Economics of Education Review 63 (2018) 64–77

Contents lists available at ScienceDirect

Economics of Education Review

journal homepage: www.elsevier.com/locate/econedurev

Do migrant students affect local students' academic achievements in urban China?

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ARTICLE INFO

Keywords:
Migrant student
Local student
Peer effects
Academic achievement
China

JEL classification:
I21

ABSTRACT

We examine the educational spillover effects of migrant students on local students' academic achievement in public middle schools in urban China. The identification of peer effects relies on idiosyncratic variation in the proportion of migrant students across classes within schools. We find that the proportion of migrant students in each class has a small, and positive, effect on local students' test scores in Chinese, but has no significant effect on math and English test scores. We also find considerable evidence of heterogeneity in the effects of the proportion of students in the class on local students' test scores across subsamples. Local students toward the bottom of the achievement distribution, local students enrolled in small classes and local students enrolled in lower-ranked schools benefit most in terms of test scores from having a higher proportion of migrant students in their class. Our findings have important policy implications for the debate in China about the inclusion of migrant students in urban schools, and for the assignment of educational resources across schools.

1. Introduction

China has experienced unprecedented internal rural-urban migration, with an increasing number of migrant children moving to urban areas. Based on the 2010 census, more than 20 million rural-urban migrant children aged between 6 and 14 lived in urban areas (Zhang, 2017). In some economically developed regions, migrant students constitute a considerable, and growing, proportion of the share of school-aged children in urban schools, e.g. 46% in Shanghai municipality and 48% in Zhejiang province (Liu et al., 2015). Moreover, China's urban schools will be expected to accommodate increasing numbers of migrant children as internal migration and urbanization continues in the coming decades.

Migrant children differ from local children along several dimensions. Table A1 contains a summary of variables from the 2013 China Education Panel Survey (CEPS) – the dataset that we employ in this study – for which we control and Table A2 shows how these variables differ between migrant children and local children. Migrant children are disadvantaged with respect to local children along several dimensions. Statistically, migrant children are less healthy, receive lower standardized scores on cognitive testing and are more likely to be late for class than local children. Migrant children are statistically more likely to have found English to be difficult in grade six and to regard English and Math as being of less help than their local peers. The parents of migrant children have lower human capital and are less likely to be strict with respect to making them study for exams compared with the parents of local children. Migrant children differ from local children in other ways as well. Migrant children are often ostracised on the basis of their appearance and dialect (Chen, 2014; Wang et al., 2015). In one survey conducted in Guangzhou, one third of migrant children reported being teased by local children on the basis of how they communicated and looked. Studies have found that the prevalence of loneliness is higher among migrant children than local children (Hou et al., 2011).

This sharp increase in the number of migrant children in China's urban schools has sparked growing concern among policy makers and the parents of local students about the potential effects of this growth on learning outcomes of local students (Li and Placier, 2015). Specifically, the rapid influx of migrant children, and commensurate changes in class composition, has raised fears that migrant students will be detrimental to the learning and behaviour of local students, as the former are more likely to be socioeconomically and academically disadvantaged (Chen and Feng, 2013). However, recent research has started to question the popular perception that having more migrant students in Chinese urban schools has detrimental learning outcomes.

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https://doi.org/10.1016/j.econedurev.2018.01.007
Received 18 October 2017; Received in revised form 8 January 2018; Accepted 21 January 2018

Using data from the 2013 CEPS – the same dataset that we use – Zhao et al. (2017) find that *hukou* status is not a statistical predictor of academic performance in urban schools. These authors suggest that rural-urban migrant students may be highly motivated to achieve academic success because future admission to college is considered to be one of the most effective ways for realizing upward social mobility. Other studies, using other datasets, have reached similar conclusions. Based on data collected in Beijing in 2006-2007, Lu and Zhou (2012) concluded that the academic performance of migrant and local children in public schools was similar. Based on data from the China Family Panel Studies dataset, Xu and Xie (2015) found that migrant children were performing similar to local urban children in terms of educational performance in urban schools. Using a longitudinal dataset collected in Shanghai, Feng et al. (2017) did not find any significant within-school differences in academic achievements between local and migrant students in public schools. These authors also found that migrant students and migrant class shares did not have a significant negative effect on local students' academic achievements.

Other recent studies include Chen and Feng (2017), who compare migrant schools and public schools in Shanghai, and Wang et al. (2017a, 2017b) who compare academic performance between migrant children in urban migrant schools and rural students in rural public schools. These studies mainly focus on inter-school or inter-system (i.e. rural and urban school systems) comparisons between students in migrant schools and (rural) public schools in one city/region. This leave a significant gap for the present study to fill, which is the lack of evidence on class level peer effects in urban public schools within the same learning environment.

Table 1 presents data on the class head teachers' and school principals' assessment of the academic foundations of local and migrant students in Chinese, English and math, based on the 2013 CEPS. School principals believed that, in general, migrant students had similar academic foundations to local students in Chinese and math and that migrant students were slightly weaker in English. Class head teachers expressed the view that, in general, local and migrant students exhibited similar academic performance across the three subjects. The actual mean test results among local and migrant students in the 2013 CEPS data, which we discuss later in the paper, also support the views of school principals and head teachers. These conclusions are consistent with the findings in Lai et al. (2011) that migrant students enrolled in public schools are performing as well as local students enrolled in public schools in Beijing.

A large literature on peer effects has shown that educational outcomes are likely to be influenced by the achievement, and behavioural patterns, of peers in the classroom. For instance, inter-student interactions may affect the extent of knowledge spillover, class climate, the amount of effort that students expend on study, student's attitudes to learning and socialising behaviour and the teacher's pedagogical approach and effort in the classroom (Contini, 2013; Hill, 2017). However, relatively little is known about whether, and to what extent, migrant students affect the academic achievement of local students in urban China, despite the importance of this question for education policy and socioeconomic development.

Table 1
Assessment of local and migrant students by school principals and class head teachers, 2013 China Education Panel Survey.

	Mean	S.D.
Panel A: school principal		
Compared to local students, how were the academic foundations of migrant students when they entered your school?		
(scale: 1 = much worse; 2 = worse; 3 = similar; 4 = better; 5 = much better)		
Chinese	2.76	0.54
Math	2.78	0.59
English	2.39	0.79
Panel B: class head teacher		
Compared to local students, how are the academic foundations of migrant students? (scale: 1 = worse; 2 = similar; 3 = better)		
Chinese	2.02	0.45
Math	2.00	0.54
English	1.86	0.58

In this study, we use 2013 CEPS data to examine the impact of the proportion of migrant students in the classroom on the educational achievement of local students in middle schools in urban China. To be specific, we examine how the proportion of migrant students in the classroom effects the test scores of local students in Chinese, math and English. We also examine the heterogeneity of migrant peer effects across sub-groups of local students.

There are several challenges associated with the identification of peer effects, including selection, correlation, reflection and separation of endogenous and contextual effects (Manski, 1993; Mora and Oreopoulos, 2011). Selection refers to the endogenous sorting of students across schools and classes. For example, schools may track by ability or segregate low achievers, while parents may endogenously choose the schools to which they send their children. To circumvent this problem, we follow standard practice in the related literature (e.g. Hoxby, 2000; Ohinata and Van Ours, 2013; Schneeweis, 2015) and exploit within-school random variability observed in the share of migrant students across classes. This strategy assumes that changes in the migrant student class share within schools are not correlated with individuals' unobservable characteristics that may be relevant to the educational production process. An advantage of focusing on peer effects at the class level is that students are more likely to interact inside the classroom, and thus the effects are typically stronger than those at the grade or school level (Burke and Sass, 2013). We employ a range of approaches proposed by Ammermueller and Pischke (2009) and Ohinata and Van Ours (2013) to confirm the random formation of classrooms and assignment of educational resources. If there is random assignment across classes, school fixed-effect models provide consistent estimates of the causal effects of class composition (Contini, 2013).

The correlation problem refers to classmates behaving similarly because they are exposed to a common institutional environment, such as similar teacher quality or class environment that may influence students' attainment and behaviour. Failing to account for teacher effects may lead to overestimation of peer effects and even student fixed effects may not be sufficient to alleviate correlated effects bias (Burke and Sass, 2013). To account for common shocks, we control for class and head teachers' characteristics. The existing literature on peer effects in China finds that head teachers have more tools to manage students than do regular teachers and that they have a significant influence on peer effects (Feng and Li, 2016). Including teacher effects also allows us to control for the effects of "teacher shopping" by parents or schools.

The reflection problem occurs if the academic achievements of students and their peers are determined simultaneously, meaning that it is impossible to distinguish the actual causal effect of peers on an individual from the effect of the individual on his or her peers. Following the standard approach in the literature, to minimize the reflection problem, we use a pre-treatment indicator of peer quality – student-assessed difficulty in learning Chinese, English and math at grade six – as a robustness check. One potential concern with this approach is that using the lagged values of peer ability will not completely address the reflection problem if a student also affects his/her peers in a previous period. However, Carman and Zhang (2012) demonstrate that in China there are usually a number of primary schools and high schools in each district. Primary schools randomly assign their students to high schools within the same district. It is reasonable to assume that there is a considerable amount of reshuffling which minimizes overlap between primary and high school classmates. Moreover, we generate student-subject panel data and use student fixed effects to capture all observed and unobserved subject-invariant student, family and classroom characteristics and other common shocks (Fruehwirth, 2014).