THE EFFECT OF SYRIAN REFUGEES ON THE SCHOOL ENROLLMENT OF YOUTH IN TURKEY

ELİF ERBAY

BOĞAZİÇİ UNIVERSITY

2020

THE EFFECT OF SYRIAN REFUGEES ON THE SCHOOL ENROLLMENT OF YOUTH IN TURKEY

Thesis submitted to the

Institute for Graduate Studies in Social Sciences

in partial fulfillment of the requirements for the degree of

Master of Arts

in

Economics

by

Elif Erbay

Boğaziçi University

2020

DECLARATION OF ORIGINALITY

I, Elif Erbay, certify that

- I am the sole author of this thesis and that I have fully acknowledged and documented in my thesis all sources of ideas and words, including digital resources, which have been produced or published by another person or institution;
- this thesis contains no material that has been submitted or accepted for a degree or diploma in any other educational institution;
- this is a true copy of the thesis approved by my advisor and thesis committee at Boğaziçi University, including final revisions required by them.

Signature E. Erbay

Date 14.09.2020

ABSTRACT

The Effect of Syrian Refugees on

the School Enrollment of Youth in Turkey

Since the beginning of the Syrian conflicts, many people took refuge in neighboring countries. Turkey is the top refugee-hosting country today with the number of nearly 3.6 million registered refugees. This study is conducted to estimate the effect of Syrian refugees on the high school and school enrollment of native youth. Instrumental variable approach is employed by exploiting the variation in the refugee fraction. Since both timings of the influx of Syrian individuals and the implementation of new education reform coincide, controlling for the effect of education policy makes notable differences in the results. I find that there is no significant effect of Syrian refugees on the high school enrollment of both male and female youth. However, there are some significant and positive impacts on the school enrollment. Individuals who have more educated household heads and males whose household heads are formally working increase their school enrollment as a response to the refugee influx. The reason of finding a positive effect would be that 18-year-old individuals have lower enrollment rates than other age groups since these significant results disappear if individuals who are at the age of 15-17 are included in the sample.

ÖZET

Suriyeli Göçmenlerin Türkiye'deki Gençlerin Okula Kaydolmasına Etkisi

Suriye'deki çatışmaların başlamasından itibaren, pek çok insan komşu ülkelere sığınmıştır. Türkiye bugün yaklaşık 3.6 milyon kayıtlı mülteci ile en çok mülteci ağırlayan ülke konumundadır. Bu çalışma, Suriyeli mültecilerin yerli genç halkın liseye ve okula kaydolmasına etkisini tahmin etmek amacıyla yapılmıştır. Mülteci oranındaki varyasyondan yararlanarak, enstrümantal değişken tahmin edicisi kullanılmıştır. Hem Suriyeli göçmenlerin geliş zamanı hem de yeni eğitim yasasının uygulanma zamanı kesiştiği için eğitim politikasının etkisini kontrol etmek sonuçlarda önemli farklılıklar oluşturmuştur. Suriyeli mültecilerin hem erkek hem kadın genç nüfusunun liseye kaydolmasında önemli bir etkisin olmadığı bulunmuştur. Fakat gençlerin okula kaydolmasında önemli ve pozitif etkileri vardır. İyi eğitimli aile reislerinin çocukları ve kayıtlı istihdamda olan aile reislerinin erkek çocukları okula kaydolmayı mülteci akınından dolayı artırmışlardır. Pozitif etki bulunmasının sebebi 18 yaşındaki bireylerin diğer yaş gruplarındaki bireylere göre daha düşük okula kaydolma oranlarına sahip olmasına bağlanabilir çünkü 15-17 yaş aralığındaki bireyler dahil edildiğinde bu önemli etki kaybolmaktadır.

ACKNOWLEDGMENTS

Firstly, I would like to thank my thesis advisor Prof. Murat Kırdar. He allocated time whenever I needed and always supported me in research and writing. I am very grateful to his very valuable comments and feedback, which provides me presenting the results in the most accurate and consistent way.

I should also express my gratitude to the committee members, Prof. Abdurrahman Aydemir, and Asst. Prof. Selcen Çakır, who kindly accepted to be in my thesis defense. I would like to thank the Scientific and Technological Research Council of Turkey (TÜBİTAK) BİDEB for their financial support through the 2210-A Master's Scholarship Program.

Lastly, I am very grateful to my family and my partner, Cihat, for providing me with wholehearted support and great encouragement in both the study and thesis process during my master years. This accomplishment would not have been possible without them.

TABLE OF CONTENTS

LIST OF TABLES

CHAPTER 1

INTRODUCTION

Immigration is currently one of the most significant matters in the world. Nearly 80 million people were displaced from their homes which is the highest level on record according to the United Nations Refugee Agency (UNHCR)[1]. There are several reasons of fleeing; but it is mainly sourced from security problems such as terrorist attacks, violation of human rights, and persecution. Additionally, economic concerns and educational opportunities are other factors determining migration decisions. Syria in which the civil war started in 2011 is the top source country of refugees. 6.6 million people have been forcibly displaced because of armed conflict; most of whom took refuge in neighboring countries. Turkey is the top hosting country with nearly 3.6 million registered refugees, around one-third of whom are at the school age, between the age of 5 and 18.

Many refugees still do not have access to basic rights including education, security, and health care. Education is a very important issue to integrate the refugees into society and to prevent these people from illegal activities. In Turkey, within the temporary protection law implemented in 2014, access to these basic rights are granted to registered refugees. In this way, Syrian people who are at the school-age can continue their education in public schools. In addition to this, temporary education centers provide the Syrian curriculum generally in Arabic to refugees both within the camps and outside the camps. While the right to education is a very important issue, there are some problems on the other hand. The distribution of

[1] See https://www.unhcr.org/figures-at-a-glance.html

educational resources between refugees and native students and the limited proficiency of refugee students in Turkish raise concerns among natives.

The economic theory analyzes the marginal cost and marginal benefit of schooling for natives to reach a conclusion in this context. The language constraint and the diversion of limited resources in terms of budget, class size, and teacher increase the marginal cost of education because these factors decrease the educational quality and crowd natives out of schools. On the other hand, the marginal benefit of schooling can increase due to the presence of low-skill migrants. As we know, Syrian refugees are less educated than natives and most of them still do not have a work permit. So, they generally work in the informal sector as low skill labor. An increase in the supply of low skill labor will decrease eventually the wages (Altonji & Card, 1991; Bagir, 2018). The demand side effect operates in the other way, which rises the labor demand. Overall, wages in the formal sector increases (Aksu, Erzan, & Kirdar, 2018). Therefore, the gap between formal sector wages and informal sector wages widens, which results in the increase of marginal benefit of education. Hence, whether immigrants crowd natives into or out of education depends on which effect prevails.

In the literature, the results are mixed. Some studies found that immigrations crowd natives out of education (Betts, 1998; Borjas, 2004; Brunello, 2013) while others suggest that marginal benefit outweighs the marginal cost of education (Hunt, 2017; Jackson, 2015; Tumen, 2018). Betts (1998) exploits the variation in the fraction of immigrants across states over time in the United States to investigate the effect of immigrants on the high school graduation of native-born Blacks and Hispanics. He finds the negative impact of immigrants on the high school graduation rates of native minorities. A similar analysis is conducted by Hunt (2017); however,

she employs instrumental variable approach and utilizes the 1940 settlement pattern of immigrants in the US. Her findings contradict the results of Betts (1998). Hunt suggests that the presence of immigrants increases the high school completion rate of natives. Another study evaluating the impact of immigrants on the enrollment in the graduate programs of natives and native-born minorities is conducted by Borjas (2004). He finds the negative effect for only native white men. While these papers study the effect of voluntary migration, the influx of Syrians to Turkey is a different case, which occurs involuntarily. Similar to the Syrian migration, Gould, Lavy, and Paserman (2009) perform an analysis evaluating the effect of mass migration from the Soviet Union to Israel on the long-term educational outcomes of natives. They use longitudinal data and employ instrumental variable approach. Their findings point out that immigrant flow negatively affects the matriculation rate and increases the drop-out rate of natives in high school, so that the marginal cost of education exceeds the marginal benefit. Assad, Ginn, and Saleh (2019) study the effect of Syrian refugees on the educational outcomes of Jordanian students by exploiting the variation in the intensity of Syrian refugees across cities and schools. They analyze the impact on the rich set of outcome variables such as years of schooling, test scores, educational attainment, and repetition of the same grade. They could not find any statistically significant effect of refugees on the educational outcomes of natives. Related to this study, the effect of Syrian refugees on the high school enrollment of native individuals is examined by Tumen (2018). Both the diff-in-diff approach and instrumental variable method are used in the paper. He found a positive effect on the enrollment of youth natives especially on the attainment of native men due to the influx of Syrians. Rather than external migration, Berker (2009) examines the effect

of internal migration on educational outcomes. A negative impact is found in his analysis.

Another important factor affecting the enrollment of native students is compulsory schooling. In 2012, compulsory education was increased from 8 years to 12 years, so that high school education in Turkey becomes mandatory. The key point is that the timing of educational reform and the Syrian influx almost coincides. Hence, separating these two effects from each other establishes the main aim of this paper. Aydemir and Kirdar (2017) perform an analysis to explore the return to schooling by exploiting 1997 compulsory education reform, increasing the mandatory education from 5 years to 8 years, in Turkey. They find that policy change increases schooling and the return to schooling is higher for females than males. Similar to their paper, Stephens and Yang (2014) explore the relationship between schooling and different variables such as wage, occupational status, unemployment, and divorce. By employing instrumental variable approach, they point out that additional schooling does not provide any benefit, especially for wages.

In this study, the effect of Syrian refugees on the high school enrollment and school enrollment of native young people aged between 15-18 is examined by using instrumental variable approach. I exploit the variation in the Syrian fraction across 26 NUTS2 regions over the years. For the analysis, the Turkish Household Labor Force Survey from 2010 to 2015 excluding the waves of 2012 and 2013 is used. The outcome variable is a binary variable such that it takes one if an individual attains a school and zero otherwise. The regression of the dependent variable on the refugee-to-population ratio after controlling for individual-level and family-related characteristics, and policy change. Relaxation of common trend assumption and

control of education reform in 3 specific versions are distinguishing features of this paper.

The estimated results suggest that after controlling for education policy, the effect of Syrian refugees on the high school enrollment is insignificant for both male and female youth. In the baseline model, I find some significant and positive effects but including the interaction of education reform with age, gender, household head's education level, and region of residence makes important changes in the estimations. All significant results disappear if I control for the most specific version of the policy variable. Additionally, unlike previous studies, I do not restrict and drop any observation from the sample and employ all available data in 4 waves of LFS. In addition to the high school enrollment, school enrollment including primary/secondary school enrollment, high school enrollment, and university enrollment is used as an outcome variable in the study. Estimated results show that individuals whose household heads are more educated and males who have formally working household heads increase their school enrollment due to Syrian refugees. However, 18-year-old individuals have low enrollment rates compared to other age groups in the sample. Therefore, the analysis is conducted by dropping individuals aged 18. Estimates show that Syrian refugees do not affect school enrollment of individuals who are at the age of 15-17.

The study makes a contribution to the related literature in two ways. Firstly, the common trend assumption is relaxed to capture the probable different trends in the enrollments across regions. Secondly, another important point is the control for the educational reform with 3 different specifications. Since the effect of policy change can vary according to gender, age, parents' educational attainment, and region, including all these factors is essential to obtain an unbiased estimation.

The outline of the paper proceeds as follows. The next chapter gives information about the Syrian civil war and the refugee wave toward Turkey and the education system in Turkey. Chapter 3 presents related literature on studies that analyze both the effect of migration on educational outcomes and returns to schooling. Chapter 4 outlines the data and displays the descriptive statistics. Chapter 5 examines the econometric model employed. In Chapter 6, the results are presented and discussed. Lastly, Chapter 7 concludes.

CHAPTER 2

BACKGROUND

2.1 Syrian civil war

Syrian civil war started in March 2011 within protests of individuals against the Bashar Al-Assad regime which has been a single-party government for a half-century. The demonstrations spread to all around the country in a short time and turned into brutal suppression. Fieldworks and investigations show that violation of human rights, torture, and war crimes such as the use of chemical weapons, deporting, blockade have been perpetrated by Ba'athist Syrian government. The scope of the conflicts has been widened over time and national uprising turned into a war involving different global actors and their interests.

Syrian Observatory for Human Rights (SOHR), a non-profit organization whose aim is mainly to observe and document the violation of human rights in Syria, reported recently that in the 9th year of the conflicts, the official number of total deaths is 384,000 yet the estimations are more than that. More than two million Syrian people were wounded and became disabled. Additionally, around 12 million civilians have been displaced from their homes.[2] Some of them moved to safer regions in Syria where the war is less severe while others took refuge in other countries. According to the United Nations (UN) statistics, 5,544,395 Syrian persons fled abroad by July 2020.[3] Turkey is the largest hosting country with 3,594,981 Syrian people. After Turkey, Lebanon (~900.000) and Jordan (~660.000) rank number two and three, respectively. More than 90% of Syrian refugees have

[2] See http://www.syriahr.com/en/?p=157193
[3] See https://data2.unhcr.org/en/situations/syria

registered in these three countries. Another neighboring country of Syria is Iraq in which total persons of concern are around 250.000. Egypt and other African countries also have hosted Syrian refugees, yet the number is very small comparing to persons in other places. It is an apparent that Syrian people fled to neighboring countries generally to protect themselves. Then, these countries have to handle the inflow of huge number of people in terms of food, accommodation, job opportunities, education, health, and security.

From the beginning of the war in Syria, Turkey has implemented an "open door" policy for Syrian people. At first, an individual coming from Syria was considered as a guest, not a refugee due to the terms of the 1951 Geneva Convention. Over time, the number of Syrian refugees in Turkey has increased, and returning to the home country has become a remote possibility since the severity of war intensified. As of 2014, temporary protection was given to Syrian refugees by the Government of Turkey. With temporary protection regulation, Syrian refugees are registered with Turkish authorities to benefit from public services and to get assistance. Registration also includes a non-return policy which protects a refugee against returning to Syria under coercion. Moreover, the conditions related to medical and psychological assistance, education, access to the job market, social aid, and other required services for the refugees were rearranged.[4]

According to the Turkey Migration Report published in 2013 by the Directorate General of Migration Management (DGMM), the number of Syrian citizens who came to Turkey is 252 on the first day of the crisis. This number has increased dramatically over time within migration waves from Syria toward Turkey. Figure A1 (Appendix A) displays the number of registered Syrian refugees in Turkey

[4] See https://www.goc.gov.tr/kurumlar/goc.gov.tr/gk_yon_getirdigi_yenilikler.pdf

from 2012 to mid-2020. In November 2019, Turkey hosted nearly 3.7 million Syrian people, which is the highest number of refugees since 2012. At first, Syrian people were located in temporary accommodation centers constructed in 10 cities which are mainly close to the Turkey-Syria border. Since peace and security have not been maintained in Syria, refugee waves have continued, and some refugees were located out-of-camps. A survey which was conducted by the Disaster and Emergency Management Presidency (AFAD) in 2013 shows that only 36% of Syrian refugees were in accommodation centers while the remaining were living in different cities. According to the latest data taken from DGMM, only 61,948 Syrian refugees accommodates in 7 camps in 5 various cities as of July 2020, which constitutes only 1.72% of the total registered Syrian population in Turkey.[5] Refugees living outside-of-camps are living in various cities in Turkey although at the beginning, they were concentrated in the provinces where the accommodation centers exist in order to benefit from public services and humanitarian aids given in these centers. Figure A2 (Appendix A) shows the provincial breakdown of Syrian refugees in Turkey as of July 2020. As can be seen from the figure, refugees are generally concentrated on the cities close to the Syria-Turkey border and the developed metropolitan cities such as İstanbul, İzmir, and Ankara.

While trying to achieve integration of Syrian refugees into the society, some concerns are raised in the areas of the labor market, security, availability of health services, and education. Table B1 (Appendix B) shows the demographic characteristics of refugees and natives in order to grasp current conditions. For Syrian refugees, the data is shared by DGMM, which is publicly available on the website.[6] Native statistics are calculated from the address-based population

[5, 6] See https://www.goc.gov.tr/gecici-koruma5638

registration system which is shared by the Turkish Statistical Institute (TURKSTAT). As can be seen from the table, the gender distribution is very similar between refugees and natives; however, we cannot reach the same conclusion for the distribution of age. Refugees are younger than Turkish citizens. Syrians whose age is between 0 and 14 constitute nearly 40% of the total refugee population while this ratio is only 23% for native citizens. For both groups, the share of the young population whose age interval is 15-18 is almost the same, around 7%. It is also deducted that one third of Syrian refugees is at school age. It is a huge number of the student population who were obliged to leave their education in Syria and have to continue in Turkey. In the beginning, education for Syrian children was provided by the education centers in the accommodation camps and by contributions of nongovernmental organizations. However, in time, the number of Syrian refugees has reached an astounding level. Then, Turkey's Ministry of Education (MoNE) introduced new regulations for the education of refugees under the temporary protection in September 2014. With new circular, Syrian children can register at Turkish public schools or attend temporary education centers within and outside of the camps. For registration of public school, presenting "Foreigner ID" is enough and there is no registration fee. In temporary education centers, the Syrian curriculum which is modified and planned with the cooperation of MoNE is taught in Arabic. In Table B2 (Appendix B), a comparison of the educational attainment of refugees and natives can be made. The data for Syrian individuals comes from the survey conducted by the Turkish Red Crescent while the Turkish Household Labor Force Survey is used for the calculations of natives. Briefly, native people are more educated than Syrian refugees according to the figures.

Overall, it can be said that due to the Syrian civil war, Syrian refugees began to come to Turkey in 2012 and they became permanent since the end of the war is very unlikely under current conditions. The integration of these people into Turkish society is a very critical process; yet, the Government of Turkey has imposed required measures. With these steps, Syrian refugees can find access to social aid, job market, education, health, and other required services easily. Education is the most important area to ease the transition process and to prevent a lost generation of Syrian children. By the actions of MoNE, Syrian children can continue their education in Turkey by enrolling in public schools or attending temporary education centers.

2.2 Turkish education system

The Turkish education system is based on the 4+4+4 system which has been introduced with "Primary Education Law No 6287"[7] in March 2012. Prior to the new regulation, 8-year unbroken mandatory education was provided to students. With the new system, compulsory schooling became 12 years, divided into 3 levels. The first level is 4-year primary schools in which students acquire basic knowledge, skills, and behaviors. The second level is lower secondary schools consisting of general lower secondary schools and lower secondary schools for imams and preachers. It provides 4-year compulsory education as well. And the final level is higher secondary education known as high school education which was not compulsory

[7] See https://www.tbmm.gov.tr/kanunlar/k6287.html

prior to education law. 4-year education, except preparatory classes, is provided to students in general high schools[8], and vocational and technical high schools.[9]

Two main objectives of raising compulsory education from 8 years to 12 years are increasing the average level of education in Turkey and rearranging the education system to give guidance to students according to their interests, needs, and abilities.[10] The significant point is that the timing of enforcement of education law in 2012 almost coincides with the timing of the Syrian influx. Hence, the enrollment of youth in high schools can change due to both compulsory schooling law and the impacts of Syrian refugees on the education system and labor market.

Today, more than 1 million Syrian children who are at school age have been living in Turkey and this number shows an increase every year. According to explanations of experts from MoNE, the estimated cost of educating Syrian students in the 2014-2015 educational year was roughly $252 million. Additional budget for refugee students is not provided, so MoNE spends on relevant expenses from its general budget.[11] This raises a concern about the allocation of lower financial resources for native students. Additionally, registration of Syrian students in public schools increased class size considerably in some cities.[12] Adults are worried about the negative peer effects of Syrian students in classes. Moreover, language is one of the most significant limitations in learning. A decrease in educational resources, lower education quality, negative peer effect would decrease the enrollment of

[8] Anatolian High School, Anatolian Teacher Training High School, Science High School, Social Sciences High School, Private High Schools

[9] Imam and Preacher High School, Anatolian Imam and Preacher High School, High Schools, Fine Arts High School, Sports High School, Special Education Vocational High Schools, and Private Vocational High Schools

[10] See http://www.meb.gov.tr/duyurular/duyurular2012/12Yil_Soru_Cevaplar.pdf

[11] When I Picture My Future, I See Nothing (Human Rights Watch, 2015)

[12] The Economic Effects of Syrian Refugees on Turkey: A Synthetic Modelling (ORSAM, 2015)

natives. For the impact of Syrian refugees on labor market outcomes of natives in Turkey, many studies have been presented (Del Carpio & Wagner, 2015; Ceritoglu, Yunculer, Torun, & Tumen, 2015; Aksu et al., 2018). The general conclusion is that migration affects negatively native workers in the informal sector while positive effects can be seen for the formal sector workers. Aksu et al. (2018) also found suggestive evidence of a fall in informal sector wages. Thus, the change in the dynamics of employment opportunities and earnings may have an impact on the schooling decisions of young individuals. Rather than leaving school and gaining lower earnings in the informal sector, they may continue their educational life and get a job in the formal sector.

Consequently, on the one hand, it is expected that the high school enrolment of youth in Turkey increases due to the compulsory schooling law. Separating its effect from other factors is a crucial part of the study. The existence of Syrian workers especially in the informal sector may directs native to school rather than working. On the other hand, Syrian students may discourage native students, which leads to a decrease in school enrollment.

CHAPTER 3

LITERATURE REVIEW

There is an extensive literature on the economics of migration. The effects of immigrants on the various fields are intrigued economists. One of these fields is education. Studies related to education and immigration can be divided into two categories. The first category encompasses papers examining the effect of migration on the host country's education outcomes and the second one covers studies looking for education choices of immigrants in the host country. This research analyzes the effect of Syrian refugees on the school enrolment of natives, so I will mention papers in the literature included in the first category.

Betts (1998) studies the effect of immigrants on the probability of high school graduation of American-born blacks and Hispanics. He argues that the presence of immigrants increases both the cost and benefits of education for natives. The mechanism works in the following way. Division of educational resources between immigrants and natives and limited proficiency of immigrant students in English lead to an increase in the marginal cost of education. On the other hand, if relatively less-skilled immigrants arrive in the country, the wage of unskilled labor decreases, and the wage of skilled labor increases, which causes the rise in the return to education. Therefore, the net effect of immigrants on the education outcomes of natives is ambiguous. The analysis is conducted by using 1980 and 1990 Census of Population and Housing. The sample includes minority groups aged 19-25 at the time of censuses. Difference-in-difference methodology is used to exploit the variation of immigrant-to-population ratio across states over time. The results show that immigrants negatively affect the high school graduation rate of native-born

minorities, both blacks, and Hispanics. The detrimental impact is greater for Hispanics than for blacks, but the crowding-out effect for Hispanics derives only from the trends in California.

Hunt (2017) exploits the 1940 settlement pattern of immigrants across states to analyze the effects of migration on the completion of 12-year schooling of non-Hispanic natives, native-born blacks, and Hispanics in the US. The paper is very similar to the study of Betts (1998) but it includes extensions in several ways. Firstly, Hunt groups immigrants according to their education level and analyze their impacts separately in the regressions. Additionally, instrumental variable approach is adopted by using US Decennial Census data from 1940 to 2000 and the pooled American Community Surveys between 2008 and 2010 to assess the net impact of migration. Likely the study of Betts (1998), she argues 2 channels through which immigrants can affect education outcomes of natives and American-born minorities: educational quality and labor market mechanism. The main difference is that not only the net effect but also the influence of two channels separately is examined in the paper. The net effect of immigrants on native completion of high school is relatively small but positive for non-Hispanic whites and blacks while for Hispanics, it is negative but not statistically significant. One percentage point increase in the share of immigrants rises the probability of completing high school by 0.3 percentage points for all samples and by 0.4 percentage points for native-born blacks. After 2SLS estimations, she finds evidence for the negative peer effect of immigrants on minority students. Moreover, the findings are in line with the hypothesis that the existence of low-skilled immigrants on the labor market may change the wage structure, which leads to increase in the completion rate of 12 years of schooling.

Borjas (2004) conducts a similar analysis to evaluate whether an increase in the foreign student enrollment of graduate programs crowds out natives and native-born minorities in those programs in the US universities. To conduct the analysis, he uses cross-sectional data from the Integrated Postsecondary Education Data System and the Higher Education General Information System for years of 1978, 1982, 1986, 1990, 1994, and 1998. The estimation results show that there is a strong negative relationship between the increase in the number of foreign students enrolled at a particular university and the decrease in the enrollment of white native men in the same university. The adverse effect can be seen especially in the most elite institutions.

Mass migration in the 1990s from the Soviet Union to Israel can be seen as a great chance to study migration economics. Gould, Lavy, and Paserman (2009) investigate the effect of this mass wave on the educational outcomes of natives in the long run. Their sample includes high school students who were in the 5^{th} grade when exposed to high immigrant concentration in the 1990s. They used panel data containing school enrollments and test scores of students from 1993-1994 to 2000-2001 school year by following each student from 5^{th} grade to high school. Instrumental variable methodology is employed, and they use predicted fraction of immigrants according to the birth cohort in the 5^{th} grade as an instrument. There are two outcome variables: high school drop-out rate and passing the matriculation exam. Their IV results propose that ten percentage point increase in the share of immigrants in the 5^{th} grade decreases the matriculation rate of natives by 2.8 percentage points and increases the drop-out rate by 0.8 percentage points. The adverse effect is larger for natives coming from the lower socio-economic background.

Another study examining the mass migration is conducted by Assaad, Ginn, and Saleh (2019). They investigate the effect of mass Syrian influx on the educational outcomes of natives in Jordan. They employ difference-in-difference strategy exploiting the variation in Syrian intensity by two variables: the ratio of immigrants in an individual's birthplace and the ratio of immigrant students in a native student's school. The Education Management System (EMIS) database for the 2016-2017 school year is used to match the school information and the ratio of Syrian students in each school with Jordan Labor Market Panel Data (JLMPD) of 2016. JLMPD is micro-level data and EMIS contains information about schools, teachers, classes, and students according to their nationality. 11 educational outcomes including years of schooling, test grades, school attainment, and grade repetition are outcome variables. Their identification comes from the difference between educational outcomes of old cohorts who are not exposed to refugees and of young cohorts exposed to them across high and low refugee-populated localities. As a result, they do not find any evidence for negative school performance or educational attainment of Jordanians due to the presence of Syrian students.

Tumen (2018) also examines the effect of Syrian refugees. The study addresses whether the high school enrollment of Turkish youth changes within the influx of Syrian refugees. Both difference-in-difference and IV methodologies are adopted by using the Turkish Household Labor Force Survey containing information about the final educational degree obtained and whether an individual attends school or not. Since there is no available micro-data for refugees in Turkey, he exploits the variation of Syrian density at the NUTS2 level. Until 2014, Syrian refugees were located in cities where temporary accommodation centers are established. After 2014, they have begun to settle in other regions, particularly in the developed cities.

Therefore, he argues that the influx of Syrian refugees was exogeneous until 2014. But, after that time, their settlement choice is not exogeneous, they decided to move to places to find a job easily or to benefit from comprehensive health, education, and financial services. So, he divides the migration process into two periods. Before 2014, it is exogenous and diff-in-diff model is used. After 2014, he employs IV-diff-in-diff methodology to overcome the endogeneity problem. In the diff-in-diff strategy, the pre-influx years are 2010 and 2011 and the post-influx years are 2012, 2013, and 2014. High refugee-populated regions in the eastern part of the country are specified as treatment regions including Gaziantep, Sanliurfa, Mardin, Hatay, and Adana NUTS2 regions while low refugee-populated regions in the area are determined as control regions consisting of Malatya, Erzurum, Agri, and Van NUTS2 regions. IV specification is also similar in the setting with diff-in-diff model. In this case, it exploits the variation in refugee concentration from 2014 to 2016 across Turkey and distance-based instrument (Del Carpio and Wagner, 2015) is used to solve the endogeneity problem. Additionally, the distance variable is included in the 2SLS regressions, which is used by Del Carpio and Wagner (2015). Control variables for parental background, regional economic activity, and educational resources are included in both settings. Moreover, his assumption is that the 2012 compulsory high schooling law is implemented nationwide, so its effect would be canceled out by differencing in the analysis of diff-in-diff model. Therefore, an additional control variable is not added to capture the effect of education law. OLS results show that the high school enrollment increases in high refugee-populated regions. The rise is mainly originated from the increase in the enrollment of males coming from the low socio-economic parental background. IV findings imply that one percentage point increase in the refugee-to-population ratio increases the

enrollment of natives by 0.4 percentage points and of males by 0.8 percentage points. There is no statistically significant effect on females.

Berker (2009) investigates the effect of internal migration on the education outcomes in Turkey. He uses 1990 and 2000 Turkish Censuses by exploiting the variation in the inflow of internal immigrants across provinces over time. First difference estimation methodology is adopted to get rid of the province fixed effects which can be related to both migrant flow and education outcomes. Additionally, the migrant-to-native ratio in 1990 is used as an instrument. The findings suggest that native students' completion rates of middle school and high school decrease as a result of internal migration. The negative effect is much larger for students with the lower socio-economic background.

Aydemir and Kırdar (2017) explore the causal relationship between schooling and wages in Turkey. They conduct an analysis to measure the return to schooling for young men and women by exploiting the 1997 education reform in Turkey. With the policy change, the duration of compulsory schooling increased from 5 years to 8 years. Their identification comes from the variation in schooling across birth cohorts. A significant point in the paper is that the local average treatment effect approaches the average treatment effect since the large fraction of the population was affected by the reform. Policy dummy is used as an instrument; it is one if an individual is affected by the policy change including those born in 1987 or later while it is zero for those who were born earlier. Turkish Household Labor Force Survey waves from 2002 to 2013 are used. They found that policy change increases schooling for both men and women as expected. The results from 2SLS estimations show that the return to schooling is slightly above zero for men and 3.8% for women. The return to high school is much more than the return to secondary school, so finding low estimates for

men is acceptable. For women, the underlying reason for higher estimates is that women compliers in the sample more tend to finish high school as an impact of reform.

Similarly, Stephens and Yang (2014) also estimate the causal link between schooling and different outcomes including wages, unemployment, occupational status, and divorce by using schooling laws in the U.S. states as an instrument. The waves of 1960, 1970, and 1980 U.S. Censuses of Population are used in the analysis. State-level changes in compulsory schooling provide the variation in schooling across birth cohorts within each state. An important point of the paper is the relaxation of common-trend assumption across states. Baseline estimates including state of birth and year of birth fixed effects show that there is a causal relationship between increased schooling and outcome variables. However, when the region-specific year of birth effects are added in the regression, the estimates become statistically insignificant. They claim that there are no benefits of additional schooling, especially for wages.

CHAPTER 4

DATA AND DESCRIPTIVE STATISTICS

For the empirical analysis, I use the Turkish Household Labor Force Survey (LFS) which is micro-level cross-sectional data set at NUTS2-level collected and published annually by the Turkish Statistical Institute (TURKSTAT). Indeed, data includes a variety of labor market variables but there is also information about the educational outcomes of individuals including the question that whether an individual is enrolled in a school at the time of the survey, the final educational degree obtained, and current school level if an individual continues school. Additionally, individual-level characteristics such as age, gender, marital status, and region of residence can be obtained from the data. Four waves of LFS from 2010 to 2015 are used in the paper excluding the years of 2012 and 2013. There is no information on the number of Syrians in Turkey in 2012, so I drop that year. The reason for excluding 2013 is to adopt a similar methodology with previous studies in order to compare results. As a different, I do not include the 2016 wave since there was a dramatic increase in the minimum wage that year, which would affect the schooling or working decision of youth. The methodology is applied to all regions in Turkey without any restrictions. Since my objective is to estimate the effect of refugees on the school enrollment of native youth, I include only individuals whose age is between 15 and 18. In addition to school enrollment, the high school enrollment is used as an outcome variable to make a comparison. School enrollment includes primary/secondary school enrollment, high school enrollment, and university enrollment. The outcome variable is a binary variable which takes one if an individual is enrolled in a school and zero otherwise. Similarly, high school enrollment is defined as a dummy variable taking 1

if an individual enrolls in a high school and 0 otherwise. The variables are constructed according to the current school level of individuals defined by five categories: primary and secondary school, general high school, vocational and technical high school, 2-year and 4-year college, and master and doctorate programs. However, before 2014, the definition of the variable is different, so rearrangement is needed. For this purpose, I divide schooling into four categories: no enrollment, primary and secondary school enrollment, high school enrollment, and enrollment of college and above. Before 2014, there was a category of distant education as well. To ensure consistency, an individual taking a distant education has been assigned to the corresponding schooling level according to the final education degree obtained. Moreover, in Turkey, parents' impact on the schooling decision of their children is substantial, so controlling this effect is important. Because of that, parental control variables including household heads' educational attainment, age, and marital status are added as well. The descriptive statistics of the sample by years are shown in Table B3 (Appendix B). It can be understood that the gender distribution is balanced. The fraction of 18-year-old individuals is smaller than other age categories every year, but the difference is trivial. On average, only 3% of the sample is married which is reasonable because these people are at school age. Nearly 60% of the sample enrolls high school before the refugee influx while this ratio is higher in 2014 and 2015. This increase can be attributable to education reform. Primary/Secondary school and university enrollments are very low. Around 90% of the families, the household head is male. More than 50% of them, the household head's age is between 45 and 64 and the age group of 25-44 follows it with 40% share. Nearly 90% of the families are intact. Household heads generally completed primary and secondary schools. Some of them, on average 15%, are illiterate or do not have any

degree. Around 13% of parents finished high school while for college graduates, this figure is nearly 8%. Table C1 (Appendix C) displays the high school enrollment rate of males and females at the NUTS1 region from 2008/2009 to 2014/2015 educational year. The enrollment rate is calculated as the number of students attaining high school divided with the population aged 15-19. National Education Statistics contains a rich set of information regarding the number of students, teachers, units, and schools by type of school and educational year. The population data is obtained from TURKSTAT, which is publicly available. It is a known fact that the enrollment is lower in the eastern part of Turkey, which can be observed from the table. In the 2008/2009 educational year, the high school enrollment rate of males is 57%, 64%, and 61% in Northeast Anatolia (region10), Central-east Anatolia (region 11), and Southeast Anatolia (region 12), respectively while the enrollment rate is more than 70% for males in other parts of the country. The female enrollment rate is less than 50% in eastern regions for the same year. Indeed, female enrollment is lower than that of males in every region. But the gap between male and female enrollment gets narrower over time. Another important point that can be deducted from the table is the dramatic increase in the enrollment rate of both males and females in the 2012/2013 educational year. This increase can be attributed to the change in the education law. High school becomes compulsory with the new regulation introduced in March 2012. In this way, students who finished secondary school in June 2012 have to attain high school in September 2012 corresponding to the educational year of 2012/2013. That leads to more than 5 percentage point increase in the enrollment rates in most of the regions. For the instrument, 2010 wave of Syrian Labor Force Survey, the bilateral distance of each Syrian governorate and the most populated city

in each NUTS2 subregion, and the total number of Syrian refugees in each year are used.

There is no micro-level data of refugees in Turkey, yet the report published by the Ministry of National Education General Directorate for Life-Long Learning includes the educational statistics of Syrian refugees at the aggregate level. In line with the report, Figure A3 (Appendix A) shows the number of Syrian students in Turkey and their schooling rate. Over time, the schooling rate reached 63% from 30% but this level is still low compared to natives' enrollment rates. Additionally, the number of Syrian female students who are enrolled in high school in the 2019/2020 educational year is 45,161 while the number of males is 42,317. According to these figures, the schooling rate at high school among Syrian refugees is only 32.5%.

LFS data does not contain any information about Syrians. In the study, the key variable of interest is the Syrian refugee fraction. To obtain the ratio, refugee numbers are divided by the population of the NUTS2 subregion in the particular year. Before 2013, the refugee-to-population ratio is accepted as zero because the number of Syrian people is negligible. For years of 2014 and 2015, refugee numbers come from two different sources: Erdoğan (2014) and DGMM, respectively.

CHAPTER 5

EMPIRICAL METHODOLOGY

This section describes the identification strategy and econometric model that is employed in the paper. In order to estimate the effect of Syrian refugees on the school enrollment of native youth, the baseline estimating equation with control for education policy is as follows.

$$e_{i,r,t} = \alpha + \beta R_{r,t} + X'_{i,r,t}\theta + F'_{i,r,t}\Gamma + \tau P_{i,t} + \delta_r + \delta_t + \varepsilon_{i,r,t}$$

where $e_{i,r,t}$ is a binary variable, taking one if individual i, in region r, in time t is enrolled in a school - primary/secondary school, high school, and university - and zero otherwise. The key variable of interest is the Syrian refugee fraction denoted by $R_{r,t}$. This ratio is zero before 2013, by definition. β measures the change in the enrollment of natives because of the influx of Syrian refugees into region r in year t. Therefore, it is the main parameter of interest in this study. $X_{i,r,t}$ stands for the individual-level characteristics including age, gender, marital status, and relation to head of the family. Γ captures family-related characteristics, $F_{i,r,t}$. Since measuring the effect of all family members on the enrollment of a young individual is not convenient, characteristics of the household head are included in the regression as a control variable, which are educational attainment, age, and a dummy variable indicating whether parents are married and living together or not. Both educational attainment and age of household head are categorized in the model. Educational attainment is measured according to the final educational degree obtained and divided into 6 categories: illiterate, no degree, primary school graduates, secondary school graduates, high school graduates, and a degree from college and above. Household head's age consists of six groups: 15-24, 25-34, 35-44, 45-54, 55-64, and

65 and above. $P_{i,t}$ is a dummy variable capturing the effect of policy change which is educational law implemented in March 2012. In the baseline, it is constructed by the interaction of two variables in the following way: $P_{i,t} = T_i \times Y_{i,t}$ where T_i is a dummy variable taking one if individual i born in 1998 and after that time and taking zero if individual i born before 1998. The reason for creating this dummy variable is that by the policy change, high school becomes compulsory for individuals who were born in 1998 and after that year. $Y_{i,t}$ is another dummy variable taking one after policy implementation (after 2012) and zero before 2012. Since the effect of compulsory high schooling can change according to region, gender, age, and educational attainment of household head, for more precise analysis, the interaction of these variables is also added. By adding the policy variable, the effect of Syrian refugees on educational attainment, and the impact of policy change on the enrollment are separated from each other. Otherwise, change in the school enrollment of natives due to the refugee influx would be miscalculated and results would be biased. δ_r and δ_t are region fixed effects and year fixed effects, consecutively. And lastly, $\varepsilon_{i,r,t}$ corresponds to error terms.

Instrumental variable (IV) methodology is employed in the paper to overcome the endogeneity problem. Syrian refugees fled to neighboring countries after the outbreak of civil war mainly due to security problems. Initially, Syrian refugees accommodated in refugee camps which were constructed and provided by the Government of Turkey. Therefore, in the beginning, their location choice was predetermined, so it was mainly exogenous. However, over time, they moved to the other regions of the country, especially to western parts because of different reasons. Hence, their location choice is not exogenous anymore. Without IV model, the results would be biased if the location decision of refugees is correlated with the

educational outcomes and school enrollments of natives. To address the endogeneity problem, I opt for the instrument which is used in the study of Del Carpio and Wagner (2015). IV is constructed in the following way:

$$IV_{r,t} = \sum_{s} R_t \pi_s \frac{1}{D_{s,r}}$$

where R_t is the total number of Syrian refugees in Turkey in year t, π_s stands for the fraction of Syrian population living in each governorate s before the civil war, and $D_{s,r}$ is the travel distance between each Syrian governorate s and the most populated city in each NUTS2 subregion. There are 13 Syrian governorates[13] and 26 NUTS2 regions, so 338 different travel distances exist, which provides the identification for the instrument.

Another critical point of the estimation methodology is the relaxation of the common trend assumption. In this paper, the common trend assumption implies that all regions show the same or similar trend in the school enrollment rates before 2012, the influx of Syrian refugees. Since satisfying the terms of this assumption is very hard, different specifications are employed in addition to the baseline model in which region and year fixed effects are used. Five-region linear time trends and five-region by year fixed effects are those specifications. Five regions are formed as the combination of NUTS1 subregions, namely West, Central, South, North, and East regions.

Since an individual should decide whether he or she attends a school or finds a job and works there, the unemployment rate is an important factor to make a decision in this context. Therefore, the five-year lagged unemployment rate is also controlled in the robustness check. The reason for using a lagged variable is that the

[13] Aleppo, Raqqa, As-Suwayda, Damascus and Rif Dimashq, Daraa, Deir Ez--zor, Hama, Hasaka, Homs, Idlib, Latakia, Quneitra, Tartus (Damascus and Rif Dimashq are combined)

current unemployment rate can be highly correlated with the key variable of interest, refugee-to-population ratio. Therefore, it would be a bad control.

Lastly, in some specifications, I added logarithmic year-specific distance from the most populated city in each NUTS2 region to the closest Syrian border-crossing used in the papers of Del Carpio and Wagner (2015) and Tumen (2018) to compare the findings with the previous studies.

CHAPTER 6

RESULTS

In this chapter, I will introduce and discuss the estimation results obtained by using 2010, 2011, 2014, and 2015 waves of LFS data set with two-stage least square (2SLS) regression analysis. The objective of the study is to estimate the effect of Syrian refugees on the school enrollment of native youth by separating the impact of education policy which leads to an increase in the year of compulsory schooling from 8 to 12 years. Dependent variable is a binary variable showing the school enrollment such that it takes one if an individual is enrolled in a school, and zero otherwise. The sample is restricted to the age of 15-18. Four different models are conducted in the study and the estimated results of each model are shown in separate columns. In each model, NUTS2 region fixed effects and year fixed effects in addition to individual-level characteristics and control variables for the household head are included. The first model is the baseline model. The second and third models include five-region linear time trends and five-region-year fixed effects constructed by the interaction of five-region and year, respectively. In the final model, the natural logarithm of the year-specific distance variable is controlled to make a comparison with the findings of Tumen (2018). Moreover, the analysis contains the variable of education reform in three different ways. In each row, different specifications are listed. The first row is the baseline model in which the policy variable is not included. In the second row, the basic version of the policy variable is controlled while in the third row, the interaction of policy variable with age, gender, and the educational attainment of the household head is used. The reason of using interaction is that the impact of reform can change according to age, gender, and household head's education level. More

specifically, the reform's effect can depend on the location of individuals as well. Therefore, in the fourth row, five-region interaction is also added additionally. The standard errors are clustered at NUTS2 x year level and shown in the parenthesis. The findings are presented in two parts: firstly, the estimated findings using high school enrollment as an outcome variable are presented. This part is similar to the study of Tumen (2018), yet it is not a replication. Distinctly, I control education policy in 3 different ways and avoid dropping any observation to obtain unbiased results. In the second part, the dependent variable is the school enrollment which is a broader concept including primary/secondary school enrollments, high school enrollments, and university enrollments. The reason for creating this variable is that I do not want to restrict enrollment into only one level.

Table D1 (Appendix D) illustrates the estimated impact of Syrian refugees on the high school enrollment of native youth. The significant impact is not observed except for one specification. However, when the interaction of policy variable with age, gender, household head, and region is included, this effect cancels out. Overall, it can be said that there is no significant effect of Syrian refugees on the high school enrollment of natives. Moreover, the difference between the baseline model and the most specific version of the policy variable gives us the impact of education reform.

Table D2 (Appendix D) shows the results of males and females separately. The effects on both males and females are in line with the previous table. In the most specific version of the policy variable, the results are insignificant for both genders. That means, the high school enrollment of native males and females is not affected by the presence of Syrian refugees. The effect of education policy can be observed clearly from the estimations of males. In the baseline model, there are significant results for males at least 5% level. However, in the last row, we cannot observe any

significant results. Therefore, it can be deduced that if I do not control for education policy, the increase in the high school enrollment is attributed to Syrian refugees, which is an incorrect inference.

Table D3 (Appendix D) presents the results of two samples: individuals whose household heads have less than a high school diploma and completed at least high school. Both samples are not affected by the influx of refugees in terms of high school enrollment. Another important point is that the policy effect can be obviously seen for the sample who have more educated household heads. For this sample, there are significant estimates in the first column. For instance, in the baseline model, one percentage point increase in the refugee-to-population ratio increases the high school enrollment by 0.36 percentage point. However, when the most specific version of the policy variable is controlled, the effect cancels out. This is an expected result that educational reform mostly affects individuals who are coming from more educated families.

Table D4 (Appendix D) shows the estimated effect of refugees according to household heads' educational attainment and gender. The effect on males and females in both samples is not significant. As mentioned above, the impact of policy reform can be seen clearly from the estimates of both males and females whose household heads completed at least high school. According to the findings in the baseline model in the first column, both males and females increase high school enrollment because of Syrian refugees. However, the effect disappears when I control for policy variable in the last row.

Table D5 (Appendix D) shows the estimated impact of refugees in terms of household head's employment status in two categories: formal employment and informal employment. All estimated results are insignificant for the sample with

formally working household heads. There are significant findings for the other sample, yet the significance disappears if the most specific version of the policy variable is controlled.

Table D6 (Appendix D) presents similar results with the previous table but in this case, the male and female estimations are conducted separately. High school enrollment of individuals whose household heads are informally employed is not influenced by the influx of Syrian refugees. However, males with formally working household heads increase the high school enrollment as a response to Syrians. If the refugee fraction increases by one percentage point, the rise in the high school enrollment of males with formally working household heads lies within 0.37 and 0.50 percentage points. This is an inconsistent finding with the previous study which finds that males whose household heads are informally working increase their high school enrollment. For females, a significant effect is not found.

Overall, the estimates for the high school enrollment are inconclusive for both genders. Even in most of the baseline models, I do not find any effect sourced from refugees. When the logarithm of the year-specific distance variable is controlled in column 4, in some models, the coefficients become bigger and significant. However, controlling the interaction of the policy variable with individual-level characteristics and region makes a substantial difference and provide more reliable results.

Tables E1-E6 (Appendix E) show the estimated impact of Syrian refugees on the school enrollment of native youth. All these tables are divided into two parts. The only difference between panel A and B is that in panel B, individuals aged 18 is excluded from the analysis. Table C2 (Appendix C) explains the reason of this restriction. The table shows the 3 different enrollment rates – high school enrollment

rate, university enrollment rate, school enrollment rate – of the sample according to year, gender, and age. As can be observed from the table, the high school enrollment rate falls almost by half at the age of 18. The decline is much more for females compared to the decrease in the males' high school enrollment rates. Additionally, at the age of 18, the university enrollment rate is not higher than the one at the age of 19. Hence, both high school and university enrollment rates are lower for individuals aged 18. The low enrollment rates would be because of various reasons – high school graduation, gap year, marriage, etc. – and would lead to biased results. Therefore, analysis is conducted both by including and excluding the individuals at 18-year-old.

Table E1 (Appendix E) shows the Syrian refugee effect on the school enrollment of native youth. In both panels, when I control for the interaction of education policy with age, gender, household head's education level, and region of residence, there is no significant result except one specification. In the last column, the regressions are conducted by controlling for the natural logarithm of the year-specific distance variable in order to follow a similar strategy with the previous study. One percentage point increase in the Syrian refugee fraction increases the school enrollment of natives by one percentage point. Since I used a distance-based instrument in the paper, controlling for time-varying distance leads to little variation in the key variable of interest. However, if 18-year-old individuals are dropped, the effect becomes insignificant.

Table E2 (Appendix E) presents the results of males and females separately. In panel A, some estimations are significant for both genders in the last column. Additionally, when five-region and year interaction is controlled, there is a positive effect on the enrollment of males. More clearly, one percentage point increase in the Syrian fraction generates 0.2 percentage point increase for males. When only

individuals aged 15-17 are included, the significant effect cancels out. Moreover, the impact of education reform is seen from the estimates of males in panel A.

Table E3 (Appendix E) illustrates the findings by dividing the observations into 2 samples: the sample with more educated household heads and the one with that household head's education level is less than high school. Except in the last column, the school enrollment of individuals with less-educated household heads is not affected by the presence of Syrian refugees. Yet, the same conclusion is not reached for individuals whose household heads completed at least high school. In the last row, it is observed that the school enrollment increases by at least 0.5 percentage points if the refugee-to-native ratio increases by one percentage point. Nevertheless, excluding the individuals aged 18 from the sample makes a substantial difference. The significant results disappear in the analysis.

To grasp the underlying mechanism of an increase in the enrollment of individuals with highly educated household heads, separate regressions for males and females are conducted and shown in Table E4 (Appendix E). In line with the previous findings, both males and females with household heads who have at least a high school degree increase their school enrollment due to Syrian refugees. The increase is much more for females than for males. One percentage point increase in the Syrian fraction generates around 0.5 and 0.7 percentage points rise for males and females, respectively. Dropping 18-year-old individuals leads to insignificant results for females, but only one significant result remains for males. The effect on individuals whose household heads are less educated is insignificant.

Table E5 (Appendix E) displays the estimated impact of refugees according to the household head's employment status: formal employment and informal employment. Table E6 (Appendix E) shows the same analysis, but male and female

results are produced separately. From Table E5 (Appendix E), it is seen that Syrian refugees do not influence the individuals whose household heads are working formally and informally. In more detail, there is a significant increase in the enrollment of males whose household heads are working in formal sector, which is shown in Table E6 (Appendix E). However, the effect disappears if only individuals aged 15-17 are included. For females, there is no impact of Syrian people in both employment type.

To summarize, significant results are obtained especially when the time-specific distance variable is controlled. The main purpose of using this variable is to show that how results change significantly by using it. Except for the findings of column 4, it can be said that the school enrollment of both males and females who have household heads with at least a high school degree increases as a response to the presence of Syrian refugees. Additionally, significant positive results are found for males whose household heads are working in the formal sector. However, almost all these significant results disappear if I restrict the sample into individuals aged 15-17. Low school enrollment rate of 18-year-old individuals would be the reason for these findings. There is only suggestive evidence of an increase in the school enrollment of males whose household heads are more educated. This can be explained with the increase in the wages of formal sector, mainly because of the change in the labor market dynamics after the Syrian influx.

In the robustness check, I also control for a 5-period lagged unemployment rate. Table F1 and Table F2 (Appendix F) show the estimated results by using this lagged unemployment rate. Table F1 (Appendix F) illustrates the estimations for whole sample while Table F2 (Appendix F) displays the results for both genders separately. The findings of these tables can be compared with Table E1 and E2

(Appendix E). Adding 5-period lagged unemployment rate changes estimates very little. Therefore, it can be said that key findings are robust.

CHAPTER 7

CONCLUSION

The Syrian conflicts began in March 2011 and provoked a civil war in a short time. Many people fled to neighboring countries to find secure places. Turkey is the top refugee-hosting country today with the number of 3.6 million registered refugees. Such a mass influx also leads to many concerns in the areas of employment, security, and education. Although native people worry about the presence of refugees, the lack of access to education which is among the basic rights cannot be an acceptable situation. Ministry of National Education provided access of refugees to public schools in 2014 as well as the facilities of temporary education centers. In this study, I examine the effect of Syrian refugees on the high school enrollment and school enrollment of native youth while separating the impact of the compulsory schooling law which is passed in 2012. The timing of these two phenomena almost coincides, so controlling for both factors is a significant point. Not only the effect of Syrian refugees but also the impact of education reform is presented in the study. By using LFS data set, instrumental variable approach is employed. Unlike previous studies, I find that the refugees do not affect the high school enrollment of native youth. Adding education policy makes a substantial difference in the findings. For school enrollment, there are some significant positive effects however low enrollment rate of 18-year-old students would be reason of this impact. I find that individuals whose household heads have at least a high school degree increase their school enrollment due to Syrian refugees. Moreover, refugees affect positively school enrollment of males whose household heads are formally employed. Nevertheless, as mentioned before, dropping 18-year-old individuals makes a considerable difference. All

significant results disappear. The most important contribution of this study is that after controlling for education reform, there is no significant effect of Syrian refugees on the educational attainment of native youth. Otherwise, the rise in the high school enrollment because of compulsory high schooling would be attributed to Syrian refugees while the underlying mechanism is totally different.

APPENDIX A

INFORMATION ON SYRIAN REFUGEES IN TURKEY

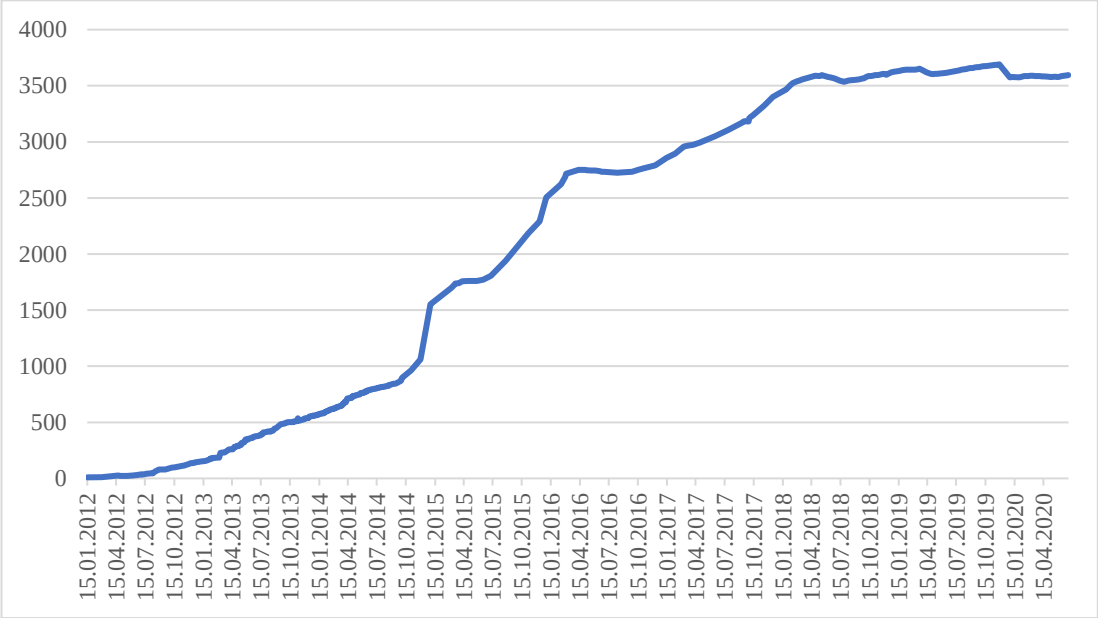

Figure A1. The number of registered Syrian refugees in Turkey (in thousands)
Source: UN Refugee Agency

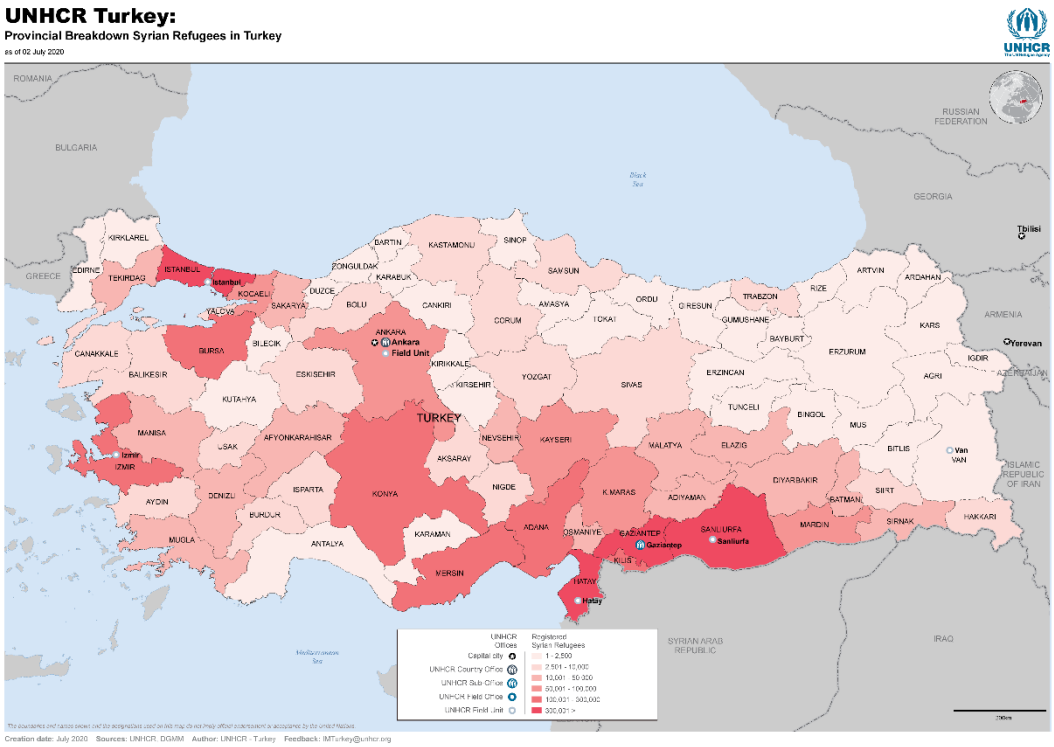

Figure A2. Provincial breakdown of Syrian refugees in Turkey
Source: UN Refugee Agency

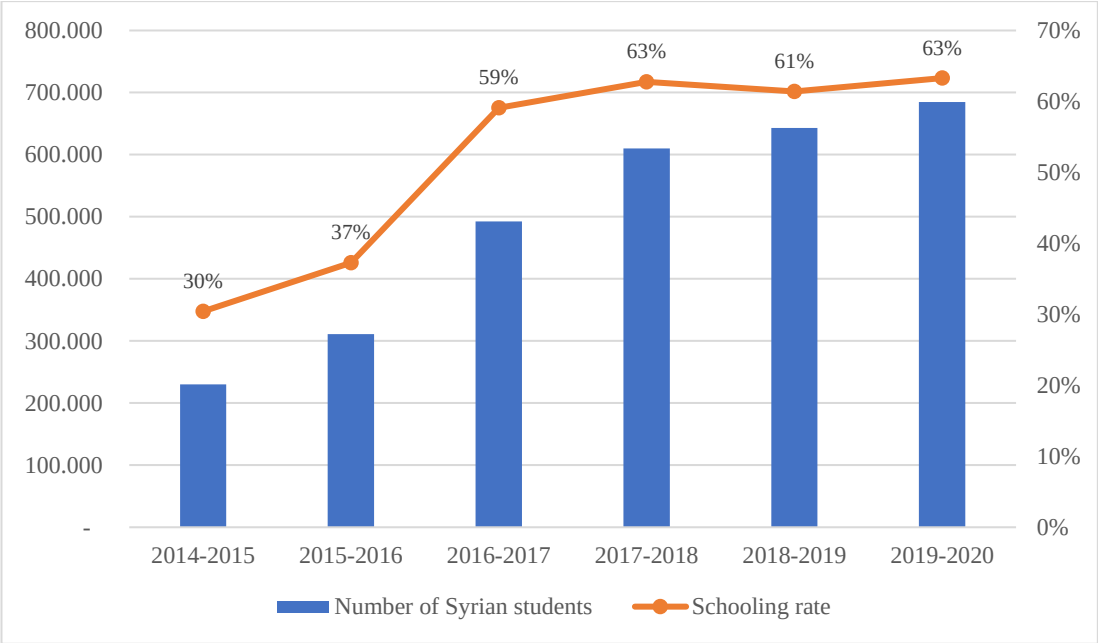

Figure A3. The number of Syrian students in Turkey and the schooling rate
Source: General Directorate for Life-Long Learning

APPENDIX B

DESCRIPTIVE STATISTICS

Table B1. Demographic Characteristics of Natives and Syrian Refugees (%)

	Refugees	Natives
Gender		
Male	53.9	50.2
Female	46.1	49.8
Age		
0-14	39.7	23.1
15-18	7.2	7.6
19-54	47.3	50.6
55-64	3.7	9.6
65+	2.1	9.1

Note: The demographic characteristics of Syrian refugees is obtained from the website of DGMM as of July, 2020. For natives, numbers are taken from TURKSTAT. The data is publicly available, and the latest data is as year of 2019.

Table B2. Highest Education Level Obtained by Natives and Syrian Refugees in 2018 (%)

	Refugees	Natives
Education Level		
Illiterate	11.0	6.3
Literate but no formal education	10.0	4.8
Primary school	42.0	31.2
Secondary school	20.0	22.5
High school	10.0	19.5
University level and above	8.0	15.7

Note: The number of Syrian refugees comes from a survey conducted by Turkish Red Crescent and World Food Program in 2018. For natives, the numbers are calculated using Turkish Household Labor Force Survey 2018 micro data set.

Table B3. Descriptive Statistics of Youth in Turkey (%)

	2010	2011	2014	2015
Gender				
Male	50.63	50.66	51.30	51.25
Female	49.37	49.34	48.70	48.75
Age Groups				
15	25.80	25.22	25.60	26.17
16	25.46	25.75	26.48	25.04
17	25.42	25.53	25.55	26.29
18	23.32	23.50	22.38	22.50
Marital Status				
Married	3.17	2.75	3.18	2.78
Enrollment				
No enrollment	37.66	35.99	29.06	25.89
Primary/Secondary School Enrollment	2.27	2.32	2.15	2.48
High School Enrollment	57.62	59.19	66.63	69.43
University Enrollment	2.45	2.49	2.15	2.19
Parent Gender				
Male	88.41	88.88	90.08	90.08
Female	11.59	11.12	9.92	9.92
Parent Age Groups				
15 - 24	1.16	1.23	1.01	0.90
25 - 44	40.19	38.73	39.29	38.95
45 - 64	52.81	54.27	54.25	54.66
65 +	5.85	5.78	5.44	5.49
Parent Marital Status				
Married	90.25	90.30	91.14	91.42
Parent Educational Attainment				
Illiterate & No Degree	16.25	15.66	14.09	11.81
Primary & Secondary School	63.41	63.42	64.93	66.60
High School	12.90	12.98	12.72	13.15
College & Above	7.44	7.94	8.26	8.45
# of observations	38,219	37,722	38,382	37,812

Note: Data source is TURKSTAT. Fractions are calculated from LFS data set.

APPENDIX C

SUMMARY STATISTICS FOR ENROLLMENT RATES

Table C1. High School Enrollment Rate by Gender and Year at NUTS-1 Level

	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013	2013/2014	2014/2015
Istanbul							
Male	0.790	0.886	0.864	0.888	0.942	0.956	0.973
Female	0.761	0.839	0.850	0.881	0.933	0.940	0.950
West Marmara							
Male	0.757	0.808	0.800	0.805	0.845	0.845	0.845
Female	0.715	0.769	0.780	0.774	0.808	0.821	0.825
Aegean							
Male	0.723	0.805	0.780	0.804	0.854	0.888	0.892
Female	0.685	0.752	0.760	0.783	0.830	0.860	0.876
East Marmara							
Male	0.814	0.899	0.867	0.876	0.913	0.930	0.939
Female	0.731	0.799	0.815	0.835	0.885	0.912	0.932
West Anatolia							
Male	0.774	0.870	0.823	0.844	0.891	0.914	0.930
Female	0.717	0.797	0.788	0.804	0.857	0.880	0.905
Mediterranean							
Male	0.715	0.790	0.772	0.796	0.849	0.921	0.903
Female	0.656	0.718	0.740	0.769	0.823	0.898	0.886
Central Anatolia							
Male	0.745	0.768	0.758	0.773	0.826	0.873	0.894
Female	0.609	0.677	0.700	0.727	0.789	0.836	0.851
West Black Sea							
Male	0.720	0.794	0.781	0.801	0.852	0.890	0.901
Female	0.640	0.715	0.740	0.771	0.837	0.884	0.900
East Black Sea							
Male	0.766	0.842	0.825	0.830	0.877	0.909	0.900
Female	0.694	0.767	0.793	0.812	0.871	0.904	0.911
Northeast Anatolia							
Male	0.568	0.632	0.612	0.643	0.709	0.751	0.746
Female	0.429	0.488	0.522	0.554	0.634	0.699	0.693
Central East Anatolia							
Male	0.636	0.718	0.668	0.724	0.786	0.817	0.826
Female	0.462	0.531	0.543	0.604	0.669	0.726	0.739
Southeast Anatolia							
Male	0.609	0.701	0.686	0.723	0.803	0.842	0.862
Female	0.426	0.495	0.532	0.580	0.662	0.726	0.731

Note: Data source is Ministry of National Education and TURKSTAT.

Table C2. Descriptive Statistics for Enrollment Rates (%)

	2010			2011			2014			2015		
Age	High School	University	School	High School	University	School	High School	University	School	High School	University	School
Male												
15	71.02	0	78.79	71.54	0	78.78	79.84	0	87.12	78.79	0	87.34
16	70.04	0.04	71.98	71.06	0.04	72.93	77.43	0.02	78.91	81.15	0	82.56
17	63.01	1.02	64.64	64.64	0.55	65.90	70.12	0.51	70.95	76.16	0.49	76.88
18	35.46	8.64	44.32	34.33	9.92	44.43	40.13	8.28	48.54	42.27	8.74	51.26
19	15.42	20.83	36.46	15.64	20.76	36.52	19.41	20.42	40.15	20.78	22.27	43.19
# of Observations	19,349	19,349	19,349	19,111	19,111	19,111	19,691	19,691	19,691	19,378	19,378	19,378
Female												
15	67.63	0	72.92	69.50	0	75.46	80.77	0	86.07	79.13	0	85.75
16	65.14	0	66.28	68.90	0.13	20.74	75.19	0.06	76.69	81.55	0.02	82.82
17	58.07	0.89	59.35	61.09	0.65	62.19	67.98	0.76	69.21	71.29	0.48	72.30
18	25.42	10.28	35.99	27.98	9.82	38.04	33.02	9.50	42.89	37.54	9.61	47.44
19	10.12	19.55	30.02	10.63	20.36	31.23	14.12	21.39	35.84	14.06	22.39	35.86
# of Observations	18,87	18,87	18,87	18,611	18,611	18,611	18,691	18,691	18,691	18,434	18,434	18,434

Note: Data source is TURKSTAT. Fractions are calculated from LFS data set.

APPENDIX D

ESTIMATION RESULTS FOR HIGH SCHOOL ENROLLMENT

Table D1. Refugee Effect on the High School Enrollment – Full Sample

	(1)	(2)	(3)	(4)
Baseline	0.052	0.078	0.070	0.607
	(0.152)	(0.146)	(0.147)	(0.392)
+ Policy	0.053	0.080	0.072	0.613
	(0.152)	(0.145)	(0.146)	(0.391)
+ Policy * Other Controls	-0.027	0.056	0.049	0.815*
	(0.157)	(0.157)	(0.157)	(0.431)
+ Policy * 5region * Other Controls	0.011	0.010	-0.010	0.182
	(0.138)	(0.147)	(0.144)	(0.377)
# of Observations	152,135	152,135	152,135	152,135
Controls for				
Year Fixed Effects	Yes	Yes	Yes	Yes
NUTS2 Fixed Effects	Yes	Yes	Yes	Yes
5 Region Linear Time Trends	No	Yes	No	No
5 Region-Year Fixed Effects	No	No	Yes	No
Log of Year-Specific Distance	No	No	No	Yes

Note: Each cell shows the estimates from a separate 2SLS regression of the dependent variable on the key variable of interest by controlling for a set of individual-level characteristics, a set of household head-related variables and a set of geographical-area and year-specific variables as indicated above. Individual-specific control variables are the interaction of age and gender, marital status, and relationship. Household head's control variables are the final educational degree obtained in six levels, six categories of age groups, and a dummy variable indicating whether parents are living together or not. In addition to the baseline model, estimates of 3 different specifications of educational policy including the interaction with age, gender, household head's education level as well as 5-region are displayed. The sample includes 15-18 year-old young individuals in the 2010-2015 Turkish Household Labor Force Surveys excluding the 2012 and 2013 versions. Standard errors, given in parentheses, are clustered at the NUTS-2 subregion and year level. *, **, or *** indicates significance at the 10%, 5% and 1% levels, respectively.

Table D2. Refugee Effect on the High School Enrollment by Gender

	MALE				FEMALE			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Baseline	0.140	0.253*	0.260**	0.746**	-0.067	-0.118	-0.143	0.473
	(0.138)	(0.147)	(0.129)	(0.319)	(0.201)	(0.205)	(0.215)	(0.562)
+ Policy	0.140	0.253*	0.261**	0.750**	-0.065	-0.115	-0.139	0.481
	(0.137)	(0.146)	(0.129)	(0.320)	(0.201)	(0.204)	(0.215)	(0.561)
+ Policy * Other Controls	0.069	0.222	0.234*	0.958***	-0.148	-0.133	-0.161	0.672
	(0.142)	(0.152)	(0.137)	(0.348)	(0.202)	(0.211)	(0.220)	(0.603)
+ Policy * 5region * Other Controls	0.140	0.170	0.174	0.135	-0.130	-0.149	-0.203	0.260
	(0.139)	(0.154)	(0.135)	(0.359)	(0.194)	(0.204)	(0.206)	(0.589)
# of Observations	77,529	77,529	77,529	77,529	74,606	74,606	74,606	74,606
Controls for								
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
NUTS2 Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
5 Region Linear Time Trends	No	Yes	No	No	No	Yes	No	No
5 Region-Year Fixed Effects	No	No	Yes	No	No	No	Yes	No
Log of Year-Specific Distance	No	No	No	Yes	No	No	No	Yes

Note: Each cell shows the estimates from a separate 2SLS regression of the dependent variable on the key variable of interest by controlling for a set of individual-level characteristics, a set of household head-related variables and a set of geographical-area and year-specific variables as indicated above. Individual-specific control variables are the interaction of age and gender, marital status, and relationship. Household head's control variables are the final educational degree obtained in six levels, six categories of age groups, and a dummy variable indicating whether parents are living together or not. In addition to the baseline model, estimates of 3 different specifications of educational policy including the interaction with age, gender, household head's education level as well as 5-region are displayed. The sample includes 15-18 year-old young individuals in the 2010-2015 Turkish Household Labor Force Surveys excluding the 2012 and 2013 versions. Standard errors, given in parentheses, are clustered at the NUTS-2 subregion and year level. *, **, or *** indicates significance at the 10%, 5% and 1% levels, respectively.

Table D3. Refugee Effect on the High School Enrollment by Household Head's Education Level – Full Sample

	(1)	(2)	(3)	(4)
A) HOUSEHOLD HEAD EDUCATION LEVEL < HS				
Baseline	-0.111	-0.021	-0.019	0.782**
	(0.157)	(0.157)	(0.156)	(0.388)
+ Policy	-0.110	-0.018	-0.018	0.790**
	(0.157)	(0.156)	(0.155)	(0.388)
+ Policy * Other Controls	-0.121	-0.012	-0.009	0.877**
	(0.158)	(0.161)	(0.160)	(0.416)
+ Policy * 5region * Other Controls	-0.027	-0.018	-0.053	0.208
	(0.146)	(0.159)	(0.154)	(0.345)
# of Observations	120,252	120,252	120,252	120,252
B) HOUSEHOLD HEAD EDUCATION LEVEL ≥ HS				
Baseline	0.360**	0.280	0.236	-0.013
	(0.177)	(0.191)	(0.201)	(0.570)
+ Policy	0.359**	0.279	0.233	-0.018
	(0.178)	(0.191)	(0.200)	(0.570)
+ Policy * Other Controls	0.340*	0.274	0.222	0.020
	(0.182)	(0.193)	(0.201)	(0.559)
+ Policy * 5region * Other Controls	0.171	0.184	0.187	0.223
	(0.181)	(0.187)	(0.200)	(0.822)
# of Observations	31,883	31,883	31,883	31,883
Controls for				
Year Fixed Effects	Yes	Yes	Yes	Yes
NUTS2 Fixed Effects	Yes	Yes	Yes	Yes
5 Region Linear Time Trends	No	Yes	No	No
5 Region-Year Fixed Effects	No	No	Yes	No
Log of Year-Specific Distance	No	No	No	Yes

Note: Each cell shows the estimates from a separate 2SLS regression of the dependent variable on the key variable of interest by controlling for a set of individual-level characteristics, a set of household head-related variables and a set of geographical-area and year-specific variables as indicated above. Individual-specific control variables are the interaction of age and gender, marital status, and relationship. Household head's control variables are the final educational degree obtained in six levels, six categories of age groups, and a dummy variable indicating whether parents are living together or not. In addition to the baseline model, estimates of 3 different specifications of educational policy including the interaction with age, gender, household head's education level as well as 5-region are displayed. The sample includes 15-18 year-old young individuals in the 2010-2015 Turkish Household Labor Force Surveys excluding the 2012 and 2013 versions. Standard errors, given in parentheses, are clustered at the NUTS-2 subregion and year level. *, **, or *** indicates significance at the 10%, 5% and 1% levels, respectively.

Table D4. Refugee Effect on the High School Enrollment by Household Head's Education Level and Gender

	MALE				FEMALE			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
A) HOUSEHOLD HEAD EDUCATION LEVEL < HS								
Baseline	0.003	0.167	0.199	0.951***	-0.259	-0.228	-0.255	0.622
	(0.144)	(0.157)	(0.146)	(0.336)	(0.205)	(0.208)	(0.212)	(0.527)
+ Policy	0.004	0.168	0.198	0.955***	-0.258	-0.224	-0.253	0.634
	(0.144)	(0.156)	(0.145)	(0.337)	(0.204)	(0.206)	(0.211)	(0.525)
+ Policy * Other Controls	-0.002	0.167	0.200	1.028***	-0.271	-0.216	-0.243	0.729
	(0.148)	(0.161)	(0.151)	(0.354)	(0.202)	(0.209)	(0.213)	(0.568)
+ Policy * 5region * Other Controls	0.110	0.158	0.154	0.257	-0.179	-0.223	-0.273	0.178
	(0.149)	(0.154)	(0.149)	(0.350)	(0.200)	(0.200)	(0.208)	(0.530)
# of Observations	61,315	61,315	61,315	61,315	58,937	58,937	58,937	58,937
B) HOUSEHOLD HEAD EDUCATION LEVEL ≥ HS								
Baseline	0.315*	0.340*	0.265	0.117	0.436*	0.251	0.235	-0.098
	(0.170)	(0.199)	(0.191)	(0.424)	(0.255)	(0.306)	(0.309)	(0.945)
+ Policy	0.316*	0.340*	0.263	0.107	0.434*	0.249	0.233	-0.099
	(0.171)	(0.200)	(0.191)	(0.425)	(0.255)	(0.306)	(0.309)	(0.945)
+ Policy * Other Controls	0.308*	0.328	0.244	0.122	0.412	0.252	0.230	-0.043
	(0.178)	(0.204)	(0.194)	(0.415)	(0.261)	(0.311)	(0.315)	(0.936)
+ Policy * 5region * Other Controls	0.200	0.222	0.195	-0.476	0.185	0.202	0.226	1.020
	(0.209)	(0.232)	(0.201)	(0.656)	(0.284)	(0.295)	(0.321)	(1.446)
# of Observations	16,214	16,214	16,214	16,214	15,669	15,669	15,669	15,669
Controls for								
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
NUTS2 Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
5 Region Linear Time Trends	No	Yes	No	No	No	Yes	No	No
5 Region-Year Fixed Effects	No	No	Yes	No	No	No	Yes	No
Log of Year-Specific Distance	No	No	No	Yes	No	No	No	Yes

Note: Each cell shows the estimates from a separate 2SLS regression of the dependent variable on the key variable of interest by controlling for a set of individual-level characteristics, a set of household head-related variables and a set of geographical-area and year-specific variables as indicated above. Individual-specific control variables are the interaction of age and gender, marital status, and relationship. Household head's control variables are the final educational degree obtained in six levels, six categories of age groups, and a dummy variable indicating whether parents are living together or not. In addition to the baseline model, estimates of 3 different specifications of educational policy including the interaction with age, gender, household head's education level as well as 5-region are displayed. The sample includes 15-18 year-old young individuals in the 2010-2015 Turkish Household Labor Force Surveys excluding the 2012 and 2013 versions. Standard errors, given in parentheses, are clustered at the NUTS-2 subregion and year level. *, **, or *** indicates significance at the 10%, 5% and 1% levels, respectively.

Table D5. Refugee Effect on the High School Enrollment by Household Heads' Employment Status – Full Sample

	(1)	(2)	(3)	(4)
A) FORMAL EMPLOYMENT				
Baseline	0.185	0.232	0.206	0.747
	(0.161)	(0.177)	(0.188)	(0.518)
+ Policy	0.187	0.233	0.207	0.749
	(0.161)	(0.177)	(0.188)	(0.518)
+ Policy * Other Controls	0.142	0.197	0.165	0.697
	(0.158)	(0.174)	(0.187)	(0.507)
+ Policy * 5region * Other Controls	0.130	0.144	0.124	0.357
	(0.169)	(0.181)	(0.182)	(0.535)
# of Observations	68,815	68,815	68,815	68,815
B) INFORMAL EMPLOYMENT				
Baseline	-0.253*	-0.180	-0.162	-0.008
	(0.147)	(0.132)	(0.100)	(0.403)
+ Policy	-0.253*	-0.179	-0.160	0.012
	(0.147)	(0.132)	(0.100)	(0.404)
+ Policy * Other Controls	-0.276*	-0.150	-0.128	0.292
	(0.146)	(0.139)	(0.110)	(0.447)
+ Policy * 5region * Other Controls	-0.108	-0.302	-0.155	-0.762
	(0.126)	(0.510)	(0.116)	(0.515)
# of Observations	40,468	40,468	40,468	40,468
Controls for				
Year Fixed Effects	Yes	Yes	Yes	Yes
NUTS2 Fixed Effects	Yes	Yes	Yes	Yes
5 Region Linear Time Trends	No	Yes	No	No
5 Region-Year Fixed Effects	No	No	Yes	No
Log of Year-Specific Distance	No	No	No	Yes

Note: Each cell shows the estimates from a separate 2SLS regression of the dependent variable on the key variable of interest by controlling for a set of individual-level characteristics, a set of household head-related variables and a set of geographical-area and year-specific variables as indicated above. Individual-specific control variables are the interaction of age and gender, marital status, and relationship. Household head's control variables are the final educational degree obtained in six levels, six categories of age groups, and a dummy variable indicating whether parents are living together or not. In addition to the baseline model, estimates of 3 different specifications of educational policy including the interaction with age, gender, household head's education level as well as 5-region are displayed. The sample includes 15-18 year-old young individuals in the 2010-2015 Turkish Household Labor Force Surveys excluding the 2012 and 2013 versions. Standard errors, given in parentheses, are clustered at the NUTS-2 subregion and year level. *, **, or *** indicates significance at the 10%, 5% and 1% levels, respectively.

Table D6. Refugee Effect on the High School Enrollment by Household Head's Employment Status and Gender

	MALE				FEMALE			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
A) FORMAL EMPLOYMENT								
Baseline	0.340*	0.471**	0.423**	0.899*	-0.035	-0.075	-0.067	0.590
	(0.177)	(0.206)	(0.197)	(0.487)	(0.241)	(0.252)	(0.260)	(0.864)
+ Policy	0.341*	0.472**	0.423**	0.901*	-0.033	-0.072	-0.065	0.591
	(0.177)	(0.206)	(0.197)	(0.487)	(0.241)	(0.251)	(0.260)	(0.865)
+ Policy * Other Controls	0.317*	0.446**	0.389**	0.836*	-0.097	-0.124	-0.122	0.544
	(0.173)	(0.199)	(0.192)	(0.460)	(0.228)	(0.245)	(0.254)	(0.839)
+ Policy * 5region * Other Controls	0.326	0.500**	0.365*	0.654	-0.084	-0.379	-0.128	0.092
	(0.199)	(0.200)	(0.189)	(0.561)	(0.228)	(0.509)	(0.244)	(0.821)
# of Observations	35,304	35,304	35,304	35,304	33,511	33,511	33,511	33,511
B) INFORMAL EMPLOYMENT								
Baseline	-0.063	-0.147	0.003	0.097	-0.472**	-0.204	-0.307	-0.083
	(0.178)	(0.200)	(0.130)	(0.378)	(0.217)	(0.213)	(0.199)	(0.585)
+ Policy	-0.069	-0.146	0.004	0.104	-0.467**	-0.201	-0.304	-0.049
	(0.177)	(0.201)	(0.131)	(0.381)	(0.216)	(0.212)	(0.198)	(0.587)
+ Policy * Other Controls	-0.085	-0.111	0.044	0.374	-0.501**	-0.186	-0.287	0.231
	(0.175)	(0.204)	(0.130)	(0.422)	(0.217)	(0.220)	(0.209)	(0.633)
+ Policy * 5region * Other Controls	-0.091	-0.092	-0.000	-0.640	-0.144	-0.416	-0.320	-0.863
	(0.172)	(0.169)	(0.136)	(0.519)	(0.217)	(0.543)	(0.225)	(0.738)
# of Observations	20,642	20,642	20,642	20,642	19,826	19,826	19,826	19,826
Controls for								
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
NUTS2 Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
5 Region Linear Time Trends	No	Yes	No	No	No	Yes	No	No
5 Region-Year Fixed Effects	No	No	Yes	No	No	No	Yes	No
Log of Year-Specific Distance	No	No	No	Yes	No	No	No	Yes

Note: Each cell shows the estimates from a separate 2SLS regression of the dependent variable on the key variable of interest by controlling for a set of individual-level characteristics, a set of household head-related variables and a set of geographical-area and year-specific variables as indicated above. Individual-specific control variables are the interaction of age and gender, marital status, and relationship. Household head's control variables are the final educational degree obtained in six levels, six categories of age groups, and a dummy variable indicating whether parents are living together or not. In addition to the baseline model, estimates of 3 different specifications of educational policy including the interaction with age, gender, household head's education level as well as 5-region are displayed. The sample includes 15-18 year-old young individuals in the 2010-2015 Turkish Household Labor Force Surveys excluding the 2012 and 2013 versions. Standard errors, given in parentheses, are clustered at the NUTS-2 subregion and year level. *, **, or *** indicates significance at the 10%, 5% and 1% levels, respectively.

APPENDIX E

ESTIMATION RESULTS FOR SCHOOL ENROLLMENT

Table E1. Refugee Effect on the School Enrollment – Full Sample

Dependent Variable	(1)	(2)	(3)	(4)
A) SCHOOL ENROLLMENT				
Baseline	0.030	0.081	0.092	1.218**
	(0.183)	(0.163)	(0.171)	(0.493)
+ Policy	0.031	0.083	0.094	1.224**
	(0.182)	(0.163)	(0.171)	(0.494)
+ Policy * Other Controls	-0.043	0.067	0.073	1.468***
	(0.191)	(0.172)	(0.179)	(0.534)
+ Policy * 5region * Other Controls	0.016	0.029	0.019	1.022**
	(0.166)	(0.169)	(0.172)	(0.503)
# of Observations	152,135	152,135	152,135	152,135
B) SCHOOL ENROLLMENT (AGE 15-17)				
Baseline	-0.038	0.036	0.036	1.071*
	(0.211)	(0.194)	(0.197)	(0.564)
+ Policy	-0.038	0.036	0.037	1.072*
	(0.211)	(0.194)	(0.197)	(0.564)
+ Policy * Other Controls	-0.120	0.018	0.010	1.336**
	(0.220)	(0.204)	(0.206)	(0.606)
+ Policy * 5region * Other Controls	-0.033	-0.025	-0.053	0.977
	(0.199)	(0.200)	(0.199)	(0.607)
# of Observations	117,261	117,261	117,261	117,261
Controls for				
Year Fixed Effects	Yes	Yes	Yes	Yes
NUTS2 Fixed Effects	Yes	Yes	Yes	Yes
5 Region Linear Time Trends	No	Yes	No	No
5 Region-Year Fixed Effects	No	No	Yes	No
Log of Year-Specific Distance	No	No	No	Yes

Note:Each cell shows the estimates from a separate 2SLS regression of the dependent variable on the key variable of interest by controlling for a set of individual-level characteristics, a set of household head-related variables and a set of geographical-area and year-specific variables as indicated above. Individual-specific control variables are the interaction of age and gender, marital status, and relationship. Household head's control variables are the final educational degree obtained in six levels, six categories of age groups, and a dummy variable indicating whether parents are living together or not. In addition to the baseline model, estimates of 3 different specifications of educational policy including the interaction with age, gender, household head's education level as well as 5-region are displayed. In panel A, the sample includes 15-18 year-old youth while panel B covers 15-17 year-old young individuals in the 2010-2015 Turkish Household Labor Force Surveys excluding the 2012 and 2013 versions. Standard errors, given in parentheses, are clustered at the NUTS-2 subregion and year level. *, **, or *** indicates significance at the 10%, 5% and 1% levels, respectively.

Table E2. Refugee Effect on the School Enrollment by Gender

	MALE				FEMALE			
Dependent Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
A) SCHOOL ENROLLMENT								
Baseline	0.139	0.307**	0.308**	1.375***	-0.109	-0.166	-0.148	1.086*
	(0.164)	(0.136)	(0.124)	(0.461)	(0.229)	(0.241)	(0.254)	(0.638)
+ Policy	0.139	0.308**	0.309**	1.379***	-0.107	-0.162	-0.144	1.094*
	(0.164)	(0.136)	(0.124)	(0.463)	(0.228)	(0.241)	(0.254)	(0.637)
+ Policy * Other Controls	0.072	0.277*	0.274**	1.586***	-0.184	-0.164	-0.151	1.366**
	(0.173)	(0.142)	(0.131)	(0.492)	(0.237)	(0.248)	(0.261)	(0.690)
+ Policy * 5region * Other Controls	0.186	0.220	0.218*	0.802*	-0.167	-0.165	-0.189	1.294*
	(0.144)	(0.143)	(0.130)	(0.421)	(0.235)	(0.247)	(0.250)	(0.758)
# of Observations	77,529	77,529	77,529	77,529	74,606	74,606	74,606	74,606
B) SCHOOL ENROLLMENT (AGE 15-17)								
Baseline	0.086	0.257	0.264*	1.426**	-0.196	-0.212	-0.216	0.671
	(0.194)	(0.175)	(0.160)	(0.560)	(0.253)	(0.269)	(0.281)	(0.685)
+ Policy	0.086	0.256	0.263	1.427**	-0.195	-0.210	-0.215	0.673
	(0.194)	(0.175)	(0.160)	(0.560)	(0.252)	(0.269)	(0.280)	(0.685)
+ Policy * Other Controls	0.012	0.218	0.218	1.659***	-0.282	-0.207	-0.223	0.975
	(0.201)	(0.185)	(0.171)	(0.585)	(0.266)	(0.276)	(0.286)	(0.745)
+ Policy * 5region * Other Controls	0.139	0.153	0.156	0.904*	-0.225	-0.399	-0.274	1.040
	(0.186)	(0.179)	(0.171)	(0.516)	(0.263)	(0.350)	(0.276)	(0.851)
# of Observations	59,611	59,611	59,611	59,611	57,600	57,600	57,600	57,600
Controls for								
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
NUTS2 Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
5 Region Linear Time Trends	No	Yes	No	No	No	Yes	No	No
5 Region-Year Fixed Effects	No	No	Yes	No	No	No	Yes	No
Log of Year-Specific Distance	No	No	No	Yes	No	No	No	Yes

Note:Each cell shows the estimates from a separate 2SLS regression of the dependent variable on the key variable of interest by controlling for a set of individual-level characteristics, a set of household head-related variables and a set of geographical-area and year-specific variables as indicated above. Individual-specific control variables are the interaction of age and gender, marital status, and relationship. Household head's control variables are the final educational degree obtained in six levels, six categories of age groups, and a dummy variable indicating whether parents are living together or not. In addition to the baseline model, estimates of 3 different specifications of educational policy including the interaction with age, gender, household head's education level as well as 5-region are displayed. In panel A, the sample includes 15-18 year-old youth while panel B covers 15-17 year-old young individuals in the 2010-2015 Turkish Household Labor Force Surveys excluding the 2012 and 2013 versions. Standard errors, given in parentheses, are clustered at the NUTS-2 subregion and year level. *, **, or *** indicates significance at the 10%, 5% and 1% levels, respectively.

Table E3. Refugee Effect on the School Enrollment by Household Head's Education Level – Full Sample

	HOUSEHOLD HEAD EDUCATION LEVEL < HS				HOUSEHOLD HEAD EDUCATION LEVEL ≥ HS			
Dependent Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
A) SCHOOL ENROLLMENT								
Baseline	-0.195	-0.081	-0.060	1.349***	0.748***	0.697***	0.652***	1.016**
	(0.196)	(0.173)	(0.179)	(0.515)	(0.180)	(0.179)	(0.183)	(0.506)
+ Policy	-0.195	-0.079	-0.059	1.356***	0.748***	0.697***	0.653***	1.018**
	(0.196)	(0.172)	(0.178)	(0.516)	(0.180)	(0.179)	(0.183)	(0.506)
+ Policy * Other Controls	-0.203	-0.069	-0.048	1.477***	0.725***	0.702***	0.655***	1.086**
	(0.197)	(0.178)	(0.184)	(0.538)	(0.183)	(0.180)	(0.183)	(0.507)
+ Policy * 5region * Other Controls	-0.092	-0.079	-0.090	0.994**	0.547***	0.568***	0.581***	1.398*
	(0.174)	(0.178)	(0.179)	(0.477)	(0.172)	(0.177)	(0.186)	(0.785)
# of Observations	120,252	120,252	120,252	120,252	31,883	31,883	31,883	31,883
B) SCHOOL ENROLLMENT (AGE 15-17)								
Baseline	-0.235	-0.088	-0.075	1.393**	0.420***	0.383**	0.283	-0.204
	(0.235)	(0.214)	(0.215)	(0.602)	(0.160)	(0.182)	(0.174)	(0.505)
+ Policy	-0.235	-0.088	-0.075	1.393**	0.422***	0.383**	0.284	-0.200
	(0.235)	(0.213)	(0.214)	(0.602)	(0.159)	(0.181)	(0.173)	(0.505)
+ Policy * Other Controls	-0.243	-0.075	-0.063	1.521**	0.409**	0.379**	0.282*	-0.181
	(0.235)	(0.219)	(0.220)	(0.621)	(0.161)	(0.180)	(0.171)	(0.503)
+ Policy * 5region * Other Controls	-0.088	-0.078	-0.107	1.131*	0.232	0.250	0.223	0.175
	(0.217)	(0.218)	(0.218)	(0.601)	(0.161)	(0.156)	(0.177)	(0.732)
# of Observations	92,470	92,470	92,470	92,470	24,791	24,791	24,791	24,791
Controls for								
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
NUTS2 Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
5 Region Linear Time Trends	No	Yes	No	No	No	Yes	No	No
5 Region-Year Fixed Effects	No	No	Yes	No	No	No	Yes	No
Log of Year-Specific Distance	No	No	No	Yes	No	No	No	Yes

Note:Each cell shows the estimates from a separate 2SLS regression of the dependent variable on the key variable of interest by controlling for a set of individual-level characteristics, a set of household head-related variables and a set of geographical-area and year-specific variables as indicated above. Individual-specific control variables are the interaction of age and gender, marital status, and relationship. Household head's control variables are the final educational degree obtained in six levels, six categories of age groups, and a dummy variable indicating whether parents are living together or not. In addition to the baseline model, estimates of 3 different specifications of educational policy including the interaction with age, gender, household head's education level as well as 5-region are displayed. In panel A, the sample includes 15-18 year-old youth while panel B covers 15-17 year-old young individuals in the 2010-2015 Turkish Household Labor Force Surveys excluding the 2012 and 2013 versions. Standard errors, given in parentheses, are clustered at the NUTS-2 subregion and year level. *, **, or *** indicates significance at the 10%, 5% and 1% levels, respectively.

Table E4. Refugee Effect on the School Enrollment by Household Head's Education Level and Gender

	MALE								FEMALE							
	HOUSEHOLD HEAD EDUCATION LEVEL < HS				HOUSEHOLD HEAD EDUCATION LEVEL ≥ HS				HOUSEHOLD HEAD EDUCATION LEVEL < HS				HOUSEHOLD HEAD EDUCATION LEVEL ≥ HS			
Dependent Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
A) SCHOOL ENROLLMENT																
Baseline	-0.017	0.186	0.219	1.609***	0.489***	0.642***	0.492***	0.685	-0.412*	-0.365	-0.356	1.113*	1.023***	0.765***	0.827***	1.377*
	(0.183)	(0.145)	(0.135)	(0.509)	(0.161)	(0.195)	(0.163)	(0.497)	(0.240)	(0.249)	(0.260)	(0.626)	(0.250)	(0.248)	(0.271)	(0.750)
+ Policy	-0.016	0.187	0.218	1.612***	0.489***	0.642***	0.493***	0.690	-0.411*	-0.361	-0.354	1.124*	1.024***	0.766***	0.828***	1.377*
	(0.183)	(0.144)	(0.134)	(0.511)	(0.161)	(0.195)	(0.163)	(0.497)	(0.240)	(0.248)	(0.259)	(0.626)	(0.251)	(0.247)	(0.271)	(0.750)
+ Policy * Other Controls	-0.017	0.184	0.217	1.682***	0.475***	0.634***	0.481***	0.713	-0.421*	-0.342	-0.335	1.290*	1.004***	0.788***	0.847***	1.478**
	(0.185)	(0.150)	(0.140)	(0.514)	(0.164)	(0.197)	(0.163)	(0.499)	(0.242)	(0.252)	(0.262)	(0.677)	(0.252)	(0.249)	(0.275)	(0.743)
+ Policy * 5region * Other Controls	0.119	0.199	0.174	0.885**	0.479**	0.495**	0.413**	0.493	-0.319	-0.358	-0.366	1.140	0.646***	0.718***	0.787***	2.458**
	(0.154)	(0.148)	(0.139)	(0.425)	(0.194)	(0.202)	(0.164)	(0.711)	(0.244)	(0.246)	(0.256)	(0.710)	(0.231)	(0.248)	(0.279)	(1.240)
# of Observations	61,315	61,315	61,315	61,315	16,214	16,214	16,214	16,214	58,937	58,937	58,937	58,937	15,669	15,669	15,669	15,669
B) SCHOOL ENROLLMENT (AGE 15-17)																
Baseline	-0.073	0.155	0.184	1.838***	0.376**	0.430**	0.301*	-0.357	-0.434	-0.344	-0.344	0.913	0.453**	0.298	0.235	-0.121
	(0.223)	(0.203)	(0.186)	(0.641)	(0.178)	(0.204)	(0.173)	(0.425)	(0.275)	(0.284)	(0.294)	(0.674)	(0.212)	(0.234)	(0.255)	(0.837)
+ Policy	-0.073	0.154	0.183	1.836***	0.377**	0.429**	0.301*	-0.351	-0.434	-0.343	-0.343	0.915	0.455**	0.302	0.240	-0.120
	(0.223)	(0.203)	(0.186)	(0.642)	(0.177)	(0.202)	(0.173)	(0.423)	(0.275)	(0.283)	(0.294)	(0.674)	(0.212)	(0.234)	(0.255)	(0.839)
+ Policy * Other Controls	-0.076	0.148	0.179	1.921***	0.370**	0.421**	0.291*	-0.364	-0.442	-0.310	-0.315	1.097	0.440**	0.303	0.243	-0.077
	(0.223)	(0.210)	(0.195)	(0.638)	(0.177)	(0.203)	(0.172)	(0.422)	(0.279)	(0.286)	(0.296)	(0.727)	(0.212)	(0.233)	(0.253)	(0.828)
+ Policy * 5region * Other Controls	0.108	0.122	0.134	1.142**	0.280	0.293*	0.247	-0.461	-0.305	-0.313	-0.361	1.104	0.180	0.194	0.206	0.771
	(0.208)	(0.203)	(0.198)	(0.544)	(0.183)	(0.177)	(0.180)	(0.594)	(0.281)	(0.289)	(0.291)	(0.810)	(0.219)	(0.213)	(0.262)	(1.271)
# of Observations	47,066	47,066	47,066	47,066	12,595	12,595	12,595	12,595	45,404	45,404	45,404	45,404	12,196	12,196	12,196	12,196
Controls for																
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
NUTS2 Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
5 Region Linear Time Trends	No	Yes	No	No	No	Yes	No	No	No	Yes	No	No	No	Yes	No	No
5 Region-Year Fixed Effects	No	No	Yes	No	No	No	Yes	No	No	No	Yes	No	No	No	Yes	No
Log of Year-Specific Distance	No	No	No	Yes	No	No	No	Yes	No	No	No	Yes	No	No	No	Yes

Note:Each cell shows the estimates from a separate 2SLS regression of the dependent variable on the key variable of interest by controlling for a set of individual-level characteristics, a set of household head-related variables and a set of geographical-area and year-specific variables as indicated above. Individual-specific control variables are the interaction of age and gender, marital status, and relationship. Household head's control variables are the final educational degree obtained in six levels, six categories of age groups, and a dummy variable indicating whether parents are living together or not. In addition to the baseline model, estimates of 3 different specifications of educational policy including the interaction with age, gender, household head's education level as well as 5-region are displayed. In panel A, the sample includes 15-18 year-old youth while panel B covers 15-17 year-old young individuals in the 2010-2015 Turkish Household Labor Force Surveys excluding the 2012 and 2013 versions. Standard errors, given in parentheses, are clustered at the NUTS-2 subregion and year level. *, **, or *** indicates significance at the 10%, 5% and 1% levels, respectively.

Table E5. Refugee Effect on the School Enrollment by Household Head's Employment Status – Full Sample

	FORMAL EMPLOYMENT				INFORMAL EMPLOYMENT			
Dependent Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
A) SCHOOL ENROLLMENT								
Baseline	0.170	0.236	0.245	1.145**	-0.215	-0.176	-0.166	0.736
	(0.166)	(0.174)	(0.185)	(0.534)	(0.190)	(0.146)	(0.144)	(0.530)
+ Policy	0.172	0.238	0.247	1.148**	-0.215	-0.174	-0.164	0.759
	(0.166)	(0.173)	(0.184)	(0.534)	(0.191)	(0.146)	(0.145)	(0.536)
+ Policy * Other Controls	0.133	0.211	0.213	1.139**	-0.240	-0.132	-0.121	1.118*
	(0.166)	(0.172)	(0.184)	(0.539)	(0.194)	(0.153)	(0.153)	(0.583)
+ Policy * 5region * Other Controls	0.154	0.149	0.168	0.951*	-0.088	-0.277	-0.145	0.147
	(0.174)	(0.180)	(0.184)	(0.539)	(0.169)	(0.569)	(0.164)	(0.523)
# of Observations	68,815	68,815	68,815	68,815	40,468	40,468	40,468	40,468
B) SCHOOL ENROLLMENT (AGE 15-17)								
Baseline	0.116	0.160	0.147	0.659	-0.268	-0.224	-0.227	0.693
	(0.186)	(0.203)	(0.199)	(0.627)	(0.236)	(0.184)	(0.182)	(0.621)
+ Policy	0.116	0.160	0.147	0.660	-0.269	-0.224	-0.226	0.698
	(0.186)	(0.203)	(0.198)	(0.627)	(0.236)	(0.184)	(0.183)	(0.623)
+ Policy * Other Controls	0.079	0.128	0.103	0.639	-0.304	-0.195	-0.195	1.041
	(0.189)	(0.204)	(0.200)	(0.642)	(0.234)	(0.184)	(0.184)	(0.662)
+ Policy * 5region * Other Controls	0.082	0.029	0.054	0.367	-0.132	-0.337	-0.216	0.214
	(0.201)	(0.200)	(0.198)	(0.657)	(0.204)	(0.383)	(0.196)	(0.645)
# of Observations	54,082	54,082	54,082	54,082	31,157	31,157	31,157	31,157
Controls for								
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
NUTS2 Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
5 Region Linear Time Trends	No	Yes	No	No	No	Yes	No	No
5 Region-Year Fixed Effects	No	No	Yes	No	No	No	Yes	No
Log of Year-Specific Distance	No	No	No	Yes	No	No	No	Yes

Note:Each cell shows the estimates from a separate 2SLS regression of the dependent variable on the key variable of interest by controlling for a set of individual-level characteristics, a set of household head-related variables and a set of geographical-area and year-specific variables as indicated above. Individual-specific control variables are the interaction of age and gender, marital status, and relationship. Household head's control variables are the final educational degree obtained in six levels, six categories of age groups, and a dummy variable indicating whether parents are living together or not. In addition to the baseline model, estimates of 3 different specifications of educational policy including the interaction with age, gender, household head's education level as well as 5-region are displayed. In panel A, the sample includes 15-18 year-old youth while panel B covers 15-17 year-old young individuals in the 2010-2015 Turkish Household Labor Force Surveys excluding the 2012 and 2013 versions. Standard errors, given in parentheses, are clustered at the NUTS-2 subregion and year level. *, **, or *** indicates significance at the 10%, 5% and 1% levels, respectively.

Table E6. Refugee Effect on the School Enrollment by Household Head's Employment Status and Gender

	MALE								FEMALE							
	FORMAL EMPLOYMENT				INFORMAL EMPLOYMENT				FORMAL EMPLOYMENT				INFORMAL EMPLOYMENT			
Dependent Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
A) SCHOOL ENROLLMENT																
Baseline	0.295**	0.506***	0.451***	1.025**	0.063	-0.053	0.024	0.973*	-0.001	-0.087	-0.001	1.290	-0.530**	-0.294	-0.348	0.527
	(0.140)	(0.176)	(0.165)	(0.459)	(0.216)	(0.184)	(0.183)	(0.563)	(0.257)	(0.263)	(0.278)	(0.919)	(0.233)	(0.227)	(0.216)	(0.611)
+ Policy	0.296**	0.507***	0.452***	1.027**	0.055	-0.053	0.025	0.982*	0.002	-0.084	0.001	1.292	-0.525**	-0.291	-0.345	0.560
	(0.140)	(0.175)	(0.165)	(0.458)	(0.215)	(0.186)	(0.184)	(0.566)	(0.257)	(0.263)	(0.278)	(0.919)	(0.234)	(0.227)	(0.216)	(0.619)
+ Policy * Other Controls	0.270*	0.479***	0.414**	0.988**	0.025	-0.012	0.067	1.319**	-0.048	-0.110	-0.032	1.306	-0.549**	-0.255	-0.306	0.924
	(0.143)	(0.174)	(0.166)	(0.456)	(0.214)	(0.185)	(0.181)	(0.625)	(0.253)	(0.261)	(0.275)	(0.916)	(0.240)	(0.237)	(0.230)	(0.675)
+ Policy * 5region * Other Controls	0.390**	0.531***	0.396**	0.697	0.003	0.008	0.010	0.117	-0.090	-0.328	-0.062	1.241	-0.200	-0.440	-0.314	0.198
	(0.182)	(0.183)	(0.168)	(0.482)	(0.190)	(0.187)	(0.187)	(0.591)	(0.247)	(0.437)	(0.264)	(0.967)	(0.244)	(0.502)	(0.251)	(0.711)
# of Observations	35,304	35,304	35,304	35,304	20,642	20,642	20,642	20,642	33,511	33,511	33,511	33,511	19,826	19,826	19,826	19,826
B) SCHOOL ENROLLMENT (AGE 15-17)																
Baseline	0.256*	0.412**	0.398**	0.718	0.047	-0.136	-0.052	1.255*	-0.076	-0.158	-0.153	0.617	-0.597**	-0.284	-0.361	0.229
	(0.143)	(0.182)	(0.189)	(0.477)	(0.262)	(0.247)	(0.226)	(0.726)	(0.275)	(0.303)	(0.294)	-1.012	(0.299)	(0.296)	(0.271)	(0.738)
+ Policy	0.256*	0.412**	0.397**	0.719	0.041	-0.139	-0.055	1.265*	-0.075	-0.156	-0.152	0.618	-0.595**	-0.281	-0.358	0.232
	(0.143)	(0.182)	(0.189)	(0.477)	(0.262)	(0.249)	(0.226)	(0.730)	(0.275)	(0.303)	(0.293)	-1.012	(0.298)	(0.295)	(0.271)	(0.739)
+ Policy * Other Controls	0.232	0.377**	0.344*	0.673	0.004	-0.119	-0.033	1.562**	-0.126	-0.186	-0.194	0.619	-0.639**	-0.244	-0.316	0.611
	(0.147)	(0.181)	(0.192)	(0.484)	(0.261)	(0.255)	(0.230)	(0.783)	(0.277)	(0.303)	(0.292)	-1.018	(0.296)	(0.291)	(0.274)	(0.791)
+ Policy * 5region * Other Controls	0.292	0.261	0.308	0.265	-0.016	-0.058	-0.074	0.401	-0.144	-0.188	-0.208	0.484	-0.278	-0.336	-0.386	0.041
	(0.190)	(0.179)	(0.195)	(0.449)	(0.249)	(0.246)	(0.240)	(0.773)	(0.278)	(0.281)	(0.276)	-1.116	(0.286)	(0.282)	(0.284)	(0.873)
# of Observations	27,709	27,709	27,709	27,709	15,893	15,893	15,893	15,893	26,373	26,373	26,373	26,373	15,264	15,264	15,264	15,264
Controls for																
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
NUTS2 Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
5 Region Linear Time Trends	No	Yes	No	No	No	Yes	No	No	No	Yes	No	No	No	Yes	No	No
5 Region-Year Fixed Effects	No	No	Yes	No	No	No	Yes	No	No	No	Yes	No	No	No	Yes	No
Log of Year-Specific Distance	No	No	No	Yes	No	No	No	Yes	No	No	No	Yes	No	No	No	Yes

Note:Each cell shows the estimates from a separate 2SLS regression of the dependent variable on the key variable of interest by controlling for a set of individual-level characteristics, a set of household head-related variables and a set of geographical-area and year-specific variables as indicated above. Individual-specific control variables are the interaction of age and gender, marital status, and relationship. Household head's control variables are the final educational degree obtained in six levels, six categories of age groups, and a dummy variable indicating whether parents are living together or not. In addition to the baseline model, estimates of 3 different specifications of educational policy including the interaction with age, gender, household head's education level as well as 5-region are displayed. In panel A, the sample includes 15-18 year-old youth while panel B covers 15-17 year-old young individuals in the 2010-2015 Turkish Household Labor Force Surveys excluding the 2012 and 2013 versions. Standard errors, given in parentheses, are clustered at the NUTS-2 subregion and year level. *, **, or *** indicates significance at the 10%, 5% and 1% levels, respectively.

APPENDIX F

ROBUSTNESS CHECKS

Table F1. Refugee Effect on the School Enrollment by using 5-Period Lagged Unemployment Rate – Full Sample

Dependent Variable	(1)	(2)	(3)	(4)
A) SCHOOL ENROLLMENT				
Baseline	-0.034	-0.056	-0.064	1.422*
	(0.195)	(0.192)	(0.204)	(0.747)
+ Policy	-0.033	-0.053	-0.062	1.430*
	(0.194)	(0.192)	(0.204)	(0.749)
+ Policy * Other Controls	-0.126	-0.067	-0.083	1.733**
	(0.203)	(0.198)	(0.207)	(0.805)
+ Policy * 5region * Other Controls	-0.078	-0.072	-0.094	0.967*
	(0.192)	(0.198)	(0.202)	(0.573)
# of Observations	152,135	152,135	152,135	152,135
B) SCHOOL ENROLLMENT (AGE 15-17)				
Baseline	-0.096	-0.093	-0.109	1.300
	(0.225)	(0.235)	(0.242)	(0.845)
+ Policy	-0.096	-0.092	-0.109	1.300
	(0.225)	(0.235)	(0.242)	(0.846)
+ Policy * Other Controls	-0.197	-0.110	-0.138	1.628*
	(0.235)	(0.242)	(0.245)	(0.902)
+ Policy * 5region * Other Controls	-0.113	-0.122	-0.150	0.934
	(0.237)	(0.239)	(0.240)	(0.695)
# of Observations	117,261	117,261	117,261	117,261
Controls for				
Year Fixed Effects	Yes	Yes	Yes	Yes
NUTS2 Fixed Effects	Yes	Yes	Yes	Yes
5 Region Linear Time Trends	No	Yes	No	No
5 Region-Year Fixed Effects	No	No	Yes	No
Log of Year-Specific Distance	No	No	No	Yes

Note:Each cell shows the estimates from a separate 2SLS regression of the dependent variable on the key variable of interest by controlling for a set of individual-level characteristics, a set of household head-related variables, five-period lagged unemploymnet rate, and a set of geographical-area and year-specific variables as indicated above. Individual-specific control variables are the interaction of age and gender, marital status, and relationship. Household head's control variables are the final educational degree obtained in six levels, six categories of age groups, and a dummy variable indicating whether parents are living together or not. In addition to the baseline model, estimates of 3 different specifications of educational policy including the interaction with age, gender, household head's education level as well as 5-region are displayed. In panel A, the sample includes 15-18 year-old youth while panel B covers 15-17 year-old young individuals in the 2010-2015 Turkish Household Labor Force Surveys excluding the 2012 and 2013 versions. Standard errors, given in parentheses, are clustered at the NUTS-2 subregion and year level. *, **, or *** indicates significance at the 10%, 5% and 1% levels, respectively.

Table F2. Refugee Effect on the School Enrollment of Both Males and Females by using 5-Period Lagged Unemployment Rate – Full Sample

	MALE				FEMALE			
Dependent Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
A) SCHOOL ENROLLMENT								
Baseline	0.045	0.194	0.186	1.305**	-0.146	-0.330	-0.341	1.561
	(0.171)	(0.156)	(0.150)	(0.640)	(0.254)	(0.287)	(0.304)	(0.977)
+ Policy	0.045	0.194	0.187	1.311**	-0.144	-0.325	-0.337	1.573
	(0.171)	(0.156)	(0.150)	(0.642)	(0.253)	(0.287)	(0.304)	(0.978)
+ Policy * Other Controls	-0.035	0.172	0.157	1.613**	-0.241	-0.326	-0.344	1.894*
	(0.182)	(0.162)	(0.155)	(0.694)	(0.261)	(0.290)	(0.306)	(1.045)
+ Policy * 5region * Other Controls	0.088	0.140	0.133	0.712	-0.261	-0.444	-0.332	1.270
	(0.159)	(0.156)	(0.153)	(0.469)	(0.277)	(0.303)	(0.298)	(0.849)
# of Observations	77,529	77,529	77,529	77,529	74,606	74,606	74,606	74,606
B) SCHOOL ENROLLMENT (AGE 15-17)								
Baseline	-0.011	0.153	0.155	1.422*	-0.218	-0.378	-0.410	1.081
	(0.193)	(0.204)	(0.193)	(0.795)	(0.287)	(0.330)	(0.346)	(1.006)
+ Policy	-0.011	0.151	0.152	1.419*	-0.217	-0.376	-0.408	1.084
	(0.193)	(0.203)	(0.193)	(0.795)	(0.287)	(0.329)	(0.345)	(1.007)
+ Policy * Other Controls	-0.099	0.119	0.109	1.755**	-0.327	-0.368	-0.414	1.443
	(0.201)	(0.213)	(0.199)	(0.848)	(0.300)	(0.334)	(0.348)	(1.078)
+ Policy * 5region * Other Controls	0.057	0.081	0.090	0.855	-0.312	-0.490	-0.410	0.982
	(0.210)	(0.210)	(0.201)	(0.603)	(0.320)	(0.361)	(0.339)	(0.937)
# of Observations	59,611	59,611	59,611	59,611	57,600	57,600	57,600	57,600
Controls for								
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
NUTS2 Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
5 Region Linear Time Trends	No	Yes	No	No	No	Yes	No	No
5 Region-Year Fixed Effects	No	No	Yes	No	No	No	Yes	No
Log of Year-Specific Distance	No	No	No	Yes	No	No	No	Yes

Note:Each cell shows the estimates from a separate 2SLS regression of the dependent variable on the key variable of interest by controlling for a set of individual-level characteristics, a set of household head-related variables, five-period lagged unemploymnet rate, and a set of geographical-area and year-specific variables as indicated above. Individual-specific control variables are the interaction of age and gender, marital status, and relationship. Household head's control variables are the final educational degree obtained in six levels, six categories of age groups, and a dummy variable indicating whether parents are living together or not. In addition to the baseline model, estimates of 3 different specifications of educational policy including the interaction with age, gender, household head's education level as well as 5-region are displayed. In panel A, the sample includes 15-18 year-old youth while panel B covers 15-17 year-old young individuals in the 2010-2015 Turkish Household Labor Force Surveys excluding the 2012 and 2013 versions. Standard errors, given in parentheses, are clustered at the NUTS-2 subregion and year level. *, **, or *** indicates significance at the 10%, 5% and 1% levels, respectively.

REFERENCES

Aksu, E., Erzan, R., & Kirdar, M. G. (2018). The impact of mass migration of Syrians on the Turkish labor market. *IZA discussion paper 12050*. Institute of Labor Economics.

Altonji, J.G., & Card, D. (1991). The effects of immigration on the labor market outcomes of less-skilled natives. In J. Abowd & R. B. Freeman (Eds.), *Immigration, trade, and the labor market* (pp. 201-234). Chicago, IL: University of Chicago Press.

Assaad, R.A., Ginn, T., & Saleh, M. (2019). Impact of Syrian refugees on education outcomes in Jordan. *CEPR discussion paper DP14056*. Centre for Economic Policy Research.

Aydemir, A. and Kirdar, M.G. (2017). Low wage returns to schooling in a developing country: Evidence from a major policy reform in Turkey. *Oxford Bulletin of Economics and Statistics*, *79*(6), 1046-1086. doi:10.1111/obes.12174

Bagir, Y.K. (2018). Impact of the Syrian refugee influx on Turkish native workers: An ethnic enclave approach. *Central Bank Review*, *18*(4), 129-147. doi: 10.1016/j.cbrev.2018.11.001

Berker, A. (2009). The impact of internal migration on educational outcomes: Evidence from Turkey. *Economics of Education Review*, *28*, 739-749. doi:10.1016/j.econedurev.2009.03.003

Betts, J. (1998). Educational crowding out: Do immigrants affect the educational attainment of American minorities? In D. Hamermesh & F. Bean (Eds.), *Help or hindrance?: The economic implications of immigration for African Americans* (pp. 253-281). Russell Sage Foundation. Retrieved August 11, 2020, from www.jstor.org/stable/10.7758/9781610442640.12

Borjas, G.J. (2004). Do foreign students crowd out native students from graduate programs? *NBER working papers 10349.* National Bureau of Economic Research.

Brunello, G., & Rocco, L. (2013). The effect of immigration on the school performance of natives: Cross country evidence using PISA test scores. *Economics of Education Review*, *32*, 234-246. doi: 10.1016/j.econedurev.2012.10.006

Center for Middle Eastern Strategic Studies. (2015). Effects of Syrian refugees on Turkey. Retrieved from https://orsam.org.tr//d_hbanaliz/195eng.pdf

Ceritoglu, E., Yunculer, H., Torun, H., & Tumen, S. (2017). The impact of Syrian refugees on natives' labor market outcomes in Turkey: Evidence from a quasi-experimental design. *IZA Journal of Labor Policy*, *6*, 1-28. doi: 10.1186/s40173-017-0082-4

Del Carpio, X., & Wagner, M. (2015). The impact of Syrian refugees on the Turkish labor market. *Policy research working paper series 7402*. The World Bank.

Directorate General of Migration Management. (2013). Türkiye göç raporu. Retrieved from https://www.goc.gov.tr/kurumlar/goc.gov.tr/YillikGocRaporlari/2013_yillik_goc_raporu.pdf

Directorate General of Migration Management. (2014). Geçici koruma yönetmeliği ve getirdiği yenilikler. Retrieved from https://www.goc.gov.tr/kurumlar/goc.gov.tr/gk_yon_getirdigi_yenilikler.pdf

Disaster and Emergency Management Presidency. (2013). Syrian refugees in Turkey, 2013: Field survey results. Retrieved from https://data2.unhcr.org/en/documents/details/39282

Erdogan, M. (2014). Syrians in Turkey: Social acceptance and integration research. Migration and Politics Research Centre, Hacettepe University. Retrieved from https://data2.unhcr.org/en/documents/download/46184

Figure A2. Provincial Breakdown of Syrian Refugees in Turkey. Reprinted from UNHCR Turkey: Provincial Breakdown Syrian Refugees in Turkey - July 2020. Retrieved from https://data2.unhcr.org/en/documents/details/77580

Grand National Assembly of Turkey. (2012). İlköğretim ve eğitim kanunu ile bazı kanunlarda değişiklik yapılmasına dair kanun. Retrieved from https://www.tbmm.gov.tr/kanunlar/k6287.html

Gould, E., Lavy, V., & Paserman, D. M. (2009). Does immigration affect the long-term educational outcomes of natives? Quasi-experimental evidence. *Economic Journal*, *119*(540), 1243-1269.

Human Rights Watch. (2015). When I picture my future, I see nothing. Retrieved from https://www.hrw.org/sites/default/files/report_pdf/turkey1115_brochure_web.pdf

Hunt, J. (2017). The impact of immigration on the educational attainment of natives. *Journal of Human Resources*, *52*(4), 1060-1118.

Jackson, O. (2015). Does immigration crowd natives into or out of higher education? *Working papers 15-18*. Federal Reserve Bank of Boston.

Ministry of National Education. (2012). 12 yıl zorunlu eğitim sorular ve cevaplar. Retrieved from http://www.meb.gov.tr/duyurular/duyurular2012/12Yil_Soru_Cevaplar.pdf

Ministry of National Education. (2019). National education statistics. Retrieved from https://sgb.meb.gov.tr/www/milli-egitim-istatistikleri-orgun-egitim-2013-2014/icerik/95

Ministry of National Education. (2020). Geçici koruma altındaki öğrencilerin eğitim hizmetleri. Retrieved from https://hbogm.meb.gov.tr/meb_iys_dosyalar/2020_01/27110237_OCAK_2020internet_BulteniSunu.pdf

Stephens, M., & Yang, D. (2014). Compulsory education and the benefits of schooling. *The American Economic Review, 104*(6), 1777-1792. doi:10.1257/aer.104.6.1777.

Tumen, S. (2018). The impact of low-skill refugees on youth education. *IZA discussion papers 11869*. Institute of Labor Economics.

Turkish Red Crescent. (2019). Refugees in Turkey: Livelihoods survey findings. Retrieved from https://data2.unhcr.org/en/documents/details/70508

Turkish Statistical Institute. (2019). Regional statistics. Population and migration. Address-based population registration system. Retrieved from https://biruni.tuik.gov.tr/medas/?kn=95&locale=tr

United Nations Refugee Agency. (2020). Registered Syrian refugees by date. [Data file]. Retrieved from https://data2.unhcr.org/en/situations/syria/location/113