

# Migration and human capital accumulation in China

## Migration may generate detrimental long-term impacts by widening the urban–rural educational gap

Keywords: migration, human capital, China

### ELEVATOR PITCH

The difference in educational attainment between China's urban- and rural-born populations has widened in recent years, and the relatively low educational attainment of the rural-born is a significant obstacle to raising labor productivity. Rural-to-urban migration does not create incentives to enroll in higher education as the availability of low-skill employment in urban areas makes remaining in school less attractive. In addition, the child-fostering and urban schooling arrangements for children of migrants further inhibit human capital accumulation.

### KEY FINDINGS

#### Pros

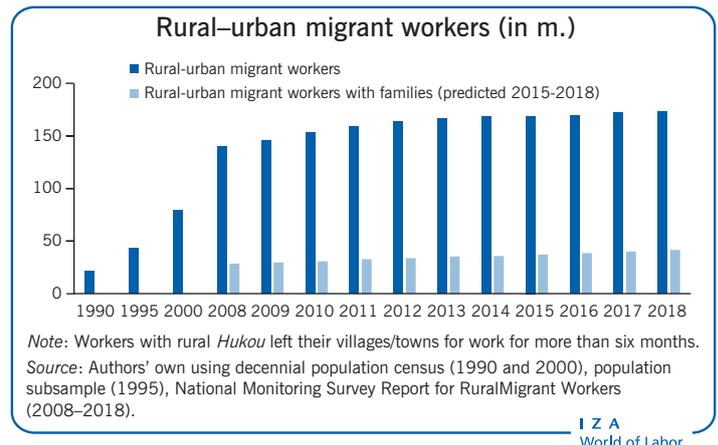
- ⊕ High returns to middle school education incentivize completion of compulsory education among rural youth.
- ⊕ Remittances from migrants improve health outcomes among children left behind.
- ⊕ If fees charged to migrant children in urban schools are subsidized, parents will bring children to urban areas.
- ⊕ Migrant children who enroll in urban public schools tend to perform better than those in migrant-operated schools.
- ⊕ Reducing the salience of migrant status may improve school performance of migrant children.

#### Cons

- ⊖ Availability of low-skilled wage employment in urban areas creates a disincentive for rural high school enrollment.
- ⊖ Providing information on the returns to education is not sufficient to induce rural children to enroll in high school.
- ⊖ Parent absence slows down the cognitive and socioemotional development of children left behind.
- ⊖ Lack of access to public schools in urban areas means that migrant children are often enrolled in migrant schools with lower quality education.
- ⊖ Maintaining separate migrant schools is unlikely to bridge performance gaps between migrant and local children.

### AUTHOR'S MAIN MESSAGE

To mitigate the potential long-term negative impacts of migration on human capital accumulation, policymakers should focus on the incentives provided to families with school-age potential migrants and to current migrants who have younger children. As China continues a process of phasing out the residential registration (*Hukou*) system, it will be important to expand the capacity of public schools to accommodate migrant students and to further work on improving the academic performance of rural-born children in urban areas.



## MOTIVATION

The large-scale movement of rural migrants to urban China is one of the more notable features of China's development process over the last 30 years. Shaping both decisions to migrate and invest in education is China's residential registration, or *Hukou*, system, initially declared in 1951 and strengthened after population movements related to China's famine in the early 1960s. A person's *Hukou* is attached to a geographic location and defined as agricultural (rural) or non-agricultural (urban). Through the 1980s, it was difficult to live outside a legal place of residence for long durations without formally changing one's residential registration to non-agricultural status, with the three most common means of doing so involving: demobilization after service in the military, recruitment for a position in a tier 1 state-owned enterprise (SOE), or scoring high enough on college entrance examinations to enroll in an institution of higher learning.

As migration to urban areas became easier during the 1990s and early 2000s, a natural question arose as to whether the opportunity to move for work would facilitate increased investment in education. In much of the international migration literature, there is an expectation that migration brings a relaxation of credit constraints and/or that increases in the perceived returns to education lead to more investment in education among potential migrants. Evidence from both rural household panel data and census data, however, suggests an alternative: the opportunity cost, or the perceived reduction in lifetime earnings by delaying entry into the labor force, of continuing to higher levels of education creates disincentives to remain in school when middle school education is enough to find paid non-agricultural employment. This article first discusses evidence from early in China's migration history of how network effects influenced the perceived opportunity costs of remaining in school when migration for work became an option, and then examines evidence on opportunity costs derived from a legal change in the *Hukou* system.

While guest worker permits allowed rural-born residents to work in cities, they did not confer rights to the full range of benefits enjoyed by urban residents. With respect to human capital investment decisions, the most important among these rights not fully conferred on guest workers was subsidized access to quality education in urban schools. Therefore, migrants, or potential migrants, who married and had one or more children faced difficult choices: leave their children behind under the care of other family members and enroll them in rural schools, bring their children with them to urban areas and face limited availability in urban public schools, or place their children in migrant schools. This decision has had potentially significant consequences for the next generation of migrant offspring, estimated by a 2018 UNICEF report to amount to over 100 million children.

## DISCUSSION OF PROS AND CONS

### Migration, information, and the opportunity cost of schooling

In the international migration literature, the relaxation of credit constraints associated with remittances from migration are found to facilitate investments in education [1]. In China, the segmentation of the urban labor market, often as a matter of policy, led to fewer high-skill employment opportunities for migrants [2]. While migrants could not expect work in higher-skill occupations, an increase in demand for less-skilled labor during the 1990s likely increased the opportunity cost of remaining in school for any potential migrants [3].

Determining how migrant opportunities influence the educational investment decisions of potential migrants, or other household decisions, brings up some well-known methodological concerns. Most importantly, both out-migration from a village (sometimes interpreted as increased ability to migrate) and exit from school may be driven by a shock to the local village economy. Negative shocks might include sustained drought, closure of local enterprises, or other factors reducing local labor demand. Using observational data, there are two approaches that researchers have used to identify effects of migrant work opportunities: (i) exploit institutional changes that may facilitate migration but not reflect conditions in the local economy; or (ii) match villages to data on labor demand in cities where migrants are likely to look for work.

A first approach exploits the timing of the availability of national identification (ID) from the late 1980s through the 1990s. The ability to migrate for work is dependent on the size of established networks of prior migrants from a village, and network size is associated with the timing of national ID card distribution [3]. The number of years since IDs were distributed has a positive, nonlinear relationship with the size of the network of migrants working for longer periods in cities, and thus also the quality of information and job referral for new migrants. While the timing of ID distribution was not random, it is unrelated to shocks experienced in the local economy and, after controlling for village location and time-varying factors, the timing of ID distribution and the consequent growth of village migrant networks is unrelated to other conceivable factors that might be driving migration [3].

With the growth of migrant networks, the lower cost of finding work is associated with a considerable decline in the probability of enrolling in high school for migrants, which requires costly tuition payments and is not necessary to secure low-skill employment in urban areas. A 1 percentage point increase in the share of working-age village residents (aged 16–60) is associated with a 2.4 percentage point decrease in the probability that a middle school graduate will enroll in high school in the following year [3]. While this may at first seem to be a large effect, migrants are concentrated among younger registered residents, and thus an increase in migration from a village has a disproportionate effect on the decisions of the young.

The opportunity costs of remaining in school may also be understood by examining how the change of a law regarding children's ability to inherit urban *Hukou* status influences the decision to invest in education [4]. Specifically, a change to the *Hukou* inheritance law in September 1998 allowed children to inherit *Hukou* status from either their father or mother, while previously, individuals inherited this status from their mother only. In addition, individuals under the age of 18 in September 1998 were able to transfer *Hukou* status inherited from their mother to that inherited from their father. This means that an individual under the age of 18 who was the child of an urban father and a rural mother would have inherited rural (agricultural) *Hukou* but was now allowed to switch to urban (non-agricultural) *Hukou*.

As one motivation for studying among the rural population is to gain access to a legal urban *Hukou*, the opportunity cost of staying in school will increase for those now able to claim urban residence. By comparing the high school attendance of individuals born before and after September 1980, one study finds that those who benefited from the reform were between 8.8 and 16.7 percentage points less likely to enroll in high school [4]. This is quite a significant effect and suggests that the opportunity cost of schooling

rises among lower ability students if educational investment is no longer associated with the ability to move to an urban area.

Exploiting the change in eligibility to transfer *Hukou* status under the reform has the benefit of being credibly unrelated to the prior decisions of the individuals affected. That said, this finding is relevant for a relatively small share of the population previously registered as rural. While, historically, nearly 20% of urban registered men might marry women from rural areas, gauging the relevance for rural high school enrollment requires understanding the share of children from these marriages among the rural population. As these individuals gain urban residential registration, they are no longer considered to be rural migrants in the main data sources used to document migrant flows in China.

Another strand of research directly examines the role that lack of information about the returns to schooling or career planning skills may have on the educational decisions of students. To this end, a randomized information and counseling intervention study was performed in 131 junior high schools and among more than 12,000 students in poor rural areas of Northwest China [5]. The authors find that providing information on the returns to education had little impact on student dropout, academic achievement, or plans to enroll in high school. Paradoxically, those respondents who received career counseling had higher dropout rates and lower academic achievement. Presumably, middle school students receiving counseling in these poor areas may have gained a better sense of the financial constraints they would face in continuing their studies, and an appreciation of the opportunity costs of additional time in school. This likely included a sense of the relatively low level of additional education that would be required to leave home for work as migrants. One limitation of this study is that it was performed only in poor areas, where the quality of schools and teachers is generally thought to be low. With access to higher quality schools and a better educational environment, information and counseling may have had different impacts.

### **Children left behind and urban school fees**

During the earlier migration period, spanning the 1990s and early 2000s, few children grew up with absent migrant parents or had parents who may have considered bringing them along to cities. By the mid-2000s this was changing quickly, and a new strand of research started to examine the effects of migration on children left behind. Bringing children to cities as infants and toddlers involves the additional costs of childcare, and a parent or grandparents remaining in the countryside are often viewed as an inexpensive alternative for childcare. Once children are of school age, school fees (both explicit and implicit) charged by urban schools may influence the decision to bring along school-age children.

Despite repeated policy reforms aimed at treating migrant children equally, public urban schools in China continue to impose higher fees on migrant children, often with local government approval. This occurs because education finance is highly decentralized, and subnational governments of migrant-receiving areas lack motivation (and resources) to finance the education of migrant children. The Rural-Urban Migration in China (RUMiC) data indicate that school fees as a share of a migrant household's consumption in 2007 varied across cities and ranged from 4% in Hangzhou to 25% in Shenzhen, and represented, on average, 10% of migrant household expenditures. Even though China

formally abolished tuition for compulsory education starting in late 2008, migrant households are still required to pay various school-related fees. Estimates using the China Family Panel Studies (CFPS) 2012 survey show that rural residents in urban areas incurred a range of school-related expenditures four years after the official abolition of school fees.

To examine how school-related fees affect the likelihood that a child migrates to the city with a parent, a recent study uses unexpected changes to city public education budgets to establish a causal relationship between school fees and the decision to bring children to the city [6]. The empirical results suggest that a 10% increase in city-level median school fees, which is about 1% of annual migrant household consumption, results in a reduction of 2–5 percentage points in the probability that a child (or children) accompanies a migrant worker. Moreover, vulnerable migrant households are more affected: the poor, the uninsured, and those without permanent labor contracts are more sensitive to school fee changes when deciding whether to bring children to the city.

When left behind, there are two channels through which parental migration may affect the health and educational outcomes of children: (i) a remittance channel leads to increases in income that may have positive impacts; (ii) a psychological channel, in which the absence of parents may have negative effects.

The importance of additional income for the physical health of children is highlighted in a study using the China Health and Nutrition Survey (CHNS) to show that parental migration is associated with improved weight-for-age of children and is not associated with loss of nutrition at young ages [7]. Further, the authors provide suggestive evidence of the effects from an income channel: migrant households are more likely to have access to running water.

While physical health may improve, absence of parents may have negative consequences for both early childhood development and the academic performance of school-age children. A study exploiting a random sample of 1,442 toddlers, aged 18–30 months, from poor rural counties of Shaanxi province, finds that poor parenting of children—for example, not reading to, singing with, or engaging in stimulating play with children—is associated with a score on the Bayley Scales of Infant Development (BSID) more than one standard deviation below the mean [8]. Further, lack of awareness of modern parenting practices is associated with the absence of parents, though it is important to keep in mind that migration of parents may not have a causal effect on poor parenting; socioeconomic factors associated with poor parenting may also be driving migration decisions.

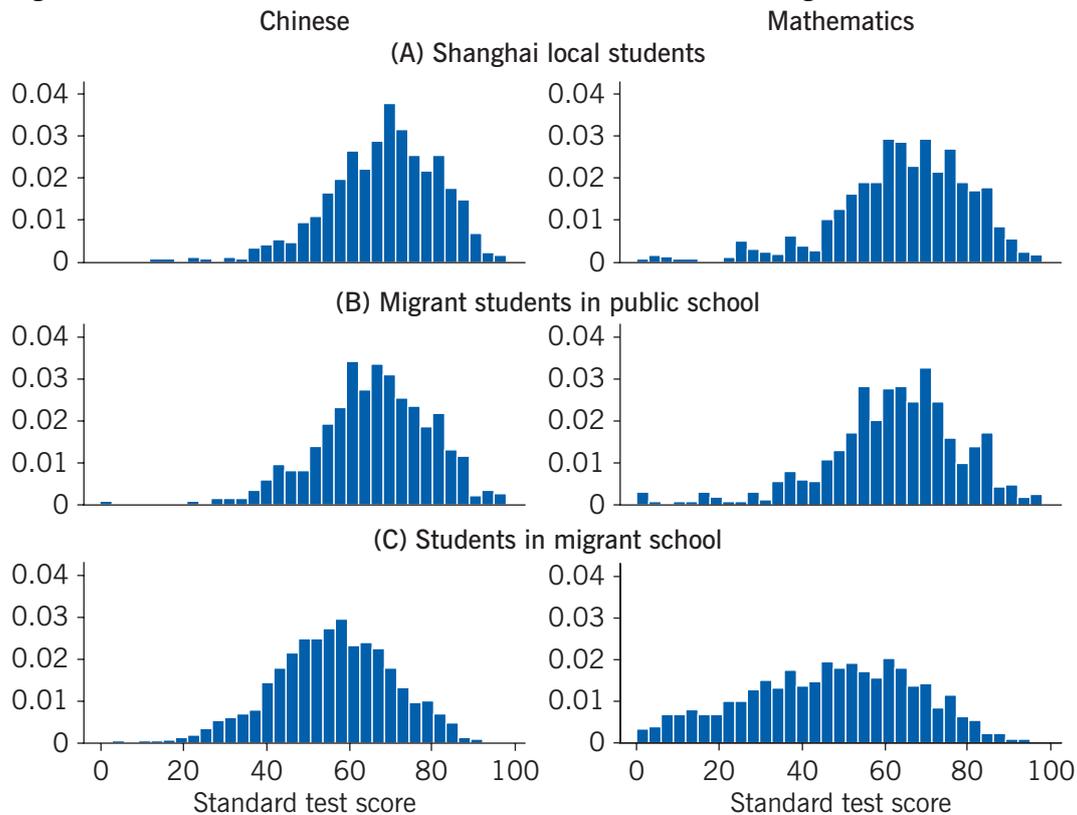
The absence of parents may lead to additional problems during high school. Making use of an interesting feature of the RUMiC survey—information on the amount of time that each parent has spent away from the village—a 2017 study examines how the absence of parents affects performance in school [9]. The authors show that parental migration is associated with higher dropout rates, delayed school progression, and the presence of psychological problems. Differing from much research in this area, the authors establish causality under plausible assumptions, and further, by knowing the duration of past migration spells as opposed to incidence, the authors demonstrate that earlier estimates of the effects of parent migration are likely to underestimate the impacts of parental absence on children's educational and psychological well-being.

## The education of migrant children in urban areas

Shaped by features of *Hukou* policy, the migration of children with their parents to urban areas does not necessarily improve learning outcomes. Both the complexities of school selection and enrollment in urban areas and the treatment of migrants within urban public schools affect children's learning outcomes. As places in urban public schools are limited, available space is typically rationed by means of school-related fees to anyone without a local *Hukou*, leading many migrant adults to turn to lower-cost, privately operated migrant schools for their children's education. These migrant schools appear to fill a market niche but face substantial institutional barriers to offering services comparable to those of local public urban schools. Migrant schools, for example, receive few public transfers, teachers receive less pay and training and may not have a background in education, and the schools often have a vague legal status.

Several observers have highlighted the relatively low quality of migrant schools as a means of educating migrant children. One study uses data collected in Shanghai, including information from standardized tests, to study the educational outcomes associated with attending migrant schools [10]. After controlling for student and family background characteristics, and exploiting a policy change in Shanghai to overcome biases associated with non-random selection into public and migrant schools, the authors find that migrant students who enroll in migrant schools perform significantly worse than their public school counterparts in both Chinese and mathematics examinations (Figure 1).

Figure 1. Distribution of standardized scores of local students and migrant students



Source: Chen, Y., and S. Feng. "Access to public schools and the education of migrant children in China." *China Economic Review* 26 (2013): 75–88 [10].

The first column of Figure 1 compares the distribution of Chinese language test scores for local students in local public schools, migrants in local public schools, and migrants in migrant schools, respectively. The comparisons of mathematics scores in the second column show a similar pattern: migrant children in local public schools have test scores only modestly below those of local students in these schools, while the distribution of scores for children in migrant schools lies well below those of both migrant and local children in local public schools. Further, overall parental satisfaction and subjective assessments of school quality reinforce evidence from test scores suggesting that migrant schools perform less well than public urban schools.

As migrant performance in regular urban public schools may be higher, an obvious alternative to supporting separate schools for migrant children would be to expand the capacity of public schools. Even when enrolling migrants in local public schools, however, one might caution that the labeling of children as migrants, as under the *Hukou* system, may reinforce feelings of exclusion and contribute to lower effort and poorer performance relative to local urban children [11]. Demonstrating this, a 2015 study exploits a field experiment to show that making *Hukou* status prominent leads migrant children to perform less well on cognitive tasks [11]. Eliminating *Hukou* classifications with a reform of the residential registration system, and reducing potential salience of migrant status, may thus facilitate the improved performance of migrant children in urban public schools.

## LIMITATIONS AND GAPS

Several limitations suggest caution when relying on existing research to develop policy, including: (i) available studies draw on data from different periods over the course of China's economic reform; (ii) several studies make use of data from small subpopulations of rural-born youth and their families; (iii) causal relationships are not always established.

Research identifying the effects of information through networks of low-skill migrants [3] or incentives created by the *Hukou* system [4], respectively, highlight the role that the opportunity costs of remaining in school may have on education investment decisions. That said, both of these studies are focused on educational investment decisions made between roughly 1995 and 2002, and it could be questioned whether the high opportunity cost of high school is still an important issue for policymakers. Discussions of policy-oriented researchers, however, suggest that this is still relevant. For instance, in the wake of the global financial crisis, an economic-stimulus-fueled boom in construction after 2013 led policymakers to worry that high wages for relatively low-skilled construction workers may be creating disincentives for rural-born youth to complete middle and high school [12].

Other research highlights important correlations and potential areas for attention, but the narrow geographic focus may raise concerns that results are not generalizable. Excellent research focusing primarily on the effects of scholarships or information in the poor areas of one or two provinces may lack external validity when considering decisions in better-off provinces. Further, research examining migrant school quality in Shanghai or the scarring effect of being labeled a "migrant" in urban Beijing schools both raise important issues for policymakers, but evidence is drawn from very specific institutional and social environments which are unlikely to be nationally representative. While these

raise important concerns for policymakers, policy design would best proceed with additional pilots and data collection over a wider range of institutional environments.

## SUMMARY AND POLICY ADVICE

Observations from both the research and policy community have emphasized that raising the skill of China's workforce to meet future human capital needs may be best accomplished by improving human capital investment in China's rural-born population. This will involve a multi-pronged approach.

First, full subsidy of high school costs, including room and board in dormitories, potential access to tertiary scholarships, and information on careers may jointly help to counter incentives for rural-born children to exit the education system at young ages. Second, efforts should be made to expand capacity of urban public high schools to admit rural children who have accompanied their parents. This will facilitate keeping children with their parents with attendant benefits for child development.

Educating migrant children at separate schools is likely to be a less effective option over the longer term than removing the "migrant" label carried by rural-born children. Elimination of residential registration, or *Hukou*, distinctions along with expanding capacity of urban public schools will offer the best approach to improving educational outcomes of children who accompany parents to urban areas.

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## Competing interests

The IZA World of Labor project is committed to the IZA Code of Conduct. The authors declare to have observed the principles outlined in the code.

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