

The impact of immigrant peers on natives' school outcomes. A 'family-fixed effects' design applied to administrative data

Davide Azzolini (FBK-IRVAPP)

Simone Schueller (Cesifo)

Loris Vergolini (FBK-IRVAPP)

Abstract

The aim of this paper is to establish the causal impact of immigrant concentration in school on educational outcomes in the Province of Trento (North-East of Italy). This setting allows us exploiting a rich administrative dataset on several cohorts of students attending primary and secondary education in the area. We look at both school marks, test scores and upper secondary school choice (i.e., vocational, technical or academic track) and we estimate differential effects of both first- and second-generation immigrants' share at school on natives' outcomes. We implement different impact strategies (i.e., OLS, IV, family fixed effects). Our preferred one is a 'family fixed effects' design, which allows comparing siblings who belong to the same household - hence controlling for family time-invariant characteristics - but to different birth cohorts and hence are exposed to different share of immigrant peers. Our results show that, on average, the share of immigrant origin students at school has zero impacts on both natives' achievement and school choices. Some negative impacts of immigrant concentration are found only at very high shares of immigrants at school. Finally, the analysis shows that the presence of second-generation immigrants at school has positive effects on natives' achievement.

Extended abstract

The impact of immigrant concentration in school is a highly debated topic in academia as well as in the policy arena. This topic has been revitalized in recent years by an increase in the immigration flows that deeply changes the composition of schools and classes. This is true in particular for Southern European countries like Italy, as they represent 'new' immigration countries.

Previous research on this topic has analysed the role of immigrant concentration on both achievement and attainment. In the first case the focus is on learning measured by means of standardized tests on different disciplines like math, science, and language proficiency. In the second one the attention is addressed to other scholastic outcomes such as grade repetition, drop-out, track choice, and completion rates. In both cases the empirical results show contrasting evidence.

For what concerns the effects on school achievement, there are contributions that emphasize the negative impact of high rates of children of immigrants on natives' learning, while others find small or null effects.

American literature is traditionally focalized on the inequalities of opportunities between students of the white majority and Afro-American students. More precisely, these contributions shed light on the gap between white and non-white students. On the contrary, the European literature takes into greater consideration the distinction between immigrant generations and natives, looking in particular at the effect of the former on the latter.

Using American data, for example, Hoxby (2000) implements an IV strategy and she finds that ethnic minority students are mainly influenced by peers of the same ethnicity. This means that the presence of minority students do not reduce the learning outcomes of white peers. A similar result emerges from the work of Card and Rothstein (2007) who find that the black-white gap is higher in the more segregated cities. They solve the problem of the sorting of students across cities and schools aggregating individual data by city and ethnicity, and by taking the first difference between white and black students in each city. Also Hanushek et alii (2009), using panel data with school, grade and year fixed effects, show that the percentage of black students has no significant effects on the achievements of white students, but it has a negative influence on black peers. Seah (2006), exploiting aggregation and variations between adjacent cohorts, compares the effects of immigrant peers in three countries. He finds that the exposure to immigrant children has a positive impact on Australian natives, negative on Canadian natives, and no effect on U.S. natives

In Europe, Ohinata et alii (2013) exploit a school fixed effect model to show how the share of immigrant students at the classroom level has no effects on natives' test scores in the Netherlands. A similar result is found by Geay et alii (2013) for England. They also use a school fixed effects model and they find that the share of non-native English speakers at school level does not affect negatively the competencies of native speakers. There are also papers that find a negative effect on test scores For example, Jensen and Rasmussen (2011) implement an IV strategy and find that in Denmark the share of immigrants exerts a negative effect on natives' tests. A negative influence is found also by Ballatore et alii (2015) applying a IV approach on Italian data. The Italian case has been studied also by Contini (2013), she exploits the within-school random variability observed in the incidence of immigrants across classrooms, finding that the proportion of first and second generation children has a weak negative effect on natives learning outcomes. Finally, Brunello and Rocco (2012) in their comparative analysis on 19 countries find a small negative effect of the national share of immigrants on natives' performances.

For what concerns the effects of the incidence of children of immigrants on the natives' school attainment, only Schneeweis (2015) find a null effect, while other researches find mixed results (Gould, Lavy and Paserman 2009; Hunt 2012; Hardoy and Schøne 2013). Schneeweis (2015), employing data from an Austrian city, uses a fixed effect model at school and cohort level. She finds that the percentage of immigrants by grade level exerts no effect on grade repetition and track attendance for native students. At the same time she highlights the presence of negative effects for ethnic minority students. Gould, Lavy and Paserman (2009) analysing the Israeli case, by means of an IV strategy, show that the immigrant concentration at grade level has negative consequences for passing the upper secondary school final exam. Also Hunt (2012) relies on IV to show that the

share of foreign born students in USA has a negative impact on the high school completion rate. Finally, Hardoy and Schøne (2013) apply a fixed effects model at school level in Norway, finding that the share of non-western students increase the high school drop-out.

This review highlights the heterogeneity in the identification strategies used to detect the causal effect of the immigration concentration. Three different strategies can be identified. The first one is based on fixed effects models at school level. The idea is to use the variation deriving from within-school variation in immigrant exposure by exploiting variation in the immigrant composition of each cohort within each school. The underlying assumption is that while pupils may sort themselves between schools, these choices should be unaffected by cohort-specific variation in these factors. The second strategy is based on instrumental variables. In this case the immigrant concentration at class or at school level is instrumented by immigration concentration in a larger geographical area (county, region, etc.). The logic behind this instrument is that the immigrants' composition in a larger area cannot be controlled by individuals, meaning that it could be considered exogenous (Dustmann and Preston 2001). Finally, the third identification strategy is based on aggregation: individual data are aggregated to a level (city, region, state) where sorting is eliminated, or at least strongly reduced.

The aim of this paper is to establish the causal impact of immigrant concentration in school on educational outcomes in the Province of Trento (North-East of Italy). This setting allows us exploiting a rich administrative dataset on several cohorts of students attending primary and secondary education in the area.

We look at both test scores and upper secondary school choice (i.e., vocational, technical or academic track) and we estimate differential effects of both first -and second-generation immigrants' share at school on natives' outcomes. We implement different impact strategies. Our preferred one is a 'family fixed effects' design, which allows comparing - within the same household (hence controlling for family time-invariant characteristics - different siblings who belong to different cohorts and hence are exposed to different share of immigrant peers. Our results show that, on average, the share of immigrant origin students at school has zero impact on both natives' achievement and school choices. Moreover, the analysis shows that the presence of second-generation immigrants at school has some positive effects on natives' achievement.