, Macedonia and West Thrace

Refugee and Native Settlements (1928, 1971 and 1981 General Population Censuses)



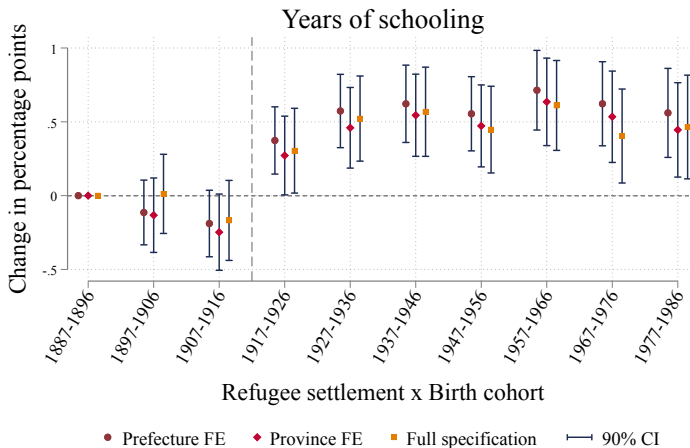
Forced Displacement and Human Capital

Diff-in-Diff Estimates. Native and Refugee Settlements

Dependent Variable:	Completed education level:									
	Years of schooling		Primary school		Jun. high school		High school		Tertiary education	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Refugee settlement × Post	0.486*** (0.110)	0.328*** (0.121)	3.998*** (1.497)	3.580** (1.633)	3.910*** (0.749)	1.840** (0.805)	2.955*** (0.658)	1.440** (0.629)	1.012*** (0.340)	0.378 (0.339)
Refugee settlement × War cohort	-0.177* (0.097)	-0.285*** (0.110)	-2.950** (1.408)	-4.403*** (1.612)	0.338 (0.540)	-0.105 (0.648)	0.013 (0.403)	-0.002 (0.497)	-0.259 (0.220)	-0.444 (0.312)
R-squared	0.461	0.488	0.356	0.382	0.398	0.438	0.300	0.327	0.090	0.104
Observations	1,476,538	357,168	1,476,538	357,168	1,476,538	357,168	1,476,538	357,168	1,476,538	357,168
Average outcome in native settlements: 1887-1906	2.0	1.5	31.0	23.7	3.9	2.3	1.2	0.9	0.4	0.3
Average outcome in native settlements: 1907-1916	2.7	2.1	40.7	33.5	5.6	2.8	2.0	1.1	0.5	0.4
Average outcome in native settlements: 1917-1986	6.4	6.1	77.6	75.6	29.0	25.8	20.1	18.0	5.8	5.7
Settlement FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cohort × Census year FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cohort × Individual controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cohort × Settlement controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cohort × Province FE	✓		✓		✓		✓		✓	
Cohort × Sub-province FE		✓		✓		✓		✓		✓
# Refugee observations	128,305	90,609	128,305	90,609	128,305	90,609	128,305	90,609	128,305	90,609
# Refugee settlements	360	237	360	237	360	237	360	237	360	237
# Native observations	1,348,233	266,559	1,348,233	266,559	1,348,233	266,559	1,348,233	266,559	1,348,233	266,559
# Native settlements	5,922	1,001	5,922	1,001	5,922	1,001	5,922	1,001	5,922	1,001
# Admin units for FE	142	123	142	123	142	123	142	123	142	123

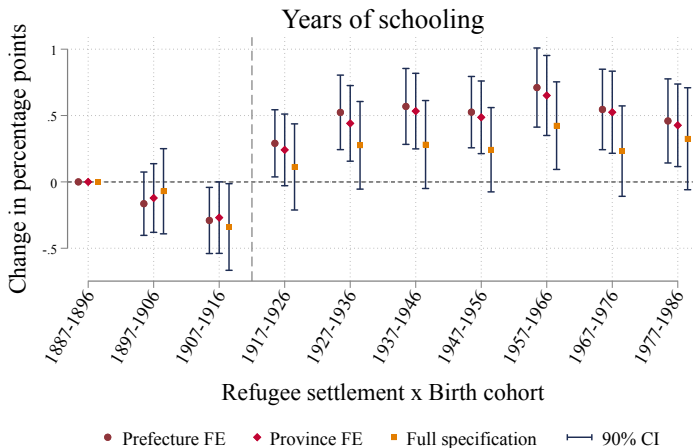
Diff-in-Diff Dynamic Estimates

Full Sample



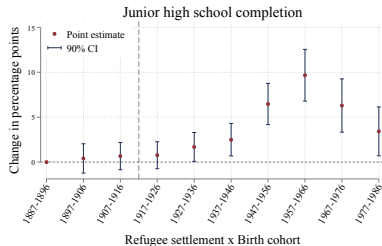
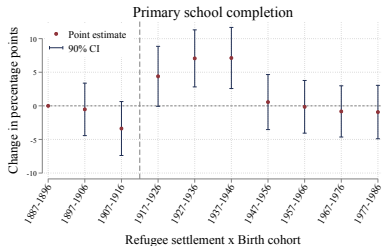
Diff-in-Diff Dynamic Estimates

Local Sample



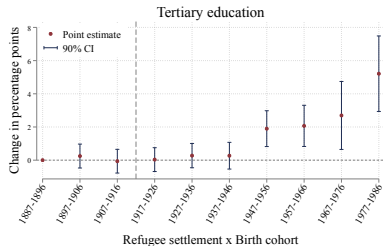
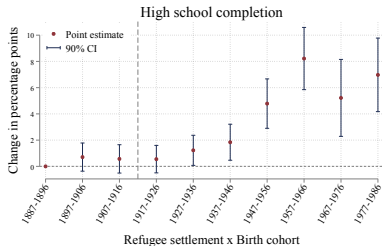
Primary and Junior-high Completion (1971–2011)

Native and Refugee Settlements. Diff-in-Diff Estimates. Rich Spec.



Completed High-school and Tertiary Education (1971–2001)

Difference-in-Difference Estimates. Rich Spec.



Selective Spatial Mobility. Account. for Residence

Refugee-Native Birthplace (2011 Census); Baseline Sample

Sample:	All sample		Non-migrants		Internal migrants			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Born in a refugee settlement	0.708*** (0.131)	0.576*** (0.127)	0.569*** (0.132)	0.565*** (0.169)	0.674*** (0.156)	0.495*** (0.147)	0.447*** (0.149)	0.339*** (0.129)
R-squared	0.356	0.402	0.441	0.457	0.331	0.369	0.363	0.403
Observations	549,480	549,474	243,038	243,005	289,213	289,208	62,495	62,421
Average outcome in native settlements	8.0	8.0	7.2	7.2	8.6	8.6	8.3	8.3
Cohort × Individual controls	✓	✓	✓	✓	✓	✓	✓	✓
Cohort × Birth settlement controls	✓	✓	✓	✓	✓	✓	✓	✓
Cohort × Birth province FE	✓	✓	✓	✓	✓	✓		
Cohort × Birth sub-province FE							✓	✓
Residence municipality FE		✓		✓		✓		✓
# Refugee observations	44,115	44,114	18,259	18,255	22,674	22,674	14,604	14,592
# Refugee birth settlements	357	357	351	351	355	355	235	235
# Native observations	505,365	505,360	224,779	224,750	266,539	266,534	47,891	47,829
# Native birth settlements	5,788	5,788	5,688	5,688	5,704	5,704	971	971
# Birth provinces for FE	141	141	140	140	140	140	41	41
# Residence-municipality FE		1,021		943		1,020		857

▶ Cohort-specific estimates

▶ Highest education level completed

Selective Spatial Mobility. Account. for Residence, cont.

Refugee-Native Birthplace (2011 Census); Local Sample

Sample:	All sample		Non-migrants		Internal migrants	
	(1)	(2)	(3)	(4)	(5)	(6)
Born in a refugee settlement	0.382*** (0.128)	0.378*** (0.124)	0.238* (0.135)	0.321* (0.189)	0.447*** (0.149)	0.339*** (0.129)
R-squared	0.396	0.437	0.475	0.486	0.363	0.403
Observations	128,532	128,459	59,783	59,689	62,495	62,421
Average outcome in native settlements	7.5	7.5	6.9	6.9	8.3	8.3
Cohort FE	✓	✓	✓	✓	✓	✓
Cohort × Birth settlement controls	✓	✓	✓	✓	✓	✓
Cohort × Birth sub-province FE	✓	✓	✓	✓	✓	✓
Residence municipality FE		✓		✓		✓
# Refugee observations	29,950	29,937	13,431	13,398	14,604	14,592
# Refugee settlements	236	236	232	232	235	235
# Native observations	98,582	98,522	46,352	46,291	47,891	47,829
# Native settlements	976	976	959	958	971	971
# Birth sub-province for FE	123	123	122	122	123	123
# Residence-municipality FE		864		349		857

▶ Cohort-specific estimates

Uprootedness and Human Capital. Summary

Difference-in-Difference Estimates (Residence)

Comparing the cohorts born after 1917, who started schooling in Greece, to those born before 1917 – Greeks residing in a refugee settlement instead of a native settlement in the local sample increases :

- Years of schooling by 0.33-0.5 percentage points (7.1-10%)
- Junior high school completion rates by 2-4 percentage points (7.8-16%)
- High school completion rates by 1.5-2.5 percentage points (8.4-15%)
- Tertiary education rate by 0.4 percentage points (7%)
- Effect similar for both men and women [not shown]

Uprootedness and Human Capital. Summary, cont.

Cond. on Residence Estimates (Birthplace)

Being born in a refugee settlement instead of a native settlement in the local sample among those residing within the same sub-province area, increases

- Years of schooling by 0.38-.5 percentage points (5-8%)
- Effect present for non-movers and internal migrants
- Somewhat larger effects for internal migrants (mainly to cities)

Further Evidence and Sensitivity Checks

- ① **All Rural Settlements.** More than 7,500 settlements (incl. mixed); refugee share –rather than binary predominantly refugee indicator. Information for all refugee families receiving land grants ▶ DID ▶ Birthplace
- ② **Refugee/native Settlement Definitions.** Alternative population shares for the classification (90%, 70%, 60%, 50% vs less than 1% and even 0%) ▶ DID ▶ Birthplace
- ③ **Local Analysis.** More restrictive distance cutoffs, still in the same sub-province unit (20 km, 15 km, even 10 km and 5 km) ▶ DID ▶ Birthplace
- ④ **Spillovers.** No evidence ▶ DID
- ⑤ **Gender.** Impact for both women and men ▶ DID ▶ Birthplace

Uprootedness and Human Capital

Summary

① Displacement → Human Capital

- Rural refugees start with lower literacy and schooling; soon catch up and then surpass natives. **Dynamics over a century**
- **“Stayers”** in refugee and autochthonous settlements; **“movers”** in big cities or elsewhere
- **employment in the same industry** (240 sectors)
- Quantitatively meaningful estimates; **men and women**
- **Sensitivity:**
 - Population Share Cutoffs
 - Local Sample; Proximity Native and Refugee Settlements
 - All rural settlements, incl. mixed [refugee share in 1928]
 - Spatial Spillovers. No

Uprootedness and Human Capital. Underlying Forces

Displacement → Human Capital

- low attachment to new rural settlements in Greece
- (psychological) costs of moving to more competitive service and manufacturing-oriented labor markets in cities
 - conditioning on employment sectors, estimates drop by a third (retain significance)
- return to lost homelands; emigration; internal migration
 - Memory, Songs. Logothetis et al. (2025)
 - Migration to Cities and Abroad. Michalopoulos et al. (2025)
- desire for education (“pure” uprootedness)
 - Correlation present also for non-movers
 - Correlation also present when comparing ”movers”, living in the same municipality, and working on the same sector

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- 5 Portable Human Capital**
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Portable Human Capital

Approach

Preliminary Patterns

Baseline Estimates - College Degree Type

Uprootedness. Digging Deeper

Human Capital Portability

Portable Human Capital. A core element of uprootedness hypothesis [Kessel (1958), Stigler and Becker (1977), Ayal and Chiswick (1983), Botticini and Eckstein (2012), Brenner and Kiefer (1981)]. **Little empirical evidence (tiny samples)**

- 2011 Census (25% sample): Detailed information on university degrees and types.
- Classify degrees by “portability of skills” (e.g., law versus engineering and medicine).
- Explore whether people from refugee settlements with university education are more likely to complete degrees with “portable” skills. **Estimation among those who completed tertiary education.**

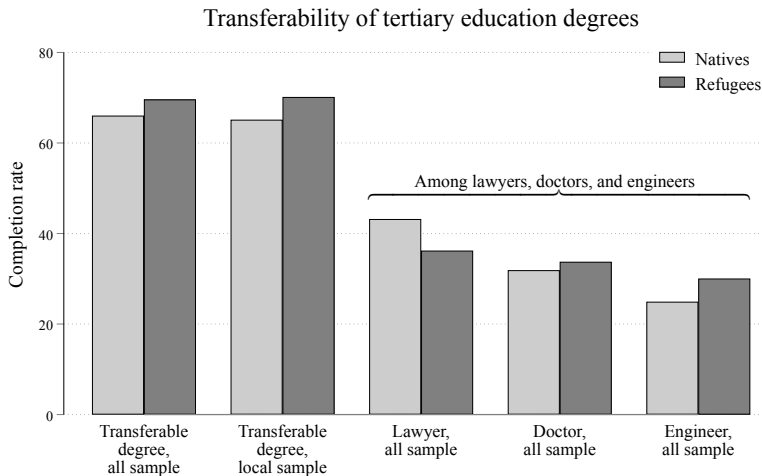
Transferability of Tertiary Degrees

Classification

- We map the degrees studied at the university into transferable and non-transferable degrees using ChatGPT 4
- Greece-specific degrees are classified as non-transferable. Examples among the top 50 most popular degrees out of 302 degrees (76% of those with a college degree):
 - **Non-Portable:** Legal studies; education pedagogy (preschool, primary, secondary); theology; military academies, protection forces (police), public administration
 - **Portable:** Engineering, Medicine, Physics, Mathematics, Economics, Business, Biology
- **Law vs Engineering and Medicine**

Displacement and Transferability of College Degrees

Refugee-Native Birthplace (2011 Census)



Transferability of Tertiary Degrees

Refugee-Native Birthplace (2011 Census)

Sample:	All sample		Local sample		All sample Law., doc., eng.		All sample Lawyers & engineers	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Born in a refugee settlement	6.368*** (1.246)	6.074*** (1.347)	6.513*** (1.836)	6.670*** (2.433)	8.471** (4.227)	15.843*** (5.449)	12.070** (5.030)	22.037*** (5.865)
R-squared	0.053	0.062	0.058	0.070	0.116	0.135	0.201	0.231
Observations	62,049	62,035	13,643	13,499	7,076	6,930	4,752	4,557
Average outcome in native settlements	66.0	66.0	65.2	65.2	56.8	56.8	36.5	36.5
Cohort × Individual controls	✓	✓	✓	✓	✓	✓	✓	✓
Cohort × Birth settlement controls	✓	✓	✓	✓	✓	✓	✓	✓
Cohort × Birth province FE	✓	✓			✓	✓	✓	✓
Cohort × Birth sub-province FE			✓	✓				
Residence municipality FE		✓		✓		✓		✓
# Refugee observations	4,335	4,333	3,074	3,046	466	435	300	270
# Refugee birth settlements	332	332	217	216	185	172	153	138
# Native observations	57,714	57,702	10,569	10,453	6,610	6,495	4,452	4,287
# Native birth settlements	5,081	5,079	870	866	2,673	2,625	2,194	2,109
# Admin units for FE	140	140	122	122	134	132	131	126
# Residence-municipality FE		984		531		700		585

▶ Alternative native/refugee definitions

▶ Alternative distance cutoffs

Uprootedness and Human Capital

Summary

① Displacement → Human Capital

- Rural refugees start with lower literacy and schooling; soon catch up and then surpass natives. **Dynamics over a century**
- **“Stayers”** in refugee settlements; **“movers”** in big cities or elsewhere
- **employment in the same industry** (240 sectors)
- Quantitatively meaningful estimates; **men and women**

② Displacement → Portable Human Capital

- Uprooted and their offspring invest in **portable skills**
- Even when zooming into most selective university degrees (law, medicine, and engineering)

Roadmap

- 1 Introduction
 - Motivation
 - Results Preview
- 2 Historical Background
- 3 Data, Sample, and Approach
- 4 Human Capital
- 5 Portable Human Capital
- 6 Further Mechanisms
- 7 Discussion

Further Mechanisms. Heterogeneity

Section Structure

- 1 Origin [broad areas, urban-rural, rich heterogeneity]
- 2 Agriculture Productivity and Mismatch
- 3 Diversity
- 4 Destination - Settlements
- 5 Destination - Province

Heterogeneity

Diversity and Location

Linguistic Barriers and Background

Land Quality and Match

Provincial Urbanization and Modern Sector

Heterogeneity. Additional Mechanisms

Digging Deeper

Rich origin-destination data, over a century

=> advance on mechanisms [“Roy” assignment model intuition]

- 1 **Background.** Origin, Economic Activity
- 2 **Diversity.** Background
- 3 **Agriculture.** (Relative) Productivity [soil suitability for agriculture]; mismatch to origin; gains/losses
- 4 **Destination.** Provincial factors: population density, manufacturing, services
- 5 **Other.** New vs Old (Muslim) Settlements [▶ Map](#)

Heterogeneity. Additional Mechanisms, cont.

Approach and Sensitivity

Specifications

- ① Baseline Diff-in-Diff. Schooling and Attainment.
Uprootedness Hypothesis
- ② Baseline Cond. On Residence. Schooling and Attainment.
Uprootedness Hypothesis
- ③ Baseline Cond. On Residence. Transferability of University Degrees. *Portability Hypothesis*

Split Sample/Settlements and Rerun the Analysis

- Sensitivity of results (conservatively)

Heterogeneity (1). Background

Place of Origin. Broad Region and Exact Settlement

① Coastal Asia Minor

- Big cities (Smyrna), but also agriculture
- Abrupt exodus chaotic conditions

② Cappadocia-Cilicia

- Non-Greek speaking; Agriculture, pastoral
- displacement after Convention

③ Eastern Thrace

- Big cities, but also agriculture and pastoral activities
- Relatively peaceful displacement (movables and animals)

④ Bulgaria

- Peaceful; movables and assets

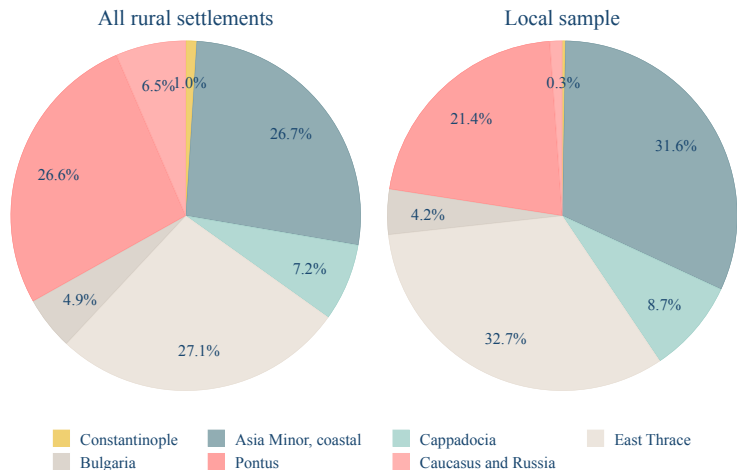
⑤ Pontus (& Caucasus). South Black Sea

- Strig Identity; movement after the end of warfare

⑥ Constantinople

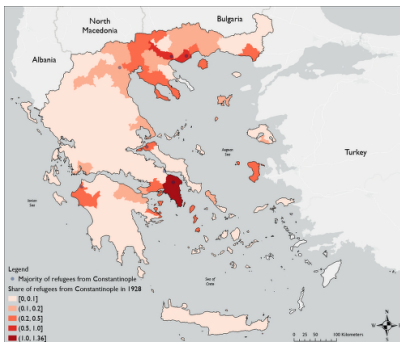
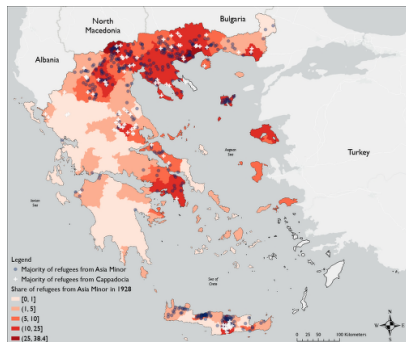
Heterogeneity (1). Refugees' Background in 1928

Origin Broad Categories. RSC Rural Refugee Catalog



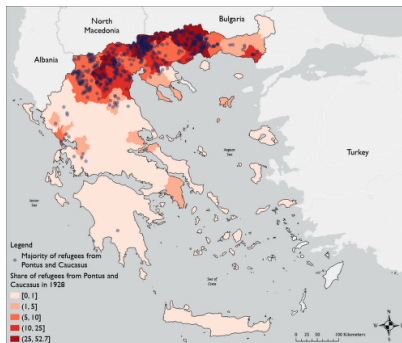
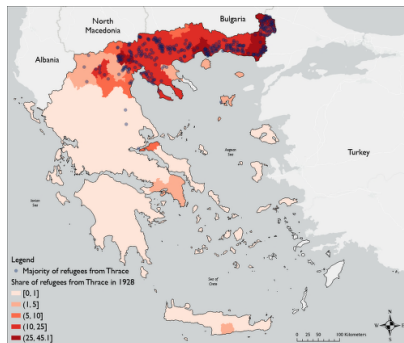
Refugees' Background in 1928

Origin across Provinces (Population Census 1928). Asia Minor and Constantinople



Refugees' Background in 1928, cont.

Origin across Provinces (Population Census 1928). East Thrace and Pontus/Caucasus



Oral Testimonials → Data

1,500 from about 5,000 Interviews (Center of Asia Minor Studies)

- **Centre for Asia Minor Studies.** Athens, founded by Melpo Merlier
- **Archive of Oral Tradition** about 5,000 refugee oral testimonials (300,000 hand-written pages); between early 1930s and 1970s. 52% settled in Athens and Pireaus; remaining countryside and Macedonia
- **Xenophanis.** Periodical Association of Asia Minor Greeks
- **Greek-Orthodox Communities in Asia Minor.** (Anagnostopoulou, 1997)
- Summer and Fall of 2019; 6 RAs, read and decode about 1,500 narratives

Refugees' Background in 1928

Asia Minor Centre Oral Tradition Archive



ἀριθ. υπ. 343 66
1

Μητέρα:	Έγραφε:
ΕΡΕΝΗ ΑΝΑΣΤΑΣΙΟΥ	ο Γιώργος ΔΕΛΗΓΙΑΝΝΗΣ
Το σχολείο ΚΑΡΑΪΤΣΗ	φοιτητής της φιλοσοφίας
από την ΣΜΥΡΝΗ	ΑΘΗΝΩΝ
της Μικράς Ασίας	Σεπτέμβριος 1969
κείμενος Τόπος Αθήνα	

[«Έγραδος από τη Σμύρνη»]

Στην συνάντηση του Άγγελου Δημητρίου από Σμύρνη γενναίως. Αφού πάντως από την Αρμενική συνάντηση οι Αρμενοί είχαν συγκεντρωθεί στην εσωτερική τους και οι Τούρκοι πήγαν φωτιά για να τους βράσουν λίγο. Αφού άρχισαν να έρχονται προς τα εδώ.

Αι άνθρωποι ήτανε χαλαροί, με την την ημέρα είχανε σφυρί μοσχαρίσι και ήτανε να κάνουνε πασά. Αφού μετά για εφ. τε βίγει από φωτιά ή πασά να βράζει.

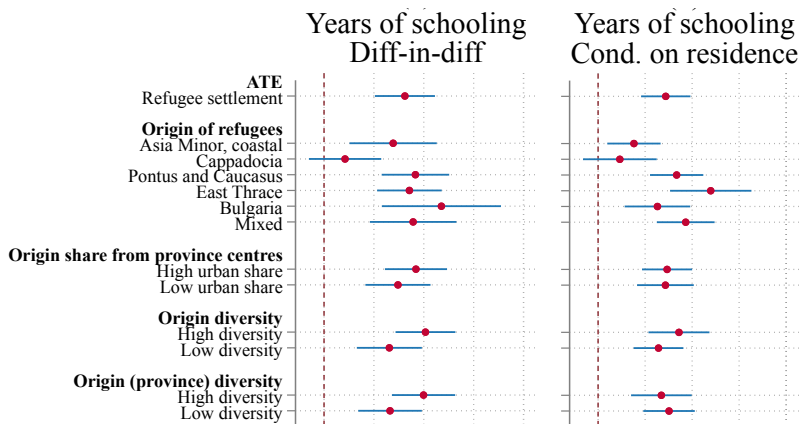
Details Origin Features

1,500 Interviews (Center of Asia Minor Studies)

	Constantinople	Eastern Thrace	Asia Minor	Pontus	Cappadocia
Settlement	Mainly in Athens connections with Greek cities (trading)	West Thrace	Aegean Sea Islands Athens Sterea Elada	Rural Macedonia, Thessaloniki	Central Northern Greece
Trajectory	Peacefully, transferring assets Trade, Services	Cross Evros Fall 1922 carry movables and animals	Repression since 1908 Exodus, Fire of Smyrna Attacks by Turkish Army	Post Population Exchange Convention (1923); Some via Caucasus, Russia	Post Population Exchange Convention mid/late 1923 & 1924
<u>Main Activity</u>					
Agriculture	0.43	0.71	0.63	0.71	0.71
Herding	0.00	0.00	0.02	0.09	0.03
Fishing	0.29	0.00	0.08	0.00	0.00
Merchants	0.29	0.14	0.20	0.10	0.21
Mining	0.00	0.14	0.08	0.04	0.05
<u>Main Agriculture</u>					
Tobacco	0.00	0.00	0.12	0.21	0.00
Cereal	0.40	0.33	0.29	0.59	0.68
Silk Cocoons	0.00	0.33	0.39	0.01	0.00
Vineyards	0.00	0.33	0.21	0.02	0.32
<u>Language</u>					
Turkish Spoken	0.26	0.25	0.37	0.49	0.75
Only Turkish	0.00	0.00	0.14	0.31	0.57
Only Pontic	0.00	0.12	0.08	0.26	0.04
Only Greek	0.74	0.62	0.53	0.21	0.00
Only Cappadocian	0.00	0.00	0.00	0.00	0.20
# Settlements	19	8	333	250	75

Heterogeneity on Years of Schooling (1971–2011)

Settlement-of-origin characteristics at destination

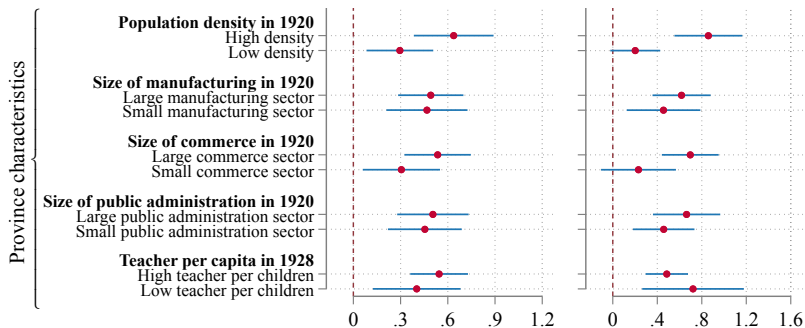


► Balance Test: Cappadocian vs Others

► Cohort-level Estimates by Origin Region

Heterogeneity on Years of Schooling (1971–2011)

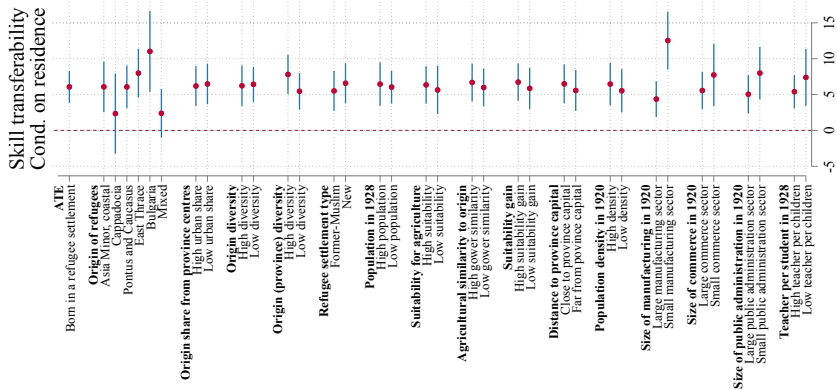
Destination province characteristics



▸ Highest education level completed

Heterogeneity on Skill Portability (2011)

Limited heterogeneity



Heterogeneity Analysis. Further Mechanisms (1)

Summary. Human Capital Investments

- 1 Pretty uniform effects in various sample cuts → strong uprootedness effects
 - New and Old Muslim settlements
 - Rural and Urban Background
 - Almost all parts of Anatolia
- 2 Linguistic barriers. Weak effects for Cappadocian refugees
- 3 Agriculture: no extra/less effect
- 4 Diversity: somewhat stronger effects in diverse settlements
- 5 Destination (Province) Development. Density, Manufacturing, Services

Heterogeneity Analysis. Further Mechanisms (2)

Summary. Human Capital Portability

Uniform effects → transferability mechanism

- numerous sample splits
- origin features
- destination settlement characteristics
- destination province characteristics

Roadmap

- 1 Introduction
 - Motivation
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- 5 Portable Human Capital
- 6 Further Mechanisms
- 7 Discussion**

Conclusion. Summary

“Uprootedness Hypothesis”

Refugee settlements in rural areas, relative to native settlements:

- ① **Invested more in education** during the second half of the century
 - Dynamics: primary, junior-high, secondary, and university
 - Movers and Non-Movers
- ② Investments in **portable human capital**
- ③ **Additional Mechanisms**
 - Role of linguistic barriers and diversity (less so)
 - Features at destination (development, modern sector), rather than at origin

Conclusion. Summary, cont.

“Uprootedness Hypothesis”

- Strong Support for Uprootedness Hypothesis
 - Men and women; rural and urban origin; various backgrounds and displacement trajectories
 - Movers (in big cities) and Stayers (in Greek countryside)
- Generalization?
 - Conceptual Appeal. Stigler and Becker (1977), Kessel (1958), Botticini and Eckstein (2012)
 - Other applications: Becker et al. (2020) Poland after WWII; Sarvimäki et al. (2022) Finland after WWII; Chiovelli et al. (2023) Mozambique during Civil War

Refugees of the Mediterranean

Crossing the Aegean. Then and Now

Independent Premium > The Longer Read

 INDEPENDENT PREMIUM

Europe's forgotten refugees: 100 years of crossing the Aegean

An estimated 1.2 million refugees have landed and lived in Greece since 1923. [Bea Tridimas](#) tells their story

Tuesday 19 October 2021 21:30 BST • [Comments](#)



Policy

Lessons?

Conditional Hope

- Legal and political rights upon arrival, citizenship
- International Organizations. League of Nations. Refugee Settlement Commission. Technical support, financial assistance, knowhow
- International Community. Near East Relief Fund. Philanthropic Aid
- Greek governments. A genuine effort to support –after 1930– from all main parties
- Greek people. Despite discrimination in the initial years/decade, embrace the national goal of integration

www.anatolia-imprints.gr

Trace Ancestry

Interactive Maps

Additional Material

[papers, non-technical summaries]

Anatolia Imprints [https://anatolia-imprints.gr/]

Greek History through the Lens of Economics

Anatolia Imprints

ΧΑΡΤΗΣ ΧΡΟΝΟΛΟΓΙΟ ΕΡΕΥΝΑ ΔΕΔΟΜΕΝΑ ΑΠΟΓΡΑΦΗ 1928 ΟΜΑΔΑ ΝΕΑ ΣΥΧΝΕΣ ΕΡΩΤΗΣΕΙΣ ΕΠΙΚΟΙΝΩΝΙΑ

Το Αποτύπωμα των Προσφύγων της Ανατολίας

ΑΝΑΚΑΛΥΨΤΕ ΤΟΝ ΧΑΡΤΗ

ANATOLIA IMPRINTS

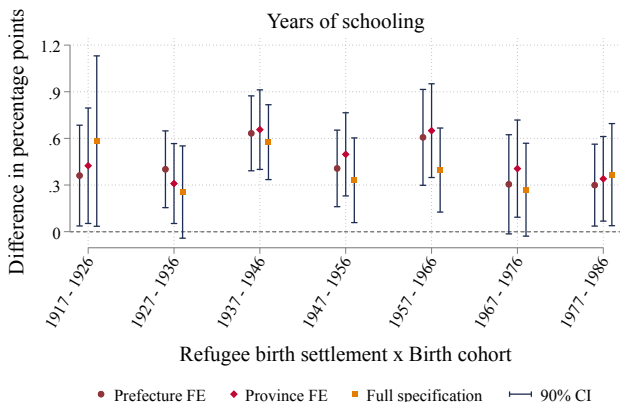
Όταν τα ίδια και τα ίδια, θα μου πεις, φίλε. Όμως η σκέψη του πρόσφυγα τη σκέψη του αχμόλυτου τη σκέψη του ανέρχεται σαν καπνίσμα κι αυτός πραγμάτιστα δοκίμασε να την αλλάξει, δεν μπορείς."

Γιώργος Σεφέρης (γεννημένος στα Βουρλά της Επαρχίας της Σμύρνης, 1900 – 1971)

Appendix

Cohort-level Effects, Account. for Residence, cont.

Refugee-Native Birthplace (2011 Census); Local Sample



▶ Back

Further Evidence. All Rural Settlements, cont.

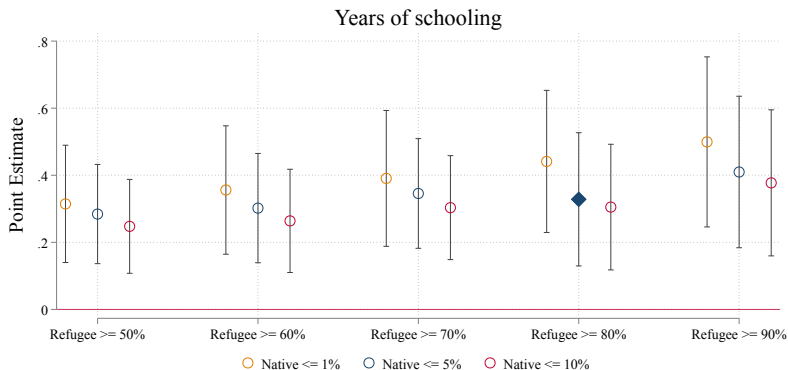
Share of Refugees in 1928. Cond. on Residence in 2011 Estimates

Dependent Variable:	Years of schooling		Completed education level:							
			Primary school		Jun. high school		High school		Tertiary education	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Share of refugees in 1928, birth settlement	0.005*** (0.001)	0.003*** (0.001)	0.036*** (0.006)	0.026*** (0.005)	0.047*** (0.011)	0.028*** (0.009)	0.031*** (0.010)	0.015* (0.008)	0.008 (0.005)	0.003 (0.005)
R-squared	0.358	0.403	0.288	0.302	0.331	0.366	0.233	0.272	0.062	0.090
Observations	761,507	761,501	761,507	761,501	761,507	761,501	761,507	761,501	761,507	761,501
Average outcome in native settlements	8.0	8.0	86.2	86.2	45.6	45.6	33.4	33.4	11.4	11.4
Cohort × Individual controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cohort × Birth settlement controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cohort × Birth province FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Residence municipality FE		✓		✓		✓		✓		✓
# Refugee observations	44,115	44,114	44,115	44,114	44,115	44,114	44,115	44,114	44,115	44,114
# Refugee birth settlements	357	357	357	357	357	357	357	357	357	357
# Native observations	505,365	505,361	505,365	505,361	505,365	505,361	505,365	505,361	505,365	505,361
# Native birth settlements	5,788	5,788	5,788	5,788	5,788	5,788	5,788	5,788	5,788	5,788
# Birth provinces for FE	141	141	141	141	141	141	141	141	141	141
# Residence-municipality FE		1,022		1,022		1,022		1,022		1,022

[▶ Back](#)

Sensitivity Analysis I. Control-Treatment

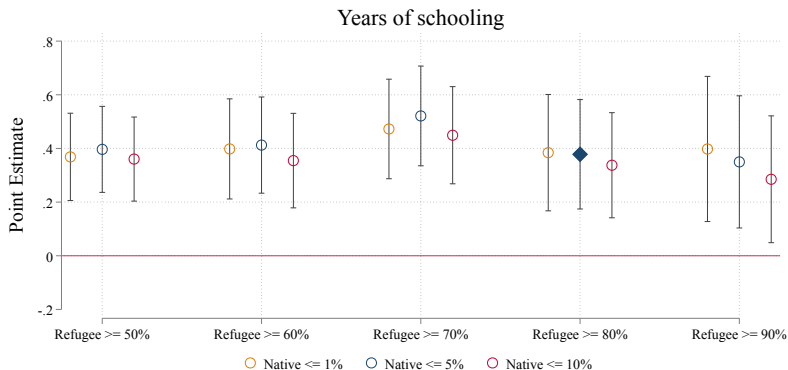
Alternative Population Share Cutoffs. Diff-in-Diff Estimates



▶ Back

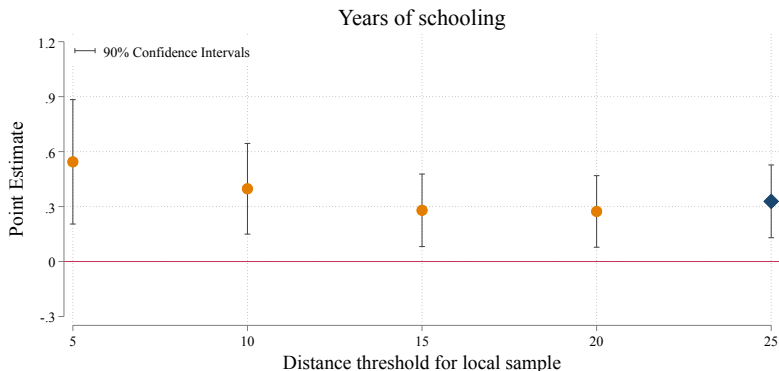
Sensitivity Analysis I, cont. Control-Treatment

Alternative Population Share Cutoffs. Cond. on Residence Estimates


[▶ Back](#)

Sensitivity Analysis II. Local Analysis

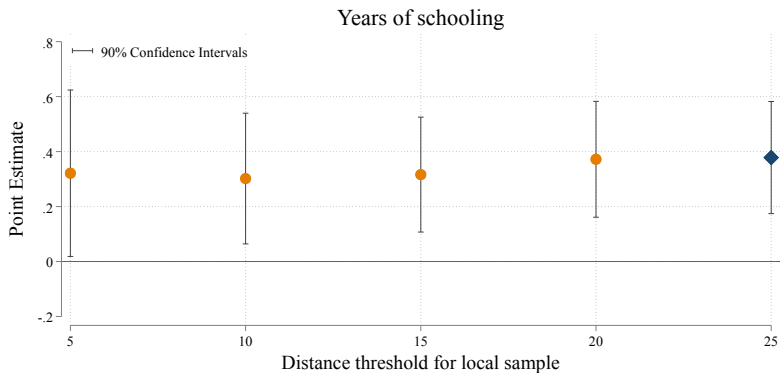
Proximity Predominantly Refugee and Native Settlements. Alt. Distance Cutoffs.
Diff-in-Diff Estimates



▶ Back

Sensitivity Analysis II. Local Analysis, cont.

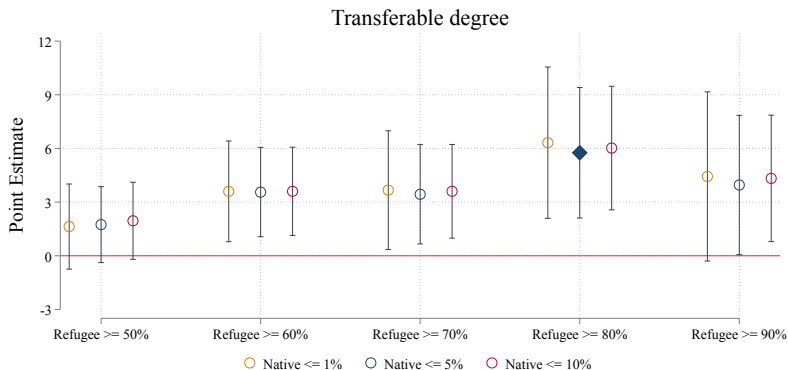
Proximity Predominantly Refugee and Native Settlements. Alt. Distance Cutoffs.
Cond. on Residence Estimates



▶ Back

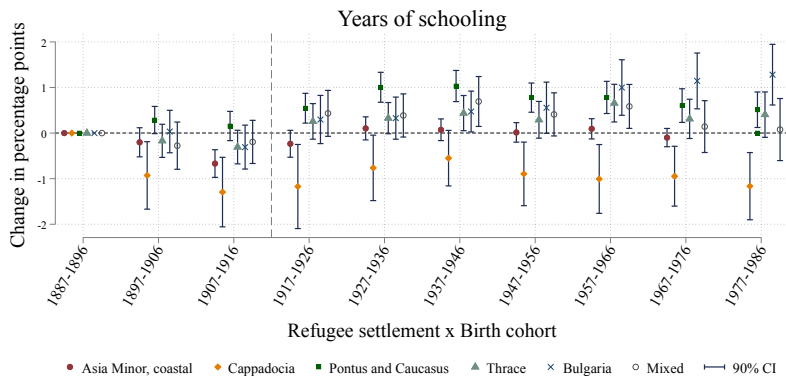
Sensitivity Analysis I. Portability Dimension

Alternative Population Share Cutoffs. Cond. on Residence Estimates



▶ Back

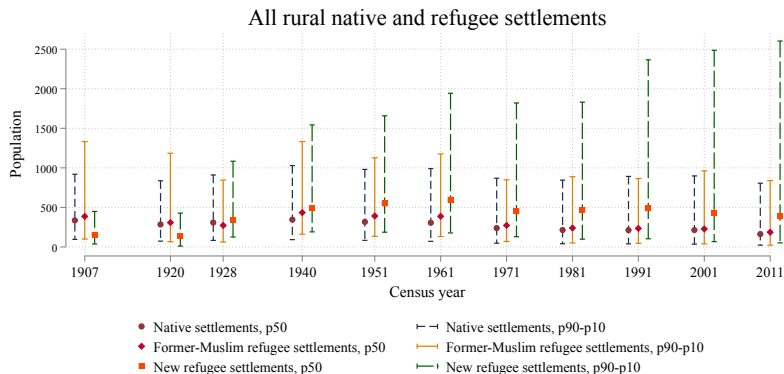
Diff-in-Diff Dynamic Estimates by Origin Region



▶ Back

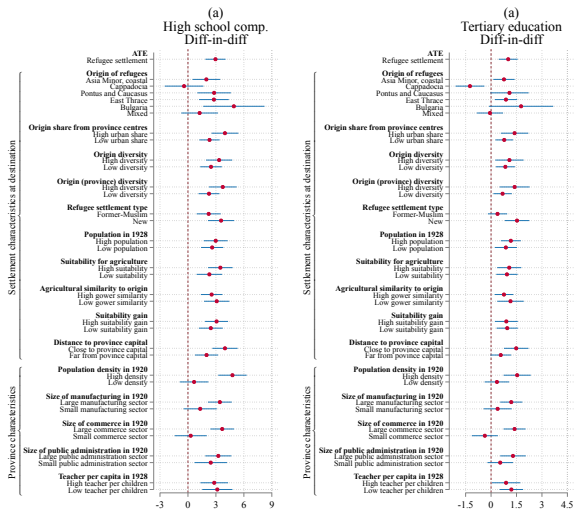
Settlements Population over Time. Baseline Analysis Sample

Native, New Refugee, and Old (Muslim) Refugee Villages and Towns



▶ Back

Heterogeneous effects on higher education (1971–2011)



▶ Back

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