

Tumen, Semih

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**Semih Tumen**

*TED University, IZA and ERF*

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**IZA – Institute of Labor Economics**

Schaumburg-Lippe-Straße 5–9  
53113 Bonn, Germany

Phone: +49-228-3894-0  
Email: [publications@iza.org](mailto:publications@iza.org)

[www.iza.org](http://www.iza.org)

## ABSTRACT

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# Refugees and ‘Native Flight’ from Public to Private Schools\*

Native children switch from public to private primary schools in response to increased refugee concentration in the Turkish public education system. 10 percentage-point increase in refugee-to-population ratio generates, on average, 0.16 percentage-point increase in private primary school enrollment. This roughly corresponds to 1 native child switching to private education for every 31.6 refugee children enrolled in public schools — weaker than the typical estimates in the literature.

**JEL Classification:** I21, I24, H52

**Keywords:** public vs private primary education, school choice, immigration, refugees

**Corresponding author:**

Semih Tumen  
TED University  
Department of Economics  
Ziya Gokalp Cad., No.48  
06420 Kolej, Ankara  
Turkey  
E-mail: semih.tumen@tedu.edu.tr

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\* The usual disclaimer holds.

# 1 Introduction

Publicly-provided education is an important element of human capital accumulation and it has important implications for income mobility and socio-economic inequality ([Hanushek, 2002](#)). A persistent decline in the quality of public education may induce children with higher parental resources to switch from public to private schools. Stayers will most likely be the ones with lower parental resources and minorities, which will further reduce the quality of peer interactions within public schools. As a consequence, overall confidence in the public education system will decline. This issue is particularly important at the primary-school level, because early gaps in scholastic achievement have persistent effects on later outcomes ([Heckman, 2008](#)).

Increased immigrant concentration in public schools is argued to be a source of “native flight” from public to private schools. Several studies show that native-born families respond to immigrant inflows by sending their children to private schools.<sup>1</sup> I use the massive influx of Syrian refugees after 2012 in a quasi-experimental setup to estimate the impact of refugees on public-private school choice of natives in Turkey. Refugee children are almost entirely absorbed by public education systems in host countries, which may have triggered natives to switch from public to private schools. This is the first paper directly addressing this issue.

Using a flexible diff-in-diff framework based on province-year variation in refugee intensity and employing an IV strategy to address refugees’ location choices, I find that Turkish natives switch from public to private primary schools in response to increased Syrian-refugee concentration in their province of residence. The response is slightly larger among males relative to females. OLS estimates are downward biased suggesting that refugees tend to sort into provinces with stronger public primary schools. The magnitude of the “native flight” estimates reported in this paper is smaller than what the other papers in the related literature document.

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<sup>1</sup>See, e.g., [Betts and Fairlie \(2003\)](#), [Li \(2009\)](#), [Gerdes \(2013\)](#), and [Farre et al. \(2018\)](#). There is a parallel literature discussing the issue of “white flight” to private schools and other school districts as a response to increased minority concentration—see, e.g., [Fairlie and Resch \(2002\)](#) and [Cascio and Lewis \(2012\)](#).

## 2 Data

I use province-level data covering the period between 2010/11-2015/16 academic years.<sup>2</sup> The main data source is the province-level enrollment figures provided by the Ministry of National Education.<sup>3</sup> The focus is on eight-year primary education, which is compulsory in Turkey. The dependent variable is the number of private primary school students divided by the native population of age 5-14 in each province. Almost all refugee children in education attend public schools; thus, changes in the dependent variable entirely capture the changes in private school enrollment of natives.

Based on an official report published by the Turkish Grand National Assembly, the total number of school-age refugee children is approximately 970,000 as of 2017. Their enrollment rate is about 65 percent and almost all are enrolled in public education institutions. Around 320,000 children are of primary school age and 98 percent are enrolled in school—exceeding the primary school enrollment rate in the pre-war Syria. This means that the number of refugee children enrolled in public schools is about 310,000 as of 2017. Using these figures, I work through some back-of-the-envelope calculations to interpret the regression output.<sup>4</sup>

Province-level data on teacher/classroom/school resources, public investment in education, refugee shares, and population figures are obtained from the Ministry of National Education, Ministry of Development, Ministry of Interior, and Turkish Statistical Institute, respectively. The distances used in the IV analyses are constructed from the Google Maps.

## 3 Econometric analysis

### 3.1 Basic specification

The Syrian refugee influx started in January 2012 and the number of refugees in Turkey steadily increased over time. The total number of Syrian refugees in Turkey was above 2.5 million as of

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<sup>2</sup>2012/13 is left out of the analysis since the number of Syrian refugees in Turkey was very small as of 2012. I also exclude years 2016 and 2017 as many private schools were closed and their teachers were expelled after the unsuccessful July 15, 2016 coup attempt, which may have distorted the educational statistics. Table (1) provides the summary statistics.

<sup>3</sup>Check out the following link for the Statistical Yearbooks: <http://sgb.meb.gov.tr/www/resmi-istatistikler/icerik/64>.

<sup>4</sup>For the details of the Turkish Grand National Assembly report (in Turkish), see [https://www.tbmm.gov.tr/komisyons/insanhaklari/docs/2018/goc\\_ve\\_uyum\\_raporu.pdf](https://www.tbmm.gov.tr/komisyons/insanhaklari/docs/2018/goc_ve_uyum_raporu.pdf). A brief summary of the report in English can be found here: <https://www.asylumineurope.org/reports/country/turkey/access-education-1>.

the beginning of the academic year 2015/16, while it was zero before 2012. The distribution of refugees across provinces exhibits time variation. Accordingly, the baseline diff-in-diff model can be formulated similar to [Del Carpio and Wagner \(2015\)](#) and [Tumen \(2016\)](#) as follows:

$$S_{py} = \alpha_0 + \alpha_1 R_{py} + \boldsymbol{\alpha}'_2 \mathbf{X}_{py} + f_p + f_y + (f_r \times f_y) + \epsilon_{py}, \quad (1)$$

where  $p$ ,  $r$ , and  $y$  index provinces, NUTS-2 regions, and years,  $S$  is private primary school enrollment rate among 5-14 age population,  $R$  is the refugee-to-population ratio,  $\mathbf{X}$  is a vector of province-level time-varying controls,  $f_p$  and  $f_y$  denote province and year fixed effects,  $f_r \times f_y$  defines NUTS2 region-year interaction terms, and  $\epsilon$  is an error term. There are 81 provinces and 26 NUTS2-level regions in Turkey. The interaction term is included to relax the common-trends assumption by avoiding the collinearity problem in the spirit of [Stephens and Yang \(2014\)](#); thus, the diff-in-diff specification flexibly allows for region-specific trends in private school enrollment.<sup>5</sup>  $R_{py}$  is a continuous treatment variable.

Province-level characteristics ( $\mathbf{X}$ ) include pupil-to-teacher, pupil-to-classroom, pupil-to-school, and teacher-to-school ratios for both private and public primary schools to control for education quality and inputs; primary- and secondary-school enrollment rates as well as population variables to control for demand for education; log of per capita public investment in education to control for government spending on education; and log distance to nearest Turkey-Syria border-crossing and share of Arabic speaking population in 1965 to control for any additional shocks, such as policy changes and other economic effects, that may have disproportionately affected the primary school choice in regions closer to border and thus with high refugee concentration.<sup>6</sup> Figure (1) shows that private schools offer higher quality resources than public schools in Turkey, which needs to be controlled in the regressions.

Table (2) reports the basic OLS estimates. The model saturated with an exhaustive set of controls (the last three column) documents positive and statistically significant estimates. In other words,

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<sup>5</sup>Province-year interactions would be collinear with the refugee share variable,  $R$ ; that's why I go one level up in regional specification and use NUTS2-year interaction terms to capture the regional trends.

<sup>6</sup>There are 6 border-crossings—Akçakale, Cilvegözü, Karkamis, Nusaybin, Oncupinar, and Yayladagi—along the Turkey-Syria border that mostly stayed open during the 2010-2015 period.

a 10 percentage-point increase in the refugee-to-population ratio increases private primary school enrollment by 0.07 percentage point. The estimates for males and females are fairly close to each other, while the coefficient for males is marginally insignificant. The OLS specification potentially suffers from the selection problem in the sense that refugees may be sorting into regions with better economic opportunities and these regions may also be the ones with stronger public schools.<sup>7</sup> If this conjecture is correct, then OLS will underestimate the main coefficient of interest,  $\alpha_1$ .

### 3.2 IV estimates

To address the potential selectivity problem, I adopt the IV strategy developed by [Del Carpio and Wagner \(2015\)](#). Inspired by the gravity models of international trade, the instrument is constructed as a function of pairwise distances between 81 Turkish provinces and 14 Syrian governorates weighted by the total number of refugees per year. The instrument can be formulated as:

$$IV_{py} = N_y \sum_j \pi_j \frac{1}{L_{pj}}, \quad (2)$$

where  $N_y$  denotes the total number of refugees in year  $y$ ,  $\pi_j$  is the share of Syrians living in governorate  $j$  in 2010, and  $L_{pj}$  is the shortest distance between Syrian governorate  $j$  and Turkish province  $p$ . This variable is used to instrument  $R_{py}$  in Equation (1). The main identifying assumption is that the distance between a Turkish province and a Syrian governorate affects the public-private school choice of natives only through the refugee-to-population ratio. Any remaining effects that may be disproportionately affecting school choice in regions of high refugee concentration, such as policy changes or other economic/socio-economic shocks, are controlled by the inclusion of log distance to nearest Turkey-Syria border-crossing and share of Arabic speaking population in 1965.<sup>8</sup>

Table (3) presents the IV estimates. The first three columns control only for province, year, and region-year fixed effects, while the last three columns also include a large set of province-level (time-varying) explanatory variables. The model with controls is the preferred specification. The first stage suggests that the instrument has a good predictive power on the refugee-to-population ratio.

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<sup>7</sup>See [Tumen \(2018\)](#) for a detailed discussion of those selectivity patterns.

<sup>8</sup>See [Del Carpio and Wagner \(2015\)](#) and [Tumen \(2018\)](#) for further explanation on what distance to the nearest border-crossing captures in this setting.



The IV-2SLS regressions yield positive and statistically significant estimates. The  $F$ -statistic for the preferred specification is 11.93, which suggests that the instrument is not weak. The estimates for males and females are both statistically significant, although the coefficient is slightly larger for males than females. Since the IV-2SLS estimates are significantly larger than the OLS estimates, I conclude that OLS underestimates natives’ flight from public to private schools due to the fact that refugees select into provinces with stronger public schools.

According to the IV estimates, a 10 percentage-point increase in the refugee-to-population ratio at province level generates around 0.16 percentage-point increase in private primary school enrollment in the relevant population. Back-of-the-envelope calculations suggest that 1 native child switches to private primary education for every 31.6 refugee children enrolled in public primary education.<sup>9</sup> Studies estimating “native flight” from public to private schools in response to increased immigrant concentration cover different countries, time periods, education levels, and contexts. Despite the differences, the literature reaches a consensus in the sense that increased immigrant concentration leads to substantial native flight from tuition-free, public schools to private schools—see, e.g., [Betts and Fairlie \(2003\)](#), [Li \(2009\)](#), and [Farre et al. \(2018\)](#).

I also report positive and statistically significant “native flight” estimates, but the magnitudes are much smaller than those reported in the literature. One reason for weaker estimates can be that Syrian refugees in Turkey generally reside together in segregated neighborhoods and their kids go to public schools located around those neighborhoods. Therefore, natives have an option to switch to other public schools with much less (or no) refugee students—especially in large cities. Given the high frequency of negative aggregate shocks and relatively fragile labor market conditions in Turkey, affordability of private school tuition fees by parents is another important concern discouraging the switch. The affordability problem is exacerbated by the fact that the number of private primary schools—and, therefore, the level of competition among them—is low, which also partly justifies the low private primary school enrollment rates [see Table(1)]. This suggests that there is cream-skimming in the sense that more affluent households are the ones who are most likely to switch their children from public to private schools. Locations of existing

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<sup>9</sup>The calculation is performed using the province-level means reported in Table (1) and refugees’ school enrollment figures discussed in Section 2 of this paper.

private schools—mostly in rich urban neighborhoods—also support this conjecture. Finally, the Ministry of National Education puts a serious effort to sustain the quality and capacity of public education in response to refugee influx. Intensive language support is provided to refugee children in a joint effort with the UN Refugee Agency. Moreover, Syrian teachers are employed in regions with high refugee concentration to serve as voluntary advisers. These efforts help removing the communication barriers.

## 4 Concluding remarks

This paper presents an empirical analysis of public-private school choice by Turkish natives in response to the sharp increase in Syrian-refugee concentration after 2012. After the violent civil war, millions of Syrian families sought refuge in Turkey, which has substantially increased the demand for public education in regions with high refugee-to-population ratios. I use province-level administrative school enrollment data to estimate the impact of refugees on natives' primary school choices along the public-private margin.

The results reveal that increased refugee concentration generates a statistically significant native flight from public to private primary schools. However, the magnitude of the switch is much smaller than the typical estimates reported in the literature. This can be attributed to the milder attitudes toward refugees in Turkey relative to other refugee-receiving countries especially in Europe.

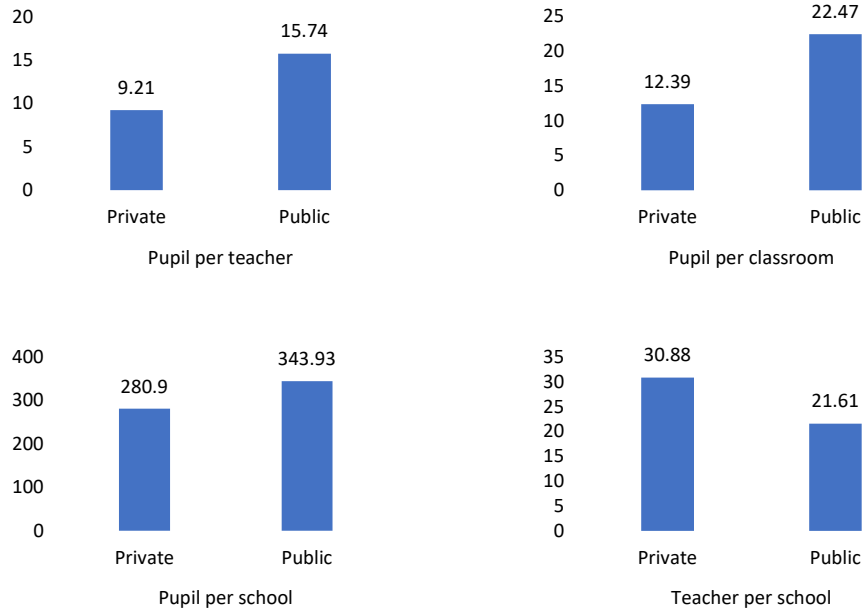
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Summary statistics (province-level means)

	2010	2011	2013	2014	2015
Refugee share	0	0	0.0078	0.0254	0.0292
Per capita public inv. in education (thousand TL)	279.14	315.07	477.84	581.07	689.18
Private primary sch. enrollment/5-14 age pop. (total)	0.0152	0.0168	0.0210	0.0235	0.0292
Primary education enrollment rate	0.8589	0.8546	0.8635	0.8416	0.8343
Secondary education enrollment rate	0.7288	0.7369	0.8126	0.8475	0.8522
Pupil-teacher ratio (private)	9.77	9.85	9.04	9.40	9.21
Pupil-teacher ratio (public)	20.05	19.60	18.23	16.76	15.74
Pupil-school ratio (private)	257.13	276.65	317.72	305.73	280.90
Pupil-school ratio (public)	284.95	289.31	331.73	334.16	343.93
Pupil-classroom ratio (private)	13.97	15.01	14.39	15.45	12.39
Pupil-classroom ratio (public)	28.01	27.29	25.85	23.91	22.47
Teacher-school ratio (private)	27.03	28.40	36.04	32.70	30.88
Teacher-school ratio (public)	14.12	14.66	18.39	19.79	21.61
5-14 age population	156788.4	156626.6	156091.3	155159.2	154379.1
15-19 age population	77497.6	77994.9	79971.9	80480.5	81302.5
Total population	910160.3	922521.8	946516.8	959208.7	972111.8
# of obs.	81	81	81	81	81

**Table 1:** The table reports the province-level means of the key variables used in the empirical analysis.



**Figure 1:** The figures compare private versus public primary schools in Turkey as of 2015. The data source is the Ministry of National Education Statistical Yearbooks.

### OLS estimation

	Baseline estimates			Controls included		
	All	Male	Female	All	Male	Female
Refugee share	0.0032* (0.0017)	0.0024 (0.0022)	0.0040** (0.0017)	0.0073* (0.0043)	0.0074 (0.0052)	0.0068** (0.0034)
Year fixed effects	✓	✓	✓	✓	✓	✓
Province fixed effects	✓	✓	✓	✓	✓	✓
Region $\times$ Year fixed effects	✓	✓	✓	✓	✓	✓
Share of Arabic speakers in 1965	-	-	-	✓	✓	✓
Dist. from nearest border crossing (logs)	-	-	-	✓	✓	✓
Per capita public inv. in education (logs)	-	-	-	✓	✓	✓
Primary education enrollment rate	-	-	-	✓	✓	✓
Secondary education enrollment rate	-	-	-	✓	✓	✓
Pupil-teacher ratio (private)	-	-	-	✓	✓	✓
Pupil-teacher ratio (public)	-	-	-	✓	✓	✓
Pupil-school ratio (private)	-	-	-	✓	✓	✓
Pupil-school ratio (public)	-	-	-	✓	✓	✓
Pupil-classroom ratio (private)	-	-	-	✓	✓	✓
Pupil-classroom ratio (public)	-	-	-	✓	✓	✓
Teacher-school ratio (private)	-	-	-	✓	✓	✓
Teacher-school ratio (public)	-	-	-	✓	✓	✓
5-14 age population (logs)	-	-	-	✓	✓	✓
15-19 age population (logs)	-	-	-	✓	✓	✓
Total population (logs)	-	-	-	✓	✓	✓
# of obs.	405	405	405	398	398	398

**Table 2:** The dependent variable is the number of native children enrolled in a private primary school divided by the total native population of age 5-14 in each province. Years of observation include 2010, 2011, 2013, 2014, and 2015. Standard errors are (two-way) clustered at province-year level. \*\*\*  $p < 0.01$ ; \*\*  $p < 0.05$ ; \*  $p < 0.1$ .

# IV-2SLS estimation

	Baseline estimates			Controls included		
	All	Male	Female	All	Male	Female
Instrument (Red. form)	0.00004 (0.0003)	-0.00002 (0.0003)	0.00009 (0.0003)	0.0008** (0.0004)	0.0009** (0.0005)	0.0007* (0.0004)
1st stage	0.0472** (0.0190)	0.0472** (0.0190)	0.0472** (0.0190)	0.0538*** (0.0176)	0.0538*** (0.0176)	0.0538*** (0.0176)
Refugee share (2SLS)	0.0007 (0.0064)	-0.0005 (0.0069)	0.0019 (0.0060)	0.0157* (0.0087)	0.0173** (0.0082)	0.0131* (0.0075)
<i>F</i> -statistic	6.18	6.18	6.18	11.93	11.93	11.93
Year fixed effects	✓	✓	✓	✓	✓	✓
Province fixed effects	✓	✓	✓	✓	✓	✓
Region × Year fixed effects	✓	✓	✓	✓	✓	✓
Share of Arabic speakers in 1965	-	-	-	✓	✓	✓
Dist. from nearest border crossing (logs)	-	-	-	✓	✓	✓
Per capita public inv. in education (logs)	-	-	-	✓	✓	✓
Primary education enrollment rate	-	-	-	✓	✓	✓
Secondary education enrollment rate	-	-	-	✓	✓	✓
Pupil-teacher ratio (private)	-	-	-	✓	✓	✓
Pupil-teacher ratio (public)	-	-	-	✓	✓	✓
Pupil-school ratio (private)	-	-	-	✓	✓	✓
Pupil-school ratio (public)	-	-	-	✓	✓	✓
Pupil-classroom ratio (private)	-	-	-	✓	✓	✓
Pupil-classroom ratio (public)	-	-	-	✓	✓	✓
Teacher-school ratio (private)	-	-	-	✓	✓	✓
Teacher-school ratio (public)	-	-	-	✓	✓	✓
5-14 age population (logs)	-	-	-	✓	✓	✓
15-19 age population (logs)	-	-	-	✓	✓	✓
Total population (logs)	-	-	-	✓	✓	✓
# of obs.	405	405	405	398	398	398

**Table 3:** The dependent variable is the number of native children enrolled in a private primary school divided by the total native population of age 5-14 in each province. Years of observation include 2010, 2011, 2013, 2014, and 2015. Standard errors are (two-way) clustered at province-year level. \*\*\*  $p < 0.01$ ; \*\*  $p < 0.05$ ; \*  $p < 0.1$ .