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# Immigrant concentration in schools: Consequences for native and migrant students<sup>☆</sup>



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#### HIGHLIGHTS

- Effect of the share of students with a migration background in school on educational outcomes
- · Variation between cohorts within schools
- · Outcomes: grade repetition and track attendance
- · Migrant students negatively affected
- · Native students not affected

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#### ABSTRACT

In this paper, I study the impact of immigrant concentration in primary schools on educational outcomes of native and migrant students in a major Austrian city between 1980 and 2001. The outcome measures of interest are grade repetition in primary and secondary schools and track attendance after primary education. Using the variation in the fraction of migrant students among cohorts within schools, the analysis shows that native students are not affected by the share of migrant students. For students with a migration background, adverse effects are found for grade repetition and high track attendance. The higher the share of migrant peers is, the more likely migrant students repeat a grade and the less likely they attend high track schools. The negative spill-over effects for grade repetition are particularly strong between students from the same area of origin.

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#### 1. Introduction

The economic assimilation of migrants and ethnic minorities poses a major challenge to societies and policy makers all over the world. In Austria, like in many other European countries, the fraction of immigrants increased considerably during the last decades. While only 1.4% of the population had a foreign nationality in the early 1960s, the share increased to around 4% in the 1970s and 1980s and to more than 10% in 2009 (Statistik Austria, 1961–2009). This sharp increase in the non-native population – accompanied by the fact that most migrants in Austria are relatively low skilled – has led to concerns about their economic and cultural integration and potential negative effects among natives.

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One important way to boost the economic success of migrants and ethnic minorities is education. However, the results of the international student assessment studies PISA (Programme for International Student Assessment) and TIMSS (Trends in International Mathematics and Science Study) show that students with a migration background perform poorly. In the OECD countries, the mean test score gaps in math and science between students with and without a migration background average out to 25% of the standard deviations in test scores. These achievement gaps are larger in Central and Northern Europe and amount to 33–45% in Austria (Schneeweis, 2011).

The segregation of migrant students or ethnic minorities in schools is one important and widely discussed topic in the debate about educational integration. The major question is, whether native and migrant students are influenced by a higher share of migrant students in schools and classrooms. Academic achievement may be negatively or positively influenced by class composition. A high fraction of migrant students may impede class room learning and reduce teacher attention, adversely affecting native and migrant students alike. On the other hand, ethnic and cultural diversity may be positive for learning outcomes. Minority students may also profit from being grouped with other minorities because it may be easier for school authorities and teachers to recognize specific needs and respond to them if the group size is larger. However, the exposure to many students from the own ethnic group may hamper social interaction with native students, passing up the chance of improving language skills and other traits that are important in the host country.

In this paper, I study the consequences of migrant concentration in schools on educational outcomes. Using Austrian school register data covering 22 school cohorts of compulsory school students in a major Austrian city, I estimate the impact of the fraction of students with a migration background on educational achievement of different groups of students, i.e. natives, migrant students and migrant students from specific countries. To identify the respective causal impact, I use variation in the share of migrants between cohorts within schools. The first outcome of interest is grade repetition in primary school. Furthermore, since the Austrian education system is characterized by early tracking, I then study track attendance after primary education. And finally, I investigate grade repetition in low and high track secondary schools.

The paper is organized as follows. Section 2 reviews the existing literature and outlines the contribution of this paper. Section 3 describes the population with a migration background in Austria. Section 4 explains the institutional characteristics of the Austrian education system and presents the data. Section 5 discusses the estimation strategy, Section 6 presents the results and Section 7 concludes.

#### 2. Previous studies and my contribution

Most of the literature on ethnic segregation originates from the United States, where the integration of black and recently also Hispanic students is of major political and scientific interest. Since the *Brown v. Board of Education* case of 1954, school desegregation of black and white students led to major changes in American schools, in particular increased educational opportunities of black students. Guryan (2004) shows that the desegregation of school districts in the 1970s–80s reduced the high school drop-out rate of black students by 2–3 percentage-points. Angrist and Lang (2004) study the Boston school desegregation program (Metco) and find no adverse effects of an increase in minority students for white students and some negative effects for other minority students.

The empirical literature on school segregation that is closely related to this paper focuses not directly on desegregation but on the effects of the ethnic composition in schools on student outcomes. To establish the causal impact of school composition, an identification approach is needed that takes into account that students and their parents endogenously choose their school and neighborhood. Hoxby (2000) uses variation in the ethnic composition between cohorts within schools in Texas, so

called population variation, and pays special attention to time trends. Her results indicate that the share of black students in class has a negative impact on test scores, in particular for other black students. The adverse effect is about 4 times larger for black students than for white students. Similar results are obtained by Hanushek, Kain and Rivkin (2009), who also use data from Texas. Black students are negatively affected by other black students and the estimated coefficients for white students are smaller and mostly not significant.

Card and Rothstein (2007) investigate the effects of segregation in US schools and neighborhoods on the black—white test score gap. In their paper, segregation is directly measured by racial differences in the exposure to black students. The identification strategy relies on aggregation to the city level to eliminate within-city school sorting and differencing by race to eliminate unobservables at the city level that are common to all students. The results indicate that more segregation at the school level and at the neighborhood level increases the black—white test score gap. Furthermore, the authors suggest that neighborhood segregation is more important than school segregation and the effects operate mainly through neighbors' incomes.

Outside the United States, the literature on school segregation is small and relatively new. Burgess et al. (2005) and Schindler-Rangvid (2006) examine the extent of school and neighborhood segregation in England and Denmark, respectively. Both document a higher level of ethnic segregation in schools than in neighborhoods. Schindler-Rangvid (2010) and Gerdes (2013) study the native flight phenomenon out of public schools in Denmark. Both authors find that native students are more likely opting out from local public schools, the higher the share of immigrants in school gets.<sup>1</sup>

The impact of immigrant concentration on the academic achievement of native pupils is studied by Gould et al. (2009), Brunello and Rocco (2013), Geay et al. (2013) and Ballatore et al. (2013). The results of these studies are mixed. While Gould et al. (2009) and Ballatore et al. (2013) find adverse consequences of immigrant concentration for native students in Israeli and Italian elementary schools, Brunello and Rocco (2013) find small negative spill-over effects from immigrants to natives in a multi-country set-up and Geay et al. (2013) find no spill-over effects of non-native English speakers on native students in English schools.

Two studies focus not only on the effects for native students but also for students with a migration background. Ohinata and VanOurs (2013) use data on primary school students in the Netherlands from the international student assessments PIRLS (Progress in International Reading Literacy Study) and TIMSS (Trends in International Mathematics and Science Study) and find no adverse effects for native students and some negative effects on immigrant students' test scores in reading. In this study, variation among classes within schools is exploited. Jensen and Würtz Rasmussen (2011) study secondary education students in Denmark using data from PISA (Programme for International Student Assessment) and find negative effects of a higher immigrant concentration for both native and immigrant students. The authors apply an IV-strategy using the immigrant concentration at the county level as an instrument for the school level.

Overall, the literature for the United States and Europe suggests that minority students are negatively effected by other minority students. For majority or native students, the results are mixed. With this study, I add to the small literature on immigrant school concentration in a European country. I focus not only on educational consequences for native students but also for migrant students and distinguish between different groups of migrants. The outcomes of interest in this study are not test scores but grade repetition in primary and secondary schools and track attendance after primary education. These are educational outcomes of high stakes that have not been studied before. Like in Germany and Switzerland, the Austrian education system is characterized

<sup>&</sup>lt;sup>1</sup> See Fairlie and Resch (2002) and Betts and Fairlie (2003) for examples from the United States

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