

Immigration and the public–private school choice<sup>☆</sup>Lidia Farre<sup>a,\*</sup>, Francesc Ortega<sup>b</sup>, Ryuichi Tanaka<sup>c</sup><sup>a</sup> University of Barcelona and Institute for Economic Analysis (IAE-CSIC), Spain<sup>b</sup> Queens College, CUNY, United States<sup>c</sup> The University of Tokyo, Japan

## ARTICLE INFO

## JEL classification:

D7  
F22  
H52  
H75  
J61  
I22  
I24

## Keywords:

Education  
Public school  
Recession  
Immigration

## ABSTRACT

This paper empirically analyzes the effects of immigration on the schooling decisions of natives. We employ household-level data for Spain for years 2000–2015, a period characterized by high economic growth and large immigration that was halted by a long and severe recession. Our estimates reveal that increases in immigrant density at the school level triggered an important *native flight* from tuition-free, public schools toward private ones. We also find strong evidence of *cream-skimming* as more educated native households are the most likely to switch to private schools in response to immigration. Furthermore, we find that immigration leads to higher student–teacher ratios in public schools. We conclude that our results are consistent with the predictions of a political-economy model of school choice.

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## 1. Introduction

Public education is a fundamental engine for human capital accumulation, with important consequences for income inequality and upward mobility (Glomm and Ravikumar, 1992), (Galor and Zeira, 1993), or (Fernandez and Rogerson, 1996). This is particularly so for first and second-generation immigrants, who disproportionately attend public schools and for whom socio-economic assimilation depends greatly on the quality of education they receive (Dustmann et al., 2012). However, a large concentration of immigrants in public schools may decrease the support for funding among natives and lead to a deterioration of the public education system (Epple and Romano, 1996).

This paper empirically estimates the effects of immigration on the education system of the receiving country, with an emphasis on the consequences for the public–private school choice of natives. We employ data for Spain over the period 2000–2015, a period characterized by an important economic expansion that was accompanied by a large immigration wave, and ended with a long and severe recession. To iden-

tify families with school-age children enrolled in private schools, we use information on tuition expenditures from the Spanish Family Expenditures Survey. These data also allow us to investigate changes in other consumption categories that may be triggered by changes in schooling expenditures. Lastly, we also examine the effect of migration on student–teacher ratios, and discuss mechanisms that can explain our results.

The important demographic and economic changes that occurred in Spain during the last decade offer an excellent scenario to investigate the impact of migration on schooling decisions. Between 1995 and 2007, Spain experienced a period of fast-paced economic growth. During these years, the employment to population ratio increased by 14 percentage points and real household income increased by more than 50% (Fig. 1). In contrast, between 2007 and 2013, Spain experienced a very severe recession, aggravated by drastic austerity policies.

Not surprisingly, these changes in economic conditions had large implications for migration flows. Between 2000 and 2008, the foreign-

<sup>☆</sup> We are grateful for their comments to three anonymous referees and to Martha Bailey, Caterina Calsamiglia, Julie Cullen, Christian Dustmann, Jesus Fernandez-Huertas, Rania Gihleb, Albrecht Glitz, Libertad Gonzalez, Camille Hemet, Joan Llull, Alkis Otto, Miquel Pellicer, Javier Polavieja, Sara de la Rica, Nuria Rodriguez-Planas, Thomas Siedler, Max Steinhardt, Steve Stillman, Chris Taber, Marcos Vera-Hernandez, and seminar participants at the Barcelona GSE Summer Forum, the 2014 ESPE conference, Hamburg University, the 2015 Eastern Economic Association and the First PSE-BGSE Immigration Workshop. Farre acknowledges financial support by the Fundacion Ramon Areces (“Parental leave policies and gender inequality” project), the Government of Catalonia (grant SGR2014-325) and the Ministry of Economy and Competitiveness (grant ECO2016-76866-R).

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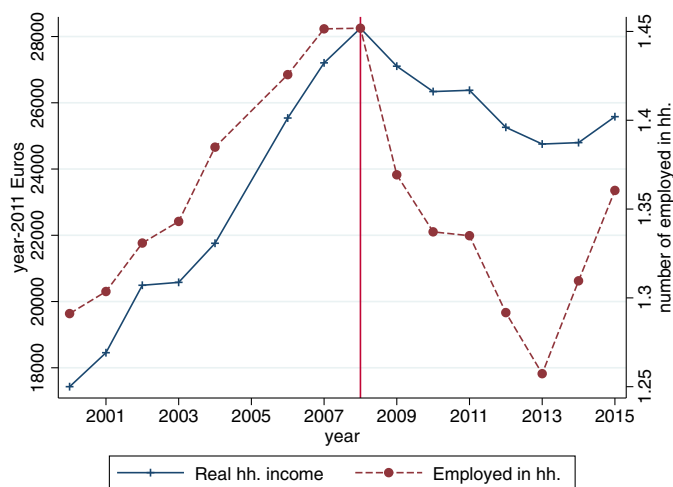


Fig. 1. Annual Household Income (in real terms) and Number of Employed in Household. Notes: Family Expenditure Survey.

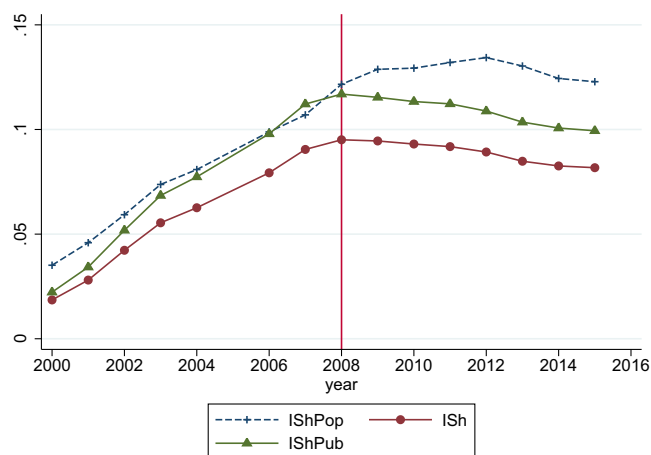


Fig. 2. Immigrant shares in the population and in enrollment. Notes: *IShPop* is the foreign-born share (for working-age population) based on data from the Population Registry. *ISh* is the share of foreign students enrolled in primary and secondary schools, including both private and public. *IShPub* refers to the share of foreign students enrolled only in public schools, including both primary and secondary. The latter two series are based on administrative enrollment data (Spanish Ministry of Education).

born share in the (working-age) population increased from 4% to 12%, as illustrated by the dashed line in Fig. 2. The inflows of workers were accompanied by a large increase in the number of immigrant children in schools. As shown in the same Figure (solid, red line), the share of immigrant students in primary and secondary schools increased in parallel to the immigrant share in the working-age population, from less than 3% in year 2000 to almost 10% in 2008. The Figure (solid, green line) also shows that immigrant children were over-represented in public schools, where their share in enrollment increased by almost 9 percentage points between years 2000 and 2008. Fig. 2 has an additional implication that plays an important role in our analysis. As soon as the economic downturn began in 2008 (Fig. 1), the immigrant share in enrollment started decreasing. In contrast, the immigrant share in the population continued rising and only peaked four years later. As we discuss in detail later, this is due to the difficulties of population registry data to accurately measure the immigrant population in periods of net outflows. A strength of our study is that we will rely more heavily on measures of immigrant density based on school enrollment data.

It is interesting to dig deeper into the impact of immigration on the Spanish education system. To do so we consider enrollment in pri-

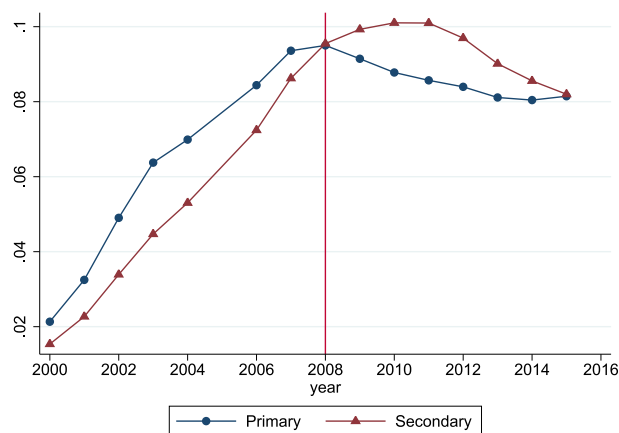


Fig. 3. Immigrant share in enrollment (primary and secondary schooling). Notes: The figure reports the share of foreign students in enrollment separately in primary and secondary schools. These enrollment figures include students at both public and private schools. It effectively decomposes series *ISh* in Fig. 2. Secondary schooling includes middle school (known as ESO), high school (known as ‘bachillerato’), and vocational training (known as “formacion profesional”). The data are based on administrative enrollment data (Spanish Ministry of Education).

mary and secondary schooling separately in Fig. 3. During the period 2000–2008, as immigrant households were arriving in the country, the share of immigrant students rose rapidly both in primary and secondary schools. The increase was substantial in primary schools, where in the course of these 8 years, the immigrant share rose from around 2% to about 9%. This was an important demographic shock to the school system, particularly for public schools where immigrant children are substantially over-represented. Interestingly, the trajectories for the immigrant shares across education levels differed from 2008 onward. Between 2008 and 2012, the share at primary schools declined by about 10%, while it kept rising in secondary schools up until coming to a halt in 2012. This divergence in trends reflects the vanishing of new immigration flows due to the economic downturn, at the same time as the children of the previously arrived immigrants that remained in Spain progressed through the education system. Because of the differences in the timing and magnitude of the inflows of immigrant children into primary and secondary schools, we conduct the analysis separately by education level (primary and secondary) and by time period (2000–2007 and 2008–2015). This approach can strengthen the identification of the causal effect of immigration, as exemplified by the increases in immigrant density in secondary education during the 2008–2012 period, already characterized by a severe economic contraction.

As has been widely recognized, the co-movement of immigration flows and the economic cycle poses a challenge to identify the role of migration on the schooling choices of households. We address this problem by using detailed household-level data on employment and income, combined with regional variation in immigration flows. We account for the classic endogeneity problem of the location choices of immigrants by adopting an instrumental-variables approach based on ethnic networks (Card, 2001). However, we depart from the usual renditions of the instrument by focusing on predicting changes in the immigrant share in enrollment at different education levels, which turns out to be much more informative than predicting immigrant shares in the population, as is usually done in the literature.

Our analysis delivers several interesting findings. Our two-stage least-squares estimates show that increases in immigrant density in public schools led to an increase in household educational expenditures, largely driven by *native flight* toward private schools. The intensity of this response varied across education levels (primary and secondary) and as a function of the education level of the household head. In primary schools, immigration led to a shift toward private schools both during the economic expansion (2000–2007) and contraction (2008–

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