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ABSTRACT

School Integration of Refugee Children: Evidence from the Largest Refugee Group in Any Country*

Although school integration of the children of economic migrants in developed countries is well-studied in the literature, little evidence based on large scale representative data exists on the school integration of refugee children—many of whom live in low- or middle-income countries. This study focuses on Syrian refugee children in Turkey and examines the underlying causes of the native-refugee differences in school enrollment. We also analyze employment and marriage outcomes, as they are potentially jointly determined with schooling. For this purpose, we use the 2018 Turkish Demographic and Health Survey, which includes a representative sample of Syrian refugee households. We find that once a rich set of socioeconomic variables are accounted for, the native-refugee gap in school enrollment drops by half for boys and two-thirds for girls, but the gap persists for both genders. However, once we restrict the sample to refugees who arrive in Turkey at or before age 8 and account for the socioeconomic differences, the native-refugee gap completely vanishes both for boys and girls. In one outcome—in never attending school—the native-refugee gap persists even for children who arrive before age 8. Data for Syrians from the pre-war period suggest that this might be an "ethnic capital" that they bring with them from Syria. Finally, we find that the timing of boys' school drop-out coincides with their entry into the labor market, whereas girls' drop-out mostly takes place earlier than their marriage.

JEL Classification: F22, I21, I28, O15

Keywords: refugees, education, school enrollment, integration, child labor, marriage, Turkey

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1. Introduction

Migrant children's integration into the schooling systems of host countries is well-studied in the literature.[1] However, this literature is mostly about the children of economic migrants in developed countries, and little evidence exists on the integration of refugee children into the schooling systems of low- or middle-income countries.[2] This is highly important because most refugees live in neighboring countries that are either low- or middle-income countries. Examining the school integration of refugee children has become even more critical in the backdrop of surging numbers of refugees worldwide. The global stock of refugees reached 26 million in 2019 (UNHCR, 2019), the highest figure since 2010, and children (aged 17 and younger) constitute nearly 40 percent of this population.

Syria is the top source country of refugees in the world. Since the start of the conflict in 2011, nearly 6 million Syrians have fled their country and sought refuge in nearby countries (Turkey, Lebanon, Jordan, Iraq, and Egypt). Turkey hosts the highest number of Syrian refugees, currently at 3.6 million; nearly 47 percent of this population is under 18, and a third are of school age (aged 5-17) (Turkish Directorate General of Migration Management, TDGMM, 2021). An important characteristic of the Syrian refugees in Turkey is that the overwhelming majority (98.5 percent) live outside of camps (TDGMM, 2021).

Syrian refugees started arriving in Turkey as early as April 2011. They were initially hosted in camps, where children attended schools set up with the initiative of camp administrators. These camp schools were later turned into Temporary Education Centers (TECs) and established in off-camp areas as refugees gradually moved out of camps. Starting with the 2014-2015-school-year, Syrian refugee children were accepted in public schools. The latest statistics of the Ministry of Education of Turkey (MoNE) indicate that over a third of Syrian school-aged children are out of

[1] See Basu, 2018; Böhlmark, 2008; Chiswick and DebBuma, 2004; Entorf and Lauk, 2008; Gang and Zimmermann, 2000; Jensen and Rasmussen, 2011; OECD, 2012; van Ours and Veenman, 2006.

[2] A related literature considers the effect of violent armed clashes on children's human capital accumulation. See Akresh and de Walque (2008) for Rwanda, Di Maio and Nandi (2013) for Palestine, Leon (2012) for Peru, and Shemyakina (2011) for Tajikistan. Unlike our study, the children in these settings have endured armed conflict within their countries or have been refugees in neighboring countries for a short period before returning to their home country.

school (MoNE, 2021a).[3] Among the Turkish school-aged children, near-universal school enrollment rates are achieved at the primary and lower secondary school levels, while school enrollment at the high school level is lower at 85 percent (MoNE, 2021b). These statistics suggest significant schooling gaps between native and refugee children.

In this study, we examine the integration of Syrian children into the Turkish schooling system. In particular, we aim to understand the underlying causes of the differences in school enrollment of native and refugee children. We also study children's employment and marriage outcomes to understand the observed changes in schooling outcomes better. For this purpose, we use the Turkey Demographic Health Survey (TDHS), which for the first time in 2018 included a separate module, the TDHS Syrian Migrant Sample (TDHS-S) to cover Syrian refugees. The TDHS-S provides rich information on Syrian children and their families and is *representative* of the Syrian population in Turkey (HUIPS, 2019a; HUIPS, 2019b).

In the educational investment model of Schultz (1961) and Becker (1993), it is optimal to continue to invest in schooling as long as the marginal rate of return from investing each additional unit of funds is higher than its marginal cost (interest rate). The marginal rate of return to schooling is the difference between the marginal benefits (increase in earnings and psychic benefits of schooling) and the marginal production cost of investing in it (direct expenses, foregone earnings as the opportunity cost, psychic costs). Within this framework, it is not clear a priori whether refugees would invest more or less in schooling. The marginal benefits of schooling could be higher for refugee children because education allows them to acquire host-country-specific human capital (such as language skills, familiarity with the environment) faster than natives. On the other hand, the opportunity cost of children's schooling would be higher for refugee families because they are poorer on average and, hence, their children need to work. Moreover, the productivity of schooling could be lower for refugee children as their parents are less educated, and they might face language problems.

The TDHS data reveal substantial native-refugee gaps in school enrollment of children aged 7–

[3] This is despite significant improvement in school enrollment over time; while 41 percent of Syrian children were enrolled in school in the 2014-2015 school year, this rate increased to 64 percent in the 2020-2021 school year. The most significant improvement is in primary and lower secondary school levels, where the enrollment rate reached nearly 80 percent but remained low at 39 percent in upper secondary education.

17. The baseline native-refugee gap (which still accounts for key variables such as age, relationship to the household head, and survey month) is 32.3 percentage points for boys and 24.8 percentage points for girls. Our results show that a substantial part of the schooling gap between native and refugee children arises due to socioeconomic differences between the two populations. Once we account for various socioeconomic characteristics (including the region of residence, household wealth, employment of household members, household composition, and several household-head characteristics), the baseline native-refugee gap reduces to 15.3 percentage points for boys and 8.2 percentage points for girls. Among the control variables, the most crucial factor contributing to the native-refugee gap is household wealth by a wide margin. A key finding is that when we restrict the refugee children to those who arrive in Turkey at or before age 8, the native refugee gap completely vanishes for both boys and girls—after accounting for the above covariates.

For refugee boys, who have remarkably high employment rates, employment and school drop-out seem to be driven by the same set of underlying factors. The patterns in native-refugee differences in boys' paid employment are parallel to those for school enrollment; accounting for our rich set of covariates reduces the baseline refugee-native gap in paid work among boys, but a significant gap remains. When we restrict the refugee sample to boys who arrive at or before age 8, the native-refugee gap in paid work also vanishes after accounting for the rich set of covariates. Among refugee girls, the timing of marriage does not seem to coincide with the timing of school drop-out. When marriage rates rise considerably (after age 15), no notable change in enrollment rates is observed—suggesting that girls who marry are already out of school.

Our analysis of schooling and child labor by age, age at arrival, and years since arrival yields interesting patterns. The most important one is in regards to the age at arrival, holding age constant. Age 8 is a critical turning point. When the age at arrival is 8 or lower for refugee children, we observe no difference between native and refugee children of either gender in school enrollment or child labor. On the other hand, when the age at arrival is 11, refugee boys are about 40 percentage points less likely to be enrolled in school and about 30 percentage points more likely to be in paid work. In terms of years since arrival, the first year is critical. In the first year, both school enrollment and child labor are lower, whereas no significant difference exists across other years.

Finally, our duration analysis of time to drop-out reveals an interesting finding. Although the native-refugee gap in school drop-out vanishes for refugee children arriving at or before age 8 after accounting for the covariates, we find that the gap between natives and refugees in never attending school persists even for refugee children arriving at or before age 8 and after accounting for covariates. Examining the data on children in Syria before the war, we find that 3 percent of girls and 2 percent of boys never start school. Hence, the persistent refugee-native gap in never attending school may result from what Borjas (1992) refers to as the '*ethnic capital*' (which Syrian refugees bring with them from their home country).

This study contributes to the literature in several ways. First, to the best of our knowledge, this is the first study to examine the native-refugee differences in school enrollment in a low- or middle-income country—using a representative dataset for both refugees and natives. Moreover, it does this in the context of the biggest refugee group in a single country in the world. While the challenges in the school integration of the children of economic migrants are likely to apply to refugee children, refugee children face additional challenges. These include schooling interruptions before arriving at the host country, difficulties in school access, and the trauma experienced (Dryden-Peterson, 2015). The relevant literature is mostly populated with qualitative studies that examine the difficulties refugee children face in integrating into a new school system, refugee children's special schooling needs, and educational policies.[4] Few quantitative studies examine the schooling outcomes of refugee children, but these do not compare the outcomes of native and refugee children as we do but instead focus on only refugees (see, for instance, Eryurt (2021), Sieverding et al. (2018)).[5]

[4] See, for instance, Block et al. (2014), Buckner et al. (2017), Celik and Icduygu (2019), Charles and Denman (2013), Crul et al. (2019), Ferfolja and Vickers (2010).

[5] Sieverding et al. (2018) examine Syrian refugee children's schooling outcomes in Jordan. They find that Syrian children's schooling is disrupted due to the conflict in Syria and that they have difficulty integrating into Jordanian public schools. However, their enrollment at the basic education level recovers to pre-conflict levels over time. Eryurt (2021) considers early school drop-out behavior among Syrian refugee children aged 6-18 in Turkey and finds that employed children are more likely not to continue with their schooling. Some studies examine the effect of cash transfer programs for refugee households on their children's schooling and employment outcomes (see De Hoop et al. (2019), Moussa et al. (2020), and Altindag and O'Connell (2020) for Lebanon, Aygun et al. (2021) and Ozler et al. (2020) for Turkey).

Second, the literature on the schooling outcomes of immigrant children, most of which are in the context of rich countries, do not distinguish the children of economic migrants from the children of refugees (see, for instance, Ammermueller, 2007; Colding et al., 2009; Entorf and Lauk, 2008; Jense and Rasmussen, 2011; Schnepf, 2007; van Ours and Veenman, 2003). An advantage of our study, compared to these studies, is that the forced nature of migration and our focus on a single ethnic group allow us to side-step issues related to the selective nature of economic migration and migration policies that change the immigrant composition. Therefore, we can better assess the role of individual and household-level factors that give rise to educational inequalities.

Third, we contribute to the 'critical age at arrival' discussion in the literature. Immigrants who arrive at younger ages typically have smaller education gaps than those who arrive older (Basu, 2018; Böhlmark, 2008; Chiswick and DebBuma, 2004; Gang and Zimmermann, 2000; OECD, 2012; van Ours and Veenman, 2006).[6] The critical age at arrival for migrant children is reported as 10 in the context of Sweden by Böhlmark (2008); as 4 for Turkish and Moroccan girls in Holland but as 11 for boys by van Ours and Veenman (2006); and as 9 for Mexican-descent and 12 for European-descents immigrants to the US by Gonzalez (2003). The critical age at arrival we find for school integration (age 8) corresponds to a couple of years after the school start age of 6 in Turkey. An important issue to emphasize here is that age-at-arrival of migrant children could be endogenous; however, this is certainly less likely in the context of forced migration due to a major civil war where family members flee together than in the context of economic migration, where children may join their parents some years later.

Fourth, we demonstrate the critical interplay between school enrollment and child labor among refugee children, which is likely to be particularly important for migrant and refugee children in poorer host countries. For example, the timing of the acceleration of school drop-out among refugee boys coincides with their entry into the labor market in large numbers. Moreover, our finding of critical age-at-arrival value of 8 applies to both school enrollment and child labor among refugee boys. This finding highlights the policy challenge in that school enrollment of children in impoverished households cannot be improved without addressing the opportunity costs of schooling. In this sense, Turkey's Emergency Social Safety Net (ESSN) program, which provides

[6] Earlier age at arrival implies, conditional on age, better proficiency in the host country's language, cultural assimilation, and longer time spent in the host country's schooling system.

unconditional cash transfer to refugee households according to specific eligibility criteria (primarily based on household composition), is potentially a critical intervention.

The study is divided into five sections. Section 2 describes the institutional background regarding the situation of Syrian refugees and the school system in Turkey. Section 3 presents the data and the empirical methodology, and Section 4 provides the results. Finally, Section 5 concludes.

2. Background information

2.1 Syrian refugees in Turkey

The Syrian refugees fleeing the war in Syria started entering Turkey in the Spring of 2011. In the beginning, they were housed in public buildings with the expectation that this would be a short-lived situation. However, as the war escalated and larger numbers of refugees sought refuge in Turkey, camps were set up by the Disaster and Emergency Management Agency (AFAD) to house the refugees. By the end of 2013, nearly 200 thousand refugees were hosted in 21 camps (Kirisci and Ferris, 2015), and their total number reached almost 600,000, as shown in Figure 1. As the war dragged on, the number of refugees increased further, and a higher percentage started living in off-camp areas. At the end of 2015, the number of Syrian refugees totaled 2.5 million and only about 10 percent lived in refugee camps. By the end of 2018, the year that TDHS was conducted, the number of Syrian refugees had reached 3.6 million and stabilized around that figure. At this time, only 1.5 percent of Syrian refugees were in camps.

The status of Syrian refugees in Turkey is somewhat peculiar because they are not recognized as refugees under Turkish law.[7] In 2014 they were given 'temporary protection status' (Directive no. 2014/6883; published in Official Gazette on 2/10/2014) and, with it, access to free health and education services and public assistance.

2.2 Schooling systems and educational outcomes

The Turkish educational system offers 12 years of compulsory education structured as 4 years of primary, 4 years of lower-secondary and 4 years of upper-secondary (high school) education. All children in Turkey, including foreign nationals and children with temporary protection status, are

[7] Turkey signed the Geneva Convention on the Status of Refugees with geographical limitations.

entitled to 12 years of free education in public schools. The Syrian education system is somewhat different from the education system in Turkey in that it consists of 6 years of primary education, 3 years of lower-secondary (middle school), and 3 years of upper-secondary (high school) education. Primary and lower-secondary education are compulsory, but upper-secondary education is not (Emin, 2016).

Figure 2 shows the enrollment rates of Syrian children aged 7-17 in pre-war Syria in 2009 and compares them to those in Turkey in 2008. At the time, compulsory education in Turkey was limited to 8 years; therefore, children in both countries were expected to stay in school for about the same number of years. Among 7-11-year-olds, enrollment rates both for girls and boys in the two countries were quite high, exceeding 95 percent. Nonetheless, enrollment rates of Turkish children were higher than the enrollment rates of Syrian children by a small margin. Among children aged 12-17, enrollment rates fell to 69 percent for girls and 67 percent for boys in Syria. Significant drops are also observed for Turkish children in this age group but not to the extent observed for Syrians, with the result that a gap on the order of 13 percentage points emerged for boys and 9 percentage points for girls. Enrollment rates by age and sex in pre-war Syria suggest that around 2 percent of Syrian boys and 3 percent of Syrian girls never start school. In contrast, the proportion of children who never start school in Turkey was (and continues to be) negligible.

Figure 3 shows, based on the statistics provided by the MoNE, that the school enrollment rate of Syrian children was low in the early years of their arrival. Their enrollment was only 30.4 percent in the 2014-2015 school year. However, their enrolment rate steadily rose in the following two years and reached 59.1 percent in the 2016-17 school year. In the 2018-19 school year—the year the data used in our empirical analysis corresponds to—their enrolment rate was 61.4 percent. The latest data for the 2020-2021 school year show that the overall enrolment rate is 64.2 percent. Despite substantial improvements, as Figure 3 shows, more than one-third of children are still out of school (MoNE, 2021a).[8] For the 2020-2021 school year, the highest school enrolment rate is observed for primary and secondary school-age children at around 79-80 percent and the lowest rate for high school-age children at around 39 percent (MoNE, 2021b).

[8] In the 5-year strategic plan of MoNE for the 2019–2023 period, the school enrolment rate is set forth as 75 percent by the year 2023 (MoNE, 2021c).

In the early years of the conflict, the Syrian refugee children in camps attended schools organized with camp administrators' initiative. These schools followed the curriculum of Syrian schools in the Arabic language of instruction and utilized Syrian teachers and volunteers for instruction.[9] As the number of refugees in off-camp areas grew over time, these schools were also opened in off-camp areas. In April and September 2013, MoNE published two circulars that aimed to set a standard for Syrian children's education.[10] With another circular published a year later (September 2014), these schools were recognized as Temporary Education Centers (TECs).[11] In the same year, as noted above, Syrian refugees were given temporary protection status and with it access to public schools. Hence, starting with the 2014-2015 school year, Syrian children could choose to attend TECs or public schools.

TECs were criticized for fostering cultural and linguistic separation between Syrian refugees and host communities (Amaç and Yaşar, 2017). In response to these criticisms and with the realization that Syrian refugees are unlikely to return to Syria for years to come, 15 hours of Turkish lessons per week were added to their program starting with the 2016-2017 school year (Emin, 2016). Another measure was the requirement for children starting first, fifth and ninth grades irrespective of enrolling in TECs or public schools to follow the Turkish curriculum (Çoşkun et al., 2017). A gradual transfer of students from TECs to public schools was also planned. As of the 2019–2020 school year, TECs are closed and nearly all students are transferred from TECs to public schools (MoNE, 2021c).

During the transition of Syrian refugee children from TECs to public schools, a series of programs were put in place to ease their integration. These interventions funded by international organizations complemented the efforts of MoNE. Among these programs, Promoting the Integration of Syrian Children into the Turkish Education System (PICTES) has a special place due to its scope and size (Arık Akyuz et al., 2018). PICTES was implemented under the FRiT framework (The EU Facility for Refugees in Turkey) and had a budget of 300 million Euros for the 2016-2018 period. Interventions such as Turkish and Arabic language education, early

[9]The education curriculum was designed by the Interim Syrian Government and modified by the Turkish MoNE (Emin, 2016).

[10] Circulars dated 26.4.2013 and 26.9.2013 (no. 10230228/235/2693370).

[11] Circular no. 10230228/235/4145933 dated 23.9.2014.

childhood education, remedial courses, transport support and school supplies were financed through PICTES in 23 most refugee-dense provinces (MoNE, 2020). Another program that aimed to promote the integration of refugee children into the educational system in Turkey is the Conditional Cash Transfer for Education (CCTE) program. This program, which has been running since 2003 with UNICEF support, was extended in 2017 to include refugee children (TRC, 2018).

2.3 Labor market outcomes, income, and poverty among refugees

Syrian refugees did not have the right to work until 2016.[12] To date, only 116 thousand work permits have been issued.[13] However, the TDHS-S data suggest that nearly 60 percent of adult male Syrians work, which is about 715,000 persons. The employment rate among adult women is meager at 5.9 percent, which is, in part, related to their limited access to the labor market and in part to cultural norms.[14] Employed Syrians are overwhelming (nearly 98.5 percent) in the informal sector, holding low-skill jobs in construction, agriculture, textile manufacturing (Erdoğan, 2014; Ferris and Kirisci, 2016; ILO, 2021). As a result, they earn less than the natives. Pinedo-Caro (2020) reports that although the majority of Syrian men work long hours (76 percent of Syrians worked more than 45 hours per week, the maximum legal number of working hours in Turkey), they earned 1,300 TL per month on average in 2017, which was 7 percent below the minimum wage in that year.

Paid employment is also quite frequent among refugee children. Dayioglu, Kirdar, and Koc (2021) calculate, based on the 2018 TDHS-S, that a remarkable 48 percent of boys aged 15-17 are in paid employment. The corresponding number for girls aged 15-17 is much lower, though, at 8.5 percent. Dayioglu, Kirdar, and Koc (2021) also report that the above rates are much higher than the employment rates of Syrian children in Syria before the war: according to the 2009 Syrian Family Health Survey (SFHS), among 15-17-year-olds, the paid employment rate was 29 percent for boys and 4.2 percent for girls.

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[12] Decree no 2016/8375 published in Official Gazette no. 29594 dated 15/1/2016.

[13] https://multeciler.org.tr/turkiyede-calisma-izni-verilen-suriyeli-sayisi/. Nimer and Rottmann (2021) discuss the reasons for this low enrollment.

[14] Using the 2009 Syrian Family Health Survey (SFHS-2009), we estimate that the employment rate of adult women in pre-war Syria was 12.9 percent.

The majority of Syrian refugees live in poverty. WFP (2016) reports that 28.6 percent of Syrian refugees that resided outside camps were food insecure, and 93 percent were below the national poverty line. In the pooled sample of natives and Syrian refugees in the 2018 TDHS, over three-quarters of the Syrian refugee population are in the bottom wealth quantile (Dayioglu, Kirdar, and Koc, 2021).

Syrian households have received various kinds of social assistance since their arrival. The most important among these, by far, has been the Emergency Social Safety Net (ESSN) program. This unconditional cash transfer program was first implemented in November 2016 and has reached 1.8 million refugees as of February 2021 (IFRC, 2021). Moreover, the amount of pay is sizeable; for the average Syrian household with six members (based on the 2018-TDHS-S), the monthly payment is 720 TL (around USD 105), excluding the top-ups. Aygun et al. (2021) calculate that this monthly payment is about 36 percent of the average monthly consumption value of the refugee households in the nationally representative micro-level dataset used in their study. More importantly, they find that these cash transfers substantially alleviate extreme poverty, reduce a family's need to resort to harmful coping strategies, reduce child labor and increase school enrollment for both boys and girls.

3. Data and Empirical Methodology

3.1 Data

The data for this study come from the Turkey Demographic and Health Survey (TDHS), which is conducted every five years, to gather information on demographic and health outcomes of women and children. For the first time in 2018, the TDHS included a module (TDHS-S) to collect information on Syrian refugees in Turkey. The questionnaires used in both surveys were essentially the same, with some additional questions added to the Syrian questionnaire to elicit relevant information for the Syrian sample. Both the TDHS and TDHS-S collect rich information on sample households' demographic and socioeconomic characteristics, including children's schooling irrespective of whether or not they live with their mother. In addition, both the TDHS and TDHS-S are representative of their respective populations. Our main target group is school-aged children. Considering late school entry for both Turkish and Syrian children, we restrict the sample to 7-to 17-year-olds. We have 3,950 children in this age group in the Turkish sample, while

the corresponding figure for the Syrian sample is 1,460. Thus, in the pooled sample, we have a total of 5,410 7-17-year-olds.

The outcome variables in our analysis are school enrollment (alternatively, school drop-out), paid employment, and marital status of children. Employment and marital status information are gathered for individuals 12 years of age and above; therefore, our analyses on children's paid employment and ever-married status are based on 12-17-year-olds.

The TDHS includes detailed information on the demographic and socioeconomic characteristics of children and their households. Apart from basic demographics, we have information on children's age at arrival in Turkey,[15] the survival status of their parents, their relationship to the household head (whether head's son/daughter, son/daughter in law, nephew, brother, etc.), current region of residence (12 regions of Turkey at NUTS1 level), and the type of place they reside in (urban/rural/camp). Household-level information includes household wealth, household composition, number of adult household members in paid employment, female headship, age and education level of the head, and whether the head is employed. Household wealth is accounted for by dummies for various deciles of wealth, [16] where deciles higher than 5 are grouped with the fifth decile because few refugee households exist in higher deciles. The household composition variables include household size, number of children aged 7 to 17, number of children under age 7, and number of elderly (above age 65). Although we mainly rely on the TDHS-S for empirical analysis, we also use the 2008 Turkey Demographic and Health Survey (TDHS-2008) and 2009 Syria Family Health Survey (SFHS-2009) as complementary data sets to provide information on enrollment rates of Turkish and Syrian children in the pre-war period.

3.2 Descriptive Statistics

Table 1 presents the descriptive statistics for native and refugee children. The average school enrollment rate is 92 percent for native children (ages 7-17), but only 63.7 percent for Syrian refugee children. The average employment rate, on the other hand, is higher among Syrian children. While only 4.4 percent of native children (ages 12-17) are in paid employment, this figure increases to 20.3 percent among Syrians. It is also more likely that Syrian children (ages 12-17)

[15] We generate this variable using the information on the date of arrival and the child's age.

[16] Household wealth is constructed by adding 21 different household assets defined as dichotomous (0-1) variables.

are married: while less than 1 percent of children are ever-married among the native child population, this figure is 5.1 percent among refugees.

Native children are only about half a year older than Syrians, and girls constitute a little less than a half of children in both groups. Refugee households reside predominately in urban areas; only about 5 percent of children are in camps. Nearly three-quarters of native children are in urban areas, and the rest are in rural areas.

The most striking difference between the two groups of children pertains to their household income. Totally 43.6 percent of refugee children are in the lowest wealth decile, and another 36.5 percent are in the bottom second decile; therefore, over 80 percent of refugee children are in the bottom 20 percent. In contrast, less than 10 percent of native children are in the bottom 20 percent of the wealth index.

Syrian children come from more crowded households, with more dependents but fewer employed household members. They have younger and less educated household heads as compared to native children. Female headship is equally low among both populations. A significant difference exists between the two groups of children in terms of parental survival. While 2.3 percent of native children have lost their fathers and less than 1 percent their mothers, the corresponding figures for Syrian children are 7.6 percent and 1.6 percent, respectively. The excess deaths observed among the parents of refugee children indicate the human cost of the war.

Figure 4 compares the fractions of Syrian and Turkish children, by gender, enrolled in school in panel (A), in paid employment in panel (B), and ever-married in panel (C). As shown in panel (A), Syrian children have lower enrollment rates regardless of age and gender.[17] However, the gap widens after age 12. Panel (B) provides clues about the drop in the enrollment rate of Syrian boys. Syrian boys have remarkably high employment rates, especially after age 15. Moreover, a comparison of the plots in panels (A) and (B) indicates a joint movement between boys' enrollment and paid work. For instance, paid employment rates of Syrian boys exhibit sharp hikes from age 12 to 13 and especially from age 14 to 15. At the same age transitions, we see significant simultaneous drops in enrollment rates. Therefore, these graphs suggest joint decision-making

[17] Syrian children have a lower enrollment rate at age 7 than at ages 9-11, suggesting a late school start for some.

between schooling and child labor for Syrian boys. This is not visible for girls due to their lower paid-employment rates.

Panel (C) shows that ever-married rates of Syrian girls rise remarkably after age 15. About 40 percent of 17-year-old Syrian girls are ever-married. However, a comparison of panels (A) and (C) does not suggest a co-movement between ever-married and enrollment status among girls. School drop-out among girls mostly occurs by age 15; however, marriage before this age is rare. On the other hand, as marriage remarkably accelerates after age 15, no substantial drop in the enrollment rate of girls takes place. Therefore, this suggests that girls do not leave school to marry, at least in large numbers.

3.3 Estimation

In the estimation of native-refugee differences by gender, we pool the school-age children in our sample (7- to 17-year-olds) and use the following specification,

$$y_i = \beta_0 + \beta_1 syrian_i + \beta_2 fem_i + \beta_3 syrian_i * fem_i + \boldsymbol{X_i \Gamma} + u_i, \qquad (1)$$

where y_i, the outcome variable, stands for enrollment status, paid employment status or ever-married status; $syrian_i$ is a dummy variable for Syrian refugees; fem_i is a dummy variable for girls; X stands for all other control variables, as explained above and given in Table 1 (including age dummies), and u is the error term. Equation (1) is estimated using ordinary least squares (OLS). Sampling weights at the household level are used. Standard errors are clustered at the household level as children from the same household enter the regression.

Some essential characteristics of refugee children that would affect their schooling and paid employment outcomes—such as age at arrival and years since arrival—do not enter the equation (1) so that we can easily interpret the coefficient of the Syrian dummy. However, in separate heterogeneity analyses, we examine how the age at arrival and years since the arrival of refugee children matter in native-refugee differences in school, child work, and marriage outcomes.

4. Results

4.1 Native-Refugee Differences in School Enrollment

We first examine the native-refugee differences in school enrollment. Table 2 displays these differences and how they change as we gradually add groups of control variables for background characteristics, which come from the estimation of equation (1). In the baseline specification, where we control for only age, survey month, and child's relationship to the household head, Syrian boys are 32.3 percentage points less likely to be enrolled in school than Turkish boys. Syrian girls, however, do somewhat better; they are 24.8 percentage points less likely to be in school than Turkish girls. This trend—that compared to natives, Syrian girls fare better than Syrian boys—holds in all specifications. The reasons for this will become apparent when we examine child labor shortly.

In columns (2) to (6) in Table 2, we add different groups of control variables, and in column (7), we add them all together. As can be seen from the table, introducing each group of controls reduces the native-refugee gap. However, the key control variable here is household wealth. Introducing this control variable in column (3) reduces the native-refugee gap for boys from 32.3 to 17.3 percentage points. When we introduce all control variables in the final column, the gap for boys drops by more than half, from 32.3 to 15.3 percentage points. Similarly, the gap for girls decreases from 24.8 to 8.2 percentage points. In other words, socioeconomic differences between natives and Syrian refugees explain a substantial part of the differences in school enrollment rates; however, they do not eliminate them.

In panel (B) of Table 2, we restrict the sample of Syrian refugee children to those who arrived in Turkey at age 8 or earlier. The results change tremendously in this case. In column (1), with the baseline specification, refugee boys (girls) are 15.6 (14) percentage points behind native boys (girls) in school enrollment. No significant difference exists among refugee boys and girls in this sample, regarding how they compare with natives of the same gender. The critical finding is that the native-refugee gap vanishes when we control for all background characteristics in column (7). The gap for boys in this case is only 2 percentage points and that for girls is 0.6 percentage points, and both are statistically insignificant.

These findings provide us with two critical pieces of information. First, a large part of the difference in the school enrollment of Syrian and native children can be explained by socioeconomic characteristics. In fact, the gap reduces by more than half for boys and falls by two-thirds for girls. Nonetheless, the native-refugee gap persists even after controlling for these background characteristics. The second key piece of information is that the gap between native and refugee children completely disappears once we consider refugee children who arrived in Turkey at or before age 8 and account for the differences in the socioeconomic characteristics at the same time.

4.2 Native-Refugee Differences in Child Labor

We replicate the analysis provided in Table 2 when the dependent variable is children's paid work and present the results in Table 3. Interestingly, the patterns are very similar. In panel (A) of Table 3, the baseline specification shows that refugee boys are 27.4 percentage points more likely to be in paid employment than native boys. On the other hand, the gap is much narrower among girls at 6.5 percentage points. Once we account for socioeconomic characteristics, the gap between native and refugee boys reduces to 19.4 percentage points but vanishes for girls.

Panel (B) of Table 3 shows that when the refugee sample is restricted to those arriving in Turkey at or before age 8, the refugee-native gap in paid employment among boys reduces significantly (from 27.4 percentage points at the baseline to 9.6 percentage points). In addition, once we account for socioeconomic characteristics, the statistical evidence of a refugee-native gap vanishes. Quantitatively, the gap decreases to 3.2 percentage points. These results are very much in parallel to what we observe for children's schooling outcomes.

Essentially, we find that refugee boys are much more likely to be in paid employment than native boys whereas a small gap exists among girls. Once we account for socioeconomic differences of natives and refugees, the gap in paid employment among girls vanishes; however, the gap among boys persists, albeit at a much lower level. As was the case for school enrollment, once we restrict the refugee sample to those who arrive at early ages, the gap in paid employment among boys also vanishes. These results suggest that an essential reason for the refugee-native gap in school enrollment of boys is their much higher probability of paid employment. It also explains why the refugee-native gap in school enrollment is wider for boys than girls in Table 2.

4.3 Native-Refugee Differences in Marriage

Table 4 presents the results of analyses where the dependent variable is ever-married status. The estimates in panel (A) for the full sample indicate no evidence of a gap between native and refugee boys. The small and imprecisely estimated gap in the baseline (0.5 percentage points) turns negative when all control variables are included. On the other hand, a clear gap exists among girls (2.2 percentage points) in the baseline, which falls by half (to 1.1 percentage points) when all control variables are included. Although this gap is not statistically significant at the conventional levels, its magnitude is still notable given that 10.2 percent of 12-17-year-old girls are ever-married.

When we restrict the refugee sample to those who arrived at or before age 8 in panel (C), no evidence of a native-refugee gap in the ever-married status of girls is observed even with the baseline specification. However, when we increase the arrival age to 12, the lowest age that girls are likely to enter the marriage market, a gap on the order of 0.9 percentage points emerges at the baseline. The inclusion of all controls closes this gap. These results essentially suggest that while refugee girls are at a higher risk of marriage, this is driven by those who arrive in Turkey at older ages (after 12). In other words, the critical age at arrival for marriage among girls is higher (age 12) than the critical age at arrival (age 8) for school integration.

4.4 Heterogeneity by Age

Equation (1) estimates the native-refugee differences by gender but assumes common age effects by refugee status and gender. In this subsection, we aim to understand the native-refugee differences by gender at each age separately. For this purpose, in an alternative specification, we extend equation (1) to include full interactions of refugee status dummy, gender dummy, and age dummies so that we can estimate native-refugee differences by age, as well as by gender.[18] Based on the results of this estimation, in Figure 5, we show native-refugee differences by age and gender for predicted enrollment rates in panel (A), for predicted paid employment rates in panel (B), and for predicted ever-married rates in panel (C).

[18] Put differently, we estimate separate age effects (for ages 7-17) for the four groups by refugee status and gender (Turkish male, Turkish female, Syrian male, Syrian female). On the other hand, age effects are common for these four groups by refugee status and gender in equation (1).

As shown in Table 2, after accounting for several background control variables, the probability of enrollment is 15.3 percentage points lower for refugee boys and 8.2 percentage points lower for refugee girls compared to natives of the same gender. Panel (A) of Figure 5 shows that most of this difference results from the gap at ages 12 to 17 for boys and at ages 13 to 17 for girls.[19] It is important to note that we do not interpret these as age effects on enrollment but rather examine the predicted enrollments by age. This is because older refugee children in our sample enter Turkey on average at a later age; hence, these effects confound the effects of age and age-at-arrival—an issue that we examine in the next subsection. Panel (A) of Figure 5 also shows that, at each age, Syrian boys fare worse than girls in terms of school enrollment—in comparison to their native counterparts. This finding is in line with the observations in panel (B) of Figure 4—where Syrian boys are more likely to be in paid work than Syrian girls at each age, but especially after age 15.

Previously, in Table 3, we saw that refugee boys are 19.7 percentage points more likely to be in paid employment than native boys, whereas we observed no evidence for a native-refugee gap in paid employment among girls. Panel (B) of Figure 5 displays that the native-refugee gap in boys' paid employment is observed at each age.[20] At the same time, the gap becomes substantially more pronounced after age 15. In fact, at age 15, Syrian boys are 32.5 percentage points more likely to be in paid employment than native boys. This gap hovers around 30 percentage points and above for ages 15 to 17.

In sum, refugee boys are more likely to be paid workers than native boys, particularly after age 15. On the other hand, we observe no such gap in paid employment between native and refugee girls. The much higher employment rates of refugee boys, especially at ages 15 to 17, coincide with their declining school enrollment rates.

Panel (C) of Figure 5 shows the native-refugee gap in ever-married status by age. The gap among girls becomes visible after age 15; it is about 2 percentage points at ages 15 and 16, but statistically insignificant at the 5-percent level. The gap rises to 6.6 percentage points at age 17 and becomes statistically significant. A comparison of panels (A) and panels (C) indicates that the changes in the predicted enrollment and ever-married rates by age are not parallel for girls. While the

[19] Essentially, the native-refugee differences given in Table 2 are weighted averages of the age-specific native-refugee differences in Figure 5.

[20] The gap at age 12 is just marginally statistically insignificant at the conventional levels.

predicted ever-married rates rise after age 14, and especially at age 17, the predicted school enrollment rates are relatively constant after age 14.

4.5 Extensions by Age at Arrival and Years since Arrival

We further extend equation (1) in two ways by allowing the refugee effect to vary by age at arrival and gender in one specification and by years since arrival and gender in another specification. (In both cases, age dummies in equation (1) are maintained.) In panels (D), (E), and (F) of Figure 5, we show how refugee-native differences vary by age at arrival and gender for school enrollment, paid employment, an ever-married status, respectively.[21]

The refugee-native differences display striking patterns by age at arrival in both panels. As can be seen in panel (D), the refugee-native difference in predicted school enrollment widens sharply once age at arrival takes a value higher than 8. This widening gap is especially pronounced among boys. Essentially, refugee children who arrive after age 8 are at a disadvantage. Quantitatively, for refugee children who arrive at age 10, the native-refugee gap is 33 percentage points among boys and 27 percentage points among girls. This gap becomes 43 and 30 percentage points for boys and girls, respectively, for refugees arriving at age 12. For refugees arriving at age 15, the gap reaches 52 and 28 percentage points for boys and girls, respectively. On the other hand, for children who arrive at age 8 or earlier, no evidence exists for a refugee-native gap (after accounting for age and several background characteristics)—in line with our findings in panel (B) of Table 2. These findings once again highlight how critical age at arrival is for refugee children's school enrollment.

Refugee-native differences in paid employment by age at arrival, given in panel (E) of Figure 5, show patterns that are consistent with those for school enrollment. For instance, among boys, refugee children who arrive in Turkey after age 8 are much more likely to be working for wages. Quantitatively, for refugee boys who arrive after age 11, paid employment probability is more than 25 percentage points higher than native boys—which explains a significant portion of the refugee-native gap in school enrollment observed in panel (C). Among girls, on the other hand, no difference exists between refugee and native children in paid employment regardless of age at the arrival of refugee children.

[21] While age-at-arrival effects varies across the four groups by refugee status and gender in this specification, age effects are restricted to be the same for these four groups.

Panel (F) presents the predicted refugee-native differences in ever-married status by age at arrival. For girls, age-at-arrival effects start rising after age 12, which is consistent with our findings in Table 4. Refugee girls who arrive at age 14 are 8.3 percentage points more likely and those who arrive at age 17 are 18.6 percentage points more likely than natives to be ever-married—although these are marginally statistically insignificant at conventional levels.

Finally, panels (G), (H), and (I) of Figure 5 display how refugee-native differences in school enrollment, paid employment, and ever-married status vary by years since arrival, respectively. Evidence of a refugee-native gap among boys exists for all values of duration of residence in Turkey. However, among boys, the gap is wider for more recent arrivals; in fact, the gap during the first year of residence is vast. Among girls, evidence of a sizeable refugee-native gap in school enrollment also exists during the first year of residence. However, the gap becomes much narrower beyond the first year. Quantitatively, the refuge-native gap in predicted enrollment is 45 percentage points for refugee boys and 36 percentage points for refugee girls during their first year of residence in Turkey. In essence, panel (G) shows that refugee children are particularly less likely to be enrolled in school during their first year of residence. This implies that policies to integrate refugee children should start immediately after their arrival in the host country.

Panel (H) shows that refugee-native difference in predicted paid employment for boys exists for all values of duration of residence but the first year of residence in Turkey. This might be expected as settling in a new country and searching for a job takes time. In line with the previous graphs, no refugee-native difference is observed among girls for any value of the duration of residence.

Finally, panel (I) displays the refugee-native difference in predicted ever-married status by the duration of residence in Turkey. Refugee girls within the first two years of their residence in Turkey are more than 7 percentage points more likely to be ever-married than natives. This result, combined with the result that girls who arrive at later ages are more likely to be married, suggests that girls who arrive in their mid- to late-teens in Turkey (many of whom are already out of school), are likely to get married within their first year in Turkey.

4.6 Duration Analysis by Grade Level

The duration variable is completed years of schooling. Children enter the risk set when they reach school age. We use a discrete-time duration analysis, where periods are intervals. The first period

starts the day children reach school age and ends before children complete the first grade, [0,1)—which we call grade 0. The second period starts when children complete the first grade and ends before children complete the second grade, [1,2)—which we call grade 1, and so on. The data are right-censored because some children are still in school at the time of the survey.

We define failure as "dropping out after completing this grade level but before completing the next grade level". Accordingly, children who have zero completed years of schooling and are not currently in school fail in grade zero. Children who have one year of completed schooling and are not currently in school fail in grade 1; these children fail in grade 1 because they did not complete grade 2 according to our failure definition. We define failure as "dropping out after completing this grade level but before completing the next grade level" because we want to examine children who have zero years of completed schooling along with those with positive years of completed schooling.[22]

There are n+1 rows of data for each child, where n is the completed years of schooling, because a failure can occur in n+1 different periods—including grade zero. The outcome variable (failure) takes two values: 0 (survival) and 1 (failure) at each one of these n+1 rows. An important issue here is that we need to know whether or not a refugee child is in Turkey or Syria in each period because we need to restrict our analysis to the rows of data in which a refugee child is actually in Turkey. We know the age of arrival in Turkey for each child, but we also need to know the age to which each grade level (each row of data) corresponds. For this purpose, we need to make some assumptions. For children currently in school, we assume that they have uninterrupted schooling until their age at the time of the survey. In other words, if they have 5 years of schooling at, for example, age 12, we assume that they have completed the 5th grade by this age in 5 years. For children who are not currently in school, we assume that first period (grade zero) corresponds to age 6.

The empirical specification is identical to equation (1) except that we have grade-level dummy variables instead of age dummies. In the estimation, we pool different rows (grade levels) across

[22] Children who have zero completed years of schooling and are currently in school are censored in grade 0 and hence do not contribute any information. Children who have one year of completed schooling and are currently in school did not fail in grade 0, but do not contribute any information in grade 1 because we do not know whether they will finish grade 1.

individuals and use OLS regressions. In duration analysis terminology, the waiting-time concept is grade level. The baseline hazard function is piecewise constant (nonparametric), with grade-level dummies. When we examine grade level-specific native-refugee gaps, we interact the refugee dummy with grade-level dummies (as we did earlier).

The estimation results are given in Table 5. We find that refugee children are 6.3 percentage points more likely to drop-out; however, once we account for differences in socioeconomic characteristics of natives and refugees, refugee children are 3.2 percentage points more likely to drop-out. On the other hand, as can be seen in panel (B), when we restrict the refugee sample to children who arrive in Turkey at age 8 or earlier, the refugee-native gap in drop-out behavior falls from 6.2 to 4.0 percentage points. Moreover, the refugee-native gap vanishes when we also account for the background control variables. These findings are in line with those in Table 2. For refugee children who arrive in Turkey at age 8 or earlier, no difference in drop-out behavior is observed from native children once we also account for the differences in their socioeconomic characteristics.

The above findings are based on estimates that represent averages over various grade levels. Next, we examine how the drop-out behavior differs between refugee and native children by grade level, by interacting the Syrian dummy variable and gender dummy with grade-level dummies in an extension of equation (1). The results are displayed in Figure 6, where panel (A) provides the results for the full sample and panel (B) for the sample that excludes refugee children who arrive in Turkey after age 8.

As can be seen in panel (A), refugee children are more likely to drop out at grade 0. In other words, they are more likely to never enroll in school. The probability of never enrolling in school is 4.2 percentage points higher for refugee boys and 3.9 percentage points higher for refugee girls than native boys and girls. At the same time, the probability of drop-out in grades 1 and 2 is actually somewhat lower for refugee children than native children. This is presumably because refugee children with low school attachment drop out in earlier grades or never start, whereas native children drop out a bit later. In other words, the refugee children in grades 1 and 2 are a more select sample because those with low attachment have already dropped out. Kirdar (2009) finds a very similar pattern in his comparison of children in Turkey whose mother tongue is Turkish and whose

mother tongue is Kurdish. The latter group has lower drop-out rates in later grades than the former group due to their much higher drop-out rates in earlier grades.

The probability of drop-out is also higher after grade 4 for refugee children. This is especially visible for boys because—as shown earlier—refuge boys start entering the labor market in more significant numbers after age 12. In fact, the drop-out rates of boys, as can be seen in Figure 6, become much higher after grade 6 (which roughly corresponds to age 12). While the drop-out probability of refugee girls is not as high as that of refugee boys, it is still higher than that of native girls after grade 4. However, unlike refugee boys, refugee girls do not drop out for employment.

Panel (B) of Figure 6 displays an interesting result. In Table 4, we discussed that once we restrict the refugee sample to children who arrive in Turkey at or before age 8, no refugee-native difference in drop-out behavior remains (also after accounting for covariates). However, Figure 6 shows that a refugee-native gap in grade zero persists. Our analysis of the 2009 Syrian Family Health Survey (SFHS-2009) shows that around 3 percent of female children and 2 percent of male children never start school in pre-war Syria. For this reason, the persistent refugee-native gap in grade zero may originate from the '*ethnic capital*' Syrian refugees bring with them to Turkey.

5. Discussion and Conclusion

In this study, we have examined the integration of Syrian refugee children into the Turkish schooling system. For this purpose, we used a recent representative dataset on Syrian refugees, the 2018 TDHS-S, conducted as an ad-hoc module of the TDHS, as well as the TDHS.

The data reveal significant differences in school enrollment between native and refugee children. A significant fraction of these differences, about half for boys and two-thirds for girls, can be explained by differences in socioeconomic characteristics between Syrian and Turkish households. The most critical socioeconomic characteristic that contributes to the native-refugee gap is household wealth. A key finding is that once we restrict the refugee sample to children who have arrived in Turkey at or before age 8 and account for the socioeconomic differences, the native-refugee gap completely disappears both for boys and girls. Nevertheless, a native-refugee gap persists in never-attended-school status even when we restrict the refugee sample to those arriving at or before age 8 and account for the socioeconomic differences—suggesting that this is an 'ethnic capital' refugees bring with them from their home country. We also find a strong association

between the timing of school drop-out and the timing of labor market entry among refugee boys—suggesting that these are joint decisions for them, driven by a similar set of underlying factors. On the other hand, no such association is observed between the timing of school drop-out and the timing of marriage among refugee girls.

Our results highlight the importance of age at arrival in the school integration of refugee children. While this issue has been discussed in some earlier studies, our study circumvents issues related to the selective nature of economic migration and migration policies that change the immigrant composition and affirms that children who arrive older are at a clear disadvantage. This finding also speaks to the wider literature on migration policies regarding family unification adopted by western countries resulting in the late arrival of immigrant children. Our results—that are less influenced by selective migration and migration policies—confirm the evidence from Western Europe and North America that the late arrival of children carries high costs in terms of educational outcomes that may translate into gaps in the labor market and other longer-term outcomes.

In our setting, arrival just a few years after school start-age is enough to cause possibly permanent deficits in school attainment vis-à-vis native children. Although instruction in Arabic was available in schools established for refugees, it seems that this was not sufficient to overcome the barriers caused by difficulties such as schooling interruptions before arriving at the host country, difficulties in school access, and the trauma experienced during the war. In addition, for children who arrive beyond a certain age, another challenge is to start school with native children younger than themselves. These imply that special programs for refugee children—especially for those who arrive older—such as remedial and make-up courses, language instruction, the use of Syrian teachers, and counseling (for post-traumatic disorders) are quite important. Although Turkey implemented such policies, they came somewhat late as the country did not have a well-coordinated action against the refugees in the early years of the conflict—during which it seems that many children dropped out of school. Part of the reason for the slow start of some programs was the expectation that refugees would be repatriated within a short period of time, which may also partly explain the behavior of families. Investing in Turkish-specific skills may not be worthwhile after all in Syria.

Differences in the socioeconomic characteristics between Turkish and Syrian households explain a large proportion of the differences in children's schooling outcomes. In particular, household

wealth turns out to be a key factor, as poverty among the refugee households pushes their children into employment. Although evidence for this exists only for boys—as our employment data is limited to paid employment—the opportunity cost of refugee girls' school enrollment is presumably also high due to their contribution to household chores and employment as unpaid family workers. These imply that interventions aimed at improving the income and living conditions of refugee households could help in improving their children's school outcomes. In fact, Aygun et al. (2021) show that the ESSN program substantially improved school enrollment of both boys and girls among refugees. It will be important to sustain this program in the near future to close the schooling gap between native and refugee children. At the same time, our findings (which come from a period after the implementation of the ESSN program) on the remaining substantial native-refugee gaps in schooling suggest that a group of refugee households exist who either do not receive the cash transfer or whose behavior do not change despite receiving assistance. Hence, other more specific programs targeted at these households are needed.

A further challenge that policy-makers need to address is the 'ethnic capital' refugees might bring with them from their home country. In our context, this takes the form of a higher probability of never starting school. Even for refugee children who arrive early, a gap in this outcome persists after accounting for the covariates. This suggests that understanding the schooling patterns of refugees in their home country before arrival and addressing this type of 'ethnic capital' is also essential.

As the number of refugees worldwide surges, millions of children face the risk of being 'left behind' in terms of school attainment. Education is the most crucial tool in the long-term integration of children of refugees, and returns to education could be even higher for refugee than native children. On the other hand, a lack of integration could drive these children into crime and other harmful coping strategies and generate tension and social conflict between the local population and refugees. Therefore, addressing the educational challenges from the very start is crucial for refugees' economic and social integration.

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Tables and Figures

Table 1: Descriptive Statistics

	Native Sample			Refugee Sample		
	All	Male	Female	All	Male	Female
Enrolled	0.920	0.925	0.916	0.637	0.605	0.673
Paid Employment	0.044	0.056	0.032	0.203	0.324	0.065
Ever married	0.006	0.001	0.011	0.051	0.007	0.102
Age	12.09 (3.14)	12.06 (3.13)	12.13 (3.15)	11.58 (3.09)	11.66 (3.12)	11.49 (3.05)
Female	0.491			0.475		
Type of Place of Residence						
Urban	0.746	0.748	0.743	0.949	0.952	0.947
Rural	0.254	0.252	0.257			
Camp				0.051	0.048	0.053
Household Wealth Decile						
1	0.028	0.031	0.025	0.436	0.435	0.437
2	0.068	0.069	0.066	0.365	0.361	0.369
3	0.057	0.054	0.060	0.098	0.098	0.098
4	0.164	0.158	0.169	0.079	0.082	0.076
5 or higher	0.683	0.687	0.679	0.023	0.025	0.021
Number HH Members Paid Employed	1.106 (0.71)	1.117 (0.73)	1.094 (0.70)	0.824 (0.81)	0.814 (0.82)	0.836 (0.80)
Household Head Paid Employed	0.719	0.725	0.714	0.453	0.445	0.462
Number of HH Members	5.433 (1.98)	5.356 (1.94)	5.513 (2.00)	7.904 (3.10)	7.808 (3.18)	8.011 (2.99)
Number of Children Aged 7 to 18	2.233 (1.21)	2.172 (1.18)	2.297 (1.23)	3.538 (1.65)	3.481 (1.63)	3.601 (1.67)
Number of Children Under 7	0.549 (0.81)	0.521 (0.79)	0.578 (0.83)	1.457 (1.41)	1.417 (1.43)	1.500 (1.39)
Number of Elderly (above 65)	0.217 (0.52)	0.229 (0.53)	0.204 (0.50)	0.181 (0.45)	0.180 (0.45)	0.183 (0.45)
Household Head Education						
No education	0.072	0.067	0.077	0.134	0.137	0.130
Incomplete primary	0.039	0.040	0.038	0.074	0.078	0.071
Complete primary	0.396	0.388	0.405	0.327	0.320	0.336
Incomplete secondary	0.045	0.046	0.045	0.110	0.112	0.108
Complete secondary	0.107	0.113	0.100	0.185	0.177	0.193
Complete high school / higher	0.335	0.339	0.331	0.161	0.166	0.155
Missing	0.006	0.006	0.006	0.009	0.010	0.008
Household Head Male	0.902	0.915	0.888	0.897	0.893	0.900
Age of Household Head						
15-24	0.006	0.009	0.003	0.019	0.020	0.018
25-34	0.089	0.084	0.094	0.146	0.138	0.154
35-44	0.491	0.496	0.485	0.457	0.452	0.462
45-64	0.370	0.368	0.373	0.352	0.361	0.341
65+	0.044	0.044	0.045	0.027	0.028	0.025
Father Alive	0.977	0.979	0.976	0.924	0.918	0.930
Mother Alive	0.993	0.995	0.991	0.984	0.983	0.985
Number of observations	7,219	3,702	3,517	3,010	1,574	1,436

Notes: The data come from the native and refugee samples of the 2018 Turkish Demographic and Health Survey. Information on paid employment and marital status is available only for 12- to 17-year-old children. The number of observations for this age group are 4,014 for the native sample (2,051 boys and 1,963 girls) and 1,460 for the refugee sample (776 boys and 684 girls). Standard deviation for continuous variables are given in parantheses.

Table 2: Understanding the Difference between Refugees and Natives in School Enrollment Status

	Dependent Variable: School Enrollment						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Baseline	Baseline + Region Controls	Baseline + Household Wealth Controls	Baseline + Paid Jobs of HH Members	Baseline + Household Composition Controls	Baseline + Household Head Charac.	All Controls
A) Full Sample							
Syrian	-0.323***	-0.307***	-0.173***	-0.304***	-0.284***	-0.296***	-0.154***
	[0.021]	[0.023]	[0.023]	[0.021]	[0.021]	[0.021]	[0.025]
Syrian * Female	0.075***	0.074***	0.077***	0.073***	0.075***	0.072***	0.072***
	[0.018]	[0.018]	[0.018]	[0.018]	[0.018]	[0.018]	[0.017]
Syrian + Syrian * Female	-0.248***	-0.234***	-0.096***	-0.231***	-0.209***	-0.224***	-0.082***
	[0.020]	[0.023]	[0.023]	[0.020]	[0.020]	[0.020]	[0.025]
Observations	10,228	10,228	10,228	10,228	10,228	10,228	10,228
R-squared	0.283	0.289	0.312	0.289	0.292	0.305	0.334
B) Age at arrival <=8 for Syrians							
Syrian	-0.156***	-0.137***	-0.034	-0.143***	-0.124***	-0.132***	-0.021
	[0.021]	[0.023]	[0.023]	[0.021]	[0.021]	[0.021]	[0.025]
Syrian * female	0.017	0.014	0.02	0.016	0.016	0.015	0.015
	[0.019]	[0.019]	[0.019]	[0.019]	[0.019]	[0.019]	[0.019]
Syrian + Syrian * Female	-0.140***	-0.123***	-0.014	-0.127***	-0.108***	-0.118***	-0.006
	[0.020]	[0.023]	[0.023]	[0.021]	[0.020]	[0.020]	[0.025]
Observations	9,002	9,002	9,002	9,002	9,002	9,002	9,002
R-squared	0.105	0.114	0.135	0.112	0.115	0.132	0.157
Type and region of location of residence dummies		yes					yes
Region of location of reisidence dummies		yes					yes
Wealth-decile dummies			yes				yes
Number of adults with paid job (log)				yes			yes
Household head has paid job				yes			yes
Household size (log)					yes		yes
Number of children aged 7-18 (log)					yes		yes
Number of children under 7 (log)					yes		yes
Number of adults over 65 (log)					yes		yes
Household head education level dummies						yes	yes
Household head age and gender interaction dummies						yes	yes
Father alive						yes	yes
Mother alive						yes	yes

Notes: The data come from the 2018 Turkish Demographic and Health Survey. The data include both the refugee and native samples. The sample is restricted to 7- to 17-year-old children. All regressions also include gender dummy, age dummies, dummies for child's type of relationship to the household head, and dummies for survey month. In all variables with the logarithmic transformation but household size, one is added to the variable before the transformation is taken. "Syrian + Syrian * female" gives the estimates for the linear combination of the coefficients of Syrian and Syrian*female variables. Sampling weights at the household level are used. Standard errors are clustered at the household level. Statistical significance: * 10 percent level, ** 5 percent level, *** 1 percent level.

Table 3: Understanding the Difference between Refugees and Natives in Child Labor

	Dependent Variable: Child Labor						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Baseline	Baseline + Region Controls	Baseline + Household Wealth Controls	Baseline + Paid Jobs of HH Members	Baseline + Household Composition Controls	Baseline + Household Head Charac.	All Controls
A) Full Sample							
Syrian	0.274***	0.268***	0.213***	0.276***	0.261***	0.262***	0.194***
	[0.025]	[0.028]	[0.029]	[0.026]	[0.026]	[0.026]	[0.031]
Syrian * Female	-0.209***	-0.210***	-0.209***	-0.210***	-0.208***	-0.208***	-0.208***
	[0.023]	[0.022]	[0.023]	[0.023]	[0.023]	[0.022]	[0.022]
Syrian + Syrian * Female	0.065***	0.058**	0.005	0.066***	0.053**	0.053***	-0.014
	[0.020]	[0.023]	[0.025]	[0.021]	[0.021]	[0.021]	[0.027]
Observations	5,473	5,473	5,473	5,473	5,473	5,473	5,473
R-squared	0.172	0.182	0.179	0.173	0.176	0.183	0.207
B) Age at arrival <=8 for Syrians							
Syrian	0.096***	0.086***	0.042	0.091***	0.091***	0.085***	0.032
	[0.031]	[0.033]	[0.035]	[0.032]	[0.032]	[0.031]	[0.037]
Syrian * female	-0.048	-0.048	-0.049*	-0.048	-0.049*	-0.048	-0.048
	[0.030]	[0.029]	[0.030]	[0.030]	[0.029]	[0.030]	[0.029]
Syrian + Syrian * Female	0.048**	0.038	-0.007	0.043*	0.043*	0.037*	-0.016
	[0.021]	[0.024]	[0.027]	[0.022]	[0.022]	[0.022]	[0.028]
Observations	4,331	4,331	4,331	4,331	4,331	4,331	4,331
R-squared	0.042	0.046	0.055	0.044	0.046	0.054	0.073
Type of location of residence dummies		yes					yes
Region of location of reisidence dummies		yes					yes
Wealth-decile dummies			yes				yes
Number of adults with paid job (log)				yes			yes
Household head has paid job				yes			yes
Household size (log)					yes		yes
Number of children aged 7-18 (log)					yes		yes
Number of children under 7 (log)					yes		yes
Number of adults over 65 (log)					yes		yes
Household head education level dummies						yes	yes
Household head age and gender interaction dummies						yes	yes
Father alive						yes	yes
Mother alive						yes	yes

Notes: The data come from the 2018 Turkish Demographic and Health Survey. The data include both the refugee and native samples. The sample is restricted to 12- to 17-year-old children. All regressions also include gender dummy, age dummies, dummies for child's type of relationship to the household head, and dummies for survey month. In all variables with the logarithmic transformation but household size, one is added to the variable before the transformation is taken. "Syrian + Syrian * female" gives the estimates for the linear combination of the coefficients of Syrian and Syrian*female variables. Sampling weights at the household level are used. Standard errors are clustered at the household level. Statistical significance: * 10 percent level, ** 5 percent level, *** 1 percent level.

Table 4: Understanding the Difference between Refugees and Natives in Ever Married Status

	Dependent Variable: Ever Married						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Baseline	Baseline + Region Controls	Baseline + Household Wealth Controls	Baseline + Paid Jobs of HH Members	Baseline + Household Composition Controls	Baseline + Household Head Charac.	All Controls
A) Full Sample							
Syrian	0.005	0.006	-0.004	0.006	0.004	0.003	-0.005
	[0.004]	[0.005]	[0.006]	[0.005]	[0.005]	[0.004]	[0.006]
Syrian * Female	0.016**	0.016**	0.017**	0.016**	0.016**	0.017**	0.016**
	[0.007]	[0.007]	[0.007]	[0.007]	[0.007]	[0.007]	[0.007]
Syrian + Syrian * Female	0.022***	0.022***	0.013*	0.023***	0.020***	0.020***	0.011
	[0.007]	[0.008]	[0.007]	[0.007]	[0.007]	[0.007]	[0.008]
Observations	5,474	5,474	5,474	5,474	5,474	5,474	5,474
R-squared	0.75	0.75	0.751	0.75	0.75	0.753	0.754
B) Age at arrival <=12 for Syrians							
Syrian	0.004	0.004	-0.004	0.005	0.002	0.004	-0.005
	[0.003]	[0.004]	[0.005]	[0.004]	[0.004]	[0.003]	[0.005]
Syrian * female	0.005	0.005	0.005	0.005	0.005	0.006	0.005
	[0.006]	[0.006]	[0.006]	[0.006]	[0.006]	[0.006]	[0.006]
Syrian + Syrian * Female	0.009**	0.009	0.001	0.010**	0.007	0.009**	0.000
	[0.004]	[0.006]	[0.005]	[0.005]	[0.004]	[0.005]	[0.006]
Observations	5,195	5,195	5,195	5,195	5,195	5,195	5,195
R-squared	0.705	0.705	0.706	0.705	0.705	0.708	0.710
C) Age at arrival <=8 for Syrians							
Syrian	0.010	0.009	0.007	0.010	0.010	0.010	0.007
	[0.009]	[0.009]	[0.010]	[0.009]	[0.009]	[0.009]	[0.010]
Syrian * female	-0.008	-0.008	-0.008	-0.008	-0.008	-0.009	-0.009
	[0.007]	[0.007]	[0.007]	[0.007]	[0.007]	[0.008]	[0.007]
Syrian + Syrian * Female	0.002	0.001	-0.001	0.002	0.002	0.001	-0.002
	[0.002]	[0.002]	[0.003]	[0.002]	[0.002]	[0.001]	[0.004]
Observations	4,332	4,332	4,332	4,332	4,332	4,332	4,332
R-squared	0.726	0.726	0.726	0.726	0.726	0.729	0.730
Type of location of residence dummies		yes					yes
Region of location of reisidence dummies		yes					yes
Wealth-decile dummies			yes				yes
Number of adults with paid job (log)				yes			yes
Household head has paid job				yes			yes
Household size (log)					yes		yes
Number of children aged 7-18 (log)					yes		yes
Number of children under 7 (log)					yes		yes
Number of adults over 65 (log)					yes		yes
Household head education level dummies						yes	yes
Household head age and gender interaction dummies						yes	yes
Father alive						yes	yes
Mother alive						yes	yes

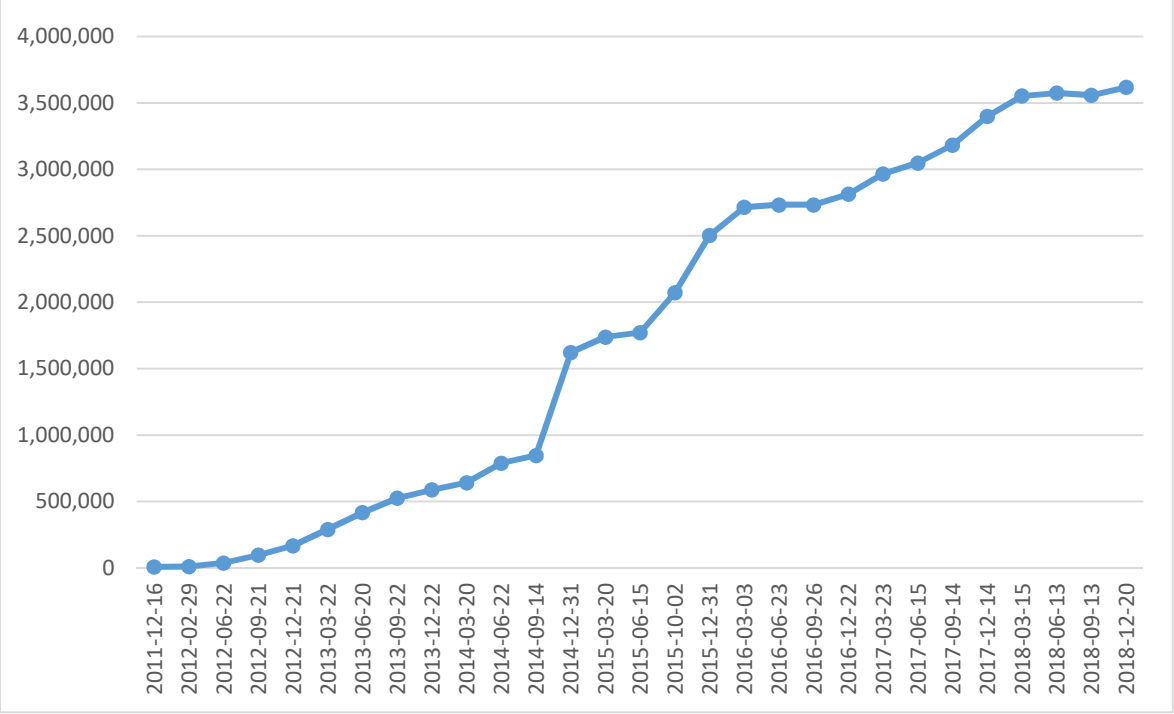
Notes: The data come from the 2018 Turkish Demographic and Health Survey. The data include both the refugee and native samples. The sample is restricted to 12- to 17-year-old children. All regressions also include gender dummy, age dummies, dummies for child's type of relationship to the household head, and dummies for survey month. In all variables with the logarithmic transformation but household size, one is added to the variable before the transformation is taken. "Syrian + Syrian * female" gives the estimates for the linear combination of the coefficients of Syrian and Syrian*female variables. Sampling weights at the household level are used. Standard errors are clustered at the household level. Statistical significance: * 10 percent level, ** 5 percent level, *** 1 percent level.

Table 5: Difference between Refugees and Natives in School Drop-out – Data in Person-Grade Format

	A) Full Sample		B) Age at arrival <= 8	
	Baseline Controls	Full Controls	Baseline Controls	Full Controls
Syrian	0.063***	0.032***	0.040***	0.009
	[0.006]	[0.006]	[0.005]	[0.006]
Syrian * Female	-0.013**	-0.013**	-0.003	-0.003
	[0.006]	[0.006]	[0.006]	[0.006]
Female	-0.001	-0.001	0.000	0.000
	[0.001]	[0.001]	[0.001]	[0.001]
No. Obs.	56,763	56,260	54,329	53,890
No. Persons	9,647	9,548	8,979	8,895
R-squared	0.088	0.099	0.085	0.097

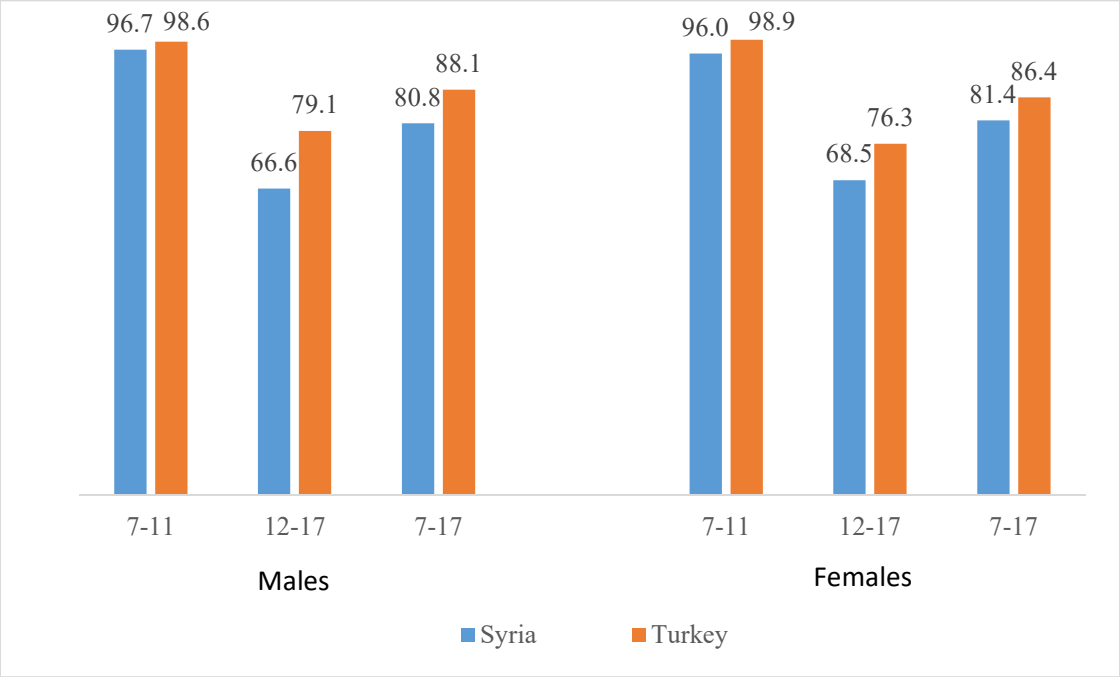
Notes: The data include both native and refugee samples of the 2018 Turkish Demographic and Health Survey. The sample is restricted to 7- to 17-year-old children. The data are put into person-grade format. Refugee observations are restricted to the periods after their arrival in Turkey. The estimates come from OLS regressions. Baseline regressions also include controls (in the form of dummies) for grade levels (1-12), the relationship status of the child with respect to the household head, and survey month. The full regressions further add controls (in the form of dummies) for wealth deciles, household head's employment status, household head's educational attainment, interactions of household head's age and gender, whether the father is alive and whether the mother alive, as well as controls (in logarithmic form) for household size, number of children aged 7 to 18, number of children under 7, number of household members above 65. Sampling weights at the household level are used. Standard errors are clustered at the household level. Statistical significance: * 10 percent level, ** 5 percent level, *** 1 percent level.

Figure 1: Number of Syrian Refugees in Turkey



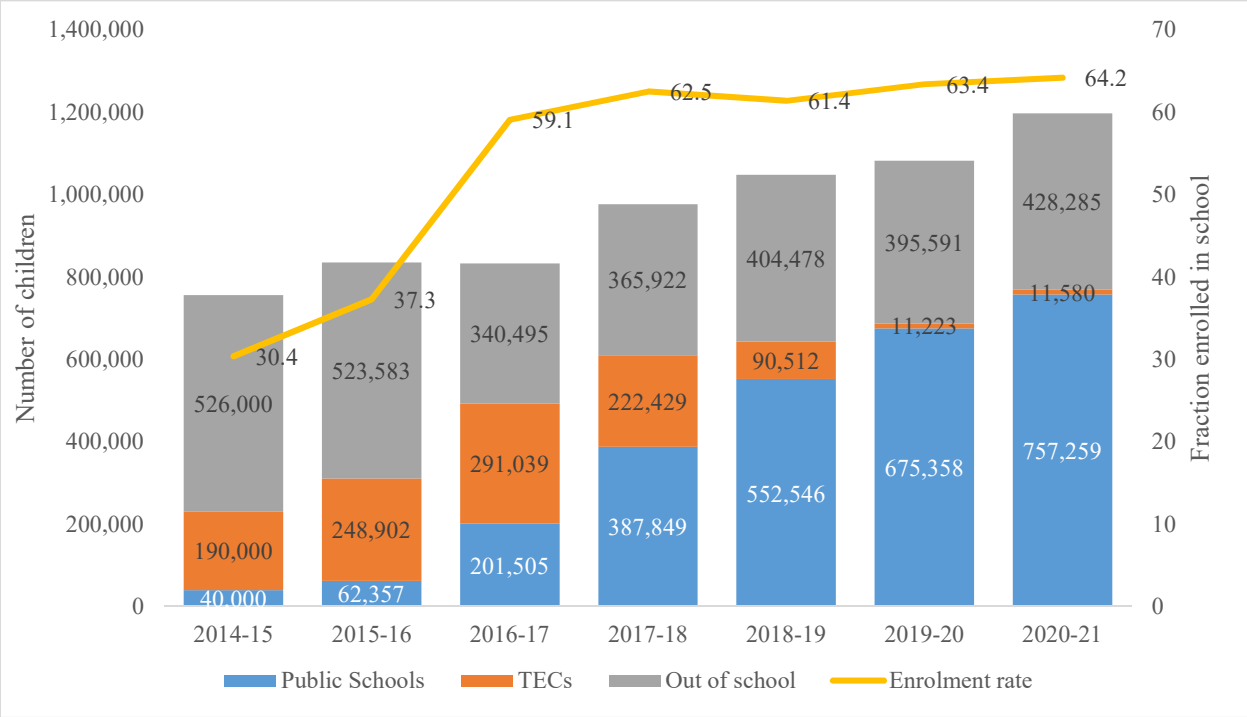
Source: UNHCR (2019).

Figure 2. Pre-war Period School Enrollment Rates of Syrian and Turkish Children by Age and Gender, SFHS-2009 and TDHS-2008



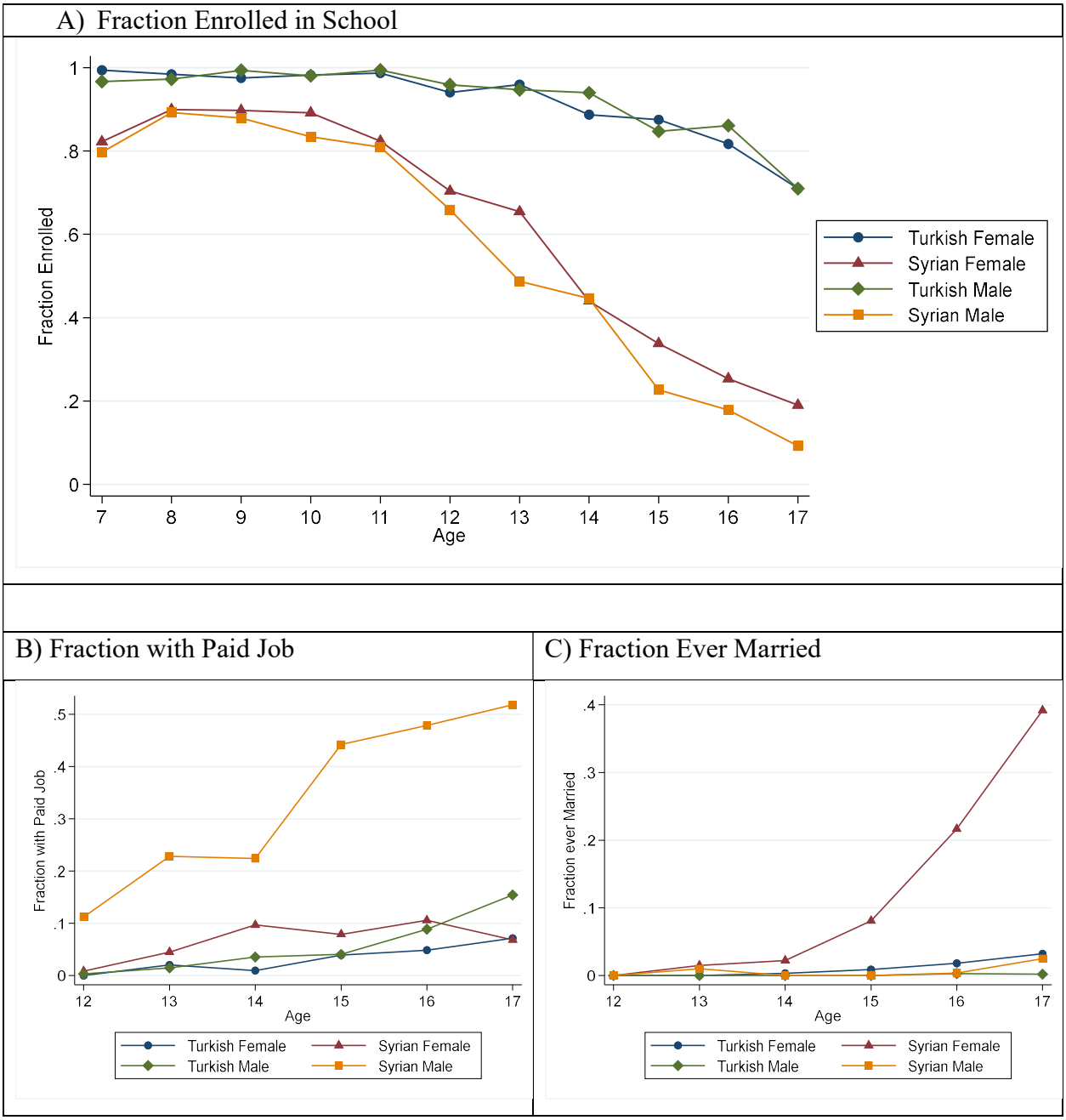
Source: TDHS-2008 and SFHS-2009

Figure 3: Changes in Number of Syrian Students in TECs, Public Schools and Out-of-School, and School Enrolment Rates



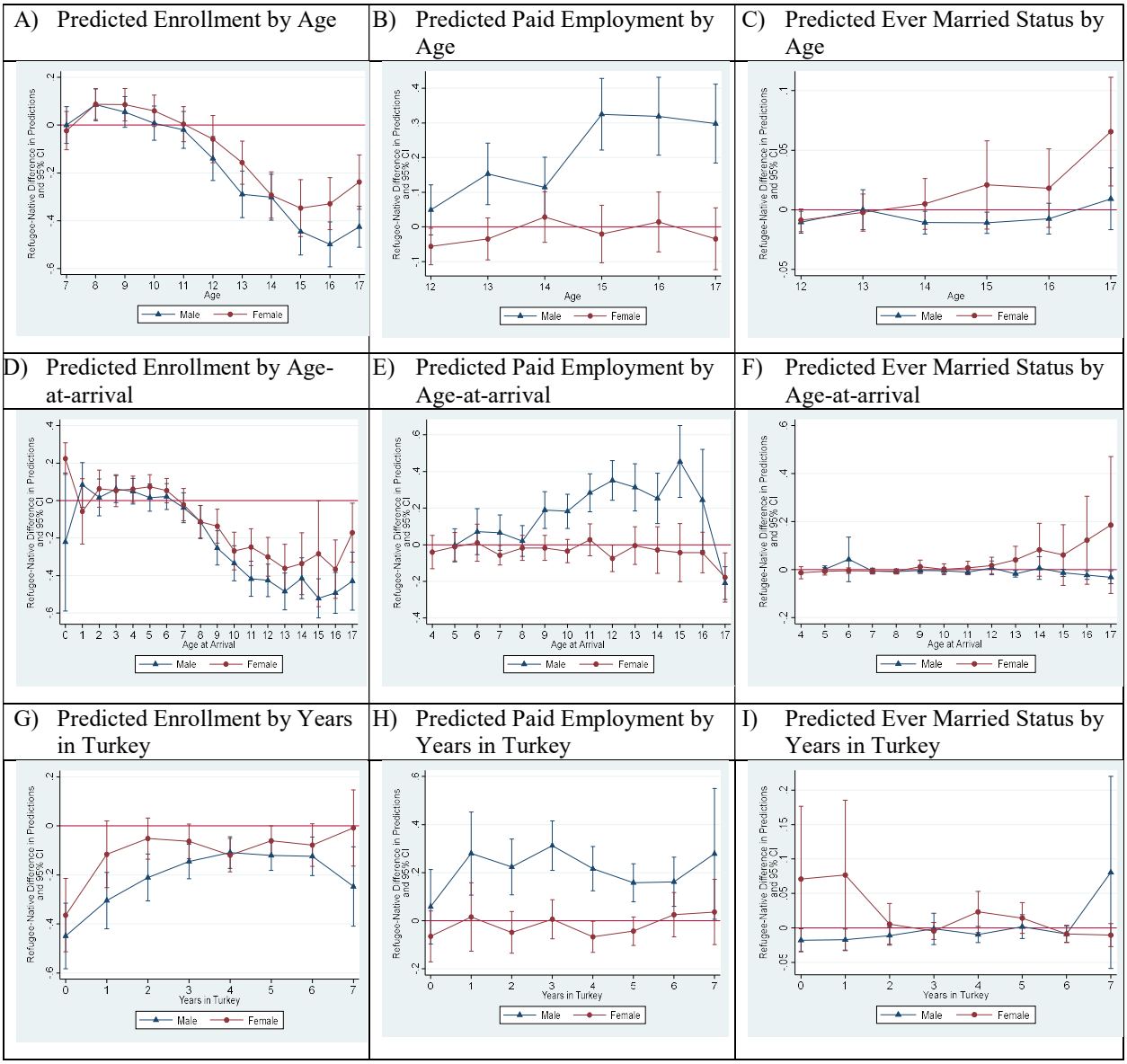
Source: MoNE, 2021a; Note: Children aged 7-17.

Figure 4: School Enrollment, Paid Work, and Ever Married Status by Native-Refugee Status and Gender



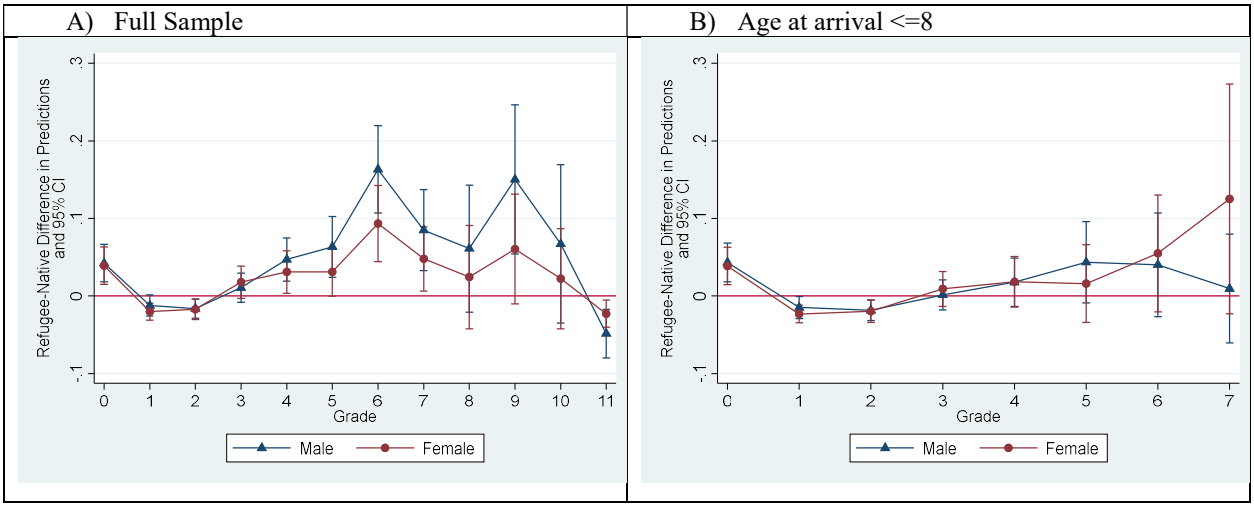
Notes: The data come from the 2018 Turkish Demographic and Health Survey. The data include both the refugee and native samples. The sample is restricted to 7- to 17-year-old children in schooling outcomes and 12- to 17-year-old children in employment and marriage outcomes.

Figure 5: Refugee-Native Differences in Predicted Enrollment, Paid Employment, and Ever-Married Status by Age, Age-at-arrival, and Years in Turkey



Notes: We extend our main regression specification to include full interactions of refugee status dummy, gender dummy, and age dummies so that we can estimate native-refugee differences by age, as well as by gender. Based on the results of this estimation, we show native-refugee differences by age and gender for predicted enrollment rates in panel (A), for predicted paid employment rates in panel (B), and for predicted ever-married rates in panel (C). We also extend the main specification in two other ways by allowing the refugee effect to vary by: (i) age at arrival and gender, and (ii) years since arrival and gender. In panels (D), (E), and (F), we show how refugee-native differences vary by age at arrival and gender for school enrollment, paid employment, and ever-married status, respectively. Panels (G), (H), and (I) display how refugee-native differences in school enrollment, paid employment, and ever-married status vary by years since arrival.

Figure 6: Refugee-Native Differences in Predicted Drop-out Rate by Grade Level



Notes: These estimates come from a specification where we examine how the drop-out behavior differs between refugee and native children by grade level, by interacting the Syrian dummy variable and gender dummy with grade-level dummies in an extension of the main estimation equation (equation (1)). Panel (A) provides the results for the full sample and panel (B) for the sample that excludes refugee children who arrive in Turkey after age 8.