



Does early educational tracking increase migrant-native achievement gaps? Differences-in-differences evidence across countries



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ABSTRACT

We study whether early tracking of students based on ability increases migrant-native achievement gaps. To eliminate confounding impacts of unobserved country traits, we employ a differences-in-differences strategy that exploits international variation in the age of tracking as well as student achievement before and after potential tracking. Based on pooled data from 12 large-scale international student assessments, we show that cross-sectional estimates are likely to be downward-biased. Our differences-in-differences estimates suggest that early tracking does not significantly affect overall migrant-native achievement gaps, but we find evidence for a detrimental impact for less integrated migrants.

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1. Introduction

Migrants in major European countries are failing to assimilate economically (Algan, Dustmann, Glitz, & Manning, 2010). Thus, their better integration has become a priority for policymakers in the European Union. However, it is less clear what public policy can do to effectively address this situation. As equal opportunity in education is key to the successful long-term integration of immigrants and the educational achievement of migrants lags behind that of native students in almost all European coun-

tries (e.g., Ammermueller, 2007; Bauer & Riphahn, 2007; Nielsen, Rosholm, Smith, & Husted, 2003; Schneeweis, 2011; Schnepf, 2007; Van Ours & Veenman, 2003), education policies are being looked at with particular interest.

One institutional feature of several school systems in Europe that has been shown to generally increase educational inequality is early tracking of students into different types of secondary school based on their ability (e.g., Hanushek & Woessmann, 2006). In the context of migrant inclusion, early tracking may have detrimental effects if migrants are more likely to be inadequately matched to educational pathways.¹ For example, this may be the case when migrants face difficulties to signal their educational

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¹ For example, Lüdemann and Schwerdt (2013) and Kiss (2013) show that second-generation immigrants in Germany receive worse grades and worse teacher recommendations for secondary school tracks conditional on student achievement.

potential at an early stage, either because of a lack of proficiency in the language of instruction (Akresh & Akresh, 2010) or a systematically different parental background.²

These general insights lead many to conclude that early tracking systems might be specifically detrimental to students with a migration background (e.g., Van de Werfhorst & Mijs, 2010) and it is often explicitly recommended to policymakers that educational systems be made less selective to improve opportunities for migrant students (e.g., NESSE, 2008). Direct evidence based on cross-sectional data on the relationship between complete forms of educational tracking and migrants' relative achievement indeed seems to support these conclusions (e.g., Cobb-Clark, Sinning, & Stillman, 2012). However, cross-sectional estimates are plagued with endogeneity concerns arising, for example, due to potentially selective migration into countries with early tracking systems.

This paper studies the impact of ability-based early tracking of students into different types of secondary school on migrant-native test score gaps in a differences-in-differences framework, which implicitly controls for unobserved differences in relevant characteristics of the migrant and native student populations that remain constant over educational stages. In particular, our identification strategy makes use of the fact that no country tracks students in primary school. This allows us to exploit variation in migrant-native test score gaps between primary and secondary school as well as variation in the age of tracking between countries to identify the effect of early tracking. To benchmark our differences-in-differences estimates, we additionally present results based on commonly estimated cross-sectional models that rely entirely on selection-on-observable assumptions.

Our empirical analysis is based on a comprehensive analytical sample that we obtained by pooling data from all existing waves of the three largest international assessments of student achievement during primary and secondary school – PISA, TIMSS, and PIRLS – which test students in reading, math, and science. As a result, we have internationally comparable information on student achievement and background characteristics for more than one million students from 45 countries.

We find that early tracking does not significantly affect the evolution of overall migrant-native test score gaps from primary to secondary school in math and science. Nor do we find significant effects for reading, but results are somewhat less clear-cut. For all subjects, however, there are no substantial negative impacts of more than 10% of a standard deviation. The small and insignificant estimates of the overall effect conceal a detrimental effect of early tracking on the relative achievement of second-generation immigrants who do not speak the language of the testing country at home. For this subgroup of migrant students, we find a significant detrimental effect of early tracking

on relative achievement in reading of about 11% of a standard deviation and similar, but insignificant, effect sizes in terms of math and science achievement. In addition, we find large and significant detrimental effects of early tracking on relative achievement in all three domains of more than 20% of a standard deviation for first-generation migrants whose families migrated to the testing country just a couple of years before the age of potential tracking. Thus, while our findings show that tracking students early into different types of schools by ability does not substantially reduce relative achievement growth of all migrant children, it does so for those who are presumably less integrated into the country's society.

The key empirical challenge for such an investigation is to distinguish accidental correlation from causation. When investigating effects of a system-level variable, such as early educational tracking, empirical research is basically forced to exploit cross-country variation in educational policies for identification.³ However, simple cross-country identification strategies based on cross-sectional data rely on strong conditional independence assumptions, basically assuming away any differences in non-ignorable unobservable country traits. It is questionable whether any policy conclusions can be drawn from such evidence.

As first noted by Hanushek and Woessmann (2006), the availability of test score data by country before and after tracking allows estimating effects of early educational tracking in a differences-in-differences framework. Employing this framework and identifying the effect of early tracking based on a comparison of the evolution of migrant-native achievement gaps from primary to secondary school reveals no significant effects of early tracking. The results from commonly estimated cross-sectional models would, however, imply a substantial positive association between early educational tracking and the size of the migrant-native test score gap. In all three domains – math, science, and reading – migrant-native achievement gaps in secondary school are found to be between 20 – 30% of a standard deviation larger in countries that track students before the age of 15.

However, we show that a similar relationship already exists in primary school, a period during which no country has yet tracked students according to ability. This indicates more that the association between early tracking and the migrant-native achievement gap is driven by selective migration toward early tracking countries. Among the late tracking countries, there are the anglophone countries – United States, Australia, Canada, New Zealand, and United Kingdom – that have highly selective migration policies in place, whereas early tracking countries are mainly located in Europe – Germany, Austria, the Netherlands, Belgium, and Italy – and do not select migrants as strictly as the other countries do. Stricter immigration policies create

² Several studies document that early educational tracking between school types increases the effects of parental background on educational outcomes (e.g., Bauer & Riphahn, 2006; Kerr, Pekkarinen, & Uusitalo, 2013; Meghir & Palme, 2005; Pekkarinen, Uusitalo, & Kerr, 2009; Schneeweis & Zweimüller, 2014).

³ Questions regarding the school system could also be addressed by exploiting school reforms within countries. However, especially in the case of migration economics, results from a particular country with a particular migrant population are hard to generalize to other countries with other school systems and other migrant populations.

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