

# The Impact of Refugees on Native Students' Academic Achievement and Post-secondary Education

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## Abstract

The number of asylum seekers worldwide has reached its highest point in history. Over 120,000 refugees entered the U.S. including large numbers of children and there is uncertainty about how this inflow will affect native children's schooling outcomes. To fill this gap in the literature, this paper studies how the largest inflow of refugees in U.S. history –Indochinese refugees at the end of the Vietnam War – affected U.S. children. Then, it examines whether native children's academic achievement was lower in ZIP Codes with higher shares of refugees using the National Education Longitudinal Study (NELS88) and U.S. Census data. Preliminary results suggest that, on average, there is no effect on native's school choice or academic achievement, there is a small increase in the likelihood of graduating from high school, and there is a small reduction in the likelihood of obtaining an associate degree. Moreover, the effects are stronger for native students in disadvantaged conditions.

## 1 Introduction

In the past two years, the number of asylum seekers reached its highest point in history (UNCHR,2017). Likewise, the number of refugees who were resettled in 2016 increased from 50,000 in 2004 to 125,600 in 2016; of them, 84,994 refugees were resettled to the United States (Migration Policy Institute, 2017). However, recent U.S. immigration policies put a hold on the rise of the number of refugees arriving to the country by dictating tighter restrictions on refugee resettlement (Migration Policy Institute, 2017).<sup>1</sup> The lack of support for refugee resettlement programs is not new in American history. For instance, in 1979 more than 60% of those interviewed by the New York Times disapproved of the government plan to double the number of Indochinese refugees and less than 30% were in favor of allowing Cuban refugees to settle in the U.S. in 1980 (Pew Research Center, 2017) . Moreover, the literature indicates that U.S. natives prefer to live in neighborhoods with fewer minorities, less immigrants, and more high-income/high-education residents (Baum-Snow and Lutz, 2011; Cascio and Lewis, 2012).

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<sup>1</sup>The current administration lowered the admission ceiling for FY2017 from 110,000 to 50,000. It also suspended the refugee resettlement program for 120 days (Migration Policy Institute, 2017).

Among the main justifications for the lack of support for refugee resettlement are perceived threats of refugees to natives' group identity and potential negative spillovers from refugee children onto their school classmates (Card, 2009). However, there is no consensus on the causal effect of an inflow of refugees on native students in the literature. For instance, Schneeweis (2015) find that an increase in the share of immigrants, mainly refugees, has no effect on native academic achievement in Austria. Likewise, Fliglio and Özek (2017) find that the inflow of Haitian refugees has no effect on natives' test scores in the United States. On the other hand, Jensen and Rasmussen (2011) establish that attending a school with a larger fraction of immigrants is associated with lower scores on reading and math; Gould, Lavy, and Paserman (2009) determine that a rise in the share of refugees decreases the likelihood of passing the high school exit exam in Israel. In addition, the literature generally combines refugees with economic immigrants, without taking into account that they are different from traditional immigrants in several ways. For instance, they flee from countries where there is mass disorder, violence or famine instead of migrating for economic opportunities (Jacobsen 2005). In short, it is important to study the effect of refugees on the educational system, since the inflow of children coming from disadvantaged conditions may affect a native students in a nontrivial way.

The objective of this document is to address this phenomenon by studying the effect of an inflow of refugee children on the U.S. educational system. Refugee children have the potential to affect the native educational system in at least three ways. First, their presence may motivate native children to transfer to a different public school, switch to a private school or even drop out of school. The decisions of native families who decide to attend a different school, also affect their classmates through changes in the characteristics of their peers. Second, the presence of refugee children modifies classroom composition, which may change teaching practices, classroom environment, and therefore affect the quality of the education native children receive, impacting natives' academic achievement and attainment. Finally, the inflow of refugees may affect unskilled-skilled worker ratio, which can affect native's desired education level. For example, if there is an increase in the share of unskilled workers, natives will have a higher incentive to obtain higher levels of education than they would have otherwise, as the return to education increases. These questions are increasingly relevant as high income countries must absorb a rapidly growing number of immigrants from countries in war.

To answer these questions, I focus on the largest inflow of refugees to the United States - the resettlement of over half a million Indochinese refugees after the end of the Vietnam war. Native student outcomes are measured in the National Education Longitudinal Study of 1988 which has rich information on native students' academic achievement through high school, as well as on their post-secondary education. The study also collected information from student's parents allowing me to study if there are heterogeneous effects by household characteristics. Furthermore, the study also gathered information from teacher and school principals, allowing me to determine if teaching practices were systematically different in areas that received higher inflows of refugees.

An additional advantage of studying this refugee wave is that, given the large number of refugees that unexpectedly entered the country and the coordination between the federal government, local governments, and voluntary agencies, individual refugees were assigned across all states (Haines 1985). Moreover, as the initial flow of refugees was both unexpected and large, refugees

were assigned throughout the country without taking into account individual preferences. In particular, the instructions from the federal government to the voluntary agencies were to distribute refugees throughout the whole country avoiding only economically pressed areas (Refugee Act 1975). In addition, as voluntary agencies provided assistance and financial benefits, refugees had high incentives to settle (at least initially) in their assigned areas (Refugee Act 1975). Therefore, the assignment of refugees to their localities, after controlling for economic conditions, can be used to identify the effect of an inflow of refugees.<sup>2</sup>

The results from an OLS regression that compares children attending schools in ZIP Codes with different shares of refugees show that, the inflow of refugees does not affect the academic achievement or the educational attainment of native students in general. Nevertheless, the evidence suggests that the inflow of refugees affects disadvantaged students as measured by their household family income and their school characteristics.<sup>3</sup> In particular, there is a small increase in the likelihood of graduating from high school for this group of students. Likewise, there is a small reduction in the likelihood of obtaining any type of post-secondary education.

## 2 Background and Related Literature

The past century has witnessed a large number of conflicts throughout the world. During the past half-century, at least twenty percent of countries have experienced civil wars that lasted ten years or more. This phenomenon has been particularly prevalent in developing countries, especially in Sub-Saharan Africa where one third of the nations had a civil war in the past 20 years (Blattman & Miguel, 2010). Individuals living in regions undergoing conflict are exposed to several types of violence. Aggression ranges from violence against personal belongings to attacks on public property. Furthermore, individuals in conflict zones are often displaced, kidnapped, or killed, or have family members who have suffered from these types of violence.

Previous research on the effect of conflict on education has found that exposure to violence in utero, during early childhood, and at preschool age decreases educational attainment, lowers the probability of enrolling in secondary school, and reduces earnings (e.g. Leon, 2012; Chamarbagwala and Moran 2011; Galdo, 2013; Shemyakina, 2011; Swee, 2015). The evidence suggests that those exposed to the violence while attending school accumulate fewer years of education and have lower earnings (Islam et al., 2015; Merrouche, 2011; de Walque, 2006). Furthermore, exposure to political violence persuades individuals living in the affected areas to move towards employment in sectors with lower human capital (Fergusson, Ibañez, and Riaño, 2015).

The evidence on the effect of conflict on human capital accumulation suggests that individuals who were exposed to conflict obtained, on average, less years of education and that the education they obtained is of lower quality. However, the effect of war on the level of education of refugees that reached the United States is not clear, as there is selection bias given that only a select

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<sup>2</sup>Currently, regressions don't control for 1980 characteristics. However, I plan to include them in future regressions and see how much that affects results. The reason why I didn't include them is that they may be affected by the inflow of refugees in the past 5 years.

<sup>3</sup>Specifically, students are classified as disadvantaged if they attend schools where more than 17 percent of students receive free lunch, the median rate level in the sample, and if they attend a high school with a teacher student ratio above the median.

group of refugees has the resources and the ability to migrate there. For instance, refugees in Vietnam obtained less education than they would have in the absence of the war as there was discrimination against those associated with the former government or with the American war effort. In practice, this prevented children from attending college (Hung, 1985). Nevertheless, the refugees that reached the U.S. were highly qualified. On average, 8.3% of Southeast Asian refugees living in Illinois had a college degree, 32.8% completed high school, and only 7% had no formal education.

The literature on the effects of refugees on education systems is scant. One exception is Rangvid (2010) who finds that as the fraction of refugees in local public schools increases, natives are more likely to opt out of the local public school in Copenhagen. Moreover, the author finds that migration begins when the share of immigrants exceeds 35 per cent. Gerdes (2013) also looks at the effect of refugees and finds that as the share of refugees doubles, native enrollment in private schools increases by 3-4%. In contrast, however, Schneeweis (2015) looks at this phenomenon in Austria and finds there is no evidence of native flight.

There is a larger literature on the effect of immigrants on natives' demand for public education. It finds that demand for neighborhoods with a large fraction of immigrants is lower and that natives move to different school districts or switch to private schools as the share of immigrants increases (Betts and Fairlie, 2003; Cascio and Lewis, 2012; Saiz and Wachter, 2011; Tanaka, Farré and Ortega, 2015). In general, the results suggest that natives flee from the school districts where disadvantaged immigrants move to in the same way as there was "white flight" from schools with higher fractions of poor minorities. This phenomenon is likely to worsen the conditions of immigrant children as it isolates them, potentially reducing the quality of their education by changing the composition of their classmates, and diminishing their exposure to the native language.

However, it is worth emphasizing that immigrants differ from refugees in several ways. First, economic migrants are associated with voluntary migration motivated by economic gains while refugees are associated with forced migration and dependency on welfare assistance (Jacobsen 2005). Second, refugees differ from economic migrants in the expected length of migration as they are protected by international law and can't be sent back to where their life and freedom would be endangered, (UNHCR 2016b). These two differences are likely to result in different patterns of selection in the migration process and human capital investment decisions after migrating. This is reflected in the evidence from Cortes (2004), who compares the socioeconomic and demographic characteristics of economic migrants and refugees that arrived to the United States between 1975 and 1980, and finds that refugees have higher levels of education on average: most refugees completed high school as opposed to economic migrants who are mainly high school dropouts. Nevertheless, the author finds that the gender composition, the percentage of individuals who are married, and the number of children, are similar across both groups.

The impact of attending schools with higher shares of immigrants in the U.S. have been studied broadly. The results from these studies are mixed. Earlier research, such as Betts (1998) and Betts and Lofstrom (2000), finds that African American and Hispanic native-born students are less likely to complete high school in states or metropolitan areas with a higher fraction of immigrants. However, more recent research, that controls for natives selection into residential

areas with higher shares of immigrants, indicates that there is a positive relationship and suggests that, although immigrants may potentially decrease the benefit of attending school by competing with natives for resources and reducing per pupil expenditures, the inflow of unskilled immigrants increases the return to education by widening the high school graduate to high school dropout gap (McHenry, 2015; Hunt, 2016; Jackson, 2016; Eberhard, 2012; Genc, 2012). Moreover, Lull et al. (2016) find heterogeneous effects depending on native's characteristics: some individuals switch to white collar jobs and increase their education as the return to education is higher in that sector, while others choose not to participate in the labor market and drop out of school given the lower return to their investment.

There are few studies looking at the inflow of refugees in the school system. Schneeweis (2015) finds that although native students are not affected, immigrant students are more likely to repeat a grade in primary and secondary schools. Furthermore, they are less likely to attend a high track school if they attended first grade with a higher fraction of migrant peers (most of them refugees). The author also finds that the negative effect on previous immigrant children are especially large for inflows of children from the same area of origin. Nevertheless, Jensen and Rasmussen (2011) find that attending a school with a larger fraction of immigrants (mainly refugees) is associated with lower scores on reading and math for all students. Finally Gould, Lavy, and Paserman (2009) establish that attending an elementary school with a higher share of refugees decreases the likelihood of passing the high school exit exam.

There is only one document that looks at the effect of refugees in the United States. Figlio and Özek (2017) study the effect on an inflow of Haitian refugees, caused by the 2010 earthquake, on the academic achievement of children in Florida. The study takes advantage of administrative records to exploit variation across cohorts in the share of refugees to identify the effect. Moreover, the document also includes a difference-in-difference model that compares children before and after the inflow of refugees across school districts with different shares of refugees. Finally, it compares the outcomes of siblings that were exposed to different shares of refugees. In general, their results show that refugees have no impact on the academic achievement of native students. These results are consistent with my findings.

Although the administrative data allows Figlio and Özek (2017) to measure the share of refugees at the school level, my study has several advantages. First, it studies refugees that flee their country under different circumstances. In particular, Indochinese refugees were exposed to violence while Haitian refugees were not and therefore the results are more informative on the effect of potential future Asian refugees. Second, the circumstances under which they left the country also generate differences in their observable characteristics. For instance, the next section suggests that Southeast Asian refugees - at least from the first wave - were highly educated and high skilled as opposed to the conditions of Haitian refugees who were more likely to be disadvantaged and have limited education. Finally, the timing of the inflow as well as the available information allows me to study outcomes beyond high school which were not studied in their document.

### 3 Indochinese Refugees

The following section first describes the refugee resettlement process and then summarizes the characteristics of the refugees that arrive to the United States. This information is important for the identification strategy as it describes the characteristics that were taken into account by the authorities to assign refugees to each geographic area. In addition, refugee characteristics are relevant both to understand how refugees could affect native school age children as well as to comprehend the nature of the selection process under which only a select group of the Indochinese population were resettled to the United States.

#### 3.1 The Refugee Resettlement Process

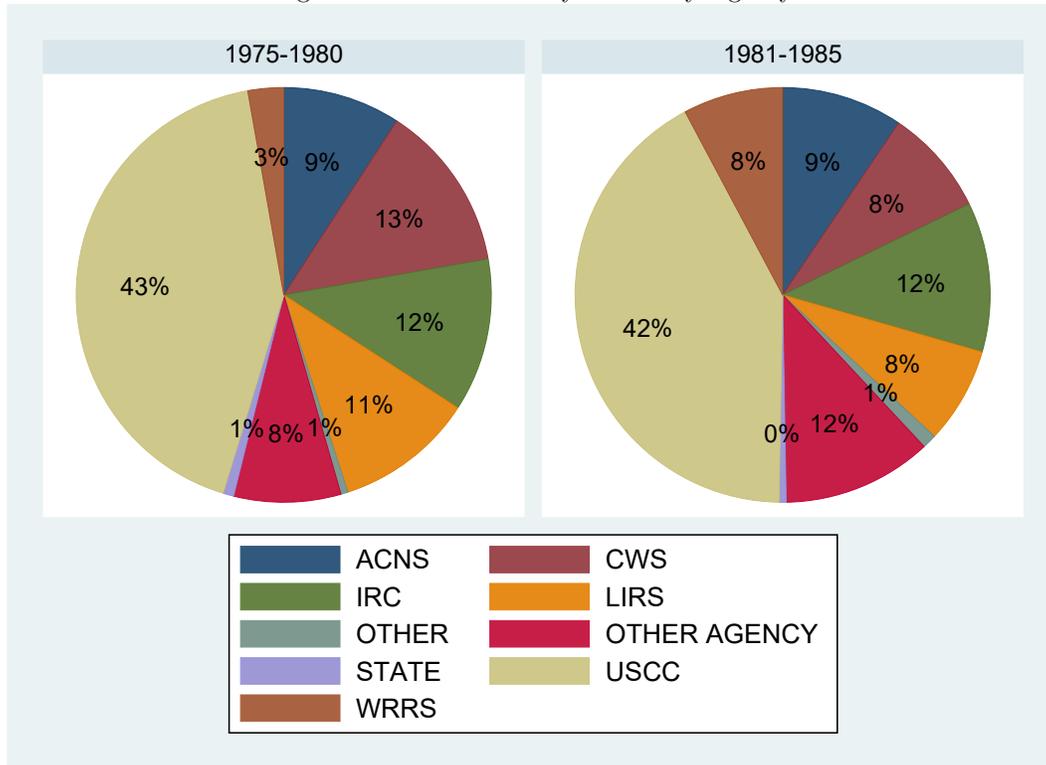
Indochinese refugees arrived to the U.S. in two main waves. The first one, after the fall of Saigon in April 1975, where refugees left the country under an evacuation effort organized by the United States government (Haines, 1985). The second one, in 1978-1979, in response to the Sino-Vietnamese conflict, the Vietnamese invasion of Cambodia, and the border war between China and Vietnam. This wave was mainly organized by Vietnamese authorities in response to international pressure (Hung, 1985). However, there was a substantial number of refugees who left their countries independently between the two waves (Haines, 1985).

During the first wave, refugees were airlifted to staging areas in the Pacific. Then, they were transported to three processing centers in the continental United States: Camp Pendleton (California), Camp Chaffee (Arkansas), and Eglin Air Force Base (Florida). Finally, they arrived at communities under the sponsorship of voluntary agencies (Haines, 1985). Refugees from the later waves experienced harder transitions. They traveled in boats, often assaulted by pirates, to Thailand where they stayed in refugee camps for long periods of time. Furthermore, the conditions in the camps were often poor; there were limited supplies and there was almost no security (Haines, 1985).

As mentioned before, the State Department contracted the resettlement of Indochinese refugees with several voluntary agencies (Zucker, 1982). Figure 1 shows the percentage of refugees that were distributed by each voluntary agency based on the records from the Office of Refugee Resettlement. The left panel contains the information for those that arrived between 1975 and 1980 while the right panel has the distribution for those who arrived between 1981 and 1985, when a larger fraction of those resettled were family reunified refugees. In most cases, the fraction of refugees assigned by each voluntary agency is constant over time; for instance, the United States Catholic Conference (USCC) assigned 43% of refugees in 1975-1980 and 43% in 1981-1985. Overall, 73.5% and 71.2% of refugees were assigned by voluntary agencies associated with religious organizations in the first and second period respectively, the share of refugees directly assigned by State agencies also fell while those assigned by other voluntaries agencies increased.

As opposed to Cuban refugees who were concentrated in Miami, there were significant efforts to disperse Southeast Asian refugees throughout the U.S. (Refugee Act 1975; Haines, 1985). The Refugees Resettlement Program Report to the congress in 1984 explains that voluntary

Figure 1: Resettlement by Voluntary Agency



ACNS: American Council for Nationalities Services; CWS: Church World Services; IRC: International Rescue Committee; LIRS: Lutheran Immigration and Refugee Services; OTHER: State agencies in Iowa, Idaho, Maine, Nebraska, New Mexico, Oklahoma, Washington; OTHER AGENCY: Smaller voluntary agencies including AFCR (American Fund for Czechoslovak Refugees), HIAS (Hebrew Immigrant Aid Society), EMM (Episcopal Migration Ministries), PAIR (Polish American Immigration and Relief Committee), TF (Tolstoy Foundation), and YMCA (Young Men’s Christian Association); USCC: United States Catholic Conference; WRRS: World Relief.

agencies had different strategies to assign refugees and that affected the places where refugees were resettled. For instance, the American Fund for Czechoslovak Refugees (AFCR) reallocated refugees from their main offices in New York, Boston, Salt Lake City, and San Francisco; it also had limited access to Illinois and Kentucky. Matching these location restrictions, the Map in Appendix A shows AFCR resettled refugees mainly in California, Massachusetts, Connecticut, and the New York (State). Along the same lines, the International Rescue Committee (IRC) assigned refugees from their regional offices in Georgia, Massachusetts, Texas, Montana, Oregon, California, Washington, and the District of Columbia.<sup>4</sup> Nevertheless, the number of refugees that each regional office resettled was determined by on-going communications between them and the national headquarters. Again, consistent with a scenario where refugees are assigned to places close to the regional offices, the Map in Appendix A shows that most IRC refugees were relocated near them.

On the other hand, religious voluntary agencies such as the United States Catholic Conference (USCC) and Church World Services resettle refugees through churches and church committees. USCC often resettles refugees through resettlement offices associated with Catholic charities in each of the Catholic dioceses of the United States. Usually, USCC refugees are placed in areas where housing and jobs are available, they generally avoid isolating refugees from their ethnic group but try not to concentrate them excessively in any area (Refugees Resettlement Program Report, 1984). The Lutheran Immigration and Refugee Services (LIRS) also resettles refugees mainly through congregational sponsors. They work through a three-tiered system where the local sponsor finds initial housing and helps with enrollment of minors into the school system, the regional office provides back-up support, and the national office supports and monitors the regional and local case management. As the USCC, LIRS also avoids areas that have already been heavily impacted with refugee population. The difference in the resettlement patterns is clear when looking at the Maps of this three organizations (see Appendix A), as all of them placed refugees throughout the whole country.

The Committee on Migration and Refugee Affairs from the American Council of Voluntary Agencies for Foreign Service (ACVAFS) was the main mechanism to coordinate the resettlement of refugees between voluntary agencies. Among its responsibilities, ACVAFS allocated the cases between the resettlement agencies. To do so it created the Indochinese Refugee Data Center through which all Indochinese refugees were channeled to the voluntary agencies. However, the reality of the distribution was different as Zucker (1982) explains that the number of refugees as well as which refugees was actuality determined by junior level personnel from the participating voluntary agencies. Moreover, Zucker explains that during the allocation meetings the representatives from the voluntary agencies analyzed biodata and decided which cases to accept depending on key characteristics such as family reunion, geography, ability to handle a specialized ethnic group, as well as the availability of sponsors.

The financial support and organization of the resettlement of Indochinese refugees was based on two assistance Acts. First, the Indochina Migration and Refugee Assistance Act of 1975 that appropriated 305,000,000 to the department of State for expenses related with reallocation and

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<sup>4</sup>The regional offices are located in Atlanta, Georgia; Boston, Massachusetts; Houston and Dallas, Texas; Missoula, Montana; Portland, Oregon; San Diego, Los Angeles, Orange County, San Jose, and San Francisco, California; Seattle, Washington; and Washington, DC.

resettlement of refugees and 100,000,000 for the department of Health, Education, and Welfare. Later, in 1979, the 1980 Refugee Act which established a single program of post-arrival assistance for refugees from all countries (Haines, 1985).

Given the nature of the exodus of refugees, the 1975 Refugee Act was designed rapidly to guarantee that the necessary funds were available to refund local governments and voluntary agencies for expenditures related to the resettlement of refugees. The discussion regarding the act during the “Hearings before the Subcommittee on Immigration, Citizenship, and International Law of the Committee on the Judiciary House of Representatives” reflects the urgency of the situation. The document also describes the instructions given to the initial nine voluntary agencies working on the resettlement: Indochinese refugees should be dispersed as evenly and equitably as possible through the United States avoiding resettlement in economically hard pressed areas.<sup>5</sup> Moreover, the voluntary agencies expected to process refugees within a few weeks of their arrival to the U.S. processing camps. <sup>6</sup>

Four years later, the 1980 Refugee Act updated the conditions for the geographical areas that should be taken into account by the government to determine the number of refugees that they should receive. It determined that the most important conditions were: the share of refugees, or individuals with similar characteristics, in the specific area; the availability of specific services such as housing, education, health care, and mental health; the number of employment opportunities and the likelihood of becoming economically self-sufficient in the area; the secondary migration to and from the area that would potentially take place in the future (Office of Refugee Resettlement, 2012). These conditions, together with the cost of living, are still the main determinants of refugee placement (Migration Policy Institute, 2017).

Nevertheless, an important concern is secondary migration. In order to measure the extent of this source of concern, the Office of Refugee Resettlement created the Refugee State-of-Origin Report. In this report, they used the first three number of the social security numbers - assigned geographically in blocks by State - to check the fraction of refugees in each State that had originally been assigned to that State as well as the number of refugees who had migrated to other states. Their estimates suggest that in 1983, 75% of refugees were still living in the state in which they were initially resettled. <sup>7</sup> Moreover, about 62% of interstate migrants moved to California as they were attracted by the climate, employment opportunities, training opportunities, and the possibility to be reunified with relatives or other members of the same ethnic communities (Hung, 1985; Refugees Resettlement Program Report, 1984).

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<sup>5</sup>The nine voluntary agencies were:U.S. Catholic Conference Migration and Refugee Services, American Fund for Czechoslovak Refugees, Church World Service\*, Lutheran Immigration and Refugee Service\*, United Hias Service INC.\*, International Rescue Committee\*, American Council for Nationalities Services, and Travelers Aid-International Social Services. (\* Are currently resettling refugees)

<sup>6</sup>To be more specific, the document states that there is a large fraction of refugees from the first wave - 55,000 refugees who were airlifted - that are related to American citizens or previous legal immigrants who could sponsor them. The voluntary agencies reported that they expected to process this type of refugee within a week and to resettle refugees without sponsors within a few weeks. It is also worth emphasizing that according to the documentation presented at the hearing, sponsors were also equally distributed across the country.

<sup>7</sup>In general, refugees applied for a social security number immediately upon arrival.

### 3.2 Demographic Characteristics

Southeast Asian refugees were, on average, younger than the general U.S. population. For example, they had a median age of 20 while the U.S. median was close to 29; moreover, 38.7% of Indochinese refugees were under the age of 15 while this proportion was only about 25% in the U.S. population (Haines, 1985). This is the result of the large number of children per refugee family. For instance, over a third of Vietnamese refugee families had more than six members (Haines, 1985).

Indochinese refugees that reached the U.S. were highly qualified. The results from a survey in Guam suggests that over 70 percent of households head speak good or excellent English. On average, 8.3% of Southeast Asian refugees living in Illinois had a college degree, 32.8% completed high school, and only 7% had no formal education. However, there was significant variance across countries; for instance, 14% of Vietnamese refugees had college degrees while only 7% of them (Laotian refugees) had the same level of education (Haines, 1985). Moreover, refugees' education level varies across year of immigration. Specifically, given the nature of the evacuation process, the share of highly qualified refugees from urban areas and professional backgrounds was higher in the first wave than over the following years (Hung, 1985; Refugee Act 1975).

Regarding employment history, over two thirds of Indochinese refugees used to work in white-collar occupations before migrating while only about half of the population in the U.S. worked in the same type of jobs at that time (Haines, 1985). Moreover, over 30% of Vietnamese refugees worked in professional and technical occupations while the share of workers in the same sectors was 15% for the U.S. general population.

The evidence, therefore, suggests that even though Southeast Asian refugees were exposed to war, which usually reduces educational attainment and in general human capital accumulation, the group that reached the U.S. was highly qualified both relative to their counterparts that stayed in Vietnam, Laos and Cambodia..

### 3.3 Comparison with U.S. population

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## 4 Data

The document contains information from three datasets: U.S. Decennial Census, Census of Population and Housing Summary Tape Files, and the National Education Longitudinal Study of 1988 (NELS 88). This section describes the data sources as well as the key variables used in the analysis and provides summary statistics.

## 4.1 National Education Longitudinal Study of 1988

This survey was administered by the U.S. Department of Education to measure human capital investment of students in the United States. It is a longitudinal study based on a nationally representative sample of 8th graders in 1988 that followed students throughout secondary, 10th and 12th grade, and post-secondary years, two and eight years after they were expected to graduate from high school. Each wave of the survey included responses from students, parents, teachers, and schools administrators.

The study initially included 24,599 students from 1035 schools. Nevertheless, only 16,874 students answered the first three follow-ups and only 10,640 students were followed until the end of the study 12 years later. However, it is worth emphasizing that there were no significant differences in the baseline observable characteristics between this group of students and the larger sample.<sup>8</sup>

### 4.1.1 School Choice

To address the first research question, whether students transfer to different schools in areas with a higher share of refugees, I looked at four questions from NELS 88 that provide information on changes of schools and home. Specifically, in 1988, parents were asked the number of times their child had changed schools since they started first grade. It is worth highlighting that parents were instructed not to include any changes that occurred from the promotion from one grade to another one or from one elementary school building to a middle school building in the same district. Additionally, in the second followup (12th grade) students were asked the number of times they had changed schools since 1988.

The survey also included two questions regarding moves to new homes. First, when students were in 10th grade, they were asked the number of times they had moved to a new home in the previous two years. Then, while they were in 12th grade, they were asked the number of times they had moved since 1988. In all cases, I defined the variables as moved or changed school if the students or their parents reported a positive number of changes.

### 4.1.2 Test Scores

Students participating in this study were required to complete standardized tests in 1988, 1990, and 1992. The tests included four sections: reading, mathematics, science, and history. To build an aggregate test score measure for each wave of the survey, the tests scores in each section are first standardized to have mean zero and standard deviation of one and then the total scores are calculated by adding them. Finally, to make tests across different years comparable, I standardize the aggregate test score in each wave to have mean zero and standard deviation of one.

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<sup>8</sup>I compared the baseline characteristics of the students who answered the four follow-ups against those who answered the first three. I still need to compare them with the original sample of students. Moreover, I will add a test to see if attrition is related with the share of refugees in the area.

### 4.1.3 Educational Attainment

The final follow-up of the study, in 2000, included questions regarding students' educational attainment. In particular, it asked students whether they had received a high school diploma and whether they had earned a general education diploma (GED). Students were also asked whether they had ever attended a 4-years educational institution and whether they had graduated from a post secondary education institution (PSE) and, if they had, the type of institution they had attended. It is worth mentioning that, as stated earlier, this information is only available for the smaller sample of students that answered the last follow-up wave of the study. Nevertheless, the use of the smaller sample should not affect the results as there were no significant differences in the baseline observable characteristics between this group of students and the larger sample.

### 4.1.4 Summary Statistics

Table 1 contains the summary statistics for the smaller sample of students who were interviewed in all waves. The first column contains the mean while the second column contains the standard deviation. The first part of the table summarizes student characteristics. It shows that half of the sample are females and that 73 percent of the sample are white Non-Hispanic. The next part of the table contains household characteristics and indicates that most student's mothers completed high school and attended at least some college. Moreover, only 10 percent of the sample has an annual income below \$10,000. Finally, the last part of the table contains school characteristics. The summary statistics reflect that only 10 percent of the students attend private schools, and that most of them attend relatively large schools with between 100 and 300 students. Moreover, on average, 24 percent of the students received free lunch in school, there is a small share of students with limited English Proficiency, and the average teacher-student ratio is 18. In general, the summary statistics indicate that between 10 percent and 24 percent of students live in disadvantaged conditions, depending on whether it is measured by their household income, mother's education, or the percentage of students who receive free lunch at school.

## 4.2 Decennial Census

The 5% Public Use Sample of the 1980 U.S. Census provides individual-level data on age, country of birth, immigration year, and county group. This information is used to calculate the share of refugees of a specific age group at the commuting zone level. To do so, as in the previous literature, refugees are defined by their country of origin and year of immigration (Cortes, 2004; Chin and Cortes, 2010; Fligio and Ozek, 2017). In particular, individuals born in Laos, Vietnam, and Cambodia, who arrived to the U.S. after 1975, the end of the Vietnam War, are counted as refugees. In addition, the sample is restricted to refugees that arrived before or during 1980 to exclude individuals who were admitted via family ties. The sample is further restricted to refugees who were born in 1973 and 1974 to keep only individuals who were 14 and 15 years old in 1988 - the age cohorts of the 8th graders in the NELS 88 sample. Finally, the share is calculated by dividing the number of refugees by the total population in the sample age group.

Table 1: Summary Statistics

	Mean	Standard Deviation
<b>Individual Characteristics</b>		
Female	0.50	0.50
Asian	0.02	0.13
Hispanic	0.08	0.28
Black, Non-Hispanic	0.12	0.33
White, Non-Hispanic	0.73	0.44
American Indian	0.04	0.20
Southeast Asia	0.0005	0.02
<b>Household Characteristics</b>		
Mother: High School Drop out	0.13	0.34
Mother: High School Graduate	0.35	0.48
Mother: Some College or More	0.42	0.49
Mother: Married or Marriage-like Relationship	0.79	0.41
Income: \$0 - \$9,999	0.10	0.31
Income: \$10,000 - \$49,999	0.64	0.48
Income: \$49,999 or more	0.23	0.42
<b>School Characteristics</b>		
Private School	0.11	0.32
1-99 Students	0.28	0.45
100-299 Students	0.46	0.50
300 or More	0.26	0.44
Percent Free Lunch in school	0.24	0.23
Percent Limited English Proficiency	0.01	0.05
Student-Teacher Ratio	17.74	4.75

Regarding the main geographic unit, it is worth mentioning that only areas with population over 100,000 can be identified in the 5% Public Use Sample. In practice, this implies that only specific county groups can be identified in 1980. Furthermore, as the 1990 sample does not have the same county groups, it is necessary to calculate the shares at the commuting zone level (CZ), as developed by Autor and Dorn (2013), to have a consistent geographic unit over time.<sup>9</sup>

### 4.3 Census of Population and Housing Summary Files

The Census Tabulations at the ZIP Code level complement the individual-level data. Specifically, the Census of Population and Housing Summary Tape Files 3b contains information on the share of Vietnamese living in each ZIP Code in 1980, a smaller geographic area. The main advantage of this variable is that it can be used to differentiate between areas within a CZ that have very different immigrant patterns.

In particular, based only on the information at the CZ each ZIP Code can only be assigned the share of refugees from the CZ where it is located. However, with the information at ZIP Code level, it is possible to distribute the share of refugees based on the fraction of refugees (from all age groups and immigration years) that live in each ZIP Code within a CZ. This is particularly useful to identify ZIP Codes with no refugees.

### 4.4 Office of Refugee Resettlement Records

The office of Refugee Resettlement recorded the information of all Indochinese refugees to prepare annual reports to Congress on the Refugee Resettlement Program. The information includes the day, month and arrival year as well as the exact date of birth of each Refugee. This information will be useful and I will be able to complement or replace the census information, which has less precise information on each geographic location. In particular, these records have information on the State and County of initial resettlement while the Census only has information of the location in 1980 at the commuting zone level. Nevertheless, it is worth mentioning that the State and County information is missing for 77,146 and 124,975 (respectively) out of 862,080 refugees who arrived between 1975 and 1985.

## 5 Empirical Strategy

The core analysis of the document includes two measures of the share of refugees. In the first measure, each ZIP Code is assigned the share of refugees from the CZ where it is located, if it is part of only one CZ, and the weighted average (by population) if it part of more than one CZ. The second measure or the adjusted share of refugees is calculated in two steps. First we calculate the adjusted share at the ZIP Code - CZ level:

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<sup>9</sup>Having a consistent geographic unit is important as we only observe the students in 1988, closest to the 1990 census. This will be particularly important if I decide to use the 1980 geographic distribution as an instrument for the 1990 geographic distribution.

$$AdjustedShare_{ij} = Share_{CZ_j,DC} * \frac{Share_{Zip_i,SF}}{Share_{CZ_j,SF}}$$

where  $Share_{CZ_j,DC}$  is the share of refugees aged 14-15 years old in 1988, who arrived to the U.S. between 1975 and 1980, living in CZ  $j$  as measured in the Decennial Census;  $Share_{CZ_j,SF}$  is the share of refugees from all age groups and arrival years, living in CZ  $j$  as measured in the Census of Population and Housing Summary Files; and  $Share_{Zip_i,SF}$  is the share of refugees from all age groups and arrival years, in ZIP Code  $i$  and CZ  $j$  as measured in the Census of Population and Housing Summary Files.<sup>10</sup> Then, like the first measure, each ZIP Code is assigned the share of refugees from the CZ where it is located or the weighted average of the CZ where it is located.

Both measures of the share of refugees will be used throughout the document as there are advantages and disadvantages of each measure. The main advantage of the first measure is that it only relies on refugees that arrived to the U.S. between 1975 and 1980. This is important as it is the period under which most immigrants from Vietnam, Laos, and Cambodia obtain lawful permanent residence as refugees and asylees instead of through family ties. It is also crucial for identification as refugee resettlement programs made considerable efforts to assign refugees to specific locations with the goal of dispersing Indochinese refugees throughout the U.S. (Hung, 1985). Furthermore, the Department of State provided grants to support voluntary agencies, which provide refugees shelter and help refugees find housing, incentivizing them to stay in the assigned location and, thus, reducing selection into geographic areas (Haines, 1985). Moreover, to reduce selection from secondary resettlement into certain states and counties, the share of refugees is based on the information from the 1980 Census instead of the 1990 Census.<sup>11</sup>

The main advantage of the second measure is that it increases the variation in the share of refugees and reduces measurement error. To understand why this is the case, it is worth mentioning that there are 937 Zip codes in the sample, of those 910 are located in one CZ, 52 are located in 2 CZs, and one is located in 3. In addition, CZ usually contains more than one ZIP Code; for instance, the CZ with the highest number of ZIP Codes in the sample has 47 different ones.<sup>12</sup>

The effect of an inflow of refugees on school and student outcomes is estimated using OLS regression specifications of the form:

$$Y_{iz,t+k} = \alpha + \beta Share_{zt} + X_{izt}\Gamma_1 + H_{izt}\Gamma_2 + S_{izt}\Gamma_3 + \varepsilon_{iz,t+k} \quad (1)$$

where  $Y_{iz,t+k}$  is the outcome of student  $i$ , in ZIP Code  $z$ , in period  $t+k$ .  $Share_{zt}$  is the share of refugees (or the adjusted share of refugees), aged 14-15, in ZIP Code  $z$ , who arrived

<sup>10</sup>For example, suppose there are two ZIP Codes inside a commuting zone with population of the same size. At the commuting zone level, the share of refugees aged 14-15 years old is 1.5% while the share of refugees from all age groups is 3%. At the ZIP Code level, the share of refugees from all age groups is 5% in the first ZIP Code and 1% in the second one. Combining both sources of information, the adjusted share of refugees in the first ZIP Code is 2.5% ( $1.5\% * (5/3)$ ) while the adjusted share of refugees in the second ZIP Code is 0.5% ( $1.5\% * (1/3)$ )

<sup>11</sup>The same reasons explain why it is problematic to use the ZIP Code share of refugees directly.

<sup>12</sup>In practice, this implies that there are 47 ZIP Codes with the same value of the share of refugees in the original share of refugees.

between 1975 and 1980.  $X_{izt}$ ,  $H_{izt}$  and  $S_{izt}$  are vectors of individual, household and school level characteristics. Additionally, the following models will be estimated:

$$Y_{iz,t+k} = \alpha + \beta I[\text{Share}_{zt} > j\%] + X_{izt}\Gamma_1 + H_{izt}\Gamma_2 + S_{izt}\Gamma_3 + \varepsilon_{iz,t+k} \forall j \in \{0.5\%, 1\% \} \quad (2)$$

where  $I[\text{Share}_{zt} > j\%]$  takes a value of one if the share of refugees, aged 14-15, in ZIP Code  $z$ , who arrived between 1975 and 1980 is higher than  $j\%$ . All regressions are weighted to adjust for attrition throughout the study.<sup>13</sup> In all regressions standard errors are clustered at the state level as information in the commuting zone is the same for all schools located in ZIP Codes inside the same commuting zones. However, the results based on the adjusted share of refugees, are not sensitive to clustering at the ZIP Code level instead of the state level.

To determine if the different measures of the share of refugees are systematically correlated with geographical area characteristics, I study the relationship between the share of refugees and commuting zone characteristics in Table 2 and between the share of refugees and ZIP Code level characteristics in Table 3. In Table 2 each column corresponds to a different regression where the dependent variable is the share of refugees at the commuting zone level in 1980 and the independent variables are the characteristics of the commuting zone in a different year. For instance, the first column is based on the 1960 U.S. Census. The first four variables are the percentage of Black, Hispanic, Asian, and other races, where the excluded category is the percentage of Non-Hispanic White. The next two variables are the share of high school graduates and the share who attended at least some college, omitting the share of high school dropouts. These variables are included to determine if refugees were more likely to be in places with higher educational attainment. The next four variables are intended to summarize the labor market conditions in each commuting zone. To do so I included the employment share and the labor force participation rate for females and males separately. Finally, the last two variables are a measure of the income in the area: the median household income as well as the share of households living below the poverty line.

The results from Table 2 are consistent with the Hearings before the Subcommittee on Immigration, Citizenship, and International Law of the Committee on the Judiciary House of Representatives. In particular, they indicate that the most important determinant of refugee placement is the share of Asians in the commuting zone and the 1970 median household income. This is consistent with a scenario where some refugees were placed in areas where their sponsors, American or previous legal immigrants, lived, and the others are places across the country avoiding economically pressed areas.

Instead of looking at the relationship across different years, the first column in Table 3 looks at the relationship between 1980 ZIP Code characteristics and the share of refugees, while the second column looks at the adjusted share of refugees. As the previous table suggests, the results from the first column indicate the share of refugees is higher in areas with a higher concentration of Asian. Moreover, the share of refugees is also positively associated with better economic conditions as measured by the median household income. The results from the second

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<sup>13</sup>I will confirm that the results are not sensitive to weighting.

Table 2: Correlation between the Share of Refugees at the Commuting Zone Level

	<b>1960</b>	<b>1970</b>
Percentage Black	-0.001 (0.001)	0.0008 (0.002)
Percentage Hispanic	-0.0048*** (0.002)	-0.0022 (0.002)
Percentage Asian	0.1922*** (0.046)	0.0532*** (0.020)
Percentage Other	-0.0070** -0.0029	-0.0139 -0.0085
Share High-School Graduate	-0.0053 (0.005)	0.0008 (0.005)
Share Some College or More	0.0140** (0.006)	0.0062 (0.004)
Female: Employed Share	-0.0101 (0.009)	-0.0021 (0.008)
Male: Employed Share	-0.0065 (0.009)	-0.0042 (0.014)
Female: Labor Force Participation	0.0028 (0.003)	-0.0007 (0.003)
Male: Labor Force Participation	-0.0005 (0.004)	0.0078 (0.005)
Ln(Median Household Income)	0.0093 (0.012)	0.0239** (0.010)
Poverty share	-0.0024 (0.002)	-0.0017 (0.003)
Observations	730	740
F	6.65	3.24
P-value	0.00	0.00

Notes: Standard errors, reported in parentheses, are clustered at the Commuting Zone level.

\*\*\* Significant at the 1 percent level.

\*\* Significant at the 5 percent level.

\* Significant at the 10 percent level.

Table 3: Correlation between the Share of Refugees at the ZIP Code Level

	Original Share	Adjusted Share
Percentage Black	0.0008*** (0.0003)	0.0008* (0.0005)
Percentage Hispanic	0.000 (0.00)	0.0021 (0.002)
Percentage Asian	0.0140*** (0.00)	0.1004*** (0.0295)
Percentage Other	0.000 (0.00)	0.000 (0.00)
Share High-School Graduate	0.000 (0.00)	0.0013*** (0.0005)
Share Some College or More	0.001 (0.00)	0.0021 (0.0011)
Female: Employed Share	0.000 (0.00)	0.0005 (0.0004)
Male: Employed Share	0.001 (0.00)	-0.0004 (0.0006)
Female: Labor Force Participation	0.0016*** (0.00)	0.0021*** (0.0004)
Male: Labor Force Participation	0.000 (0.00)	-0.0008 (0.0005)
Ln(Median Household Income)	0.0481*** (0.02)	-0.0086 (0.0165)
Poverty share	-0.001 (0.00)	0.0016*** (0.0006)
Observations	33950	33950
F	5.415	8.613
P-value	0.000	0.000

Note: Standard errors, reported in parentheses, are clustered at State level

\*\*\* Significant at the 1 percent level.

\*\* Significant at the 5 percent level.

\* Significant at the 10 percent level.

column reflect the same pattern. This indicates that the voluntary agencies took into account economic conditions to determine where to place refugees. That is, this is consistent with a scenario where voluntary agencies sought out housing for refugees in geographical areas with better socioeconomic outcomes.

The previous tables highlights the importance of including ZIP Code level controls in the regression. In future regressions, I will include these variables as controls. Moreover, to overcome the assumption of a linear relationship between the observable characteristics and the predicted values in OLS regressions, I also want to estimate the relationship through propensity score matching based on ZIP Codes characteristics from 1980 included in the table. To do so, I will first define the treated ZIP Codes as those with a refugee share above 0.5% (110 schools) or above 1% (60 schools). It is worth highlighting that, although the share of refugees seems low, it is the same threshold used by Figlio and Özek (2017) .

## 6 Results

This section reports estimates of equations (1) and (2) for student outcomes,  $Y_{iz,t+k}$ , at different points in time. The first set of results refers to the effect on student academic achievement and educational attainment. Then, the document explores whether the effects are heterogeneous by individual or school characteristics. All tables in this section have the same format. In particular, each cell is the coefficient of a separate regression where the title of the row indicates the dependent variable and the title of the column indicates the independent variable. In general, the independent variable will vary between the share of refugees, a dummy variable that takes the value of one if the share of refugees is higher than 0.5%, the adjusted share of refugees, and two dummy variables that take the value of one if the adjusted share of refugees is higher than 0.5% and 1% respectively.

### 6.1 Test Scores and Educational Attainment

Table 6.1 presents estimates of the effect of the inflow of refugees on student's standardized test scores in 8th grade, 10th grade, and 12th grade. The first two columns suggest that an increase in the share of refugees is associated with higher test scores in all years; however, the coefficients are never significant. Moreover, although having a share higher than 0.5% is associated with having a higher test score in 12th grade, there is no clear evidence of a relationship between the adjusted share of refugees and student's test score. Furthermore, in unreported regressions, including different thresholds, there is no systematic pattern between the adjusted share of refugees and test scores.

The following table looks at the effect on educational attainment. Panel A of Table 5 suggests that having a higher share of refugees is positively associated with the probability of graduating from high school. Specifically, column 5 indicates that attending a high school in a ZIP Code with an adjusted share of refugees higher than 1% is associated with an increase in the probability of graduating from high school of 4 percentage points. However, the first two rows suggest this results in an increase of the likelihood of taking a High School Equivalency Test (GED) instead of an increase in the probability of obtaining a diploma. The next Panel presents the effect on post secondary education outcomes. The results suggest that there is a small negative effect or no effect on the likelihood of graduating from a post secondary education institution. Moreover, looking at the difference between bachelor degrees and associate degrees suggest that that, if there is a decrease, it is coming from a reduction in the likelihood of graduating from two-year institutions rather than from a four-year college.

### 6.2 Heterogeneous Effects

Table 6 explores in more detail, the effect of the inflow of refugees on educational attainment to see if there are heterogeneous effects by income level. The results suggest that the inflow of refugees has an important effect on the outcomes of low income children but it does not affect students with yearly household income above \$10,000. In particular, column one indicates that attending a high school in a ZIP Code with an adjusted share of refugees higher than 1% is

Table 4: Impact of the Inflow of Refugees on Test Scores

	Share of Refugees		Adjusted Share of Refugees		
	Share	Share >0.5%	Share	Share >0.5%	Share > 1%
<b>Baseline</b> [N=13,050]	0.0627 (0.0569)	0.0643* (0.0338)	0.0196 (0.0241)	0.0164 (0.0481)	-0.0166 (0.0589)
<b>First Follow-up</b> [N=12,750]	0.0314 (0.0568)	0.0398 (0.0329)	0.00414 (0.0264)	-0.0166 (0.0516)	-0.0592 (0.0720)
<b>Second Follow-up</b> [N=10,480]	0.0430 (0.0648)	0.0443 (0.0525)	0.0158 (0.0230)	0.0847** (0.0393)	-0.0232 (0.0545)

Note: There are 160 schools with a share of refugees above 0.5%; there are 110 schools with an adjusted share of refugees above 0.5% and 60 with an adjusted share above 1%. Standard errors, reported in parentheses, are clustered at State level.

\*\*\* Significant at the 1 percent level.

\*\* Significant at the 5 percent level.

\* Significant at the 10 percent level.

associated with an increase in the likelihood of graduating from high school of eighteen percentage points. Moreover, it also decreases the likelihood of attending post-secondary education in twenty percentage points, where the largest part of the effect comes from a decrease in the likelihood of obtaining an associates degree. In general, the results show that an increase in the share of refugees affect mainly low income students and that it may reduce their educational attainment as it increases the share of students who graduate from high school but reduces the number of low income natives that complete post-secondary education. This is consistent with a scenario in which low income natives are exposed to a higher share of refugees that, given the relatively high levels of education of their parents, finish high school and push natives to complete high school but then displace them from college, potentially by taking the slots. Nevertheless, it is worth mentioning that the magnitude of this effect is large and it is important to determine if the effects are similar after including 1980 ZIP Code level controls.

Finally, to look at schools that are more likely to be resource constrained, Table 7 explores whether there are heterogeneous effects by comparing, first, schools below the median on the percentage of students that receive free lunch and, second, between those below and above the median teacher student ratio. As the previous table, the results indicate that the effects are stronger in schools that are more likely to be constrained. In particular, the share of refugees is positively associated with the likelihood of completing high school in disadvantaged schools, as measured by the percentage of students that receive free lunch. However, there are no differences in the likelihood of graduating from high school when comparing schools with low and high teacher student ratios. In particular, an increase in the share of refugees is associated, in both cases, with an increase in the probability of completing high school. Nevertheless, there are important differences in the effect of an increase in the share of refugees in the likelihood of completing an associate degree: the effect is negative and significant only for students in schools with the highest ratio of students per teacher.

Table 5: Impact of the Inflow of Refugees on Educational Attainment

	Share	Share of Refugees Share >0.5%	Share	Adjusted Share of Refugees Share >0.5%	Share > 1%
<b>Panel A: High School</b>					
<b>Has a High School Diploma</b>					
[N=8,850]	-0.0560*	-0.0606*	-0.00580	-0.0205	0.0145
	(0.0311)	(0.0311)	(0.00832)	(0.0131)	(0.0249)
<b>Has a High School Equivalency Test (GED)</b>					
[N=8,850]	0.0482	0.0620*	0.0193*	0.0215	0.0240
	(0.0305)	(0.0309)	(0.0103)	(0.0154)	(0.0256)
<b>Has a High School Diploma or GED</b>					
[N=8,850]	-0.00782	0.00145	0.0135**	0.00106	0.0385***
	(0.0174)	(0.0144)	(0.00509)	(0.0115)	(0.0140)
<b>Panel B: Post Secondary Education Institutions</b>					
<b>Attended</b>					
[N=8,770]	-0.0431*	-0.0371*	-0.00965	-0.0221	-0.0194
	(0.0242)	(0.0216)	(0.0103)	(0.0198)	(0.0301)
<b>Graduated</b>					
[N=8,770]	-0.0886***	-0.0447	-0.0151	-0.0408*	-0.0166
	(0.0300)	(0.0267)	(0.0149)	(0.0239)	(0.0374)
<b>Bachelor Degree or Higher</b>					
[N=8,770]	-0.0445	-0.00361	0.00480	-0.0265	0.000240
	(0.0325)	(0.0253)	(0.0157)	(0.0240)	(0.0332)
<b>Associate Degree</b>					
[N=8,770]	-0.0441*	-0.0411**	-0.0199***	-0.0144	-0.0168
	(0.0220)	(0.0171)	(0.00552)	(0.0170)	(0.0191)

Note: There are 160 schools with a share of refugees above 0.5%; there are 110 schools with an adjusted share of refugees above 0.5% and 60 with an adjusted share above 1%. Standard errors, reported in parentheses, are clustered at State level.

\*\*\* Significant at the 1 percent level.

\*\* Significant at the 5 percent level.

\* Significant at the 10 percent level.

Table 6: Heterogeneous Effects on Individual Characteristics

		Household Yearly Income		
		Low	Med	High
<b>Has a High School Diploma or GED</b>	<b>Share</b>	0.0623*** (0.0156)	0.00785 (0.00582)	0.00223 (0.00237)
	<b>Share &gt;1%</b>	0.182*** (0.0598)	0.0180 (0.0163)	0.00757 (0.00661)
<b>Graduated PSE</b>	<b>Share</b>	-0.0944*** (0.0183)	-0.0159* (0.00914)	0.00349 (0.0442)
	<b>Share &gt;1%</b>	-0.213*** (0.0338)	-0.0432 (0.0330)	0.0596 (0.0735)
<b>Bachelor Degree or Higher</b>	<b>Share</b>	-0.0425*** (0.00779)	0.00478 (0.00853)	0.00781 (0.0432)
	<b>Share &gt;1%</b>	-0.0657*** (0.0245)	-0.0206 (0.0323)	0.0210 (0.0693)
<b>Associate Degree</b>	<b>Share</b>	-0.0519** (0.0194)	-0.0207** (0.00830)	-0.00432 (0.00529)
	<b>Share &gt;1%</b>	-0.147*** (0.0349)	-0.0226 (0.0269)	0.0386 (0.0329)

Note: There are 110 schools with an adjusted share of refugees above 0.5% and 60 with an adjusted share above 1%. Standard errors, reported in parentheses, are clustered at State level.

\*\*\* Significant at the 1 percent level.

\*\* Significant at the 5 percent level.

\* Significant at the 10 percent level.

Table 7: Heterogeneous Effects on School Characteristics

	Percentage of Students with Free Lunch		Teacher Student Ratio	
	Low	High	Low	High
<b>Has a High School Diploma or GED</b>				
<b>Share</b>	0.00775*	0.0231***	0.0126**	0.0131**
	(0.00421)	(0.00792)	(0.00556)	(0.00632)
<b>Share &gt;1%</b>	0.0231	0.0813***	0.0423**	0.0453**
	(0.0144)	(0.0186)	(0.0197)	(0.0180)
<b>Graduated PSE</b>				
<b>Share</b>	0.00169	-0.0416**	-0.0117	-0.0196
	(0.0188)	(0.0156)	(0.0152)	(0.0172)
<b>Share &gt;1%</b>	-0.00101	-0.0620	-0.00968	-0.0312
	(0.0430)	(0.0462)	(0.0631)	(0.0387)
<b>Bachelor Degree or Higher</b>				
<b>Share</b>	0.0196	-0.0173	0.00955	0.00309
	(0.0206)	(0.0148)	(0.00983)	(0.0197)
<b>Share &gt;1%</b>	-0.00834	-0.0131	-0.00319	0.00807
	(0.0472)	(0.0294)	(0.0287)	(0.0431)
<b>Associate Degree</b>				
<b>Share</b>	-0.0179**	-0.0243**	-0.0212*	-0.0227***
	(0.00837)	(0.00928)	(0.0118)	(0.00639)
<b>Share &gt;1%</b>	0.00733	-0.0489	-0.00649	-0.0393**
	(0.0270)	(0.0311)	(0.0400)	(0.0176)

Note: There are 110 schools with an adjusted share of refugees above 0.5% and 60 with an adjusted share above 1%. Standard errors, reported in parentheses, are clustered at State level.

\*\*\* Significant at the 1 percent level.

\*\* Significant at the 5 percent level.

\* Significant at the 10 percent level.

## 7 Conclusion

There is a very limited number of studies that investigate how the inflow of refugees affects the education system of the host country. Yet, this topic is extremely important as there are currently over 10 million certified refugee children worldwide. This document investigates how the largest inflow of refugees in U.S. history - Indochinese refugees at the end of the Vietnam War- affected U.S. children. The results indicate that, on average, there is no effect of native's school choice or academic achievement. However, there is a small increase in the likelihood of graduating from high school, and there is a small reduction in the likelihood of obtaining an associate degree. These effects are particularly important for disadvantaged children as measured by their annual household income or the characteristics of their schools.

As I mentioned before, Table 3 highlights the importance of including ZIP Code level controls in the regression. In future regressions, I will include these variables as controls. Moreover, I also want to estimate the relationship through propensity score matching based on ZIP Code characteristics from 1980 included in the table. To do so, I will first define the treated ZIP Codes as those with a refugee share above 0.5% (110 schools) or above 1% (60 schools). Regarding, the magnitude of the share of refugees, it is worth highlighting that, although the value seems low, it is the same threshold used by Figlio and Özek (2017) , the only other document to study the effect of international refugees in the U.S. educational system.

A second source of concern is refugee secondary migration. For instance, if refugees migrate between 1980 and 1990, the effect on native students may be zero both because refugees have no impact on native's academic achievement or because natives were not truly exposed to refugees. To resolve this concern, first I'll study the magnitude of refugee secondary migration. If it turns out to be large, a potential solution will be to instrument the share of refugees from 1990, which is closer to the true refugee exposure, with the share of refugee from 1980, which is more plausibly random - at least after controlling for ZIP Code economic conditions.

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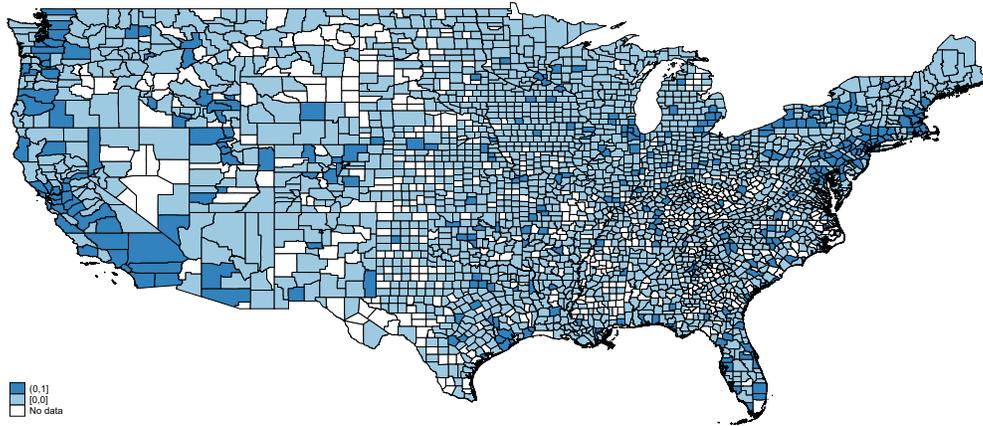
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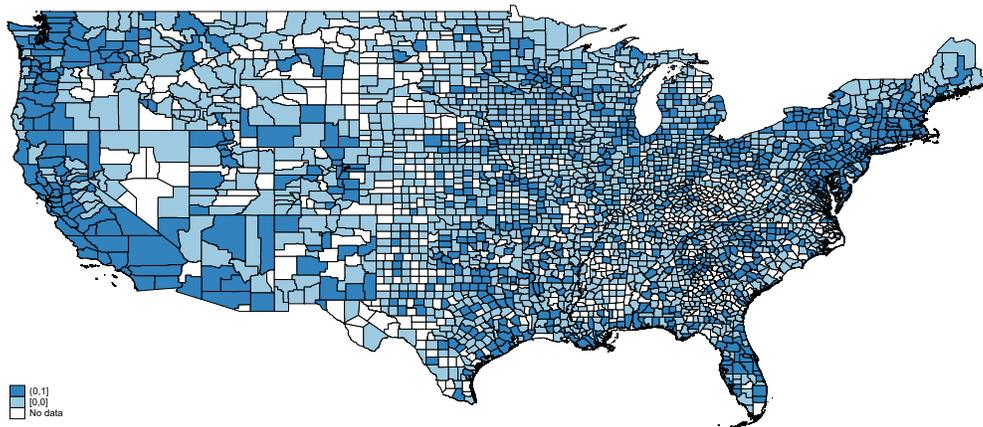
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# Appendix A: Location of Refugees by Voluntary Agency

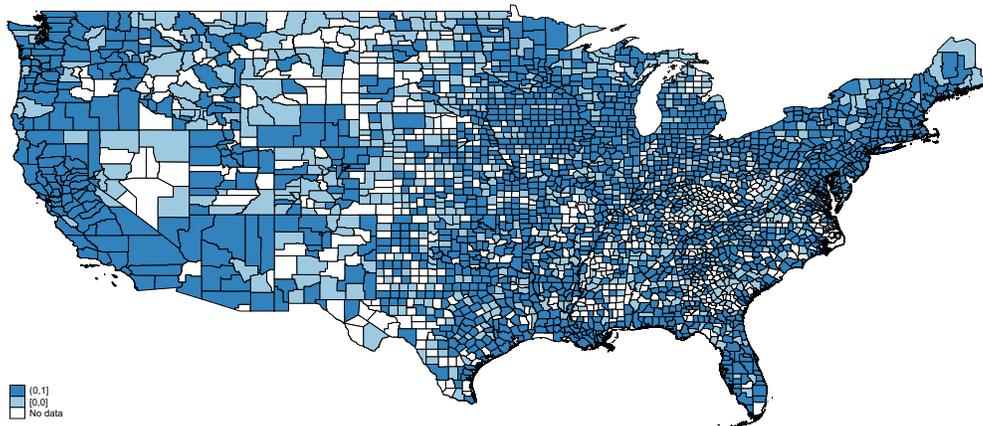
American Fund for Czechoslovak Refugees



International Rescue Committee



United States Catholic Conference



Lutheran Immigration and Refugee Services

